

# Kittitas County CESP Draft EIS

## Volume II

## Affected Environment

**November 2026**



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FROM THE CASCADES... TO THE COLUMBIA
KITTITAS COUNTY

FUNDED BY WASHINGTON'S CLIMATE COMMITMENT ACT

# Volume II Overview

The Kittitas County Clean Energy Siting and Permitting (CESP) Environmental Impact Statement (EIS) is organized into two volumes.

**Volume I** provides project background, describes the proposed action and alternatives, summarizes the methodology used in the study, and presents the countywide suitability analyses for the energy technologies evaluated.

**Volume II** provides environmental analysis for the CESP Project. Building upon the alternatives and suitability analyses presented in Volume I, this volume describes existing environmental conditions and evaluates the potential for significant adverse impacts associated with future energy development. The analysis focuses on the environmental elements identified under SEPA through the scoping process and assesses how the selected alternatives could potentially affect environmental resources across the natural, social, and built conditions in Kittitas County.

The environmental analysis presented in Volume II is programmatic in nature and evaluates impacts at a countywide planning level. The conclusions are intended to inform future planning, policy development, and project-level review. Future energy developments are still subject to project-level environmental review as part of the local government or statewide energy permitting processes.

**For more information on the alternatives, energy facilities under evaluation, or EIS process, please see Volume I of the CESP EIS.**

**Appendix Items can be found under Volume III.**

*The Clean Energy Siting and Permitting CESP-CLEANENERGY25 RFA is supported with funding from Washington's Climate Commitment Act. The CCA supports Washington's climate action efforts by putting cap-and-invest dollars to work reducing climate pollution, creating jobs, and improving public health. Information about the CCA is available at www.climate.wa.gov.*

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**See Volume III for Appendices**

# Acronyms and Abbreviations

| Acronym | Definition |
|---|---|
| ANSI | American National Standards Institute |
| BESS | Battery Energy Storage System |
| BLM | Bureau of Land Management |
| BPA | Bonneville Power Administration |
| CAA | Clean Air Act |
| CAO | Critical Areas Ordinance |
| CCA | Climate Commitment Act |
| CESP | Clean Energy Siting and Permitting |
| CFR | Code of Federal Regulations |
| CIP | Capital Improvement Plan |
| CITC | Construction Industry Training Council |
| CWA | Clean Water Act |
| CWU | Central Washington University |
| DAHP | Washington State Department of Archaeology and Historic Preservation |
| DEIS | Draft Environmental Impact Statement |
| DNR | Washington State Department of Natural Resources |
| DoD | U.S. Department of Defense |
| ECY | Washington State Department of Ecology |
| EFSEC | Washington State Energy Facility Site Evaluation Council |
| EHD | Environmental Health Disparities |
| EIS | Environmental Impact Statement |
| EJ | Environmental Justice |
| EPA | Environmental Protection Agency |
| ESS | Energy Storage System |
| FAA | Federal Aviation Administration |
| FEIS | Final Environmental Impact Statement |
| FERC | Federal Energy Regulatory Commission |
| GEO | Governor's Executive Order |
| GHG | Greenhouse Gas |
| GIS | Geographic Information System |
| GMA | Growth Management Act |
| HEAL | Healthy Environment for All Act |
| HMTA | Hazardous Materials Transportation Act |
| KCC | Kittitas County Code |
| KCCD | Kittitas County Conservation District |

| Acronym | Definition |
|---|---|
| LAMIRD | Limited Area of More Intensive Rural Development |
| MFI | Median Family Income |
| MPR | Master Planned Resort |
| MTCA | Model Toxics Control Act |
| NFPA | National Fire Protection Association |
| NRC | Nuclear Regulatory Commission |
| OFM | Office of Financial Management |
| OZ | Opportunity Zone |
| PEIS | Programmatic Environmental Impact Statement |
| PM 2.5 | Fine particulate matter measuring 2.5 micrometers or smaller |
| PUD | Planned Unit Development |
| PUD | Public Utility District |
| RCW | Revised Code of Washington |
| SCA | Site Certification Agreement |
| SEPA | State Environmental Policy Act |
| SMR | Small Modular Reactor |
| SMP | Shoreline Master Program |
| SPPF | Solar Power Production Facilities |
| UGA | Urban Growth Area |
| UL | Underwriters Laboratories |
| USDA | United States Department of Agriculture |
| USFS | United States Forest Service |
| VSP | Voluntary Stewardship Program |
| WAC | Washington Administrative Code |
| WDFW | Washington Department of Fish and Wildlife |
| WSU | Washington State University |
| YTC | Yakima Training Center |

# 1 Biological Resources

## 1.1 Overview

This Biological Resources section reviews the existing conditions, alternatives impact analysis, and mitigation measures including regulatory frameworks, siting and design recommendations, and other potential measures within Kittitas County.

A range of federal, state, and local policies, regulatory requirements, and agency guidance address potential impacts on species and their associated habitats. These provisions inform project siting and design and identify mitigation measures to reduce potential significant impacts. At the local level, biological resources are protected through designated critical areas regulated under Kittitas County Code (KCC) Title 17A, Critical Areas and the Shoreline Master Program, where state regulated shorelines may be present within the county. Potentially applicable federal, state, and local regulations are identified in Appendix A.

The biological resources analyzed in this section include:

- Terrestrial Species and Habitats
- Vegetation communities and land cover
- Migratory birds and raptors
- Big game and wildlife movement
- Wetlands, streams, riparian corridors, and aquatic resources

Impacts would be considered significant if they result in:

- Substantial interference with the movement, nesting, breeding, foraging, or long-term viability of federal or state listed species, migratory birds, raptors, big game, or other native wildlife.
- Substantial reduction of the quantity or quality of priority habitats, wetlands, streams, riparian areas, or other aquatic resources protected under applicable federal, state, or local regulations.

## 1.2 Existing Conditions

### 1.2.1 Regional Setting

Kittitas County is in central Washington and spans a transition from the forested Cascade Range and Eastern Cascades slopes to the drier shrubsteppe, grassland, agricultural, riparian, wetland, and aquatic habitats of the Columbia Plateau. This ecological gradient results in a wide range of biological resources, including:

- Conifer forests and montane habitats in higher elevations;
- Shrubsteppe, grassland, and agricultural lands in lower and drier portions of the county; and
- Streams, wetlands, riparian corridors, and floodplain habitats associated with the Yakima River system and its tributaries.

Biological resources in the region include native vegetation communities, fish and wildlife habitat conservation areas, wetlands and waters, riparian corridors, habitat for federally and state listed species, migratory bird and raptor use areas, and big game movement areas. The presence, extent, and functional value of these resources would be confirmed through desktop review, agency database review, field reconnaissance, and any site-specific wetland, stream, habitat, or species surveys on a project-level for future energy facilities.

*Table 1: Biological Resources Screening*

| Biological Resource | Occurrence in Kittitas County | Information Needed |
|---|---|---|
| **Shrubsteppe and grassland** | Lower elevation, drier portions of the county, including Columbia Plateau areas. | Land cover mapping, field verification, and habitat quality assessment. |
| **Forest and montane habitat** | Cascade Range, Eastern Cascades slopes, foothills, and higher-elevation areas. | Vegetation mapping, clearing limits, and reviewing sensitive habitat features. |
| **Wetlands and aquatic resources** | Yakima River system, tributaries, floodplains, drainage, and low-lying areas. | Wetland delineation, stream assessment, wetland rating, and buffer review. |
| **Riparian corridors** | Along rivers, streams, drainage, and floodplain areas. | Local critical areas review, riparian management zone or buffer mapping, and field verification. |
| **Fish and wildlife habitat conservation areas** | Priority habitats, wildlife movement corridors, nesting or breeding areas, wetlands, streams, and other habitat features. | Agency database review, habitat assessment, and site reconnaissance. |
| **Special-status species habitat** | Habitat specific areas such as shrubsteppe, wetlands, riparian corridors, forests, cliffs or talus, and aquatic systems. | Species occurrence review, habitat suitability assessment, and surveys if warranted. |
| **Migratory birds and raptors** | Open grasslands, shrubsteppe, agricultural fields, riparian corridors, wetlands, trees, cliffs, and transmission structures. | Nest surveys, seasonal timing review, and raptor or eagle assessment if warranted. |
| **Big game and wildlife movement** | Undeveloped habitat blocks, foothill transition areas, drainages, riparian corridors, and open space connections. | Wildlife movement corridor review, fencing and layout analysis, and coordination with applicable agency data. |

*Source: Kimley-Horn, 2026*

### 1.2.2 Terrestrial Habitats and Species

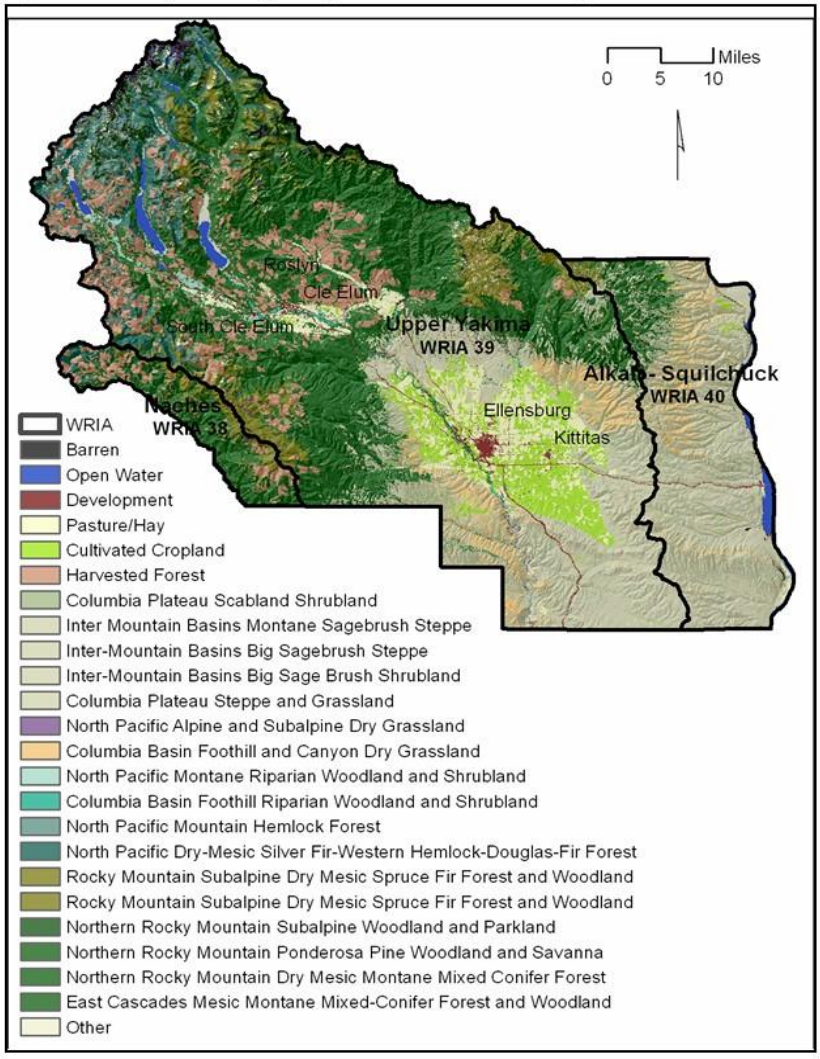
Four different ecoregions are found within Kittitas County:

- **Cascades:** Mountainous terrain with high precipitation, coniferous forest, volcanoes, headwater streams, wetlands, and montane wildlife habitat.
- **Eastern Cascades Slopes and Foothills:** A transition area with dry conifer forests, ponderosa pine woodlands, grasslands, shrublands, foothill habitats, and susceptibility to wildfires.
- **Columbia Plateau:** Arid sagebrush steppe, grasslands, and agricultural lands.
- **North Cascades:** High elevation terrain with active alpine glaciers and diverse forest types.

These ecoregions support different habitat functions and species groups. Forested and montane areas may support forest-dependent wildlife and cold headwater systems. Shrubsteppe and grassland areas may support ground-nesting birds, raptors, small mammals, reptiles, pollinators, and big game. Riparian corridors, wetlands, and floodplains provide water, cover, nesting habitat, and connections across the landscape.

*Figure 1: Major Ecosystems in Kittitas County*

**Figure 2-13. Major ecological systems in Kittitas County.**



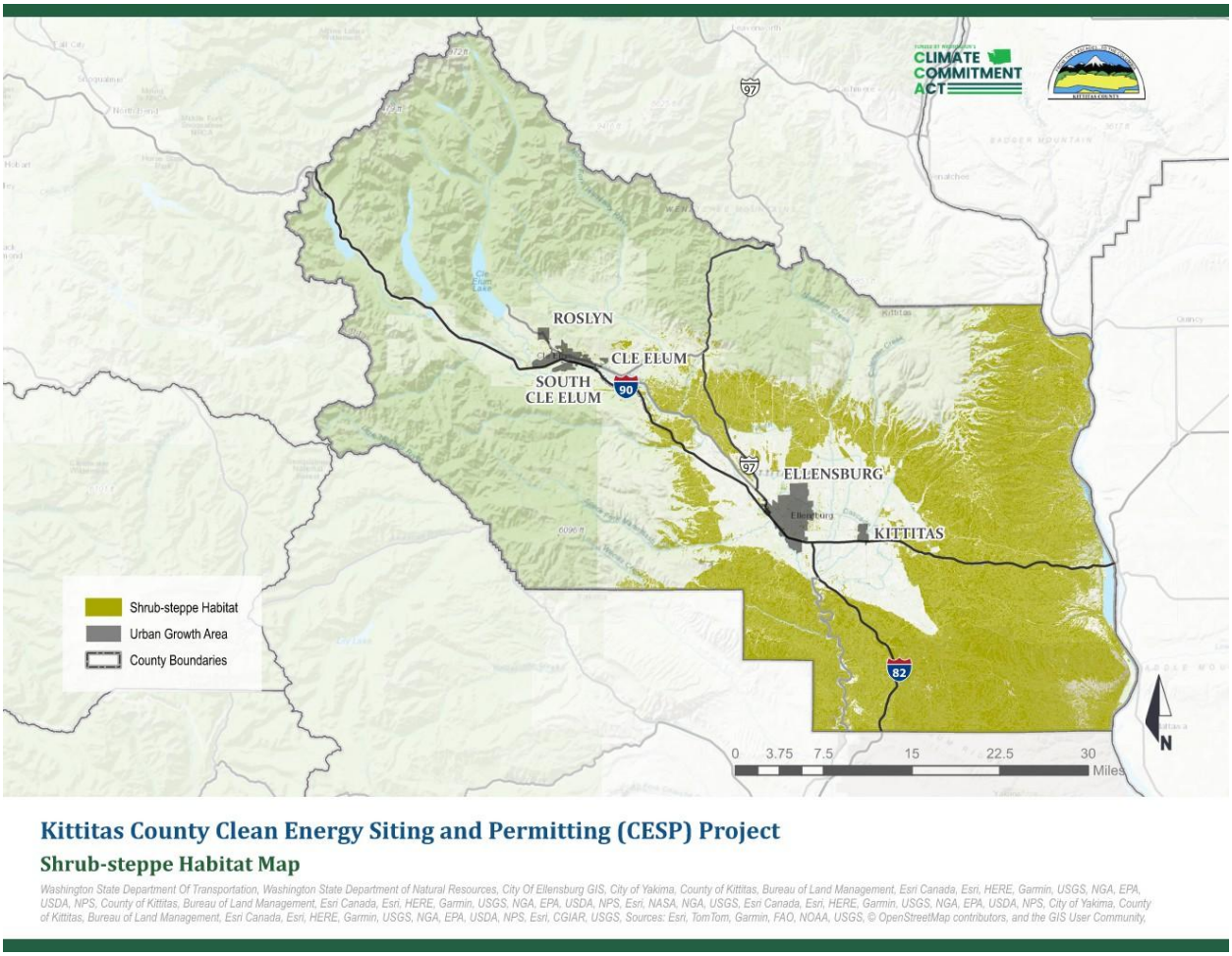

*Source: Kittitas County, Figure 2-13 Major Ecological systems in Kittitas County Ecosystem Profile, 2013, https://www.co.kittitas.wa.us/uploads/documents/cds/smp/reports/Chapter%202.%20Ecosystem%20Profile.pdf*

### 1.2.2.1 Shrubsteppe Habitat

Shrubsteppe is an arid ecosystem comprised of rolling, grassy plains, with sagebrush and other woody shrubs. The ecosystem provides habitat for species such as the greater sage-grouse, sagebrush sparrow, and burrowing owl. The Washington Shrubsteppe Restoration and Resiliency Initiative (WSRRI) works to protect native biodiversity and increase the resilience of shrubsteppe landscapes across the Columbia Plateau, including resilience to wildland fires.[1] The current shrubsteppe habitat in Kittitas County, as mapped by Washington State Department of Fish and Wildlife (WDFW), is found below.

[1] Washington State Department of Fish and Wildlife, Washington Shrubsteppe Restoration and Resiliency Initiative, 2026, https://wdfw.wa.gov/species-habitats/habitat-recovery/shrubsteppe

*Figure 2: Shrubsteppe Habitat in Kittitas County*




*Source: Kimley-Horn, 2026 using data from WDFW Priority Habitats and Species Downloads, https://fortress.wa.gov/dfw/public/PublicDownload/Habitat/PHSShrubsteppeData/*

The condition of shrubsteppe and native grasslands varies with past and present land uses and disturbances, including grazing, cultivation, roads, utilities, wildfire, invasive species, and restoration. Contiguous native communities generally retain greater habitat continuity and ecological function, while areas that have been converted or previously disturbed may provide lower quality habitat depending on site-specific conditions.

Shrubsteppe and grassland areas are relevant to energy facility siting because large contiguous areas can provide habitat continuity, forage, cover, and movement opportunities for wildlife, while previously disturbed or actively cultivated areas may provide lower quality habitat depending on site conditions. Project-level baseline documentation should distinguish native, altered, cultivated, and developed cover types and describe their condition and landscape context.

## 1.2.3 Wildlife Migration

### 1.2.3.1 Migratory Birds and Raptors

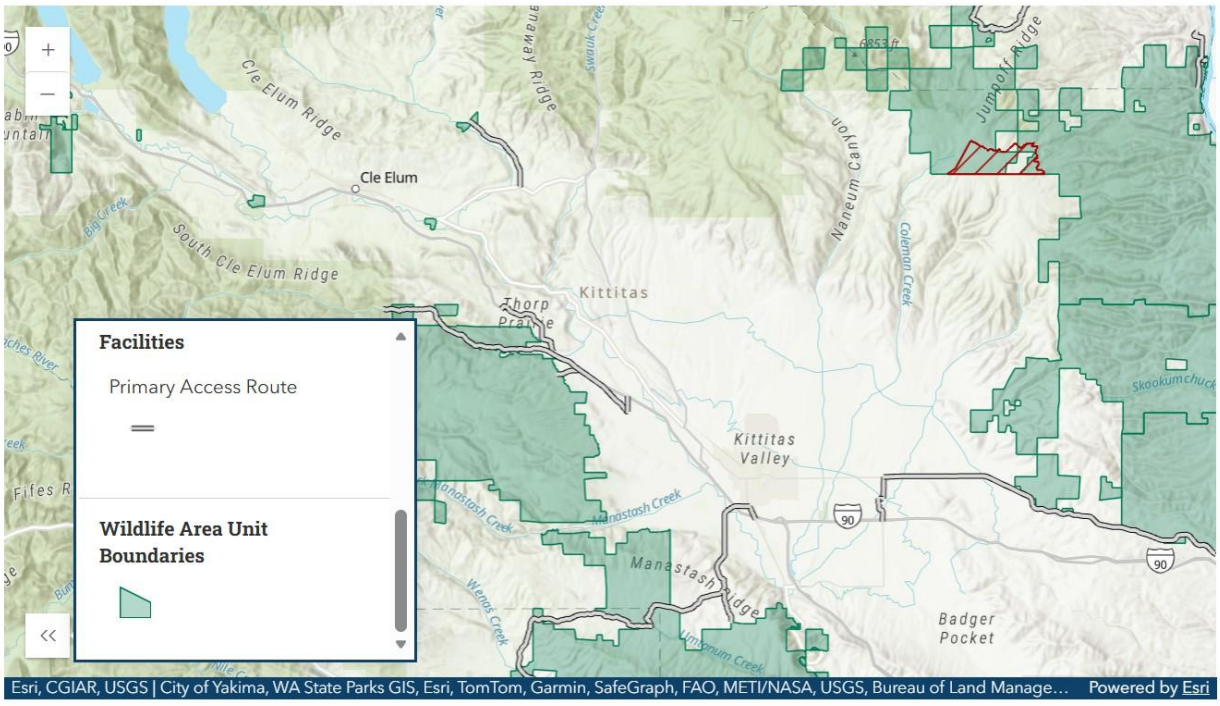
Kittitas County is part of the Pacific Flyway, a major north-south migratory bird route in North America. Migratory birds and raptors may use shrubsteppe, grassland, agricultural fields, riparian corridors, wetlands, trees, cliffs, transmission structures, and other natural or human-made features for nesting, foraging, roosting, and seasonal movement. Raptors and eagles are of particular concern where suitable nesting substrates, prey

resources, and open foraging habitats occur. The primary considerations include the location of nesting or roosting features, the availability of open foraging habitat, the presence of riparian corridors or wetlands that concentrate bird use, and the potential for seasonal use patterns to overlap with construction or operational disturbance.

### 1.2.3.2 Big Game and Wildlife Movement

Ungulate migration corridors in the county span the North Cascades, Eastern Cascades Slopes and Foothills, Cascades, and Columbia Plateau. Species using these corridors may include elk, moose, deer, bighorn sheep, mountain goats, and pronghorn antelope. Seasonal movement between summer and winter ranges is common for many ungulate herds. Big game species and other wildlife may use the study area for seasonal foraging, cover, dispersal, or movement between habitat areas. Movement patterns may be influenced by topography, drainage corridors, vegetation cover, fencing, roads, development, and the availability of connected open space. The WDFW manages big game through Game Management Units (GMUs). Where applicable, WDFW mapping and field reconnaissance should be used to identify migration corridors, winter range, concentration areas, or other movement features. The L.T. Murray Wildlife Area Unit is located approximately 15 miles west of Ellensburg in Kittitas County. The L.T. Murray Wildlife area is comprised of conifer forest and shrubsteppe with riparian corridors and is managed to protect critical winter range for deer and elk.[2]

*Figure 3: L.T. Murray Wildlife Area Unit*




*Source: Washington Department of Fish and Wildlife, L.T. Murray Wildlife Area, n.d., https://wdfw.wa.gov/places-to-go/wildlife-areas/lt-murray-wildlife-area*

[2] *Washington Department of Fish and Wildlife*, L.T. Murray Wildlife Area, n.d., https://wdfw.wa.gov/places-to-go/wildlife-areas/lt-murray-wildlife-area

In Kittitas County, wildlife movement considerations are expected to be most important where proposed energy facilities would intersect relatively undeveloped shrubsteppe, riparian corridors, foothill transition areas, or known seasonal range and migration pathways.

### 1.2.3.3 Wildlife Corridors

The Washington Habitat Connectivity Action Plan (WAHCAP) identifies areas of varying landscape connectivity across Kittitas County and the surrounding region. Higher wildlife connectivity values generally occur in rural and mountainous areas, while lower values are associated primarily with developed valleys and population centers. Landscapes with statewide and regional connectivity occur throughout portions of the county as detailed in the plan.[3]

WAHCAP also identifies transportation priority zones associated with ecological value and wildlife related safety where transportation infrastructure intersects areas important for wildlife migration. Functional migration corridors help maintain wildlife movement across broad landscapes. The I-90 wildlife bridge in the county provides an example of methods to allow wildlife to reconnect with their entire natural range.

## 1.2.4 Noxious Weeds

Areas subject to agriculture, grazing, roads, utilities, or other development may support disturbed vegetation, introduced pasture grasses, or noxious weeds. Noxious weeds of concern in Kittitas County include species listed by the Kittitas County Noxious Weed Control Board, including:

- **Class A Weeds**: Non-native species whose distribution in Washington is still limited. Preventing new infestations and eradicating existing infestations are the highest priority. Eradication of all Washington State Class A plants is required by law.
- **Selected Class B Weeds**: Non-native species presently limited to portions of the State. Species are designated for control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level and selected for control, with containment as the primary goal.
- **Selected Class C Weeds:** Noxious weeds that are typically widespread in WA or are of special interest to the state's agricultural industry. The Class C status allows counties to Select for control if locally desired. Other counties may choose to provide education or technical consultation.
- **Locally selected Class D Weeds:** Additional weed species selected for control by Kittitas County Weed Districts 1 - 5.[4]

The County's full list should be reviewed during project level siting and vegetation management planning. Coordination with the Kittitas County Noxious Weed Control Board is recommended to confirm current priorities, mapped infestations, and required control measures.

## 1.2.5 Federal and State Special Status Species

Federal and state special status species include species that are:

- Listed, proposed, or candidates for listing under the Endangered Species Act;
- Designated by WDFW as endangered, threatened, sensitive, or candidate; and

[3] Washington Habitat Connectivity Action Plan | Washington Department of Fish & Wildlife

[4] Kittitas County, 2026 Noxious Weed List, https://www.co.kittitas.wa.us/uploads/documents/noxious-weeds/2026 Kittitas County Noxious Weed List.pdf

- Tracked through state conservation programs or agency databases.

Potential occurrence is based on known range, mapped occurrences, habitat associations, elevation, land cover, hydrology, and the availability of suitable breeding, nesting, foraging, dispersal, or overwintering habitat.

For purposes of this section, special-status species considerations are most likely to be associated with shrubsteppe and grassland habitats, riparian and wetland habitats, aquatic systems, forested uplands, cliffs or talus, and other specialized habitats. Project level environmental review should confirm whether suitable habitat occurs within or adjacent to proposed disturbance areas.

### 1.2.6 Fish and Wildlife Habitat Conservation Areas

Fish and wildlife habitat conservation areas refer to land management for maintaining populations of species in suitable habitats within their natural geographic distribution so that the habitat available is sufficient to support viable populations over the long term and isolated subpopulations are not created. These areas serve a role in sustaining habitats and species for the functional integrity of the ecosystem. If altered, they may reduce the likelihood that the species will persist over the long term.

These areas may include rare or vulnerable ecological systems and communities; seasonal ranges, breeding and winter habitat, and movement corridors; areas with high population density or species richness; locally designated important habitats and species; and state priority habitats and species identified by the WDFW.

Fish and wildlife conservation areas are regulated as critical areas under Kittitas County Code Title 17A. Chapter 17A.04 addresses applicable priority habitats and species, riparian management zones, habitats of local importance, and other protected habitat features identified through maps and site-specific review. Wetlands are regulated separately under Chapter 17A.07.

### 1.2.7 Wetlands, Streams, Riparian Corridors, and Aquatic Resources

Wetlands, streams, riparian corridors, and aquatic resources provide flood attenuation, groundwater recharge, fish and wildlife habitat, and ecological connectivity functions. These aquatic habitats are regulated under Kittitas County critical areas regulations, the Shoreline Management Program, the Clean Water Act, and other applicable state or federal authorities depending on jurisdiction, hydrologic connectivity, and project-specific disturbance.

The Washington State Department of Ecology identifies wetland habitats as resources that protect water quality, reduce flooding, recharge aquifers, and provide critical habitat for fish and wildlife. The approximate location and extent of wetlands are shown on maps maintained by Kittitas County, most recent updates to the National Wetland Inventory, and other best available science sources.

In Kittitas County, wetlands, streams, and other aquatic habitats are expected to occur along the Yakima River and its tributaries, perennial and intermittent streams, irrigation-influenced drainages, floodplain areas, and other low-lying or hydrologically supported landscape positions. Maps provided on the local, state, and federal level are a useful guide for future energy projects but do not provide a conclusive or definitive indication of wetland presence or extent.

Shoreline environments provide ecological functions, recreation opportunities, water resources, habitat connectivity, scenic values, and economic benefits throughout the county. Development within shoreline jurisdiction areas is subject to additional review and permitting requirements intended to protect shoreline ecological functions. The county contains numerous shoreline resources, including:

- The Yakima River
- Cle Elum Lake
- Keechelus Lake
- Kachess Lake
- Lake Easton
- Portions of the Columbia River
- Associated streams, tributaries, and reservoirs

For more information on shoreline habitat as it relates to the Kittitas County Shoreline Master Program (SMP), see the **Land Use** section.

# 1.3 Impact Analysis

## 1.3.1 Overview

The impacts analysis section evaluates how planning approaches for large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal energy facilities, and small modular reactors (SMRs) could impact biological resources in Kittitas County. The analysis first addresses potential impacts applicable across the selected energy facilities before providing further discussion by each alternative. Consistent with the Washington State Department of Ecology's Programmatic Environmental Impact Statement (PEIS) for utility-scale wind and utility scale solar approach, the discussion under each alternative is organized by resource type and project phase, including construction, operation, and decommissioning.

The magnitude of impacts from future projects would depend on the following factors:

- Location, size, configuration, and design of each facility;
- Extent of access roads, gen-tie line corridors, water infrastructure, and other associated improvements;
- Presence of sensitive habitats or species; and
- Effectiveness of avoidance, minimization, and mitigation measures.

*Table 2: Primary Biological Resource Concerns*

| Facility Type | Primary Biological Resource Concerns |
|---|---|
| **Large-Scale Solar** | Habitat conversion, perimeter fencing, vegetation change, noxious weeds, and wildlife movement constraints. |
| **Large-Scale Wind** | Bird and bat collision risk, raptor and eagle use areas, access road fragmentation, turbine pads, collection lines, lighting, and maintenance disturbance. |
| **BESS** | Localized habitat disturbance, noise, fire protection, hazardous materials management, and interconnection infrastructure. |
| **Geothermal** | Exploration disturbance, water use, production and injection wells, noise, and effects on groundwater dependent or riparian resources. |
| **SMRs** | Site conversion, security fencing, exclusion areas, cooling water infrastructure, lighting, noise, switchyards, and long-term habitat displacement. |

## 1.3.2 Impacts Applicable to All Energy Facilities

#### 1.3.2.1.1 Terrestrial Habitats

Construction, operation, and decommissioning of energy facilities could affect terrestrial habitats through vegetation removal, grading, trenching, drilling, soil compaction, dust, erosion, sedimentation, altered drainage patterns, increased human access, and introduction or spread of noxious weeds.

Construction activities would reduce plant growth and reproduction and could cause plant loss where vegetation is cleared or repeatedly disturbed. Additionally, construction activities can reduce opportunities for

wildlife to use habitat for shelter, food, movement, migration, nesting, and breeding. Impacts on special status habitats, including shrubsteppe, wetlands, riparian corridors, priority habitats, and other sensitive habitat features, would be similar to those for non-special-status habitats but would be greater because these habitats support more sensitive species and may be limited in extent, difficult to restore, or already affected by regional development pressures. The magnitude of impacts would depend on the number, configuration, and overall size of facility components; the location and extent of roads, gen-tie corridors, pipelines, water infrastructure, and security fencing; and the level of lighting, noise, dust, and long-term vegetation management required.

During decommissioning, habitat disturbance would generally occur in areas previously disturbed during construction and operation. The degree of impact would vary depending on the extent to which vegetation and habitat functions had recovered during the operational phase and the amount of grading, equipment removal, soil stabilization, revegetation, and weed control required. Restoration of sensitive habitat types, such as shrubsteppe, may take extended periods and depend on site conditions and the extent of long-term management efforts.

**Findings**

Through compliance with applicable laws and permits, and with implementation of measures to avoid and reduce impacts, some construction and decommissioning activities would result in less than significant impacts on terrestrial habitats, including special status habitats. Activities that cause permanent degradation, loss, or conversion of suitable habitat that is critical to species viability, or that disrupt habitat continuity along migration routes or connected habitat blocks, would result in potentially significant adverse impacts on terrestrial habitats.

### 1.3.2.2 Terrestrial Species

Construction, operation, and decommissioning of energy facilities may adversely affect terrestrial wildlife species depending on the types of wildlife present and the stressors associated with site characterization, construction, and decommissioning activities. Wildlife may be affected by site clearing and grading, construction of facility components, access road and gen-tie corridor construction, drilling, trenching, vegetation removal, construction noise, visual disturbance, lighting, and movement of construction vehicles and equipment.

The magnitude of potential impacts on wildlife depends on how long construction takes, whether activities occur during the day or night, and whether activities overlap with nesting, breeding, rearing, migration, wintering, or other sensitive seasonal periods. More mobile wildlife would generally avoid areas where disturbance is occurring. Less mobile species or life stages, including non-winged invertebrates, reptiles, juvenile mammals, burrowing species, roosting bats, and nesting birds, would be more severely affected because they are less capable of avoiding disturbance, equipment, or habitat conversion.

Impacts on federal or state special status species would be greater because such populations may be more sensitive to disturbance, geographically restricted, dependent on specific habitat features, or vulnerable to small changes in survival, reproduction, or habitat connectivity. Project-level review should identify whether proposed facility components overlap known or suitable habitat for federal or state listed species and whether surveys, seasonal timing restrictions, buffers, or agency consultation are warranted.

**Findings**

Through compliance with applicable laws and permits, and with implementation of measures to avoid and reduce impacts, some construction and decommissioning activities would result in less than significant impacts on terrestrial vegetation and terrestrial wildlife, including federal and state listed plants and animals. Activities

that affect species viability, cause mortality of individuals of protected or special status species, or disrupt successful breeding, nesting, rearing, migration, or movement behaviors may result in potentially significant adverse impacts on terrestrial species.

#### 1.3.2.3 Aquatic Resources, Wetlands, and Riparian Corridors

Construction, operation, and decommissioning could affect wetlands, streams, riparian corridors, and aquatic resources through direct fill or excavation, vegetation clearing, sedimentation, altered drainage, stormwater runoff, accidental spills, groundwater or surface water changes, and increased access. Solar, wind, BESS, geothermal, and SMR facilities could all affect these resources where facility pads, roads, gen-tie corridors, pipelines, stormwater facilities, water supply infrastructure, cooling systems, or access routes cross or occur near aquatic features.

Geothermal and SMR facilities may have additional water related considerations where drilling, production, injection, cooling, withdrawal, discharge, or thermal effects could affect surface water, groundwater dependent ecosystems, springs, riparian vegetation, or aquatic habitat.

**Findings**

Through compliance with applicable laws, permits, and critical areas requirements, and with implementation of avoidance, minimization, stormwater, erosion control, spill prevention, and compensatory mitigation measures, it is anticipated that impacts on wetlands, streams, riparian corridors, and aquatic resources would be less than significant. Project-specific SEPA review would be anticipated to evaluate whether there are site-specific impacts, such as permanent loss of wetland or stream functions, substantial degradation of riparian habitat, disruption of aquatic habitat connectivity, or substantial water quality or hydrologic changes, which could require additional mitigation beyond applicable regulatory requirements. Impacts would be potentially significant where facility operation causes ongoing mortality, displacement, disruption of migration or breeding, loss of habitat connectivity, substantial water quality or hydrologic effects, or permanent degradation of habitat that is important to species viability.

### 1.3.3 No Action - Alternative #1

Under the No Action Alternative, Kittitas County would retain its existing development regulations and solar, wind, BESS, geothermal, and SMR development would continue to be reviewed and permitted under existing local, state, and federal regulatory frameworks as described in Volume I. The processes and development code standards currently established in Kittitas County would be carried forward. The No Action Alternative takes into consideration the energy uses permitted to date, impacts observed so far, and how these processes would be carried forward.

It is assumed that future large-scale solar facilities would generally be prohibited in Solar Zone 1, as intended for the preservation of agricultural lands under current code, and more likely be developed in Solar Zones 2 and 3. Because Solar Zone 3 encompasses much of the county outside Zones 1 and 2 and provides a simpler review process for projects below a specified megawatt threshold, it would be likely that Solar Zone 3 could experience more future solar development than the other solar zones.

For large-scale wind facilities, it is assumed that future wind development would more likely occur within the pre-identified wind overlay zone; however, given the development history of wind facilities within Kittitas County, it is understood that potential wind facility development has the potential to occur countywide under the no action alternative.

Facilities not permitted by the County, or projects whose applicants voluntarily seek state review, could pursue approval through the Washington State Energy Facility Site Evaluation Council (EFSEC) process. Because Kittitas County has limited regulatory specificity and permitting precedent for BESS, geothermal, and SMR facilities, applicants for these projects may be more likely to voluntarily pursue EFSEC permitting under the No Action Alternative. EFSEC's preemption authority could allow such facilities to be permitted countywide, limiting the County's control over facility siting and permitting.

#### 1.3.3.1 Impacts from construction, operation, and decommissioning under current processes

Under the No Action Alternative, construction, operation, and decommissioning impacts would be similar to those described under the Action Alternatives. Potential impacts would vary with project location, scale, design, associated infrastructure, and proximity to sensitive biological resources.

Future large-scale solar development in Solar Zone 3 could increase impacts on biological resources because the zone overlaps shrubsteppe habitat concentrated in eastern Kittitas County. Similarly, the existing wind overlay zone could increase impacts on biological resources because it is located in eastern Kittitas County, where shrubsteppe habitat is more prevalent. Although individual turbines and associated permanent facilities generally occupy a limited ground footprint, dispersed access roads, collection lines, turbine pads, and other infrastructure could disturb or fragment habitat across a broader area.

Under Kittitas County Code, applications for solar facilities require a noxious weed management plan along with stormwater and decommissioning plans. The noxious weed management plan establishes measures to prevent the introduction or spread of noxious species during construction, operation, and decommissioning. This requirement involves documenting baseline conditions and identifies revegetation, mowing, herbicide use, and adaptive management measures. These requirements help reduce erosion and long-term degradation of disturbed vegetation and habitat.

Existing environmental review processes would be anticipated to identify and address specific project-level impacts on the site level; however, without revised development standards, opportunities to avoid sensitive resources early in project planning and to address habitat connectivity or cumulative effects consistently have the potential to be more limited.

#### 1.3.3.2 Mitigation Measures

Under the No Action Alternative, mitigation would consist of compliance with applicable federal, state, and local regulations, including local critical areas regulations under KCC 17A.

The current Kittitas County code has some mitigation measures specifically for solar and wind facilities. For solar power production facilities, construction and maintenance of solar facilities must prevent the introduction or spread of noxious weeds and other undesirable weed species and prohibit glare that would affect surrounding wildlife or livestock. Wind facility application materials may include a wildlife impact analysis to evaluate potential effects on wildlife, although the current code does not expressly require such an analysis. These existing processes provide some opportunities to identify and mitigate impacts on biological resources.

### 1.3.4 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Under Alternative 2, local regulations governing large-scale solar, wind, and battery energy storage system (BESS) facilities would be revised to identify areas suitable for development within Kittitas County and to provide greater clarity and predictability in project siting and review.

Existing overlay zones established under KCC 17.61A and KCC 17.61C.030 could be modified based on the findings below, and new siting and associated development standards for BESS facilities may be established. The alternative may update development standards to incorporate known mitigation measures and provide clearer guidance for project design, siting, and permitting.

### 1.3.4.1 Large-Scale Solar

#### 1.3.4.1.1 Construction Impacts

Solar facilities may require large contiguous areas of land for panel arrays, access roads, substations, gen-tie corridors, and associated infrastructure. Construction of solar facilities has the potential to affect terrestrial habitats through direct disturbance of vegetation, soils, and wildlife, as well as indirect changes to site conditions. Activities such as site clearing, grading, trenching, pile installation, access road construction, fencing, laydown areas, substations, and collection and transmission infrastructure could remove or alter vegetation, compact or expose soils, increase erosion and sedimentation, alter drainage patterns, increase human access and activity, and introduce or spread invasive species.

Additional infrastructure supporting solar facilities, including gen-tie lines, roads, and fencing, could also affect wetlands, streams, and riparian habitats where such features are crossed or located nearby. Wetlands may need to be cleared and/or filled during the construction process for such infrastructure.

These disturbances have the potential to result in habitat loss, nesting or den disturbance, disruption to habitat connectivity and migration routes, and wildlife injury or mortality. Migratory birds, bats, elk, deer, and other wildlife species could be affected depending on the location, timing, and extent of disturbance. Impacts would be greater where disturbance overlaps intact shrubsteppe, native grassland, wetlands, riparian areas, migration routes, priority habitats, or suitable habitat for special status species within Kittitas County.

The significance of impacts would generally increase with facility size, as larger facilities would disturb a greater land area and have the potential to affect a larger amount of habitat and a greater number of wildlife species and overall populations.

#### 1.3.4.1.2 Operation Impacts

Depending on project scale and configuration, solar development could result in long-term habitat conversion and alteration of vegetation communities, hydrology, and wildlife use patterns within and around the facility footprint. Fencing may further restrict or redirect wildlife movement, potentially affecting habitat connectivity and access to seasonal habitat areas, especially for big game wildlife populations.

Access roads, substations, gen-tie lines, lighting, maintenance traffic, mowing, grazing, herbicide use, and panel washing could create recurring periodic disturbance to terrestrial habitats and wildlife. Vegetation management practices could affect native plant communities, pollinators and ground nesting birds, prey availability, modify fire behavior, and contribute to the spread of invasive species.

#### 1.3.4.1.3 Decommissioning Impacts

Decommissioning large-scale solar facilities has the potential to cause temporary ground disturbance, traffic, noise, dust, erosion, soil compaction, and wildlife disturbance during removal of photovoltaic panels, racking, foundations, fencing, roads, electrical infrastructure, and other project components.

Long-term effects would depend on the approved end land use and the success of site restoration efforts including soil restoration, drainage repair, noxious weed control, and revegetation of the project site. Removal of fencing and other infrastructure could improve habitat connectivity and wildlife movements. Restoration activities may improve habitat conditions where native vegetation is successfully reestablished, and noxious

weeds are controlled. Recovery of mature shrubsteppe, native grassland, wetlands, riparian vegetation, or other sensitive communities may require extended monitoring and adaptive management and may not fully restore to predevelopment ecological functions.

#### 1.3.4.1.4 Mitigation

To reduce potential impacts, solar mitigation measures include avoidance, minimization, restoration, and compensation. Where feasible, projects should determine whether a project can avoid wetlands, riparian corridors, priority habitats, active nests, and important wildlife movement routes. Specific facility design can minimize grading, roads, fencing, and gen-tie disturbance. Opportunities for habitat retention, continuation of habitat connectivity, and use wildlife compatible fencing or movement openings where appropriate reduce potential impacts. Design measures can also manage stormwater and erosion, prevent the spread of noxious weeds, and establish locally appropriate vegetation. Project plans should include construction timing and exclusion measures.

##### *1.3.4.1.4.1 Required Measures*

Solar projects must comply with federal, state, and local environmental regulations and permit requirements. Under the State Environmental Policy Act (SEPA), lead agencies must evaluate whether a project has the potential for significant impacts and may require mitigation through permit conditions, determination of non-significance, or project specific environmental review.

State measures applicable to biological resources include the following:

- **State listed species requirements.** Projects must comply with applicable state protections for endangered, threatened, sensitive, or otherwise protected fish and wildlife. Project specific measures depend on the species, habitat, proposed activity, and governing approval.
- **Construction stormwater requirements.** Projects that meet state permit thresholds must obtain Construction Stormwater General Permit coverage and implement an approved stormwater pollution prevention plan, erosion and sediment controls, pollution prevention measures, inspections, and site stabilization. Revegetation and noxious weed measures apply where required by the stormwater permit, other permits, local code, or approved project plans.

Local measures to biological resources include the following:

- Projects must comply with applicable critical area review, buffers, and mitigation requirements under KCC Title 17A. Critical areas regulations are state mandated, but the regulations themselves are local measures.
- Where wetlands or fish and wildlife habitat conservation areas may be affected, projects must apply mitigation measures, use best available science, and provide compensatory mitigation and monitoring as required by the County and other permitting agencies.
- Building Setbacks. Unless otherwise provided, buildings and other structures shall be set back a distance from the edges of all critical area buffers as directed in the County critical areas ordinance.
- Buffers shall be used and maintained to protect the functions and values of regulated wetlands.

Wetland Mitigation Banking[5]:

[5] Department of Ecology, Wetland Mitigation Bank Projects, n.d., https://ecology.wa.gov/water-shorelines/wetlands/mitigation/wetland-mitigation-banking/mitigation-bank-projects

Wetland mitigation banking is available to compensate and offset significant unavoidable adverse impacts to wetlands or aquatic resources in Washington. Currently, there are no approved wetland bank service areas within Kittitas County.[6]

#### *1.3.4.1.4.2 Recommendations for Siting and Design*

The WDFW's large-scale solar guidance emphasizes early consultation, use of existing habitat and species data, avoidance of high value sites, and site-specific review of habitat connectivity, wildlife movement, and cumulative impacts. The following recommendations can be considered by the County to inform facility siting and design.

- **Prioritize previously disturbed sites.** Favor previously disturbed sites near existing roads and electrical infrastructure where resource review indicates fewer biological conflicts.
- **Minimize impacts on protected resources.** Utilize and maintain buffers from sensitive areas to avoid impacts on wetlands, riparian zones, priority habitats, rare plants or ecological communities, active nests, concentration areas, and protected species habitat.
- **Maintain landscape connectivity.** Use regional and site-specific data to avoid constricting migration corridors, seasonal ranges, riparian routes, or habitat connections. Cluster arrays and retain connected open space corridors.
- **Reduce fencing impacts.** Limit fencing to safety and security needs, avoid unnecessary site subdivision, and use wildlife compatible fencing with ingress and egress points.
- **Early Studies and Surveys.** Request studies early and at appropriate time periods in the project process to understand potential impacts from siting and design. Examples include:
    - Geotechnical study
    - Habitat and vegetation study
    - Cultural resource study
    - Wetland delineation
- **Revegetation.** Minimize impacts on native vegetation, topsoil, and soil structure where feasible; use locally appropriate native or pollinator supportive seed mixes for revegetation with compatible with fire safety and operations.
- **Protect drainage and aquatic resources.** Maintain natural drainage patterns where feasible, direct runoff, roads, and discharges away from wetlands, streams, and erodible slopes. Design right of ways, culverts, crossings, and stormwater facilities to prevent scour, sediment delivery, and hydrologic changes.
- **Limit lighting and collision hazards**. Use necessary safety lighting, shield and direct it downward, use controls or timers where practicable, and design overhead lines and electrical infrastructure to reduce bird collision and electrocution risks.

#### *1.3.4.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

Before construction, complete resource surveys, flag exclusion areas, and establish seasonal buffers where active nests or other sensitive use areas occur.

Mitigation recommendations are as follows for the applicable construction, operation, and decommissioning project phases:

[6] Department of Ecology, Wetland Mitigation Bank Projects, n.d., https://ecology.wa.gov/water-shorelines/wetlands/mitigation/wetland-mitigation-banking/mitigation-bank-projects

**Construction and Operation**

- Conduct seasonally appropriate walkthroughs prior to any ground-disturbing activity to ensure that important or sensitive species or habitats are not present in or near project sites.
- Employ noise reduction devices to minimize impacts on wildlife, especially special-status species. Avoid evening and nighttime construction activities to limit the impacts of construction noise on wildlife.
- Manage for low-maintenance vegetation and control erosion and weeds
- Minimize new roads and lighting
- Monitor restoration and project specific wildlife risks
- Implement applicable seasonal buffers for wildlife and setbacks for wetlands and streams

**Decommissioning**

- Implement a Site Restoration Plan for interim reclamation following temporary construction and operations disturbance. Provide a Decommissioning Plan for site reclamation at the end of a project. Such plans may include:
    - Documentation of pre-construction conditions and as-built construction drawings
    - Measures to salvage topsoil and revegetate disturbed areas with native and pollinator-supporting plants
    - Management of hazardous and solid wastes
    - Timelines for restoration and decommissioning actions
    - Monitoring of restoration actions
    - Adaptive management measures
- Coordinate with state agencies and local county services, such as weed boards or land management agencies.
- Remove unnecessary infrastructure
- Stabilize soils
- Revegetate with appropriate native species
- Continue noxious weed control and performance monitoring until success criteria are met.

**Other mitigation for potentially significant impacts**

Where impacts remain after avoidance and minimization, mitigation may include preservation or restoration connected habitat, replacement of lost habitat functions, off-site conservation, long-term monitoring, and adaptive management. Wetland mitigation should be designed by looking at the entire watershed and should replace affected functions and values.

Wetland mitigation banking is available to compensate and offset significant unavoidable adverse impacts to wetlands or aquatic resources in Washington (Chapter 173-700 WAC). Currently, there are no approved wetland bank service areas within Kittitas County.[7]

[7] Department of Ecology, Wetland Mitigation Bank Projects, n.d., https://ecology.wa.gov/water-shorelines/wetlands/mitigation/wetland-mitigation-banking/mitigation-bank-projects

#### 1.3.4.1.5 Significant Unavoidable Adverse Impacts

Impacts could be potentially significant where solar arrays, fencing, roads, substations, gen-tie corridors, or vegetation management cause permanent loss of priority habitat, substantial shrubsteppe conversion, wetland or riparian impacts, disruption of wildlife movement, or adverse effects on special-status species.

### 1.3.4.2 Large Scale Wind

#### 1.3.4.2.1 Construction Impacts

Wind facilities generally have dispersed permanent footprints. However, construction of large-scale wind facilities could impact large stretches of land through turbine foundations, crane pads and paths, laydown areas, access roads, meteorological towers, collection lines, substations, and transmission corridors. Clearing, grading, trenching, and heavy equipment use could remove or fragment habitat. These activities could also compact soils and increase erosion, dust, noise, lighting, and traffic. Construction could spread invasive plants and disturb wildlife during nesting, roosting, breeding, migration, or movement. Wind facility infrastructure could divide otherwise continuous shrubsteppe, grassland, or riparian habitat. Preconstruction assessments would be appropriate where suitable resources occur. These assessments could address habitat, birds, raptors, eagles, bats, and wildlife movement.

#### 1.3.4.2.2 Operation Impacts

Operation of large-scale wind facilities could impact bird and bat collision mortality, displace wildlife from otherwise suitable habitat, and create ongoing effects from turbine movement, lighting, noise, and transmission infrastructure. Risk would vary with species use, migration patterns, topography, turbine layout, weather, and proximity to nesting, roosting, foraging, and movement areas. Potentially affected species include raptors, eagles, migratory birds, bats, and species concentrated along ridgelines, river corridors, roosts, nesting areas, or migration routes.

Turbine movement, aviation and security lighting, noise, traffic, roads, transmission lines, and vegetation management could displace terrestrial wildlife or reduce habitat suitability. These features and activities could also increase vehicle mortality and create ongoing fragmentation. Operational monitoring may identify unanticipated fatality or displacement patterns. These findings could require adaptive management practices.

#### 1.3.4.2.3 Decommissioning Impacts

Decommissioning wind facilities would cause temporary biological impacts from dismantling turbines, removing foundations and electrical equipment, hauling materials, and restoring the landscape housing turbine pads, roads, and collection-line corridors to a more natural state. These activities could disturb vegetation and wildlife, compact or expose soils, increase erosion and dust, spread invasive plants, and temporarily disrupt nesting, foraging, migration, or movement. Retaining roads or buried infrastructure could prolong fragmentation, while removing unnecessary facilities, restoring drainage, controlling weeds, and revegetating with native species could improve habitat conditions over time. Recovery would be slower where disturbance affects mature shrubsteppe, native grassland, wetlands, riparian areas, or other habitats that are difficult to replace.

#### 1.3.4.2.4 Mitigation

Project level review should identify whether facility fencing, access roads, transmission infrastructure, or other permanent features could reduce habitat connectivity or redirect wildlife movement.

Appropriate riparian management zone buffers and wetland buffers should be identified through local environmental review, Ecology mapping resources, and field delineation where project-level disturbance is proposed.

*1.3.4.2.4.1 Required Measures*

Required measures and monitoring commitments should be incorporated into permit conditions and project plans.

- Compliance with KCC Title 17A critical areas review and mitigation standards
- Protection of regulated wetlands, streams, riparian areas, and fish and wildlife habitat conservation areas
- Implementation of applicable federal and state species protections

*1.3.4.2.4.2 Recommendations for Siting and Design*

Site turbines and associated infrastructure to avoid high-use bird and bat areas, raptor and eagle use areas, priority habitats, and important wildlife movement areas. Cluster infrastructure, minimize new roads and collection line disturbance, and incorporate project-specific monitoring needs into facility design.

Consistent with WDFW guidance, project level review should evaluate whether turbines, perimeter fencing, access roads, and transmission corridors have the potential to constrain wildlife movement or fragment connected habitat. Where practical, facility layouts should maintain movement opportunities by clustering infrastructure and preserving connected open space.

WDFW guidance for wind facility developments recommends identifying bird and raptor use areas early in project planning, conducting appropriate pre-construction surveys where warranted, and establishing spatial and seasonal buffers around active nests or sensitive use areas.

*1.3.4.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

Mitigation recommendations are as follows for the applicable construction, operation, and decommissioning project phases:

**Construction**

- Avoid evening and nighttime construction activities,
- Seasonal work windows,
- Conduct seasonally appropriate walkthroughs prior to any ground-disturbing activity,
- Reduce raptor use of the site by minimizing road cuts and maintaining either no vegetation or nonattractive plant species around the turbines.
- Erosion controls,
- Wildlife safe practices, and
- Noxious weed prevention measures.

**Operation**

- Conduct bird and bat fatality monitoring where warranted,
- Implement measures to protect bats, including curtailment (by slowing, stopping, or changing the direction of blade rotation) when bats are likely to be present (e.g., nighttime, seasonal, or other depending on the site) and lowering cut-in speeds to at least less than 5 meters per second,
- Employ noise reduction devices to minimize impacts on wildlife,
- Minimize lighting,
- Promptly manage project related wildlife hazards, and
- Use adaptive management if monitoring identifies unanticipated effects.

**Decommissioning**

- Implement a Site Restoration Plan for interim reclamation following temporary construction and operations disturbance. Provide a Decommissioning Plan for site reclamation at the end of a project. Such plans may include:
    - Documentation of pre-construction conditions and as-built construction drawings
    - Measures to salvage topsoil and revegetate disturbed areas with native and pollinator-supporting plants
    - Management of hazardous and solid wastes
    - Timelines for restoration and decommissioning actions
    - Monitoring of restoration actions
    - Adaptive management measures
- Remove unnecessary infrastructure
- Stabilize soils
- Revegetate with appropriate native species

**Other mitigation for potentially significant impacts**

Where residual impacts remain, mitigation may include restoration of comparable habitat, species specific offsets required by applicable permits, and performance standards that trigger corrective action or additional compensation.

**Significant Unavoidable Adverse Impacts**

The construction, operation, and decommissioning of wind facilities has the potential for significant unavoidable adverse impacts due to bird and bat mortality and wildlife displacement. Requesting a wildlife impact assessment as part of application materials for such facilities would help inform the extent of potential impacts and identify all feasible avoidance, minimization, restoration, compensation, monitoring, and adaptive management measures applied to reduce potential impacts. Potentially significant impacts may remain after all feasible mitigation measures are applied.

### 1.3.4.3 Battery Energy Storage Systems (BESS)

#### 1.3.4.3.1 Construction Impacts

BESS construction would generally result in less than significant biological resource impacts where infrastructure is located within or adjacent to previously disturbed areas. Impacts could be potentially significant if project infrastructure expands disturbance into sensitive habitats or create indirect effects on nearby wetlands, riparian areas, wildlife movement corridors, or special status species habitat.

Construction could remove or disturb vegetation for foundations, transformers, inverters, fire protection systems, water-storage systems, stormwater facilities, access roads, fencing, and interconnection infrastructure. Clearing, grading, trenching, equipment staging, and traffic could compact soil and increase erosion and dust. These activities could also spread noxious weeds, disturb wildlife, and affect wetlands, riparian areas, or movement routes. Construction presents spill and hazardous material risks from fuels, coolants, and damaged equipment. Impacts would generally be localized.

#### 1.3.4.3.2 Operation Impacts

BESS operation would generally create localized effects from security lighting, equipment noise, vegetation management, fencing, stormwater runoff, and hazardous material storage. Fire or emergency responses could generate smoke, contaminated fire water, or other releases. If containment fails, these releases could affect soil, surface water, groundwater, wetlands, riparian habitat, or wildlife. Fire suppression design, drainage,

containment systems, emergency response procedures, and proximity to sensitive resources would also influence risk.

#### 1.3.4.3.3 Decommissioning Impacts

Decommissioning would temporarily disturb soils during removal of battery enclosures, foundations, utilities, and fire protection systems. Potential impacts would include dust, erosion, spills, and waste handling. Proper material management, site stabilization, and restoration would reduce these effects.

#### 1.3.4.3.4 Mitigation

BESS mitigation should prioritize placement within existing developed or previously disturbed energy facility footprints. Facilities should avoid wetlands, riparian corridors, priority habitats, special status species habitat, and important wildlife movement routes. Facilities should direct lighting downward, reduce unnecessary noise, and separate facilities from sensitive aquatic resources. Secondary containment should address spills, stormwater, fire, water, and incorporate hazardous materials controls. Key mitigation measures would include the following types of actions:

- Fire response planning
- Water quality protection and stormwater pollution prevention
- Noise and lighting minimization measures to avoid indirect effects on nearby habitats

Construction and operation plans should include erosion controls, hazardous material procedures, emergency coordination, noxious weed prevention, drainage inspections, and containment monitoring. Decommissioning plans should address battery characterization, recycling or disposal, and removal of equipment and contaminated materials. Plans should include soil and drainage restoration, revegetation, monitoring, and financial assurance.

##### *1.3.4.3.4.1 Required Measures*

BESS development must comply with applicable KCC Title 17A critical areas standards and required stormwater, spill-prevention, hazardous-materials, fire, and restoration approvals. Disturbance within regulated wetlands or fish and wildlife habitat conservation areas would require avoidance, minimization, and mitigation consistent with County and state requirements.

##### *1.3.4.3.4.2 Recommendations for Siting and Design*

Locate BESS components within previously disturbed or developed areas where feasible and outside wetlands, riparian corridors, priority habitats, and wildlife movement routes. Minimize the facility footprint, direct lighting downward, contain spills, and maintain separation from sensitive aquatic resources.

##### *1.3.4.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

Mitigation recommendations are as follows for the applicable construction, operation, and decommissioning project phases:

**Construction**

- Implement erosion and sediment controls,
- Implement spill response procedures and covered material storage,
- Noxious weed prevention, and
- Use construction exclusion areas.

**Operation**

- Inspect drainage and containment systems and
- Minimize unnecessary noise and lighting.

**Decommissioning**

- Remove equipment,
- Manage waste under applicable requirements,
- Restore drainage, and
- Revegetate disturbed ground.

*1.3.4.3.4.4 Other mitigation for potentially significant impacts*

If residual impacts to wetlands, riparian functions, or priority habitats remain, provide compensatory mitigation, monitoring, and adaptive management proportionate to the affected functions.

#### 1.3.4.3.5 Significant Unavoidable Adverse Impacts

Significant unavoidable adverse impacts could occur if a facility causes permanent loss of a regulated wetland, riparian function, priority habitat, or wildlife movement corridor.

## 1.3.5 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

Under Alternative 3, Kittitas County would evaluate potential geothermal energy and SMR siting and associated development standards, including additional mitigation measures.

The siting process could guide eligible facilities toward areas with comparatively fewer biological constraints, but it would not replace project-specific SEPA review, critical area review, agency consultation, or federal and state licensing. Biological effects would vary substantially by technology, facility size, water demand, cooling method, wellfield or security footprint, transmission and access requirements, and proximity to sensitive habitats, aquatic resources, or wildlife movement areas.

### 1.3.5.1 Geothermal Energy Facilities

#### 1.3.5.1.1 Construction Impacts

Geothermal construction would likely occur in phases and could include geophysical exploration, test wells, production and injection wells, drilling pads, access roads, pipelines, power-generation equipment, substations, transmission connections, water-supply systems, staging areas, and temporary worker facilities. Vegetation clearing, grading, trenching, drilling, heavy equipment use, and construction traffic could remove or fragment habitat, displace wildlife, increase noise, vibration, lighting, dust, erosion, and sedimentation, and introduce or spread invasive plants. Direct effects would be greater where roads, pads, or pipelines cross intact shrubsteppe, native grassland, forest, wetlands, riparian areas, migration routes, or special-status species habitat.

Exploration may create impacts before the final production footprint is known, including repeated access and disturbance at sites that are later abandoned. Drilling-fluid handling, fuel storage, well testing, and accidental releases could affect soil, surface water, groundwater, springs, wetlands, and groundwater-dependent ecosystems. Project-level review should therefore evaluate the full exploration to production sequence, including reasonably foreseeable roads, wells, pipelines, water sources, transmission facilities, and reclamation areas rather than reviewing individual components in isolation.

#### 1.3.5.1.2 Operation Impacts

Operation could affect biological resources through wellfield maintenance, noise, lighting, vehicle activity, fluid handling, water withdrawal, injection, discharge, and pipeline operation. Effects would depend on the geothermal technology, production and injection configuration, water source, consumptive use, discharge method, and proximity to aquatic or groundwater-dependent resources. Changes in groundwater levels, temperature, pressure, or chemistry could affect springs, wetlands, streams, riparian vegetation, and aquatic habitat if hydraulic connections are present.

Long-term roads, well pads, pipelines, fencing, and transmission infrastructure could fragment habitat and alter wildlife movement. Noise, steam releases, maintenance activity, and nighttime lighting could displace wildlife or reduce the suitability of nearby nesting, roosting, foraging, or breeding habitat. Risks from leaks or failures would be greatest where geothermal fluids contain constituents that could degrade soil or water quality. Monitoring would be needed to distinguish natural variability from project-related changes and to trigger corrective action before effects become irreversible.

#### 1.3.5.1.3 Decommissioning Impacts

Decommissioning would involve plugging and testing wells, removing aboveground facilities and pipelines, managing residual fluids and contaminated materials, reclaiming roads and pads, restoring drainage, stabilizing soils, controlling weeds, and revegetating disturbed areas. These activities would renew construction-related noise, traffic, dust, erosion, spill risk, and wildlife disturbance. If subsurface equipment or pipelines remain, closure plans should demonstrate that retained features would not continue to affect groundwater, surface water, soil, or habitat connectivity.

#### 1.3.5.1.4 Mitigation

Mitigation should follow the sequence of avoidance, minimization, restoration, and compensation and should be applied across exploration, drilling, construction, operation, and closure. Early site screening should overlay proposed wells, pads, roads, pipelines, transmission connections, and water supply features with wetlands, streams, riparian areas, priority habitats, documented species locations, migration areas, and groundwater resources. The project footprint should be refined as resource information improves so that unsuccessful exploration sites are promptly stabilized and reclaimed rather than becoming permanent disturbance.

- Complete seasonal biological surveys. Map avoidance areas and buffers.
- Use existing disturbed corridors where feasible. Co-locate infrastructure and mark disturbance limits.
- Avoid sensitive nesting, breeding, migration, and winter use periods. Use clearance surveys and no work buffers as needed.
- Prevent and respond to spills. Use containment, inspect systems, and promptly clean up releases.
- Control erosion, stormwater, and sediment. Keep fueling and chemical storage away from water resources.
- Characterize geothermal fluids before discharge or reuse and obtain applicable permits.
- Limit lighting, noise, and nighttime work. Maintain wildlife movement and provide ingress and egress points.
- Implement fire prevention and response measures. Reclaim temporary disturbance with native vegetation and erosion controls. Monitor results and correct deficiencies.

*1.3.5.1.4.1 Required Measures*[8]

Required measures would include critical areas review and mitigation under KCC Title 17A, compliance with Revised Code of Washington 78.60, water right and discharge approvals as applicable, stormwater and spill controls, and protection of regulated wetlands, streams, riparian areas, and habitat conservation areas.

- Obtain a DNR permit before drilling, redrilling, or deepening a geothermal well or core hole (RCW 78.60.070). [9]
- Maintain drilling records and file required logs, surveys, and production statements (RCW 78.60.200–.220). [10]
- Notify DNR before abandonment. Plug wells and restore the site (RCW 78.60.100 and 78.60.120).
- Submit Notice of Intent (NOI) to the department of Ecology prior to drilling a well.

Obtain activity specific approvals when triggered. These may include water rights (Chapters 90.03 and 90.44 RCW), Underground Injection Control authorization (Chapter 173-218 WAC), discharge permits (Chapter 90.48 RCW), and Clean Water Act Sections 401 and 404 approvals.

*1.3.5.1.4.2 Recommendations for Siting and Design*

- Suggest project
- Site geothermal facilities to avoid sensitive habitats, wetlands, and riparian areas.
- Use the smallest practicable exploration and production footprint and design water usage, pipeline, and access systems to reduce habitat fragmentation and hydrologic effects.

*1.3.5.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

Geothermal exploration and construction should be phased to limit the extent and duration of habitat disturbance and avoid sensitive habitats, species, and seasonal use areas identified during project-level review, where feasible. Where avoidance is not feasible, project-level materials should demonstrate how disturbance limits, best management practices, and construction timing would minimize effects on biological resources, including disturbance during sensitive periods such as migration or breeding.

Facility operational measures should address habitat connectivity and provide for monitoring where ongoing effects on habitat conditions, wildlife movement, or species use could occur. Temporary disturbance areas, including exploration areas that are no longer needed, should be restored in a timely manner, as soon as feasible and practicable.

Decommissioning and restoration plans should address removal of infrastructure no longer needed, stabilization and revegetation of disturbed areas with appropriate native species, invasive species management, and monitoring of habitat recovery.

**Other mitigation for potentially significant impacts**

Where impacts remain after avoidance and minimization, mitigation may include protection or restoration of connected habitat, compensatory wetland or riparian mitigation, replacement of altered groundwater-dependent functions, off-site conservation, water-offset or conservation measures, and long-term monitoring

[8] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

[9] Washington State, Revised Code of Washington, n.d. RCW 78.60.070

[10] Washington State, Revised Code of Washington, n.d. RCW 78.60

with enforceable adaptive management triggers. Financial assurance should be sufficient to complete closure of wells, infrastructure removal, site restoration, corrective action, and monitoring if the operator does not meet permit obligations.

#### 1.3.5.1.5 Significant Unavoidable Adverse Impacts

Impacts could be potentially significant where drilling, production, injection, water withdrawal, discharge, pipeline corridors, or long-term wellfield operation alter groundwater-dependent ecosystems, wetlands, riparian areas, aquatic resources, priority habitats, or special-status species habitat.

### 1.3.5.2 Small Modular Reactor Facilities

#### 1.3.5.2.1 Construction Impacts

Construction of SMR facilities could permanently convert habitat for reactor modules, security perimeters, cooling and water-treatment systems, switchyards, emergency and support facilities, access roads, laydown areas, and transmission interconnections. Site preparation could include substantial clearing, excavation, grading, blasting, dewatering, and installation of buried utilities. These activities could remove vegetation, fragment habitat, displace wildlife, increase dust, noise, lighting, erosion, and traffic, and affect wetlands, streams, riparian corridors, floodplains, or groundwater where such resources occur.

Construction effects would depend on whether the project uses an undeveloped site or an existing industrial or energy site and whether it requires a new water intake, discharge structure, reservoir, pipeline, rail spur, or transmission corridor. Development on previously disturbed land could reduce direct habitat conversion, although associated infrastructure could extend impacts beyond the reactor's footprint. Project-level review should address the complete buildout of all proposed modules and shared support facilities rather than considering only the initial installation.

#### 1.3.5.2.2 Operation Impacts

Operational impacts could include long-term habitat exclusion, security lighting and noise, cooling water withdrawal and discharge, stormwater runoff, maintenance traffic, vegetation management, and barriers to wildlife movement. The magnitude of effects would depend on reactor technology, the number of modules, cooling design, water source, discharge location, and the presence of sensitive terrestrial or aquatic resources.

Security fencing and access areas could redirect big game and other wildlife, particularly where a facility occupies a corridor between seasonal ranges or habitat blocks. Lighting, alarms, cooling equipment, and routine maintenance could also reduce the suitability of adjacent nesting, roosting, or foraging habitat. Water intake, discharge, and stormwater systems would require monitoring and operational controls to protect aquatic species, wetlands, riparian vegetation, and downstream habitat functions. Emergency response and fire protection planning should include containment of contaminated runoff and protection of nearby surface water and groundwater.

Cooling water withdrawal and discharge could also alter flow, temperature, or water quality. Dry or hybrid cooling could reduce water demand. However, these systems may require a larger footprint or additional equipment. Stormwater, fire-protection systems, and emergency response activities could also affect nearby water resources and habitats. Potentially affected resources include surface water, groundwater, wetlands, riparian vegetation, and aquatic habitat.

#### 1.3.5.2.3 Decommissioning Impacts

Decommissioning could extend over many years and involve decontamination, dismantlement, demolition, waste management, infrastructure removal, and site restoration. Temporary disturbance would recur, while

restoration might be constrained until radiological and license-termination requirements are satisfied. Impacts to the surrounding habitat areas could include temporary disturbance from traffic, noise, erosion, and delayed reuse within secure areas. Final site conditions would depend on federal license termination, waste disposition, and the approved decommissioning and restoration plan.[5] Decommissioning impacts would likely be greater for small modular reactors using nuclear fission because of the radioactive nature of the waste generated and its longer half-life when compared to nuclear fusion.

#### 1.3.5.2.4 Mitigation

- Incorporate hazardous materials controls
- Fire response planning
- Water quality protection and stormwater pollution prevention
- Noise and lighting minimization measures to avoid indirect effects on nearby habitats
- Siting outside high value habitat and aquatic resources
- Minimizing the permanent footprint
- Selecting lower water-cooling options where practicable
- Protecting intake and discharge areas
- Maintaining appropriate wildlife movement around fenced areas
- Enforceable restoration and monitoring plans

##### *1.3.5.2.4.1 Required Measures*

Required measures would include federal Nuclear Regulatory Commission licensing, EFSEC site certification, applicable water and discharge approvals, emergency planning coordination, and compliance with KCC Title 17A for regulated critical areas. Project-specific conditions should address cooling-water effects, stormwater, habitat protection, monitoring, and restoration.

##### *1.3.5.2.4.2 Recommendations for Siting and Design*

Site SMR facilities outside sensitive habitats and aquatic resources where practicable, minimize the permanent security and infrastructure footprint, evaluate lower-water demand cooling options, and design lighting, drainage, fencing, intake, discharge, and transmission facilities to reduce habitat and wildlife effects.

The statewide SMR siting study identifies water supply, cooling options, proximity to transmission, emergency planning, and federal and state licensing as major siting considerations.[11]

##### *1.3.5.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

Mitigation recommendations are as follows for the applicable construction, operation, and decommissioning project phases:

**Construction**

- Establish exclusion zones
- Provide erosion controls
- Spill prevention
- Seasonal wildlife measures

**Operation**

- Minimize lighting and noise
- Monitor water intake and discharge effects where applicable
- Inspect stormwater systems

[11] EFSEC, Small Modular Reactor, 2016, https://efsec.wa.gov/sites/default/files/2025-05/20160108SMRFinalReport.pdf

**Decommissioning**

- Plans should include phased removal
- Waste control
- Soil stabilization
- Revegetation
- Long-term monitoring

*1.3.5.2.4.4 Other mitigation for potentially significant impacts*

Where unavoidable impacts remain, mitigation may include off-site habitat protection or restoration, wetland or riparian compensatory mitigation, wildlife crossing provisions, water conservation measures, and adaptive management tied to measurable performance standards.

Mitigation should address the full operating life and decommissioning period, and financial assurance should cover restoration, monitoring, and corrective action. Because siting and development standards would not authorize a specific reactor design or site, final measures would need to be refined through project-specific NRC, EFSEC, SEPA, critical areas, and water-resource review.

### 1.3.5.2.5 Significant Unavoidable Impacts

Impacts could be potentially significant if there is permanent loss or fragmentation of priority habitat or obstruction of an important wildlife movement corridor. Significant impacts could also occur if reactor facilities adversely affect a protected or special-status species. Long-term changes to wetlands, riparian functions, aquatic habitat, water temperature, water quality, or hydrology could also be significant if they cannot be fully mitigated. SMR designs differ substantially in footprint, cooling demand, water use, and supporting infrastructure.

# 2 Water Resources

## 2.1 Overview

The Water Resources section reviews the existing conditions, alternatives impact analysis, and mitigation measures including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures, associated with water features within Kittitas County.

Large scale solar, wind, battery energy storage system (BESS), geothermal, and small modular reactor (SMR) facilities are subject to applicable federal, state, and local requirements protecting surface water, groundwater, wetlands, shorelines, floodplains, and water rights. These provisions establish standards for water quality, stormwater management, discharges, wetlands and other waters, groundwater, and water use, and identify measures to avoid or reduce potential significant impacts. At the local level, water resources are protected through Kittitas County development, critical areas, and shoreline regulations. Potentially applicable federal, state, and local regulations and permits are identified in Appendix A. Applicability depends on project location, design, water source, discharges, and the presence of jurisdictional aquatic resources.

The water resources analyzed in this section include:

- Surface Water Quantity and Quality,
- Water Resource Inventory Areas,
- Groundwater Quantity and Quality,
- Wetlands, Riparian Areas, and Floodplains,
- Critical Aquifer Recharge Areas, and
- Water Availability and Water Rights.

Impacts of the alternatives would be considered significant if they result in:

- Permanent loss or substantial degradation of wetlands, streams, riparian corridors, or aquatic resource functions.
- Water quality degradation that cannot be fully avoided, minimized, or mitigated.
- Hydrologic changes that substantially alter groundwater recharge, streamflow, floodplain function, or aquatic habitat and cannot be fully mitigated.
- Disruption of aquatic habitat connectivity or groundwater-dependent ecosystems.
- Water withdrawals, discharges, contamination risks, cooling water demands, or stormwater effects that would create long-term adverse impacts to surface water or groundwater resource.

## 2.2 Existing Conditions

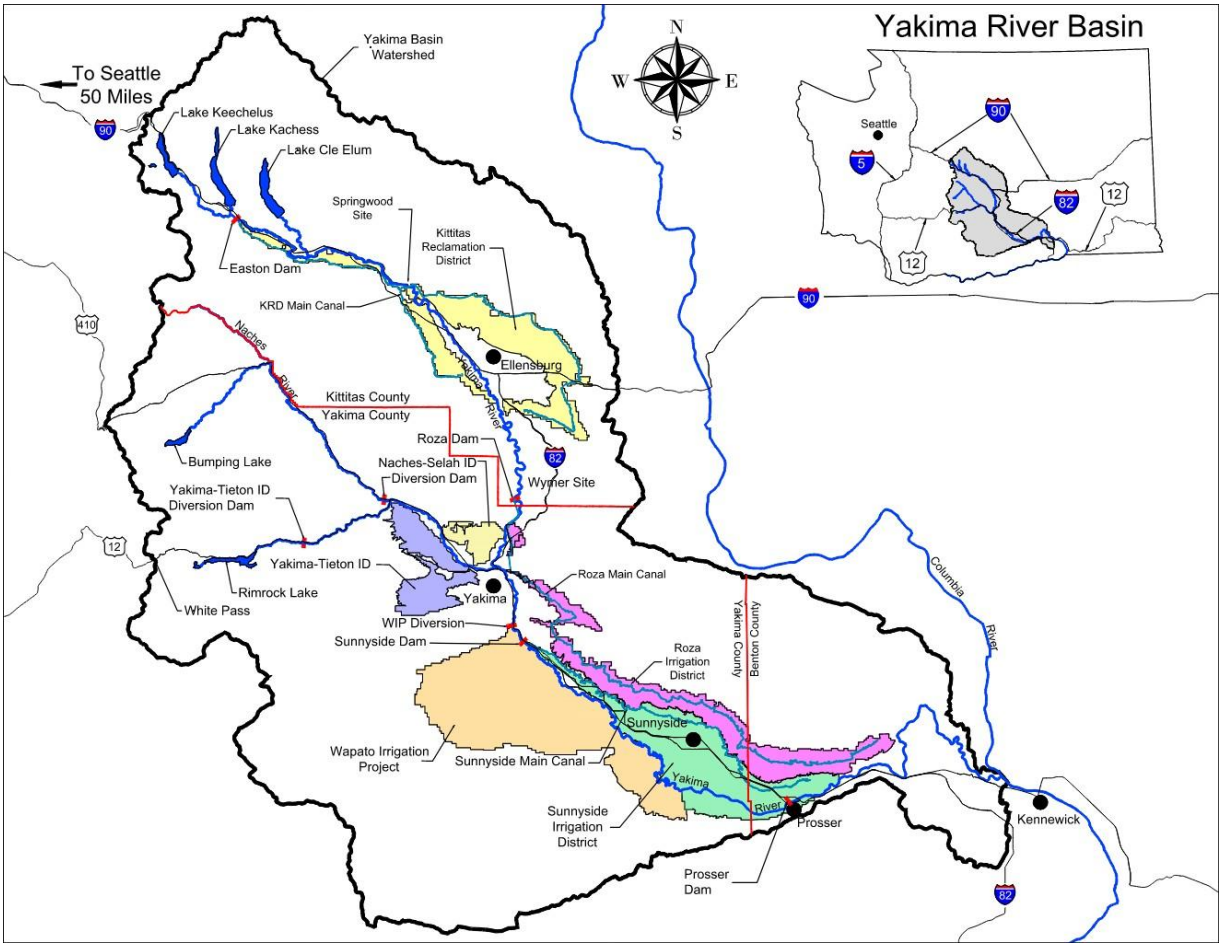
Water resources in Kittitas County include the Yakima River and its tributaries, irrigation canals and ditches, reservoirs, surface water, groundwater aquifers, wetlands, floodplains, riparian corridors, springs, and frequently flooded areas. These resources support drinking water supplies, irrigation, industrial and energy uses, aquatic habitat, riparian and wetland functions, flood storage, groundwater recharge, recreation, and other beneficial uses.

Kittitas County lies primarily within the Yakima River Basin, where water supply and hydrologic conditions are strongly influenced by Cascade snowpack. Precipitation and snow accumulation are greatest in the western mountains and decline toward the drier central valley and eastern uplands. Snowmelt historically sustains

spring and summer runoff, while Keechelus, Kachess, and Cle Elum reservoirs, irrigation diversions, canal deliveries, return flows, and groundwater discharge redistribute water across watersheds and seasons.

Surface water and groundwater are hydraulically connected in many locations, and periodic drought can reduce streamflow, constrain junior water rights, and increase competition among instream and out-of-stream uses. The following subsections describe the county's surface water, groundwater, wetlands, riparian areas, floodplains, critical aquifer recharge areas, water availability, and water rights.

*Figure 4: Yakima River Basin – Kittitas County*




*Source: Washington State Water Resources Association*

## 2.2.1 Surface Water Quantity and Quality

Surface water resources in Kittitas County include the Yakima River, tributaries such as Keechelus, Kachess, Teanaway, Manastash systems, and Cle Elum Lakes, irrigation canals and drainage ditches, ponds, wetlands, and other natural or constructed conveyances. Surface water conditions vary across the county because of the west-to-east precipitation gradient, snowmelt driven runoff, reservoir operations, irrigation withdrawals and returns, streamflow management, land cover, and watershed disturbance.

Water quality may be affected by sediment, temperature, nutrients, dissolved oxygen, metals, hydrocarbons, pesticides, salinity, pH, and other pollutants associated with agricultural, rural residential, transportation, industrial, and construction related land uses. Surface waters also support fish and wildlife habitat, irrigation, recreation, municipal and domestic supply, and other beneficial uses.

The Washington State Department of Ecology (ECY) conducts periodic assessments of rivers, streams, lakes, estuaries, and marine waters pursuant to Section 303(d) of the Clean Water Act. Waterbodies that fail to meet applicable water quality standards are placed on the state's impaired waters list and may be subject to Total Maximum Daily Load (TMDL) requirements. All surface waterbodies are classified into one of five distinct water quality categories:

- Category 1: Meets tested standards for clean water
- Category 2: Water of concern
- Category 3: Insufficient Data
- Category 4: Impaired water that does not require a TDML
    - Category 4A: Already has an EPA-approved TMDL plan in place and implemented
    - Category 4B: Has a pollution control program, similar to a TMDL plan, that is expected to solve the pollution problems
    - Category 4C: Is impaired by causes that cannot be addressed through a TMDL plan. Impairments in these water bodies include low water flow, stream channelization, and invasive plants, and aquatic life. These problems, while not pollutants, require complex solutions to help restore water bodies to more natural conditions.
- Category 5: Polluted water on the 303(d) list

ECY reports that waterways in Kittitas County vary from Category 1 to Category 5 as shown in the Department of Ecology Water Quality Atlas.

Existing stressors differ across Kittitas County. Agricultural areas contain extensive diversion, conveyance, and drainage networks, while roads, rural development, channel modification, vegetation removal, wildfire, and post-fire erosion can alter runoff, sediment delivery, and water quality. These baseline stressors are key considerations when evaluating whether future energy development could affect the same watershed, receiving water, or drainage system.

### 2.2.2 Water Resource Inventory Areas

Kittitas County extends across three Water Resource Inventory Areas (WRIAs): The Upper Yakima (WRIA 39), Alkali–Squilchuck (WRIA 40), and Naches (WRIA 38). These WRIAs are summarized below in **Table 3**. The watershed boundaries provide a framework for evaluating drainage, water availability, water rights, aquatic habitat, and potential project effects at the programmatic and project levels.

*Table 3: Water Resource Inventory Areas in Kittitas County*

| WRIA | Approximate County Share | Location in County | Primary Drainage |
|---|---|---|---|
| Upper Yakima (WRIA 39) | Approximately 78% | Most central and western areas, including Cle Elum, Roslyn, and Ellensburg | Yakima River |
| Alkali–Squilchuck (WRIA 40) | Approximately 17% | Eastern Kittitas County | Columbia River |
| Naches (WRIA 38) | Approximately 5% | Southwestern edge of the county | Little Naches River to Naches River, then Yakima River in Yakima County |

*Source: Kittitas County*

The Upper Yakima WRIA encompasses approximately 78 percent of the county and drains to the Yakima River. It includes most of the central and western parts of the county, including the Cle Elum, Roslyn, and Ellensburg areas. The Alkali–Squilchuck WRIA covers approximately 17 percent of the county in the east and drains directly to the Columbia River. The remaining approximately 5 percent lies along the county's southwestern edge within the Naches WRIA. This area drains to the Little Naches River, which becomes the Naches River before joining the Yakima River in Yakima County.

### 2.2.3 Groundwater Quantity and Quality

Groundwater supplies domestic wells and public water systems and supports irrigation, stock watering, and commercial and industrial uses. It also sustains wetlands, springs, and streamflow. Groundwater availability depends primarily on recharge, withdrawals, drought conditions, and connections to surface water. Existing water rights also influence how groundwater may be used. Groundwater quality is shaped by local geology and land use. It can be impacted by a variety of sources and activities such as septic systems, agricultural activities, or spills.

Groundwater availability depends primarily on recharge, withdrawals, drought conditions, and connections to surface water. Groundwater quality is shaped by local geology and land use and may be affected by septic systems, agricultural activities, or spills. Groundwater supplies domestic wells and public water systems and supports irrigation, stock watering, and commercial and industrial uses. It also sustains wetlands, springs, and streamflow. Existing water rights also influence how groundwater may be used.

### 2.2.4 Wetlands, Riparian Areas, and Floodplains

Wetlands, riparian areas, and floodplains are distributed along rivers, streams, lakes, seeps, springs, depressions, and irrigated or shallow-groundwater settings. These areas provide water quality treatment, sediment and nutrient retention, flood attenuation, shoreline stabilization, groundwater recharge and discharge, carbon storage, and habitat connectivity.

Riparian vegetation moderates water temperature, contributes woody material, stabilizes banks, and filters runoff. Floodplains convey and store floodwater and allow channel migration and sediment deposition. Available maps provide a screening level inventory, but project-level review may require wetland delineations, ordinary high-water mark determinations, floodplain and floodway mapping, functional assessments, and confirmation of applicable buffers and shoreline jurisdiction.

- **Landscape position:** Distinguish headwater, slope, depressional, riverine, and irrigation supported features because their water sources and response to disturbance differ.
- **Hydrologic continuity:** Evaluate whether roads, pads, or trenches would sever surface or shallow subsurface connections among uplands, wetlands, streams, and floodplains.
- **Flood behavior:** Consider conveyance, storage, channel migration, debris, scour, and access isolation rather than relying solely on mapped inundation boundaries.
- **Restoration feasibility:** Assess whether preconstruction grades, soils, vegetation, and water sources can be re-established after temporary disturbance.

### 2.2.5 Critical Aquifer Recharge Areas

Critical aquifer recharge areas are areas with a critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would

affect the potability of the water, or is susceptible to reduced recharge. [12] Kittitas County regulates critical aquifer recharge areas under Title 17A of the Kittitas County Code, as amended. Critical aquifer recharge areas warrant particular attention where highly permeable materials, shallow groundwater, or recharge pathways could increase aquifer vulnerability to contamination or reduced infiltration. Project-specific review should use the current County code and maps and may require site hydrologic information, field delineated wetlands and streams, ordinary high-water marks, riparian and wetland buffers, flood hazard data, and an evaluation of proposed infiltration, hazardous material management, and groundwater protection measures.

### 2.2.6 Water Availability and Water Rights

Water availability is a central consideration for energy development in Kittitas County because the Yakima River Basin is highly managed, fully appropriated for new surface water uses, and vulnerable to drought. Availability varies by watershed, season, source, water right priority, mitigation status, physical delivery constraints, and drought conditions. The basin relies on reservoir operations, irrigation systems, groundwater storage, instream flow protections, water right administration, conservation, and water banks. Existing uses include municipal and domestic supply, irrigation, stock watering, commercial and industrial uses, environmental flows, recreation, and fire protection. Energy facilities may require water during construction, operation, emergency response, and decommissioning; the amount, timing, source, consumptive use, legal availability, and drought reliability must be established for each project.

Within the Yakima Basin portion of Kittitas County, many new groundwater uses are subject to mitigation, metering, and approval requirements, including requirements under the Upper Kittitas groundwater rule where applicable. Because groundwater pumping can deplete hydraulically connected streams, a nominally available well source may not be legally or physically reliable without mitigation. New surface water appropriations are generally unavailable, and junior rights may be curtailed during shortage years. Permit exempt groundwater provisions do not eliminate the need to confirm local mitigation requirements, water availability, water quality protection, and consistency with County and ECY requirements. Project review should also distinguish annual demand from peak season demand and evaluate whether supply would remain dependable during drought or curtailment.

- **Demand profile:** Separate annual use, monthly use, peak day demand, consumptive loss, and nonconsumptive return flow.
- **Source dependencies:** Identify whether supply depends on a particular provider, water bank service area, conveyance agreement, storage facility, or seasonal irrigation delivery.
- **Contingency limits:** Confirm that backup supplies are independently lawful and available rather than relying on the same drought-sensitive source.
- **Phased development:** Evaluate whether later phases would exceed the quantity, place of use, purpose, or service area established for the initial phase.

[12] Kittitas County, Kittitas County Code, KCC 17A.02.160, n.d.

*Table 4: Water Availability and Water Right Constraints*

| Constraint | Baseline Conditions | Project Implication | Required Demonstration |
|---|---|---|---|
| Surface water availability | Existing rights, Tribal interests, federal flow requirements, instream protections, and seasonal supply constrain new appropriations | A proposed intake or transfer may be infeasible, junior, or seasonally unreliable | Valid right, transferable quantity, source, place and purpose of use, and effects on other rights and flows |
| Upper Kittitas groundwater rule | Covered new groundwater uses require mitigation or proof of water-budget neutrality | A well alone does not establish a lawful or reliable supply | Ecology determination, mitigation documentation, water bank suitability, metering, and hydrogeologic information |
| Drought and proration | Junior entitlements can be substantially reduced during shortage years | Peak construction or operational demand may not be dependable when most needed | Drought year supply plan, priority date, backup source, conservation, storage, and curtailment response |
| Physical availability | Aquifer yield, recharge, well interference, conveyance, water quality, and infrastructure capacity vary by site | Legal access may not provide adequate quantity or quality | Pumping or capacity testing, seasonal data, source water quality, and provider confirmation |

Climate change is expected to intensify existing constraints by reducing snowpack, shifting runoff earlier in the year, lowering warm-season streamflow, increasing stream temperatures, and increasing the likelihood of drought and severe winter flooding. Wildfire and post fire erosion may further increase sediment and pollutant delivery. These trends should be treated as part of the affected environment baseline and incorporated into project-level evaluations of water supply reliability, stormwater design, flood exposure, aquatic resource protection, and cumulative demand.

- Evaluate combinations of low snowpack, early runoff, prolonged summer heat, wildfire, and high-water demand rather than considering each stressor independently.
- Use conditions anticipated over construction, operation, and decommissioning, not only historical averages at the time of permitting.
- Identify operational changes that can be implemented if supply, temperature, flood risk, or water-quality conditions depart from design assumptions.
- Establish measurable triggers for conservation, supplemental monitoring, reduced withdrawals, shutdown, or emergency response.

## 2.3 Impact Analysis

### 2.3.1 Overview

The impact analysis qualitatively evaluates reasonably foreseeable direct and indirect effects on surface water quantity and quality, groundwater quantity and quality, wetlands and buffers, riparian areas, floodplain functions and storage, water availability, and water rights.

Direct impacts are caused by project construction, operation, or decommissioning at the same time and place. Indirect impacts occur later in time or farther from the project but remain linked through a foreseeable pathway, such as altered runoff, groundwater drawdown, downstream sediment transport, or increased demand on a constrained water source. Impact magnitude would depend on facility location, size, design, water demand, hydrologic setting, proximity to aquatic resources, and required controls.

*Table 5: Water Resource Profile by Facility Type*

| Facility Type | Construction Demand | Operational Water Demand | Primary Water Resource Concerns | Key Design Variables |
|---|---|---|---|---|
| Large-Scale Solar | Low to moderate | Generally low | Runoff concentration, erosion, drainage disruption, panel washing, and irrigation conflicts | Grading, vegetation, foundation type, washing frequency, source, and stormwater design |
| Large-Scale Wind | Low to moderate | Low | Linear crossings, road drainage, erosion, culverts, and localized groundwater interception | Road and collector layout, crossing design, slopes, and restoration |
| BESS | Low | Low but event-driven | Spills, fire-response water, contaminated runoff, and flood exposure | Battery chemistry, containment, drainage isolation, fire strategy, and receptor proximity |
| Geothermal | Moderate to potentially high | Variable | Withdrawals, reinjection, mineralized fluids, temperature, well integrity, and aquifer interaction | Resource depth, cooling, closed-loop or open-loop design, reinjection, treatment, and monitoring |
| SMR | Moderate to high | Variable to potentially high | Cooling demand, thermal or wastewater discharge, drought reliability, flood risk, and emergency water | Reactor and cooling design, source, storage, discharge, reuse, and emergency systems |

The principal countywide constraints are the Yakima Basin's limited and drought-sensitive water supply, groundwater surface water connectivity, the presence of wetlands and flood hazards, and the need to maintain water quality and irrigation system functions. Solar and wind facilities generally present lower operational water demand and impacts that can usually be reduced through early siting, drainage continuity, erosion control, crossing design, and restoration.

BESS facilities generally present low routine demand but require project-specific containment and incident water planning. Geothermal facilities and SMRs have the greatest unresolved potential for substantial water resource effects because withdrawals, subsurface fluid systems, cooling demand, discharge characteristics, and drought reliability depend on designs and locations not defined at the programmatic level.

Most construction related erosion, runoff, and temporary aquatic resource effects could remain minor to moderate where sensitive resources are avoided, controls are enforced, and restoration meets performance standards. Project-level significance review would remain necessary where a proposal relies on a new or drought-sensitive water source; overlaps wetlands, shorelines, floodways, channel-migration areas, or critical aquifer recharge areas; requires substantial dewatering, drilling, injection, cooling, process discharge, or

thermal discharge; or could affect Tribal rights and interests, overburdened communities, senior water rights, instream flows, or the same constrained resource as other foreseeable development.

## 2.3.2 Impacts Applicable to All Energy Facilities

### 2.3.2.1 Surface Water Quality

Construction and decommissioning activities may include grading, vegetation removal, excavation, trenching, drilling, road and crossing construction, equipment staging, and restoration. These activities could alter drainage, increase erosion and sediment delivery, or release fuels, concrete washout, drilling fluids, metals, or other pollutants.

Operational impacts may occur where facilities require water for panel washing, dust control, cooling, drilling, geothermal circulation, steam generation, fire suppression, landscaping, or other industrial processes.

### 2.3.2.2 Ground Water Quality and Quantity

Potential groundwater-related issues for energy facilities include temporary or permanent water supply needs, groundwater withdrawals, dewatering during construction, well installation, subsurface drilling, geothermal production and injection wells, storage or handling of hazardous materials, and changes to infiltration caused by grading, compaction, foundations, roads, and impervious surfaces.

Because many areas of the Yakima River Basin are water constrained, the potential for effects depends on the facility type, site design, water demand, proposed water source, proximity to waterbodies, stormwater controls, and applicable local, state, federal, and Tribal requirements.

### 2.3.2.3 Wetlands, Riparian Areas, and Floodplains

Potential impacts on wetlands, riparian areas, and floodplains may result from direct fill, vegetation removal, road crossings, culvert installation, trenching, altered runoff, sedimentation, shading, changed hydrologic inputs, or increased pollutant loading.

Avoidance and minimization are typically the preferred approaches, followed by restoration, enhancement, or compensatory mitigation where impacts cannot be fully avoided. Early site planning can reduce impacts by locating facility components, access roads, laydown areas, collector lines, wells, cooling systems, and substations outside sensitive aquatic resources and their buffers to the extent practicable.

### 2.3.2.4 Mitigation

- **Obtain applicable permits and approvals:** Obtain required permits and approvals and comply with applicable requirements related to stormwater management, wetlands, floodplains, stream crossings, groundwater use, and water quality.
- **Water supply:** Obtain required water rights and water supply approvals, as applicable, and demonstrate that proposed water use would not adversely affect available water supplies or existing water rights.
- **Flow timing:** Evaluate whether project activity coincides with spring runoff, summer low flow, irrigation delivery, reservoir refill, or drought-related curtailment.
- **Receiving water sensitivity:** Identify reaches with limited dilution, elevated temperature, erodible banks, downstream drinking water uses or closely connected wetlands.
- **Managed conveyances:** Treat canals and drains as operating infrastructure whose capacity, maintenance access, water delivery, and return flow functions may differ from natural streams.
- **Disturbance history:** Account for burned watersheds, channelized reaches, legacy fill, unstable crossings, and previously altered drainage when defining the baseline.

### 2.3.3 No Action - Alternative #1

Under the No Action Alternative, Kittitas County would not adopt new or revised siting and permitting provisions based on the programmatic EIS. Clean energy proposals could still be submitted and would continue to be reviewed individually under existing County code, SEPA, and other applicable local, state, and federal requirements. Water resource impacts would therefore depend on the location, design, and water needs of each future project.

Existing project-level review could require avoidance, mitigation, permits, and demonstration of a lawful water supply; however, the County would not gain a coordinated, countywide framework identifying suitable locations, standardized information needs, or broadly applicable mitigation measures for surface water, groundwater, wetlands, riparian areas, floodplains, critical aquifer recharge areas, water availability, and water rights. As a result, review may be less predictable and efficient, and opportunities to avoid sensitive resources early in siting or consistently address cumulative water demand, drainage changes, pollutant risks, and watershed scale effects may be more limited.

- **Timing of avoidance:** Sensitive resources or water supply constraints may be identified after substantial site design has occurred.
- **Administrative burden:** County staff and applicants may need to develop issue specific requirements repeatedly without a shared screening framework.
- **Residual uncertainty:** Individual permits may address project effects while leaving broader watershed, aquifer, and drought interactions less clearly characterized.
- **Existing safeguards:** Applicable critical area, shoreline, floodplain, water rights, discharge, and federal aquatic resource requirements will continue to apply.

### 2.3.4 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Under Alternative 2, Kittitas County re-evaluates locations suitable and appropriate for utility scale solar and wind along with current permitting procedures and evaluates potentially significant environmental impacts associated with BESS to identify suitable locations in Kittitas County for a potential battery energy storage facility siting and related development standards.

#### 2.3.4.1 Large-Scale Solar

##### 2.3.4.1.1 Construction Impacts

Construction of large-scale solar facilities would disturb broad areas through clearing, grading, pile installation, trenching, road and inverter-pad construction, and equipment staging. These activities could compact soils, reduce infiltration, concentrate runoff at panel drip lines and travel lanes, increase erosion and sediment delivery, disrupt agricultural ditches or drains, and temporarily increase water demand for dust control, concrete, worker use, and revegetation. Spills, concrete washouts, and dewatering could affect surface water or groundwater if not controlled.

##### 2.3.4.1.2 Operation Impacts

Operational water demand would generally be low and associated with panel washing, vegetation establishment, dust control, and fire protection. Panels, access roads, compacted areas, and drainage improvements could alter runoff distribution, infiltration, and erosion. Herbicide use, equipment leaks, or poorly managed wash water could affect water quality, while facility placement could interfere with irrigation delivery, drainage, or maintenance access.

#### 2.3.4.1.3 Decommissioning Impacts

Removal of panels, piles, cables, pads, and roads would create temporary erosion, sediment, spill, and water demand risks similar to construction. Full or partial removal could also change established drainage patterns. Soil decompaction, contour restoration, revegetation, and repair of irrigation and drainage features would be needed to restore infiltration and prevent erosion.

#### 2.3.4.1.4 Mitigation

Mitigation should prioritize avoidance of aquatic resources and constrained water supplies, maintenance of distributed runoff and agricultural drainage, minimization of grading and compaction, prompt stabilization, spill prevention, and restoration of temporarily disturbed areas.

- **Water usage:** Use dry cleaning, targeted washing, drought-tolerant revegetation, and non-potable sources
- **Distributed runoff:** Maintain sheet flow beneath and between panel rows and prevent drip lines, compacted travel lanes, or perimeter drainage from creating erosive concentration.
- **Agricultural:** Preserve turnout, drain, ditch, and maintenance access and avoid unintentionally transferring irrigation water among parcels or drainage basins.
- **Decommissioning:** Define whether piles, roads, compacted areas, and altered drainage would be removed, retained, or restored.

##### *2.3.4.1.4.1 Required Measures*

- Obtain applicable stormwater, water quality, wetland, shoreline, floodplain, and water-right approvals
- Implement approved erosion, sediment, spill, dewatering, concrete washout, and revegetation controls
- Maintain required buffers and compensate for unavoidable aquatic resource impacts

##### *2.3.4.1.4.2 Recommendations for Siting and Design*

- Request studies early and at appropriate time periods in the project process to understand potential impacts from siting and design.
- Conduct a hydrologic study of the site to understand the local surface water and groundwater hydrology. Identify site surface runoff and drainage patterns and groundwater levels and flow direction.
- Identify sources of water for project water needs, including firefighting.
- Avoid wetlands, riparian corridors, floodways, critical aquifer recharge areas, and irrigation infrastructure to the extent practicable.
- Minimize grading and impervious areas; retain vegetation and permeable soils beneath arrays.
- Design row spacing, roads, and outlets to preserve sheet flow and prevent erosive concentration.
- Confirm construction, washing, and emergency water supply during drought conditions.
- Avoid creating hydrologic conduits between two aquifers (Chapters 173-200 and 173
- 201A WAC)

##### *2.3.4.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- If construction occurs near or within groundwater recharge areas, monitor activities to reduce the potential for contamination.
- Use highly visible fencing/flagging around streams, wetlands, and buffers to prevent unnecessary disturbance in sensitive areas and minimize the potential for downstream water quality impacts
- Phase disturbance and stabilize exposed soils promptly.
- Implement water conservation techniques, including dust control and panel washing.

- Manage runoff from panel washing activities, and stormwater runoff from buildings, parking areas, and access roads.
- Inspect drainage and erosion controls after major storms and correct any failures
- Use dry or targeted panel cleaning where practicable and manage wash water
- At decommissioning, remove or justify retention of roads and foundations, restore soils, contours and drainage, and revegetate.

##### *2.3.4.1.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain, require project specific drainage modeling, larger setbacks, engineered detention or dispersion, seasonal construction restrictions, replacement or relocation of affected irrigation facilities, compensatory wetland or floodplain mitigation, and enforceable monitoring and corrective-action triggers.

#### 2.3.4.1.5 Significant Unavoidable Adverse Impacts

Large scale solar facilities would result in unavoidable temporary ground disturbance and associated short-term risks of erosion, dust, sediment transport, altered runoff, and water use during construction and decommissioning. With compliance with applicable permits and implementation of the avoidance, minimization, stormwater, spill-prevention, and restoration measures described above, these effects would generally be reduced and localized.

Some residual impacts may nevertheless be unavoidable where project infrastructure permanently compacts or covers soil, modifies site drainage or infiltration, requires crossings or relocation of irrigation and drainage features, or affects wetlands, riparian areas, floodplains, or their buffers after feasible avoidance and minimization. Compensatory mitigation may replace some affected functions but may not fully eliminate temporal losses or restore the same location, hydrologic connection, or level of function.

At the programmatic level, significant unavoidable adverse impacts are not anticipated for all solar facilities because most water resource effects can be reduced through careful siting, design, permitting, and mitigation. However, a project-specific significant unavoidable impact could remain if a facility cannot avoid sensitive aquatic resources, causes a substantial permanent change in runoff or flood storage function, or relies on a water source that is not reliable during drought or would adversely affect senior water rights, instream flows, or hydraulically connected groundwater. The significance of any residual impact would be determined through project-level review based on the final site, design, water demand, and mitigation commitments.

### 2.3.4.2 Large-Scale Wind

#### 2.3.4.2.1 Construction Impacts

Water resource concerns for large scale wind facilities are commonly associated with construction phase erosion and sedimentation, culvert or crossing design, stormwater management, and maintaining natural drainage patterns. In some settings, turbine foundations, road cuts, and grading may intercept shallow groundwater or alter localized runoff and infiltration.

#### 2.3.4.2.2 Operation Impacts

Large scale wind facilities in Kittitas County typically require limited operational water but may involve extensive linear disturbance from access roads, crane paths, collector lines, meteorological towers, substations, and transmission interconnections. Routine runoff from roads, roofs, pads, and equipment areas could carry sediment, metals, or other pollutants.

#### 2.3.4.2.3 Decommissioning Impacts

Removal of turbines, foundations, collector lines, roads, and crossings would re-disturb soils and could increase erosion, sedimentation, dewatering, and spill risk. Improper removal or abandonment of culverts, road prisms, or trenches could impair drainage or aquatic connectivity. Restored areas would require stable grades, soil decompaction, revegetation, and post-removal monitoring.

#### 2.3.4.2.4 Mitigation

- **Corridor optimization:** Co-locate roads and utilities where feasible to reduce the number of independent crossings and disturbed drainage features.
- **Crossing performance:** Size structures for debris, sediment, overtopping, maintenance, and aquatic continuity in addition to peak discharge.
- **Runoff:** Disperse runoff from long grades before it reaches steep side slopes or headwater channels.

##### *2.3.4.2.4.1 Required Measures*

- Obtain applicable stormwater, crossing, wetland, shoreline, floodplain, discharge, and water right approvals.
- Use approved erosion, sediment, spill, dewatering, and restoration plans.
- Maintain fish passage, drainage capacity, and irrigation system access where applicable.
- Compensate for unavoidable aquatic-resource impacts and meet permit performance standards.

##### *2.3.4.2.4.2 Recommendations for Siting and Design*

- Avoid siting structures and roads within waterbodies, wetlands, associated buffers, shorelines of the state, mapped floodplains and other frequently flooded areas, and critical aquifer recharge areas. Where these areas cannot be avoided, utilize measures that cross above waterbodies such as road bridges or aboveground lines.
- Potential stream crossings, wetlands, soils, floodplains, and drainage features within the project area and associated access and collection corridors should be evaluated during siting.
- For structures within floodplains or frequently flooded areas, design structures to not restrict or redirect flows from their natural flow path.
- Conduct a hydrologic study of the site to understand the local surface water and groundwater hydrology. The study should identify site surface runoff and drainage patterns.
- Identify sources of water for project water needs, including firefighting.

##### *2.3.4.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- If construction occurs near or within groundwater recharge areas, monitor activities to reduce the potential for contamination.
- Use highly visible fencing/flagging around streams, wetlands, and buffers.
- Implement water conservation techniques.
- Inspect and maintain culverts, ditches, and outfalls throughout operation.
- Control fuels, concrete washouts, and turbine fluids.
- During decommissioning, remove unnecessary roads and crossings, restore contours, drainage, and soils, and monitor revegetation and channel stability.

##### *2.3.4.2.4.4 Other Mitigation for Potentially Significant Impacts*

Where significant impacts cannot be avoided, additional mitigation measures are recommended. Alternative corridor analysis, drainage stabilization, compensatory wetland or floodplain mitigation, seasonal work windows, and monitoring with corrective action thresholds should be considered.

#### *2.3.4.2.4.5 Significant Unavoidable Adverse Impacts*

Large scale wind facilities would likely result in unavoidable temporary ground disturbance and short-term risks of erosion, sediment transport, altered runoff, dewatering, and water use during construction and decommissioning. With applicable permits and implementation of the avoidance, crossing design, stormwater, spill prevention, and restoration measures described above, these effects would generally be reduced and localized.

Some residual impacts may be unavoidable where access roads, crane paths, collector lines, foundations, or transmission interconnections permanently compact or cover soil, intercept shallow groundwater, alter headwater or subsurface drainage, or require crossings of streams, wetlands, riparian areas, floodplains, or irrigation features. Compensatory mitigation and restoration may replace some affected functions but may not fully eliminate temporal losses, restore the same hydrologic connection, or remove long-term maintenance effects associated with roads and crossings.

Significant unavoidable adverse water resource impacts are not anticipated for all wind facilities because most effects can be reduced through corridor optimization, careful crossing design, siting, permitting, and mitigation. Significant unavoidable adverse impacts could remain if a facility requires extensive or repeated crossings of sensitive aquatic resources, causes a substantial permanent change in drainage or flood-storage function, impairs aquatic connectivity, or produces an unavoidable effect on groundwater, senior water rights, or instream flows. Significance would be determined through project-level review based on the final layout, crossing designs, hydrologic setting, water demand, and mitigation commitments.

### 2.3.4.3 Battery Energy Storage Systems (BESS)

#### 2.3.4.3.1 Construction Impacts

BESS facilities in Kittitas County generally have low routine water demand, although water may be needed for construction, fire suppression, emergency response, landscaping, or operations and maintenance depending on the battery chemistry, site design, and fire protection strategy.

Water resource review for BESS facilities should consider hazardous materials storage, containment, emergency response procedures, stormwater controls, and the potential for pollutants to reach surface water, groundwater, wetlands, irrigation infrastructure, or municipal stormwater systems.

#### 2.3.4.3.2 Operation Impacts

Routine operations would use little water, but leaks, transformer fluids, fire suppression activities, and emergency response could generate contaminated runoff. Impervious pads and access roads could increase peak runoff. Flooding or shallow groundwater could spread released materials through surface drainage, conduits, vaults, or subsurface pathways.

#### 2.3.4.3.3 Decommissioning Impacts

Battery and equipment removal could create spills and waste handling risks. Removing foundations, conduits, and drainage controls could disturb soils and expose shallow groundwater. Decommissioning would require safe material removal, containment of releases, lawful waste management, restoration of drainage patterns, and confirmation that no residual contamination remains.

#### 2.3.4.3.4 Mitigation

BESS operations add a technology specific need to contain releases and manage fire response water. Align site drainage controls with fire response plans so that containment remains functional during an incident. Evaluate conduits, vaults, sumps, and foundations as potential pathways to shallow groundwater.

*2.3.4.3.4.1 Required Measures*

- Comply with applicable stormwater, hazardous material, fire code, discharge, floodplain, and critical area requirements.
- Maintain an emergency response and fire water management plan coordinated with responders.
- Characterize and properly manage any contaminated soil, water, batteries, or debris.

*2.3.4.3.4.2 Recommendations for Siting and Design*

Preconstruction siting should identify nearby drainage features, stormwater conveyances, groundwater depth, flood hazard areas, and any receptors that could be affected by spills, fire response water, or contaminated runoff. Avoid floodways, frequently flooded areas, wetlands, drainage channels, shallow groundwater, and critical aquifer recharge areas where practicable.

*2.3.4.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Inspect containment, drainage isolation, and below grade features routinely and after incidents.
- Keep spill kits and emergency controls accessible and train personnel and responders.
- Prevent unauthorized discharge of fire water or runoff
- At decommissioning, remove batteries and liquids first, remove unneeded impervious surfaces, and restore drainage and vegetation.

*2.3.4.3.4.4 Other Mitigation for Potentially Significant Impacts*

If potentially significant risks remain, install greater setbacks and enhanced or redundant containment, closed drainage, and onsite retention capacity. Additional measures may include groundwater or stormwater monitoring, incident sampling protocols, financial assurance, and adaptive corrective actions tied to release or water quality triggers.

#### 2.3.4.3.5 Significant Unavoidable Adverse Impacts

BESS facilities would cause unavoidable temporary ground disturbance during construction and decommissioning. Short-term risks would include erosion, runoff, spills, and water use. Routine operational demand would generally be low. Applicable requirements and the measures described above would generally reduce and localize these effects.

Some impacts could be unavoidable. Pads and access roads may permanently alter runoff or infiltration. A damaged battery, transformer release, or fire response event could also generate contaminated water. If containment fails, the water could reach soil, groundwater, surface water, wetlands, irrigation infrastructure, or stormwater systems. Cleanup could reduce the extent and duration of contamination but may not immediately restore affected aquatic functions.

Significant unavoidable adverse impacts are not anticipated from normal operation of all BESS facilities. Appropriate siting, monitoring, and emergency procedures would generally reduce risk. Project specific significant impacts could remain if release or fire water volumes exceed capacity. Flooding or shallow groundwater could also create risks. A persistent exceedance of water quality standards or loss of aquatic resource function could be significant.

## 2.3.1 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

Under Alternative 3, Kittitas County evaluates potentially significant environmental impacts for geothermal energy facilities and small modular reactor facilities.

### 2.3.1.1 Geothermal Energy Facilities

#### 2.3.1.1.1 Construction Impacts

Geothermal facilities in Kittitas County require close evaluation of groundwater, surface water, and subsurface geologic conditions. Depending on the technology, geothermal development may include exploration drilling, production wells, injection wells, pipelines, power generation equipment, cooling systems, and associated water treatment or reinjection infrastructure.

Potential impacts include water withdrawals, reinjection, subsurface pressure changes, thermal effects, naturally occurring dissolved minerals in geothermal fluids, well integrity, induced seismicity related hydrologic changes, and protection of nearby groundwater users and surface water resources. Closed loop, binary cycle, dry cooling, and reinjection designs can reduce certain water resource impacts, but project-level review should confirm the proposed water balance, fluid management approach, monitoring plan, and contingency measures in the context of Yakima Basin water constraints.

#### 2.3.1.1.2 Operation Impacts

Water resource impacts from geothermal facilities vary depending on the technology configuration, cooling system, and reservoir temperature. Geothermal operations typically require water withdrawals and consumptive water use, which have the potential to impact water quality and quantity. Facility designs can use nonfreshwater sources as part of specific designs. Water demand may be significant for certain technologies and facility designs. Water use may be associated with electricity generation and cooling, while geothermal fluids brought to the surface may require treatment, reinjection into the geothermal reservoir, or discharge.

Approximately 60 percent of Washington state's drinking water is supplied by groundwater.[13] Groundwater withdrawals and management of geothermal fluids could affect groundwater availability and quality, depending on site-specific conditions and project-specific design. Using nonfreshwater resources, such as wastewater, over freshwater sources could help reduce potential impacts.[14]

#### 2.3.1.1.3 Decommissioning Impacts

Well plugging, pipeline and plant removal, fluid disposition, and pad reclamation could release residual geothermal fluids, drilling materials, or treatment chemicals. Improper abandonment could create vertical migration pathways between aquifers and geothermal zones. Decommissioning would require well-integrity verification and approved plugging. It would also require removal or stabilization of fluid systems and long-term monitoring where warranted.

#### 2.3.1.1.4 Mitigation

Use well integrity testing, closed loop or reinjection systems where feasible, fluid accounting, groundwater monitoring, and contingency procedures.

- **Vertical separation:** Demonstrate isolation among potable aquifers, geothermal production zones, injection intervals, and surface connected fractures.
- **Geochemical compatibility:** Evaluate scaling, corrosion, and reactions between injected fluid and water.

[13] Groundwater | Department of Natural Resources
[14] Environmental Analysis | Department of Energy

*2.3.1.1.4.1 Required Measures*[15]

- Obtain geothermal drilling, injection, discharge, stormwater, and other applicable approvals.
- Meet casing, cementing, well-integrity, plugging, reporting, and financial assurance requirements.
- Monitor pressure, temperature, flow, groundwater, and seismicity as required.

*2.3.1.1.4.2 Recommendations for Siting and Design*

Preconstruction siting should characterize groundwater aquifers, geothermal reservoirs, springs, hot springs, surface waters, wetlands, existing wells, water rights, water quality, and any hydraulic connections between groundwater and surface water.

*2.3.1.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Use closed tanks or lined containment for drilling and geothermal fluids where practicable.
- Conduct baseline and operational monitoring
- Set operating limits and shutdown triggers for pressure, temperature, leakage, groundwater response, and seismicity.
- At closure, plug wells under an approved plan, remove fluid systems, restore drainage and vegetation, and continue monitoring until stability is demonstrated.

*2.3.1.1.4.4 Other Mitigation for Potentially Significant Impacts*

If significant impacts remain, require alternative wellfield or injection locations, reduced withdrawal or injection rates. Additional measures may include monitoring wells, supplemental treatment, offsite fluid disposal, and habitat or wetland mitigation. Operational curtailment and financial assurance may also be required to support corrective actions.

### 2.3.1.1.5 Significant Unavoidable Adverse Impacts

Geothermal facilities would cause unavoidable temporary ground disturbance during construction and decommissioning. Drilling would require water and create short-term risks from erosion, sediment transport, spills, dewatering, and fluid management. Applicable approvals and the measures described above could reduce many of these effects.

Some impacts may be unavoidable. Production or cooling may consumptively use water. Withdrawals or reinjection may alter reservoir pressure or connected groundwater and surface water systems. Mineralized or heated fluids may also affect water quality if they cannot be fully contained, treated, reinjected, or disposed of. Long-term wellfields could create persistent subsurface pathways.

Project specific significant impacts could remain if operations reduce spring or streamflow. Significant effects could also result from impaired water use, fluid migration, failure to isolate freshwater aquifers, or permanent impacts on groundwater-dependent resources.

[15] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

### 2.3.1.2 Small Modular Reactors (SMRs)

#### 2.3.1.2.1 Construction Impacts

SMRs in Kittitas County may require water for construction, concrete production, worker use, fire protection, equipment testing and commissioning, operations, cooling, heat transfer or steam cycle makeup, wastewater management, and decommissioning, depending on reactor design and cooling technology.

#### 2.3.1.2.2 Operation Impacts

Water demand and potential impacts may vary substantially between system designs and cooling systems. SMR operations may generate cooling-system blowdown, sanitary wastewater, process wastewater, and potentially heated discharges, depending on design. Permit conditions, containment, treatment, monitoring, and emergency procedures would be established at the project level.

Project level review should also evaluate the proposed cooling system and water source, including the potential use of once through cooling, recirculating cooling, dry cooling, hybrid cooling, municipal water, groundwater, surface water, reclaimed water, or another source. Project-level review should consider water withdrawal and consumption, effects on surface water and groundwater availability, wastewater generation and discharge, and potential changes in water quality or temperature.

Because SMRs are subject to federal and state review and licensing, water resource analysis should be coordinated with applicable federal, state, Tribal, and local requirements and should account for both normal operations and credible emergency response scenarios involving water use, containment, potential leaks, and wastewater management. Fission SMRs would be subject to environmental review through the EFSEC process, with potential significant adverse impacts on specific water resources further evaluated at the project level. Fusion SMRs may present different water impacts than fission facilities because of differences in reaction processes and associated fuel materials; however, water demand, cooling needs, wastewater generation, and potential effects on water quality and quantity would remain dependent on specific fusion facility design and would require project-level evaluation. Closed loop cooling systems may be used to reduce potential impacts for fusion facilities.

Given the basin's limited water availability, SMR siting in Kittitas County would likely require early confirmation of a legally and physically reliable water supply.

#### 2.3.1.2.3 Decommissioning Impacts

Decommissioning could require water for cleaning, dust control, worker use, and waste handling. Decommissioning activities could generate wastewater during draining and dismantling of cooling and other water- or liquid-handling systems. Excavation and structure removal could affect drainage and groundwater. Long-term closure would require controlled removal, treatment or disposition of liquids and contaminated areas, restoration of stormwater and floodplain functions, and continued monitoring under applicable nuclear and environmental requirements.

#### 2.3.1.2.4 Mitigation

Compare feasible cooling alternatives, minimize consumptive use and thermal discharge, and establish intake, discharge, drought, flood, and emergency water management requirements based on the selected reactor design.

- **Cooling alternatives:** Compare consumptive use, energy penalty, thermal discharge, plume or icing potential, and drought performance across feasible systems.

- **Water Usage:** Evaluate conservation, reuse, reclaimed water, dry or hybrid cooling, and storage before committing constrained potable or freshwater supplies.
- **Intake reliability:** Consider low water elevation, sediment, debris, wildfire effects, and access for maintenance.
- **Emergency independence:** Confirm that safety related water remains available during power loss, supply interruption, flood, wildfire, and prolonged drought.

*2.3.1.2.4.1 Required Measures*

- Obtain all applicable nuclear, water rights, intake, discharge, stormwater and wastewater approvals.
- Demonstrate a physically reliable water supply under drought, wildfire, and flood conditions.
- Treat and monitor discharges to meet permit limits for flow, temperature, and other regulated parameters.
- Maintain containment, emergency water, inspection, reporting, and decommissioning programs required by approving agencies.

*2.3.1.2.4.2 Recommendations for Siting and Design*

Preconstruction siting should describe potential surface water or groundwater sources, intake and discharge locations, water rights, thermal discharge considerations, groundwater conditions, flood hazards, wetlands, and nearby sensitive receptors. Avoid floodways, channel migration areas, wetlands, unstable shorelines, and critical aquifer recharge areas. Compare dry, hybrid, and recirculating cooling; prioritize conservation, reuse, reclaimed water, and storage. Separate clean stormwater from process areas and provide redundant containment for wastewater and treatment chemicals. Design intakes, outfalls, and emergency systems for low flow, sediment, debris, wildfire, icing, and flood conditions.

*2.3.1.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Monitor intake conditions, groundwater levels, discharge flow, temperature, and receiving water response.
- Use drought and emergency operating triggers tied to supply, storage, discharge, and safety needs.
- During decommissioning, restore drainage and aquatic resource functions, and continue required monitoring.

*2.3.1.2.4.4 Other Mitigation for Potentially Significant Impacts*

If potentially significant water resource effects remain, require a lower water use cooling design, reduced or phased capacity, and alternative water sources. Additional measures may include increased storage and treatment, tighter discharge limits, habitat or thermal mitigation, and greater flood protection. Replacement of water for affected users and enforceable adaptive management and shutdown thresholds may also be required.

### 2.3.1.2.5 Significant Unavoidable Adverse Impacts

SMR facilities would cause unavoidable temporary ground disturbance during construction and decommissioning. Construction would require water and create short-term risks from erosion, dewatering, spills, and wastewater generation. Operation may require continued withdrawals, wastewater treatment, discharge, and emergency water storage. The magnitude of these effects would vary by reactor and cooling design.

Impacts may remain despite conservation, dry or hybrid cooling, reuse, storage, treatment, containment, and permit controls. A facility may consumptively use water or alter seasonal availability. It may also generate thermal or process discharges. Long term intake, wastewater, and emergency water infrastructure may affect

floodplains or aquatic resources. Mitigation may reduce these effects but may not fully replace depleted resources, eliminate thermal loading, or restore affected functions.

Impacts could remain if the facility requires a large or drought sensitive water supply. Significant effects could also result from impairment of water rights or instream flows, substantial groundwater withdraws, or unmitigated thermal or wastewater discharges. Other concerns include aquatic resource function. Coordinated project level review and licensing would determine significance. The review would consider the final design, drought assumptions, discharge limits, monitoring, and mitigation commitments.

# 3 Geology

## 3.1 Overview

Earth resources include the physical characteristics of the Earth's surface and subsurface, including bedrock, surficial deposits, landforms, mineral resources, topography, and areas subject to geologic hazards.

Geologically hazardous areas are one category of critical areas and include locations susceptible to erosion, landslides, earthquakes, and other geologic events that may pose risks to people, property, or infrastructure. State and local policies, regulatory requirements, and agency guidance provide for the identification of geologic hazards and inform the siting and design of development in areas where these hazards may occur. At the local level, geologically hazardous areas are designated and regulated through Kittitas County Code (KCC) Title 17A, Critical Areas. Appendix A includes a list of applicable regulations, statutes, and guidelines.

Key geological topics evaluated in this section include:

- Surface Geology
- Topography
- Geologic Hazards
- Seismicity
- Liquefaction Susceptibility
- Landslides

Impacts of the alternatives would be considered significant if they result in:

- Cause substantial erosion, loss of topsoil, or sediment transport that could not be controlled through standard permits and best management practices;
- Create or materially increase slope instability, landslide, subsidence, or other geologic hazards that could threaten people, property, infrastructure, or environmental resources;
- Place critical facility components in an area subject to fault rupture, liquefaction, landslide, or other geologic hazards where site design could not reduce risk to an acceptable level;
- Permanently alter a unique geologic or topographic feature; or
- Prevent access to a designated mineral resource of long-term commercial significance without feasible mitigation.

## 3.2 Existing Conditions

This section provides an overview of Kittitas County's earth resources. The affected environment represents existing conditions as of August 2026, the time at which the Kittitas County CESP EIS was prepared.

### 3.2.1 Surface Geology

Surface geology describes the rocks and younger deposits found at or near the ground surface. Surface geologic units reflect the age, rock type, and depositional setting of earth materials. Surface geology in the

study area includes unconsolidated sediments, sedimentary rocks, volcanic rocks, intrusive rocks, metamorphic rocks, and fault-related features mapped by the Washington Geological Survey. [16]

Kittitas County has varied surface geology that reflects volcanic activity, mountain building, glaciation, erosion, and river deposition. The Washington State Department of Natural Resources (DNR's) Washington Geologic Information Portal shows three broad patterns:

- Central valley, including the Ellensburg area and the Yakima River corridor, are primarily underlain by unconsolidated Quaternary sediments. These include alluvium, loess, dune sand, mass-wasting deposits, and older outburst-flood deposits.
- Eastern and southern portions of the county are dominated by Tertiary volcanic rocks, including the Columbia River Basalt Group, along with other volcanic and fragmental volcanic rocks and deposits.
- Western and northern mountain areas contain a more complex mixture of sedimentary, volcanic, intrusive, metasedimentary, metavolcanic, and metamorphic rocks. Quaternary and Pleistocene glacial deposits occur in mountain valleys and near existing glaciers and ice fields.

Sedimentary rocks and deposits occur throughout portions of the Cascade Range and Wenatchee Mountains. Localized tectonic zones are also mapped within the mountainous western part of the county.

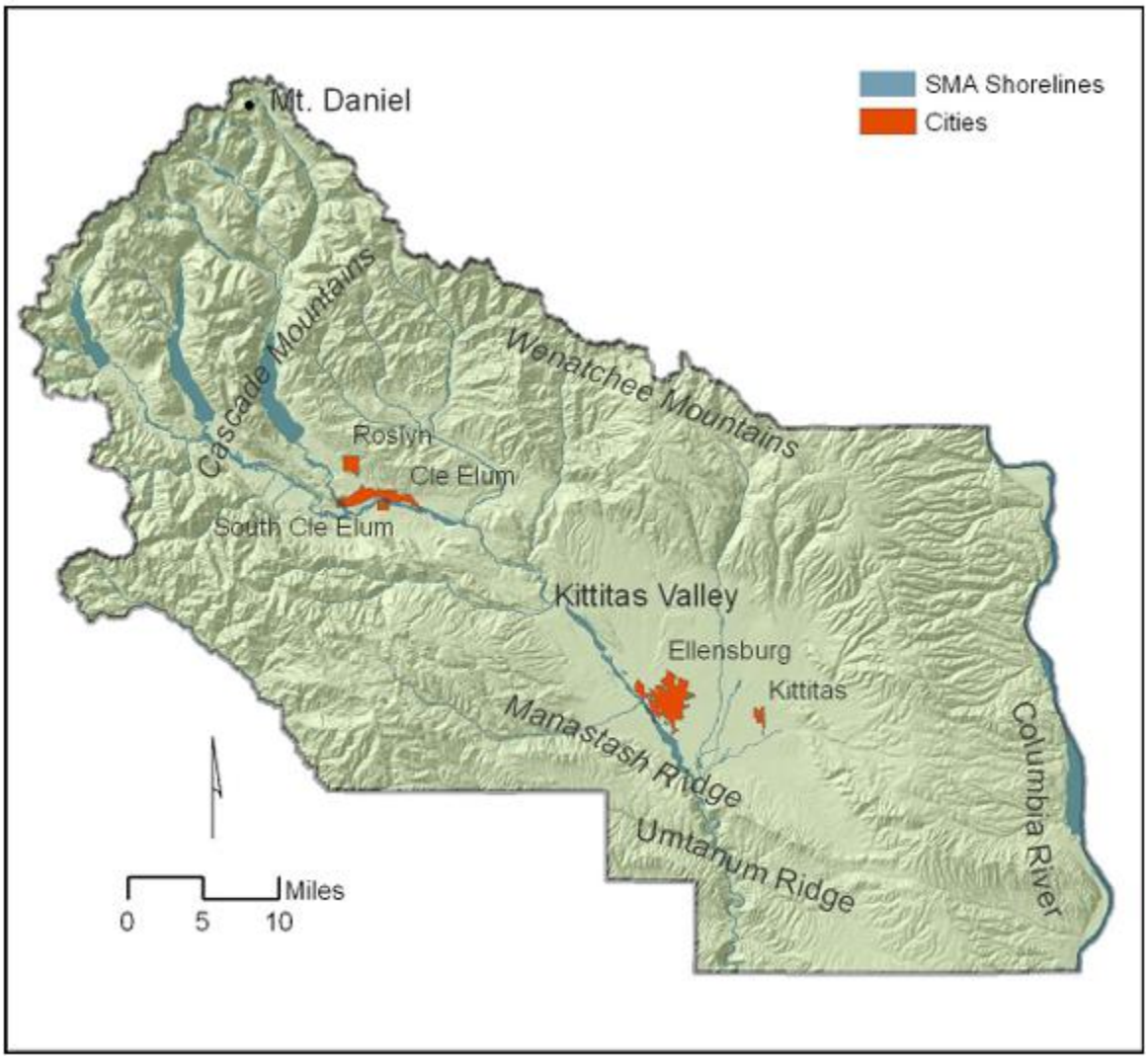
### 3.2.2 Topography and Major Landforms

Kittitas County has a topography that ranges from low river valleys and broad basins to high mountain ridges and peaks. Mount Daniel is the highest peak in Kittitas County at 7,986 feet and the lowest elevation is 475 feet along the Columbia River.[17] **Figure 5** shows relatively level valley floors, rolling uplands, incised stream corridors, steep slopes, and rugged mountain landforms.

[16] Washington State Department of Natural Resources, Washington Geological Information Portal, https://geologyportal.dnr.wa.gov/#wigm?-13609601,-13348645,5916429,6041480?WADNR_PUBLIC_Public_Land_Survey!0!,Mines_and_Minerals!1!2!4!

[17] Kittitas County, Ecosystem Profile, 2013, https://www.co.kittitas.wa.us/uploads/documents/cds/smp/reports/Chapter%202.%20Ecosystem%20Profile.pdf

*Figure 5: Major Landforms in Kittitas County*




*Source: Kittitas County, Ecosystem Profile, 2013, https://www.co.kittitas.wa.us/uploads/documents/cds/smp/reports/Chapter%202.%20Ecosystem%20Profile.pdf*

### 3.2.3 Geologic Hazards

**Geologically hazardous areas** include areas susceptible to erosion, sliding, earthquakes, or other geological events. They pose a threat to the health and safety of citizens when incompatible commercial, residential, or industrial development is sited in areas of significant hazard.[18]

**Erosion hazard areas** are those areas containing soils which, according to the United States Department of Agriculture Natural Resources Conservation Service Soil Survey Program, may experience significant erosion. Erosion hazard areas also include coastal erosion-prone areas and channel migration zones.[19]

[18] WAC 365-190-120, Geologically hazardous areas, https://app.leg.wa.gov/wac/default.aspx?cite=365-190-120
[19] WAC 365-190-030, Definitions, https://app.leg.wa.gov/WAC/default.aspx?cite=365-190-030

**Landslide hazard areas** are areas at risk of mass movement due to a combination of geologic, topographic, and hydrologic factors.[20]

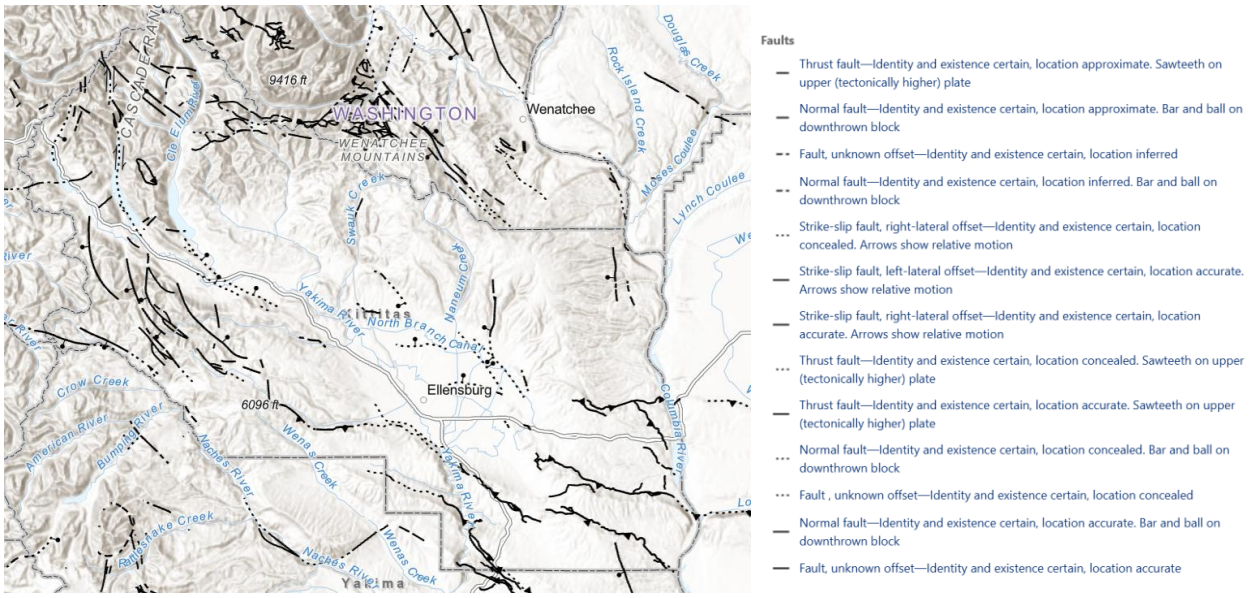
**Seismic hazard areas** are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, debris flows, lahars, or tsunamis. [21]

### 3.2.3.1 Seismicity

**Figure 6** shows numerous mapped faults and fault traces across Kittitas County. The mapped features include thrust, normal, and strike-slip faults, as well as faults with unknown displacement. The legend distinguishes fault locations as accurate, approximate, inferred, or concealed, reflecting differences in how precisely each feature has been identified and mapped.

Faults represent locations where the Earth's crust has broken and experienced movement. However, the presence of a fault on this general geologic map does not establish that the fault is active or determine its current seismic hazard.

*Figure 6: Surface Geology: 500k Faults*




*Source: Washington State Department of Natural Resources, Washington Geological Information Portal, https://geologyportal.dnr.wa.gov/#wigm?-13609601,-13348645,5916429,6041480?WADNR_PUBLIC_Public_Land_Survey!0!,Mines_and_Minerals!1!2!4!*

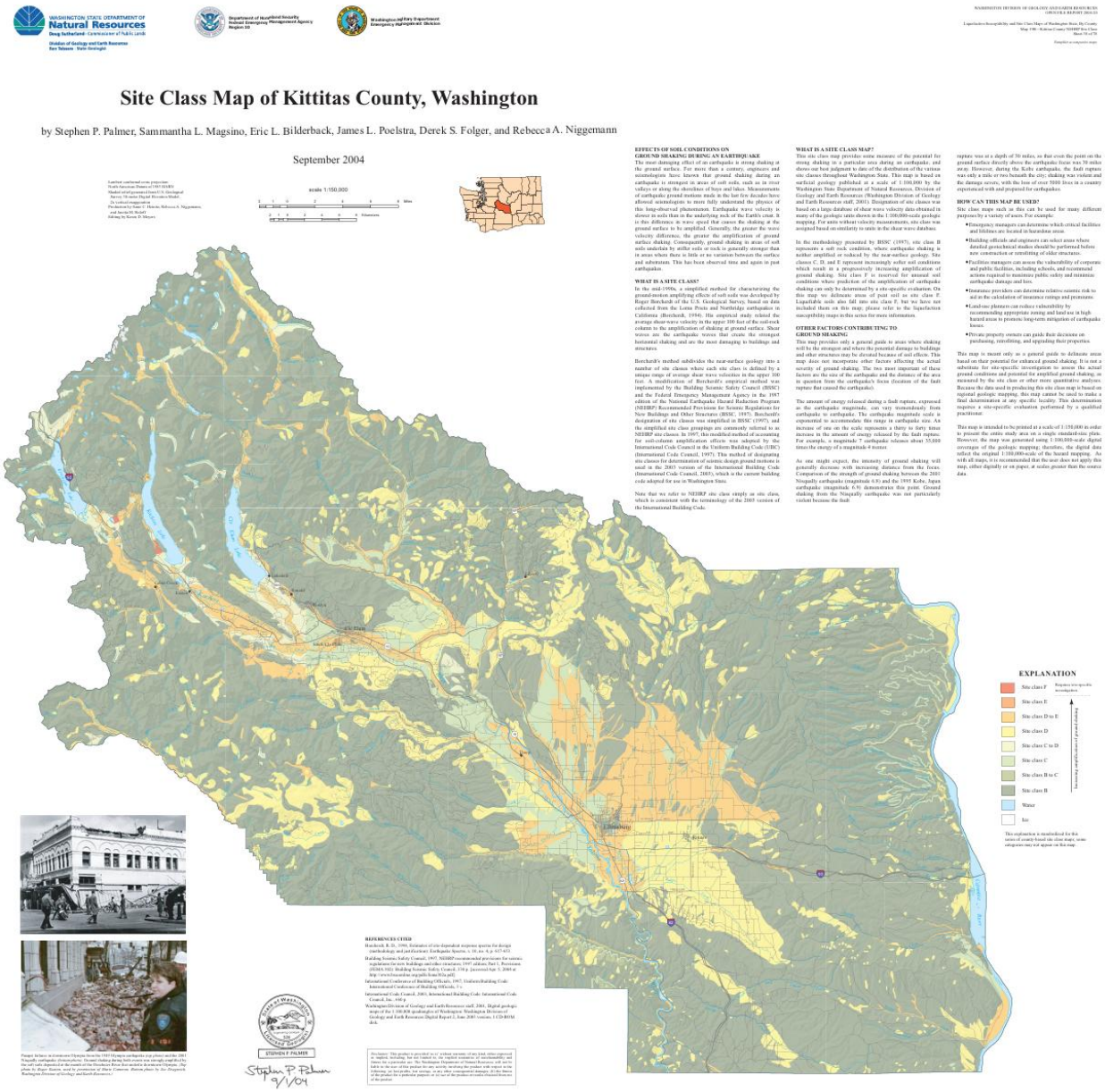
The Kittitas County site class map (**Figure 7**) shows how near-surface soil and rock conditions may affect the strength of earthquake ground shaking. Earthquake waves generally travel more slowly through soil than through underlying rock, which can amplify shaking at the ground surface. The map assigns site classes based primarily on the average shear-wave velocity of materials within the upper 100 feet.[22]

The map shows that much of Kittitas County is classified as Site Class B or B/C, which generally represents rock or very dense soil and soft rock and is shown as darker greens. Site Classes C, C/D, and D, which

[20] WAC 365-190-030, Definitions, https://app.leg.wa.gov/WAC/default.aspx?cite=365-190-030
[21] WAC 365-190-030, Definitions, https://app.leg.wa.gov/WAC/default.aspx?cite=365-190-030
[22] Washington State Department of Natural Resources, Site Class Map of Kittitas County, Washington, https://fortress.wa.gov/dnr/geologydata/liquefaction_maps/ofr2004-20_sheet38_kittitas_nehrp.pdf

represent progressively softer or less dense materials shown in yellows, occur mainly within valleys and other areas underlain by unconsolidated deposits. These areas may experience greater amplification of earthquake shaking than areas underlain by rock. The map does not show Site Classes E or F within the county.[23]

*Figure 7: Site Class Map (2004)*




*Source: Washington State Department of Natural Resources, Site Class Map of Kittitas County, Washington, https://fortress.wa.gov/dnr/geologydata/liquefaction_maps/ofr2004-20_sheet38_kittitas_nehrp.pdf*

Note: A larger version of this map is available at the following link: https://fortress.wa.gov/dnr/geologydata/liquefaction_maps/ofr2004-20_sheet38_kittitas_nehrp.pdf

[23] *Washington State Department of Natural Resources, Site Class Map of Kittitas County, Washington, https://fortress.wa.gov/dnr/geologydata/liquefaction_maps/ofr2004-20_sheet38_kittitas_nehrp.pdf*

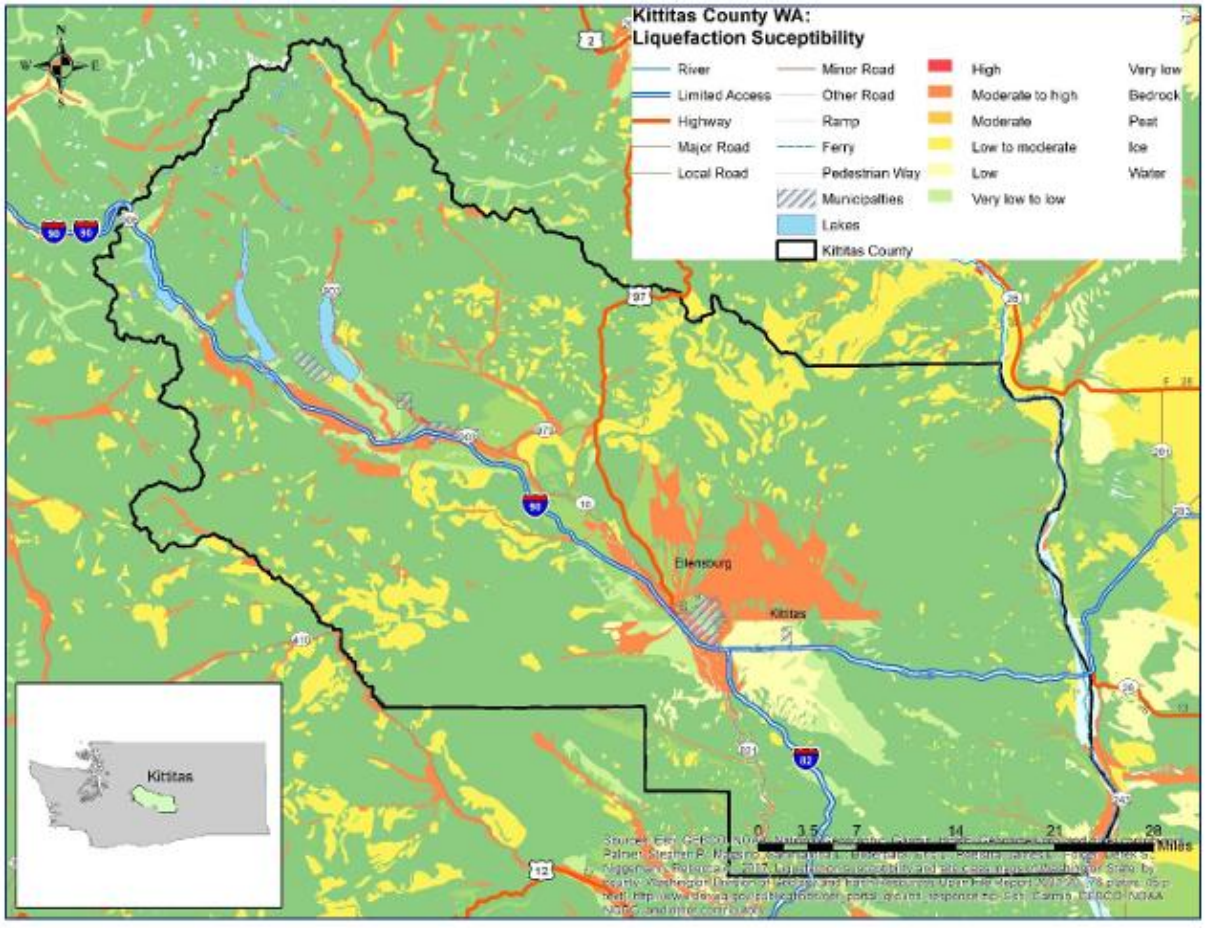
### 3.2.3.2 Liquefaction Susceptibility

The Kittitas County liquefaction susceptibility map (**Figure 8**) shows the relative potential for saturated, sandy soils to lose strength and behave like a liquid during severe earthquake shaking. The map classifies susceptibility from a range of very low to high. The map identifies bedrock, peat deposits, water, and ice separately.[24]

The map indicates that most of Kittitas County has very low to low liquefaction susceptibility or is underlain by bedrock. Moderate-to-high and high-susceptibility areas are concentrated primarily in valley bottoms and along major river and stream corridors, including portions of the Kittitas Valley. These mapped patterns reflect the presence of loose, water-saturated sediments that are more susceptible to liquefaction than bedrock or denser materials.[25]

*Figure 8: Kittitas County Liquefaction Susceptibility*

**Figure 4-13. Liquefaction Susceptibility for Kittitas County**




*Source: Kittitas County Hazard Mitigation Plan, 2025*

[24] *Washington State Department of Natural Resources, ArcGIS REST Services Directory, https://gis.dnr.wa.gov/site1/rest/services/Public_Geology/Ground_Response/MapServer/0*

[25] *Washington State Department of Natural Resources, Liquefaction Susceptibility Map of Kittitas County, Washington, https://fortress.wa.gov/dnr/geologydata/liquefaction_maps/ofr2004-20_sheet37_kittitas_liq.pdf*

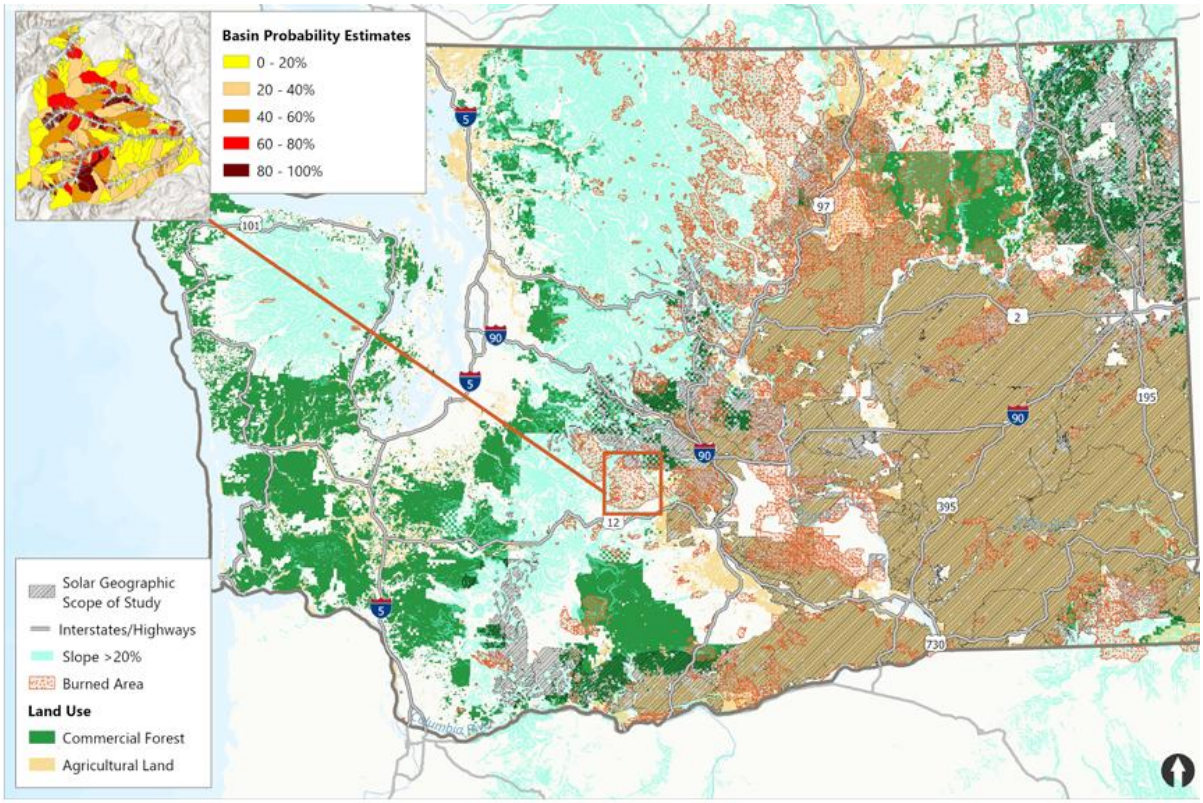
### 3.2.3.3 Landslides

DNR defines landslides as downslope movement of soil, rock, and debris. Landslides pose a significant threat to people, buildings, and structures. They can result in a loss of life, injury, property damage, and disrupt day-to-day operations. Landslides can be triggered by natural and human factors and generally relate to when rock and/or soil composition loosen, become unstable, and falls out of equilibrium. Natural factors can include topography, soil types, rock materials, moisture, precipitation, vegetation coverage. Higher slopes tend to be a larger risk for landslide susceptibility but are not always the case. Landslides may occur in areas where the following conditions apply:

- Existing mapped landslide areas.
- Where landslides have previously occurred.
- Where human modification of the land has destroyed vegetation.
- Steep slopes.
- Susceptible geologic or soil conditions.
- Areas affected by wildfire.
- Mapped post-wildfire debris flow hazards.
- Areas where surface water is directed.
- Commercial forest lands where vegetation removal may reduce slope stability.

As part of the Department of Ecology Programmatic EIS (PEIS) for utility-scale solar, selected landslide susceptibility factors were illustrated across the state. **Figure 9** below shows factors such as land uses, burned area, and slopes greater than 20 percent.

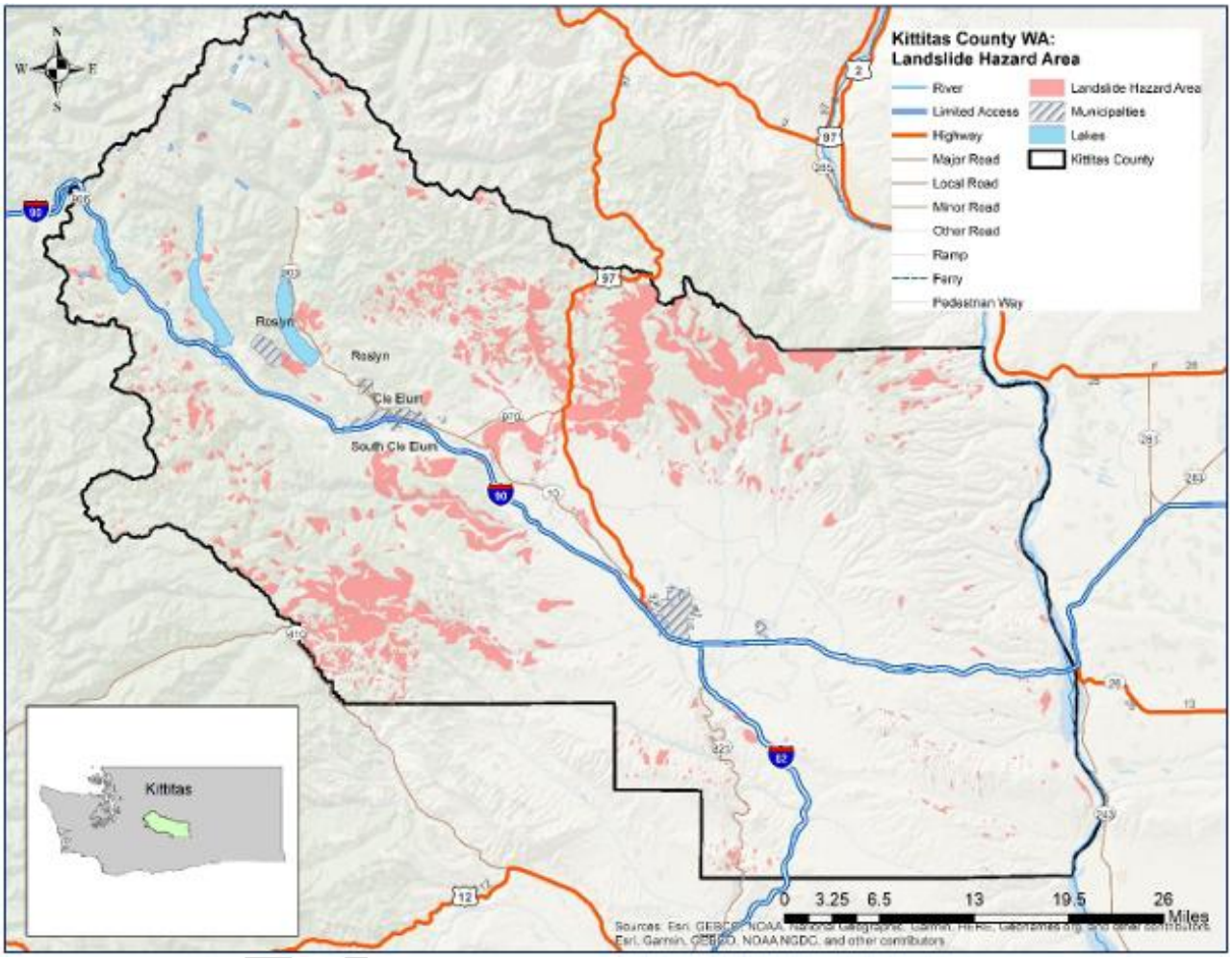
*Figure 9: Landslide Susceptibility*



*Source: Washington State Department of Ecology, Programmatic EIS for Utility-Scale Solar – Appendix D: Earth Resources Technical Report, https://apps.ecology.wa.gov/publications/parts/2506002part6.pdf*

Kittitas County plans for landslide risks and potential hazard areas through its Hazard Mitigation Plan (HMP). According to the HMP, Kittitas County has a Landslide Total Risk Score of 39, or medium risk.[26] The landslide hazard areas identified by the County are located below in **Figure 10**.

*Figure 10: Landslide Hazard Areas in Kittitas County*




*Source: Kittitas County Hazard Mitigation Plan, 2025*

It is anticipated that specific identification and management of landslide hazard within the County, such as field reconnaissance and geotechnical investigations, would occur during site selection and the design of future site-specific projects.

# 3.3 Impact Analysis

## 3.3.1 Overview

This section evaluates how the alternatives could affect surface geology, topography, soils, and geologic hazards in Kittitas County. The analysis addresses large-scale solar, large-scale wind, battery energy storage

[26] Vol 1 2025 Kittitas County Hazard Mitigation Plan.pdf

systems (BESS), geothermal facilities, and small modular reactors (SMRs). It is organized by alternative, facility type, and project phase: construction, operation, and decommissioning.

Potential impacts include soil disturbance and compaction; erosion and sediment transport; changes to drainage or landforms; slope instability; interference with mineral resources; and exposure of facilities, workers, or nearby property to earthquake shaking, fault rupture, liquefaction, landslides, subsidence, or other geologic hazards. The magnitude of impacts would depend on:

- Facility location, size, layout, and foundation type;
- Amount of clearing, grading, excavation, drilling, blasting, trenching, and fill;
- Soil, bedrock, slope, groundwater, and drainage conditions;
- Presence of mapped or site-specific geologic hazards;
- Extent of roads, pads, pipelines, collection lines, transmission facilities, and other supporting infrastructure; and
- Effectiveness of siting, engineering, erosion control, monitoring, restoration, and adaptive management.

*Table 6: Primary Earth Resources Concerns*

| Facility Type | Primary Earth Resources Concerns |
|---|---|
| Large-Scale Solar | Compaction, loss of topsoil, and increased wind or water erosion across broad disturbance areas; altered drainage and localized slope instability from grading; and damage to foundations or electrical equipment from earthquake shaking, settlement, or liquefaction. |
| Large-Scale Wind | Erosion and slope instability from turbine foundations, blasting, access roads, and cut-and-fill slopes; alteration of bedrock or topography; and damage to turbines, roads, or electrical systems from landslides, settlement, earthquake shaking, or fault displacement. |
| BESS | Localized soil compaction and erosion from grading and foundations; soil contamination if a spill, fire, or containment failure occurs; and damage to battery units, containment systems, or emergency access from settlement, liquefaction, earthquake shaking, or slope movement. |
| Geothermal | Soil disturbance and erosion from exploration, drilling, roads, well pads, and pipelines; slope instability on steep terrain; and induced seismicity, subsidence, uplift, or other ground movement from changes in subsurface pressure and stress. |
| SMRs | Substantial soil and bedrock disturbance from excavation, grading, dewatering, and deep foundations; settlement or slope instability; and damage to safety-related structures, systems, or emergency access from earthquake shaking, surface fault rupture, liquefaction, landslides, or other ground movement. |

### 3.3.2 No Action – Alternative #1

Under the No Action Alternative, the County would continue to review energy facilities under existing County regulations and applicable state and federal requirements. Project-level review would continue to address grading, drainage, stormwater, building design, and other site-specific requirements. Existing County processes and development standards would remain in effect, including KCC Chapter 17.61 for utilities, Chapter 17.61A for wind facilities, Chapter 17.61B for small wind energy systems, and Chapter 17.61C for solar power production facilities. Facilities eligible for Energy Facility Site Evaluation Council (EFSEC) review could pursue the state certification process.

### 3.3.2.1 Impacts from Construction, Operation, and Decommissioning Under Current Processes

Construction and decommissioning could disturb soils through clearing, grading, excavation, trenching, drilling, blasting, stockpiling, heavy equipment use, and material hauling. These activities could compact soils, mix soil horizons, increase erosion, alter drainage, and create unstable cuts or fills. Risk would be greater on steep slopes, in landslide-prone areas, along drainage corridors, and in areas underlain by loose or saturated sediments. Most effects would be temporary and localized where projects comply with permit requirements and restore disturbed areas.

During operation, most ground disturbance would occur within established roads, pads, and maintenance areas. Risks to geological resources would primarily involve long-term erosion, drainage problems, settlement, slope movement, earthquake shaking, liquefaction, or damage from other geologic events. Site-specific geotechnical design and building-code compliance would reduce these risks, but mapped hazards may not identify all site conditions.

Current review processes can address site-specific impacts, but the absence of updated facility-specific standards may limit early avoidance or addressing known required measures for steep slopes, landslide areas, high liquefaction susceptibility, or fault-related hazards. Impacts would generally be less than significant with compliance and mitigation. A project could have a potentially significant impact if it is sited where hazards cannot be reduced through feasible engineering or avoidance.

### 3.3.2.2 Mitigation Measures

#### 3.3.2.2.1 Required Measures

- Comply with KCC Title 17A requirements for geologically hazardous areas and provide required buffers, setbacks, and mitigation.
- Obtain applicable grading, building, road, stormwater, and construction permits.
- Obtain Construction Stormwater General Permit coverage when state thresholds apply and implement an approved Stormwater Pollution Prevention Plan.
- Design structures and foundations to applicable seismic and building-code requirements.
- Comply with applicable surface mining and reclamation requirements if the project develops an on-site aggregate source.

### 3.3.2.3 Significant Unavoidable Adverse Impacts

No significant unavoidable earth-resource impacts are anticipated under the No Action Alternative if projects avoid unsuitable sites and comply with applicable permits, engineering standards, and mitigation. Project-level review could identify a significant unavoidable impact where severe geologic hazards cannot be avoided or reduced to an acceptable level.

## 3.3.3 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Alternative 2 would revise the solar and wind overlays and could establish BESS siting and associated development standards. Project-specific geotechnical review would still be required because countywide maps do not replace site investigation.

### 3.3.3.1 Large-Scale Solar

#### 3.3.3.1.1 Construction Impacts

Solar construction could disturb a broad area through clearing, grading, pile installation, trenching, access roads, substations, laydown areas, and gen-tie facilities. Soil compaction, rutting, topsoil loss, and mixing of soil horizons could occur. Removing vegetation and concentrating runoff around panels, roads, and compacted areas could increase wind and water erosion. Cuts, fills, or drainage changes near slopes could reduce slope stability. Impacts would generally be less than significant on gently sloping sites with limited grading and effective erosion controls.

#### 3.3.3.1.2 Operation Impacts

Routine operation would cause little new ground disturbance. Concentrated runoff, poorly stabilized roads, vegetation loss, or repeated maintenance traffic could cause localized erosion or settlement. Earthquake shaking or liquefaction could damage foundations and electrical equipment, particularly in valley areas underlain by unconsolidated sediments. These risks would generally be less than significant where facilities use site-specific foundation, drainage, and seismic design.

#### 3.3.3.1.3 Decommissioning Impacts

Removing panels, piles, foundations, roads, and buried utilities could temporarily expose and compact soils and increase erosion. Restoration could improve conditions if the project regrades disturbed areas, restores drainage, replaces salvaged topsoil, and establishes stable vegetation. Some compaction or altered soil structure could remain if restoration is incomplete.

#### 3.3.3.1.4 Mitigation Measures

##### *3.3.3.1.4.1 Required Mitigation*

- Complete County critical-area review and any required geotechnical or geologic hazard assessment.
- Obtain applicable grading, building, stormwater, and road permits.
- Implement required erosion and sediment controls, site stabilization, and spill-prevention measures.
- Design foundations and electrical equipment to applicable seismic standards.
- Implement the approved decommissioning and site-restoration plan.

##### *3.3.3.1.4.2 Recommendations for Siting and Design*

- Avoid mapped landslides, unstable slopes, fault rupture areas, and areas of moderate-to-high or high liquefaction susceptibility where feasible.
- Favor level or gently sloping sites and layouts that minimize grading, excavation, and imported fill.
- Use site-specific geotechnical, soil, and drainage studies to establish foundation and stormwater design.
- Maintain natural drainage patterns and avoid concentrating runoff onto unstable or erodible slopes.
- Use existing roads and disturbed areas where practicable.

##### *3.3.3.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Salvage and separately store topsoil; limit traffic to designated routes; and use low-ground-pressure equipment or mats where needed.
- Stabilize exposed soils promptly and inspect erosion controls after major storms or high-wind events.
- Monitor settlement, drainage, erosion, gullying, and cut-and-fill slopes and complete corrective work promptly.

- Remove unneeded improvements at decommissioning, decompact soils, restore drainage, replace topsoil, and revegetate disturbed areas.

*3.3.3.1.4.4 Other Mitigation for Potentially Significant Impacts*

If a site contains hazards that cannot be adequately addressed through design, relocate facility components or exclude the affected area. Where unavoidable soil or landform damage remains, require additional restoration, long-term monitoring, adaptive management, or off-site compensation appropriate to the affected resource.

## 3.3.3.2 Large-Scale Wind

### 3.3.3.2.1 Construction Impacts

Wind construction would disturb soils at turbine foundations, crane pads, access roads, collection lines, substations, meteorological towers, and transmission corridors. Deep excavation, blasting, and road construction could alter bedrock and topography. Because turbines may be located on ridges or uplands, road cuts, fills, and drainage crossings could increase erosion and landslide risk across a dispersed project area. Impacts would be greater where infrastructure crosses steep or previously unstable terrain.

### 3.3.3.2.2 Operation Impacts

Operation would cause limited new ground disturbance, but roads, drainage structures, and cut-and-fill slopes would require long-term maintenance. Foundation settlement, slope movement, earthquake shaking, or fault displacement could damage turbines and electrical systems. Site-specific geotechnical design, slope stabilization, and inspection would generally reduce impacts to less than significant levels.

### 3.3.3.2.3 Decommissioning Impacts

Turbine dismantling, foundation removal, road work, and cable removal could renew temporary erosion, compaction, and slope-disturbance impacts. Fully removing deep foundations may cause more disturbance than leaving portions in place. The decommissioning plan should select the approach that best protects soil stability, drainage, and future land use.

### 3.3.3.2.4 Mitigation Measures

*3.3.3.2.4.1 Required Mitigation*

- Comply with critical-area, grading, building, stormwater, road, and seismic-design requirements.
- Provide geotechnical analysis for turbine foundations, steep-slope roads, major cuts and fills, and landslide-prone areas.
- Implement approved erosion and sediment control, drainage, blasting, and restoration plans.
- Complete decommissioning consistent with permit conditions and financial assurance requirements.

*3.3.3.2.4.2 Recommendations for Siting and Design*

- Avoid mapped landslides, runout areas, unstable slopes, fault rupture zones, and highly susceptible liquefaction areas.
- Minimize roads on steep slopes and align roads to reduce side-hill cuts, fills, and drainage disruption.
- Use terrain and subsurface data to select turbine locations and foundation systems.
- Design culverts, ditches, and outlets to prevent scour, saturation, and discharge onto unstable slopes.

*3.3.3.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Sequence grading to limit exposed soil and stabilize cuts, fills, and spoil areas promptly.
- Use controlled blasting and manage excavated rock and soil in stable, approved locations.
- Inspect turbine foundations, roads, drainage systems, and slopes after major storms and earthquakes.

- Restore temporary work areas and remove or permanently stabilize roads and foundations at decommissioning.

*3.3.3.2.4.4 Other Mitigation for Potentially Significant Impacts*

Where a road, turbine, or transmission component would create an unacceptable slope or fault hazard, redesign or relocate the component. Additional measures may include retaining structures, ground improvement, drainage controls, instrumentation, or long-term geotechnical monitoring.

### 3.3.3.3 Battery Energy Storage Systems (BESS)

#### 3.3.3.3.1 Construction Impacts

BESS construction would generally create a compact disturbance area for battery enclosures, foundations, transformers, access, drainage, fire protection, and interconnection equipment. Effects would include localized grading, compaction, excavation, and erosion. Risk would increase where a facility is placed on loose fill, saturated soils, steep slopes, or areas susceptible to liquefaction or settlement.

#### 3.3.3.3.2 Operation Impacts

Operation would cause little routine soil disturbance. A battery failure, spill, or fire could contaminate soil if containment does not perform as designed. Earthquake shaking, settlement, or liquefaction could damage battery units, piping, containment, or electrical equipment and increase the risk of a release. These effects are addressed further in the Environmental Health and Safety section.

#### 3.3.3.3.3 Decommissioning Impacts

Removal of enclosures, pads, utilities, and containment systems would temporarily disturb soils. Soil testing may be needed where a leak, fire, or other release occurred. Contaminated soil would require cleanup and proper disposal before site restoration.

#### 3.3.3.3.4 Mitigation Measures

*3.3.3.3.4.1 Required Mitigation*

- Comply with applicable critical-area, grading, stormwater, building, fire, and seismic requirements.
- Provide secondary containment and required emergency and spill-response plans.
- Remediate contaminated soil under applicable cleanup requirements.
- Implement approved decommissioning, waste-management, and restoration plans.

*3.3.3.3.4.2 Recommendations for Siting and Design*

- Locate BESS facilities on stable, previously disturbed sites where feasible.
- Avoid steep slopes, mapped landslides, fault rupture areas, and high liquefaction susceptibility.
- Design pads, anchorage, flexible connections, drainage, and containment for site-specific seismic and settlement conditions.
- Separate clean stormwater from containment areas and prevent uncontrolled discharge to soil.

*3.3.3.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Limit the disturbed area and stabilize exposed soil promptly.
- Inspect foundations, anchorage, drainage, and containment systems after earthquakes and major storms.
- Test soil after a release and before final closure where contamination may have occurred.
- Remove equipment and contaminated materials and restore stable drainage and ground cover.

##### *3.3.3.3.4.4 Other Mitigation for Potentially Significant Impacts*

If site-specific seismic, liquefaction, settlement, or slope conditions could compromise containment or emergency access, relocate the facility or use engineered ground improvement and monitoring sufficient to demonstrate acceptable performance.

### 3.3.3.4 Significant Unavoidable Adverse Impacts

Alternative 2 is not expected to cause significant unavoidable earth-resource impacts if revised overlays avoid high-hazard areas and projects implement required site-specific engineering and mitigation. Significant unavoidable adverse impacts could occur if a facility is sited in an area where severe slope, fault, liquefaction, or soil constraints cannot be adequately avoided or mitigated through engineered.

## 3.3.4 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

Alternative 3 would evaluate geothermal and SMR siting and associated development standards. Site screening could exclude areas with severe geologic constraints and establish minimum study requirements. Because both facility types depend heavily on subsurface conditions, project-level geologic, geotechnical, seismic, and hydrogeologic investigations would remain essential.

### 3.3.4.1 Geothermal

#### 3.3.4.1.1 Construction Impacts

Geothermal development could involve geophysical surveys, exploration wells, production and injection wells, drilling pads, pipelines, access roads, power-generation equipment, and transmission facilities. Clearing, grading, drilling, trenching, and disposal or reuse of drill cuttings could disturb and compact soils, alter drainage, and increase erosion. Roads and pads on steep terrain could increase slope instability. Exploration may disturb several locations before a viable production area is identified.

#### 3.3.4.1.2 Operation Impacts

Withdrawal and injection of geothermal fluids can change subsurface pressure and stress. Depending on the reservoir and operating method, these changes could cause induced seismicity, subsidence, uplift, or localized ground movement. Leaks could affect soil or weaken slope materials. Potential effects would depend on baseline seismicity, fault conditions, fluid volumes, injection pressure, geology, and groundwater connections. Monitoring and operating limits would be needed to detect and manage changes.

#### 3.3.4.1.3 Decommissioning Impacts

Closure would include plugging wells, removing equipment and pipelines, managing residual fluids and contaminated materials, restoring drainage, and stabilizing roads and pads. Improperly abandoned wells could create long-term pathways for fluid movement or leakage. Well closure and post-closure monitoring would reduce this risk.

#### 3.3.4.1.4 Mitigation Measures

##### *3.3.4.1.4.1 Required Mitigation*[27]

- Obtain applicable drilling, well construction, water, discharge, stormwater, grading, building, and critical-area approvals.
- Comply with state requirements for well construction, operation, testing, and closure.
- Implement required erosion, spill, drilling-fluid, and waste-management controls.
- Design structures and pipelines for site-specific seismic, settlement, and slope conditions.

##### *3.3.4.1.4.2 Recommendations for Siting and Design*

- Use phased exploration and minimize the number and size of temporary roads and pads.
- Avoid unstable slopes, mapped landslides, fault-rupture hazards, and high liquefaction susceptibility where feasible.
- Characterize faults, baseline seismicity, reservoir pressure, groundwater, and subsidence potential before production.
- Locate pipelines and well pads to minimize steep-slope crossings and provide leak detection and isolation.

##### *3.3.4.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Contain drilling fluids and store cuttings and excavated material in stable, approved locations.
- Monitor seismicity, injection pressure and volume, reservoir response, ground movement, well integrity, and slope conditions.
- Establish operating thresholds that require investigation, reduced injection, shutdown, or corrective action if seismicity or ground movement increases.
- Plug and test wells, remove unneeded infrastructure, restore drainage, and monitor closure performance.

##### *3.3.4.1.4.4 Other Mitigation for Potentially Significant Impacts*

If induced seismicity, subsidence, or slope movement exceeds established thresholds, modify or suspend operations and implement corrective measures. A project should not proceed at a site where available data and engineering cannot demonstrate that subsurface changes would remain within acceptable limits.

### 3.3.4.2 Small Nuclear Reactors (SMR)

#### 3.3.4.2.1 Construction Impacts

SMR construction could require substantial excavation, grading, dewatering, deep foundations, buried utilities, cooling and water infrastructure, switchyards, security areas, and heavy structures. Blasting or deep excavation could alter bedrock and topography. Construction could compact or remove soil, increase erosion, and create settlement or slope-stability concerns. Impacts would depend strongly on reactor design, site geology, groundwater, and the extent of supporting infrastructure.

#### 3.3.4.2.2 Operation Impacts

SMRs require a high level of geologic and seismic safety. Earthquake shaking, surface fault rupture, liquefaction, settlement, landslides, or other ground movement could affect safety-related structures, systems,

[27] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

and components. Design and licensing would require detailed characterization of seismic sources, subsurface materials, groundwater, and foundation performance. Routine operation would cause limited new soil disturbance, but long-term monitoring would be needed to confirm foundation, slope, and drainage performance.

#### 3.3.4.2.3 Decommissioning Impacts

Decommissioning could involve decontamination, dismantling, demolition, deep foundation work, waste removal, and site restoration over an extended period. These activities could renew erosion, compaction, excavation, and settlement impacts. Final restoration would depend on federal license-termination requirements and the approved end use.

#### 3.3.4.2.4 Mitigation Measures

##### *3.3.4.2.4.1 Required Mitigation*

- Obtain U.S. Nuclear Regulatory Commission licensing and EFSEC site certification, as applicable.
- Complete required geologic, seismic, geotechnical, hydrologic, and foundation investigations.
- Comply with applicable seismic, structural, critical-area, grading, stormwater, and building requirements.
- Implement approved construction, monitoring, emergency, decommissioning, and site-restoration plans.

##### *3.3.4.2.4.2 Recommendations for Siting and Design*

- Site facilities on competent, stable ground outside surface-fault rupture, landslide, and high liquefaction hazard areas.
- Avoid sites where severe geologic hazards could challenge safety-related structures or emergency access.
- Minimize excavation and grading where practicable and design foundations for long-term settlement and groundwater conditions.
- Protect drainage systems and slopes from erosion, scour, and saturation.

##### *3.3.4.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Use excavation support, dewatering, blasting, and spoil-management methods appropriate to site conditions.
- Monitor settlement, groundwater, slopes, drainage, and seismic performance during construction and operation.
- Inspect safety-related structures and earthworks after significant earthquakes or ground movement.
- Stabilize excavations, restore drainage, and reclaim disturbed areas during decommissioning.

##### *3.3.4.2.4.4 Other Mitigation for Potentially Significant Impacts*

Exclude any site where fault displacement, liquefaction, landslide, subsidence, or other geologic conditions cannot be shown to meet federal safety criteria. Additional measures may include ground improvement, deep foundations, slope stabilization, redundant drainage, instrumentation, and long-term monitoring.

### 3.3.4.3 Significant Unavoidable Adverse Impacts

Alternative 3 is not expected to cause significant unavoidable earth-resource impacts if overlays exclude unsuitable areas and projects meet applicable siting, licensing, engineering, and monitoring requirements.

A potentially significant unavoidable impact could occur if geothermal operations cause ground movement or induced seismicity that cannot be controlled, or if an SMR site contains a severe geologic hazard that cannot meet federal safety criteria. Such a site would generally be considered unsuitable for development.

# 4 Air Quality and Greenhouse Gases

## 4.1 Overview

The Air Quality and Greenhouse Gases (GHG) section reviews existing air quality and GHG conditions, alternatives impact analysis, and mitigation measures associated with clean energy siting and permitting in Kittitas County.

Under the US Clean Air Act (CAA), there are currently seven criteria pollutants recognized:

- Ozone ($O_3$),
- Carbon Monoxide (CO),
- Nitrogen Dioxide ($NO_2$),
- Sulfur Dioxide ($SO_2$),
- Lead (Pb), and
- Particulate Matter less than 10 and 2.5 microns ($PM_{10}$ and $PM_{2.5}$, respectively).

Criteria air pollutants are common air contaminants regulated by the U.S. Environmental Protection Agency (USEPA) to protect public health and the environment. Ambient Air Quality is primarily defined in the National Ambient Air Quality Standards (NAAQS) framework under the CAA, as detailed in **Table 7**.

*Table 7: National Ambient Air Quality Standards (NAAQS)*

| Pollutant | Primary/ Secondary | Averaging Time | Level | Form |
|---|---|---|---|---|
| **Carbon Monoxide (CO)** | Primary | 8 hours | 9 ppm | Not to be exceeded more than once per year |
| | | 1 hour | 35 ppm | |
| **Lead (Pb)** | Primary and secondary | Rolling 3-month average | 0.15 µg/m3 | Maximum arithmetic mean of 3 consecutive monthly means in a 3-year period |
| **Nitrogen Dioxide (NO2)** | Primary | 1 hour | 100 ppb | Annual 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | Primary and secondary | 1 year | 53 ppb (2) | Annual Mean |
| **Ozone (O3)** | Primary and secondary | 8 hours | 0.070 ppm | Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years |

| Pollutant | | Primary/ Secondary | Averaging Time | Level | Form |
|---|---|---|---|---|---|
| **Particle Matter (PM)** | **PM2.5** | Primary | 1 year | 9.0 µg/m3 | annual mean, averaged over 3 years |
| | | Secondary | 1 year | 15.0 µg/m3 | annual mean, averaged over 3 years |
| | | Primary and secondary | 24 hours | 35 µg/m3 | 98th percentile, averaged over 3 years |
| | **PM10** | Primary and secondary | 24 hours | 150 µg/m3 | Not to be exceeded more than once per year on average over 3 years |
| **Sulfur Dioxide** | | Primary | 1 hour | 75 ppb | Annual 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | | Secondary | 1 year | 10 ppb | annual mean, averaged over 3 years |

*Source: United States Environmental Protection Agency, NAAQS Table, https://www.epa.gov/criteria-air-pollutants/naaqs-table*

Greenhouse Gases (GHGs) are gases that trap energy in the atmosphere. Washington State adopted targets to reduce its statewide GHG emissions under RCW 70A.45.020(1). These goals include reducing statewide emissions to 45 percent below 1990 levels by 2030, 70 percent below 1990 levels by 2040, and 95 percent below the 1990 levels by 2050. [28]

As part of this effort, ECY publishes a biennial inventory report to measure this progress. Ecology's most recent statewide greenhouse gas inventory covers 1990 through 2022. [29]

Day to day pollutant presence is represented by the national Air Quality Index (AQI), which sorts geographic areas into one of six color assigned categories from good to hazardous.

- **Good (Green):** Air quality is satisfactory, and air pollution poses little to no risk.
- **Moderate (Yellow):** Air quality is acceptable. However, there may be a risk for some people, particularly those who are usually sensitive to air pollution.
- **Unhealthy for Sensitive Groups (Orange):** Members of sensitive groups may experience health effects. The general public is less likely to be affected.

[28] RCW 70A.45.020, Greenhouse gas emissions reductions—Reporting requirements, https://apps.leg.wa.gov/rcw/default.aspx?cite=70A.45.020

[29] Washington State Department of Ecology, Washington State Greenhouse Gas Emissions Interim Inventory Report: 1990-2022, https://apps.ecology.wa.gov/publications/documents/2614030.pdf

- **Unhealthy (Red):** Some members of the general public may experience health effects; members of sensitive may experience more serious health effects.
- **Very Unhealthy (Purple):** Health alert: The risk of health effects is increased for everyone.
- **Hazardous (Maroon):** Health warning of emergency conditions: everyone is more likely to be affected.

The air quality and GHG conditions analyzed in this section include:

- Local air quality conditions
- Pollutants of concern
- NAAQS Status
- Sources of Air Pollution
- Sensitive Populations
- GHG inventory and reduction goals

Federal and state standards, local public health guidance, and permitting requirements for emission sources shape air quality and greenhouse gas regulations. Appendix A includes a list of applicable regulations, statutes, and guidelines.

Impacts of the alternatives would be considered significant if they result in:

- Cause or contribute to violations of NAAQS or Washington ambient air quality standards.
- Result in substantial emissions of criteria pollutants, toxic air contaminants, hazardous air pollutants, or objectionable odors.
- Expose nearby residents, schools, workers, vulnerable communities, or other sensitive receptors to pollutants at levels that create a health concern.
- Create substantial and sustained degradation of local air quality beyond what would occur under existing conditions.
- Result in GHG emissions that are inconsistent with adopted state climate and decarbonization policies

## 4.2 Existing Conditions

This section provides an overview of air quality and GHG conditions in Kittitas County, including relevant emission sources, public health and climate-related factors, and the regulatory and permitting context. The affected environment represents existing conditions as of August 2026, the time at which the Kittitas County CESP EIS was prepared.

### 4.2.1 Local Air Quality Conditions

Kittitas County is located on the east slope of the Cascade Range. Local air quality conditions in the county are affected by:[30]

- Topography
- Seasonal Weather
- Wildfire Smoke
- Residential Wood Combustion
- Transportation Corridors
- Agricultural Activity
- Regional Pollutant Transport

[30] Kittitas County, Air Quality, https://www.co.kittitas.wa.us/health/programs/environmental-health/air-quality.aspx

During winter high-pressure periods, temperature inversions can trap pollutants near the surface in valley areas of Kittitas County.[31] In 2017, declining air quality conditions put the county at risk of violating these standards. To address this, the county joined the EPA's PM Advance Program, which encourages communities at risk to make proactive efforts to improve air quality.[32]

In the Ellensburg area, fine particle air pollution can reach unhealthy levels numerous times during winter, with air conditions often being unhealthy for sensitive groups.[33] The Department of Ecology also identifies ozone and nitrogen dioxide as pollutants that contribute to air pollution in the Ellensburg community.[34]

## 4.2.2 Pollutants of Concern

### 4.2.2.1 Carbon Monoxide

Carbon monoxide is a criteria pollutant produced by combustion sources, including vehicles, wood stoves and fireplaces, outdoor burning, and industrial combustion.[35] The Washington Air Quality Map does not report a readable CO measure for the county as of August 11, 2026.[36]

### 4.2.2.2 Particulate Matter

Particulate matter includes $PM_{10}$ and $PM_{2.5}$, and it can:[37]

- Reduce visibility and create haze
- Stain and damage buildings and structures
- Increase acidity in water bodies
- Change the flow of nutrients and deplete soil or damage forests and crops

Fine particulate matter ($PM_{2.5}$) is the primary local pollutant of concern in the county, and Ellensburg specifically. This is especially true during winter inversion periods and wildfire smoke events.[38] There are four $PM_{2.5}$ monitors in Ellensburg.[39]

### 4.2.2.3 Ozone

Ozone is a criteria pollutant formed through chemical reactions involving nitrogen oxides ($NO_x$) and volatile organic compounds ($VOC_s$) in sunlight, particularly on hot summer days.[40] Vehicles are the largest

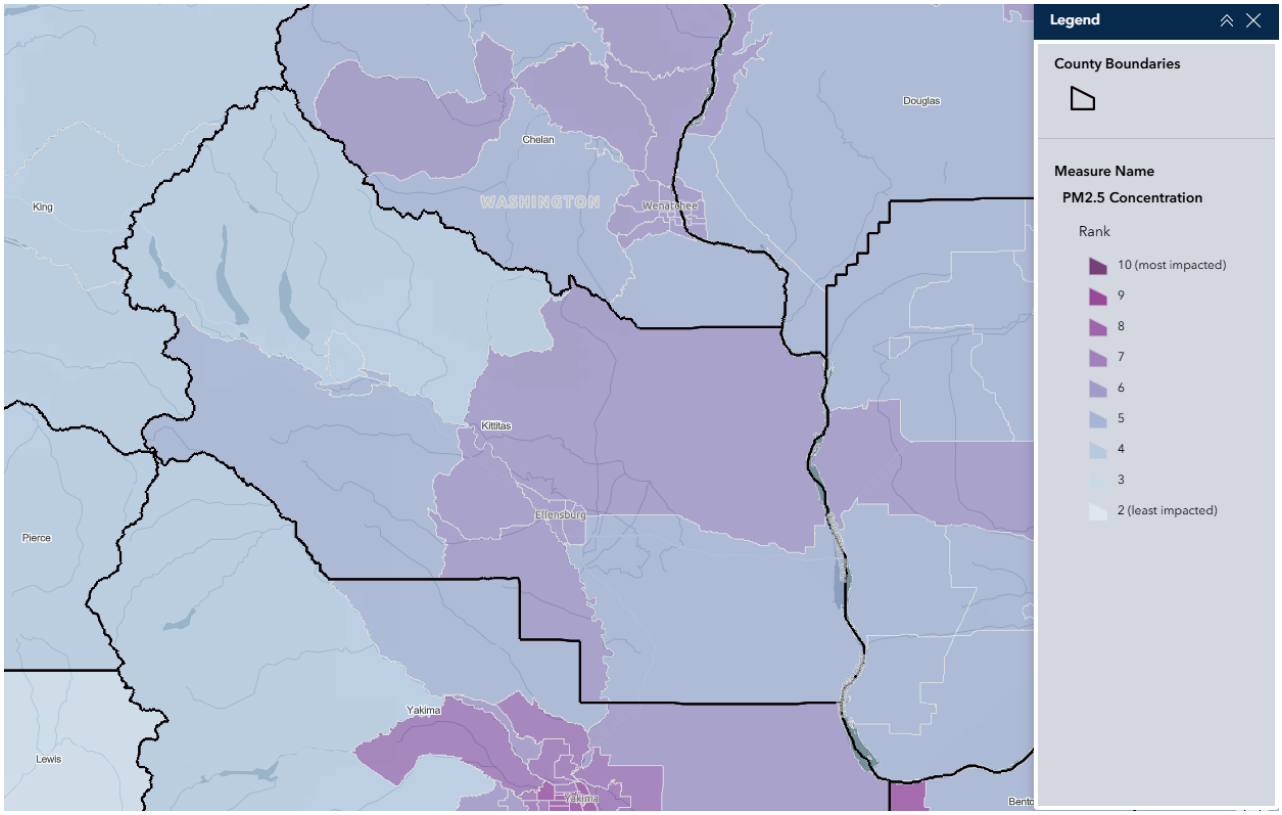
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[31] Kittitas County, Air Quality, https://www.co.kittitas.wa.us/health/programs/environmental-health/air-quality.aspx
[32] Kittitas County, PM Advance Program: Path Forward Plan, https://www.co.kittitas.wa.us/uploads/health/environmental-health/air-quality/Kittitas-County-PM-Advance-Path-Forward-Plan_03_29_2017.pdf
[33] Kittitas County, PM Advance Program: Path Forward Plan, https://www.co.kittitas.wa.us/uploads/health/environmental-health/air-quality/Kittitas-County-PM-Advance-Path-Forward-Plan_03_29_2017.pdf
[34] Washington State Department of Ecology, Ellensburg Community 2025 Report, https://apps.ecology.wa.gov/publications/parts/2502037part1.pdf
[35] Washington State Department of Ecology, Carbon Monoxide in Washington's Air, https://ecology.wa.gov/air-climate/air-quality/air-quality-targets/air-quality-standards/carbon-monoxide
[36] Washington State Department of Ecology, Washington Air Quality Map, https://airqualitymap.ecology.wa.gov/?view=aqi
[37] Kittitas County, PM Advance Program: Path Forward Plan, https://www.co.kittitas.wa.us/uploads/health/environmental-health/air-quality/Kittitas-County-PM-Advance-Path-Forward-Plan_03_29_2017.pdf
[38] Kittitas County, Air Quality, https://www.co.kittitas.wa.us/health/programs/environmental-health/air-quality.aspx
[39] Washington State Department of Ecology, Overburdened Communities Highly Impacted by Air Pollution, https://gis.ecology.wa.gov/portal/apps/storymaps/stories/c10bdbfc69984a9d85346be1a23f6338
[40] Washington State Department of Ecology, Overburdened Communities Highly Impacted by Air Pollution, https://gis.ecology.wa.gov/portal/apps/storymaps/stories/c10bdbfc69984a9d85346be1a23f6338

contributors. Ozone levels are generally higher downwind of urban areas, given the time it takes for pollutants to react with the sunlight.

Ecology's 2025 Ellensburg Community Report identifies ozone and nitrogen dioxide ($NO_2$) as pollutants that contribute to air pollution in the Ellensburg community.[41] Using environmental disparities data from Department of Health, **Figure 11** illustrates areas of concern for particulate matter in the County. **Figure 12** shows some levels of contribution to ozone levels on the western edge of Kittitas County.

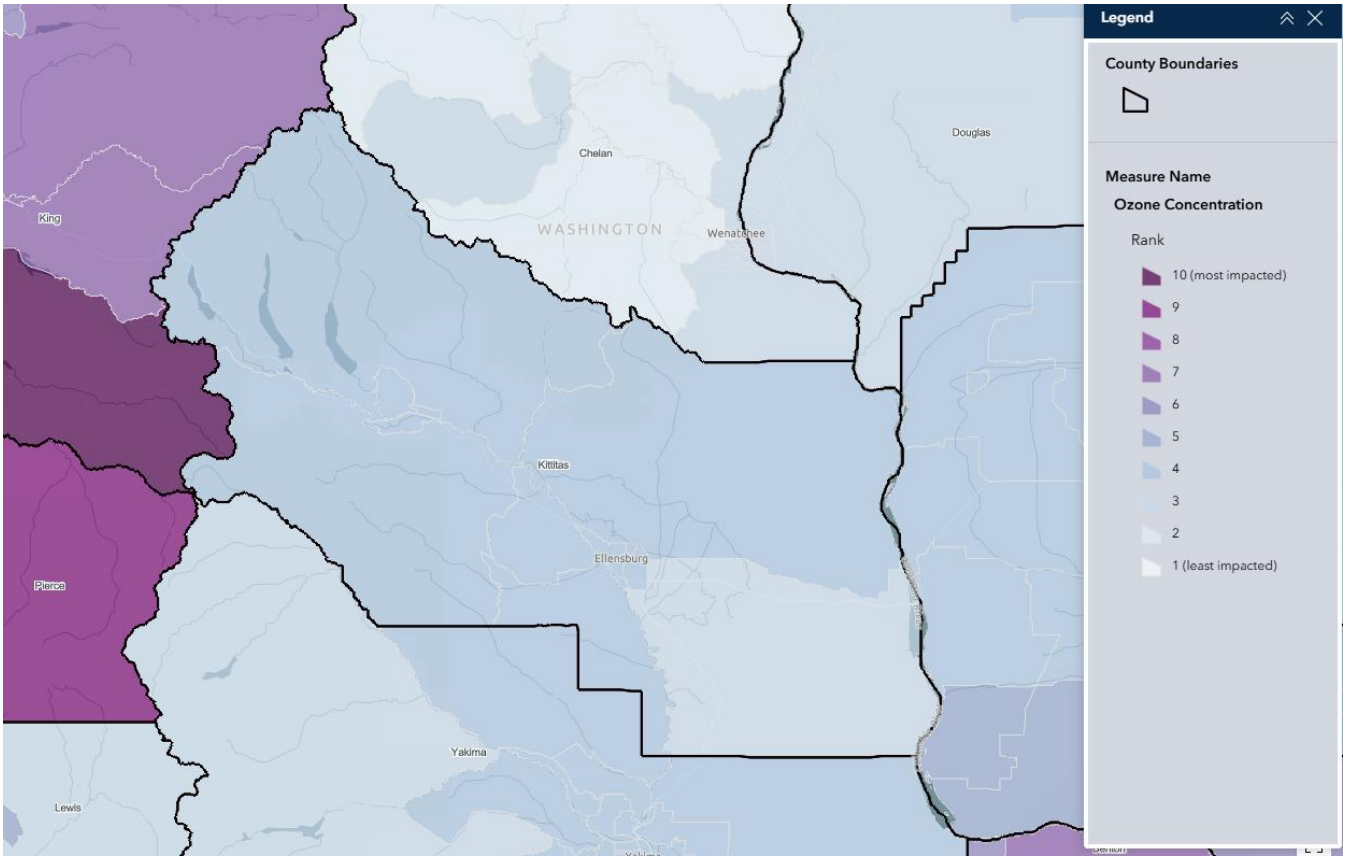
*Figure 11: Washington State Department of Health Areas of Concern for Particulate Matter*




*Source: Washington State Department of Health Environmental Disparities Mapping Tool, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

[41] Washington State Department of Ecology, Ellensburg Community 2025 Report, https://apps.ecology.wa.gov/publications/parts/2502037part1.pdf

*Figure 12 Washington State Department of Health Areas of Concern for Ozone Concentration*




*Source: Washington State Department of Health Environmental Disparities Mapping Tool, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

### 4.2.2.4 Toxic Air Pollutants

The EPA maintains a list of 188 hazardous air pollutants, while WAC 173-460-150 regulates more than 430 toxic air pollutants from commercial and industrial sources. ECY prioritizes 21 of those pollutants due to their health risks. Efforts to reduce these pollutants include reducing diesel emissions and wood smoke.[42]

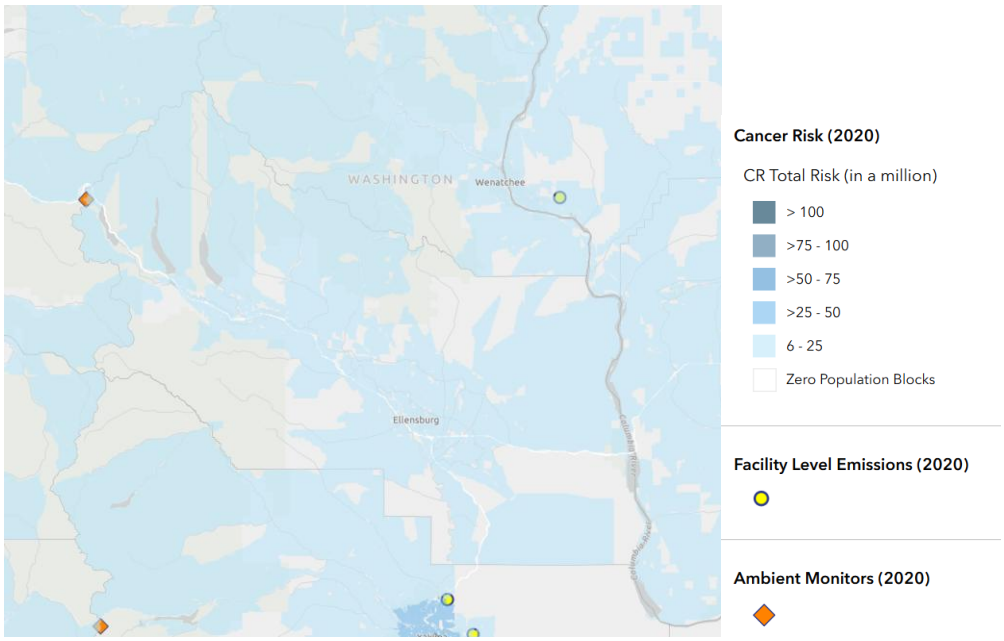
The 21 prioritized pollutants include:

- Diesel PM
- Wood smoke
- Benzene
- Carbon tetrachloride
- Formaldehyde
- Polycyclic organic matter
- Chromium Chloroform
- Ethylene dichloride
- Butadiene
- Ethylene dibromide
- Acetaldehyde
- Tetrachloroethylene (Perchloroethylene) Trichloroethylene
- Nickel
- Arsenic
- Dichlorobenzene
- Dichloropropene
- Ethylene oxide
- Selenium
- Acrolein

[42] Washington State Department of Ecology, National Air Quality Standards, https://ecology.wa.gov/air-climate/air-quality/air-quality-targets/air-quality-standards

**Figure 13** shows health risks from air toxics in Kittitas County based on 2020 emissions, using information on air toxics emissions, air movement (i.e., wind), and toxicity to estimate air toxics concentrations and the risks they pose.[43] Areas within the County shown in blue illustrate a 10 to 20 in a million risk for cancer.

*Figure 13: AirToxScreen Mapping Tool*




*Source: United States Environmental Protection Agency, 2020 AirToxScreen Mapping Tool, https://experience.arcgis.com/experience/a0deb771dbcd40d0a46fbe83adc51747/*

### 4.2.1 Kittitas County NAAQS Status

As of August 2026, Kittitas County is not identified by the USEPA's Green Book for nonattainment or maintenance status. This means the county is not listed as violating, or formerly violating and still being monitored for, federal air quality standards for criteria pollutants. [44]

### 4.2.2 Sources of Air Pollution

Existing air pollution sources in Kittitas County include:[45]

- Residential wood stoves,
- Wildfire smoke,
- Vehicles (particularly along Interstate 90, Interstate 82),
- Agricultural activity, and
- Construction equipment.

[43] Washington State Department of Ecology, National Air Quality Standards, https://ecology.wa.gov/air-climate/air-quality/air-quality-targets/air-quality-standards

[44] United States Environmental Protection Agency, Washington Nonattainment/Maintenance Status for Each Community by Year for All Criteria Pollutants, https://www3.epa.gov/airquality/greenbook/anayo_wa.html

[45] Kittitas County, PM Advance Program: Path Forward Plan, https://www.co.kittitas.wa.us/uploads/health/environmental-health/air-quality/Kittitas-County-PM-Advance-Path-Forward-Plan_03_29_2017.pdf

Statewide emissions inventory reports indicate that wildfires are the primary source of $PM_{2.5}$ in Kittitas County, followed by prescribed burning and woodstove smoke from home heating.[46]

The Washington State Department of Health collects data on how many smoky days and how bad smoke pollution was to create an environmental health disparities score of wildfire smoke exposure. Each census tract is assigned a rank from 1 to 10 that indicates how the tract compares with other tracts, where 1 is the least impacted and 10 is the most impacted. As of 2026, Kittitas County has a score of 9 for wildfire smoke exposure.[47]

### 4.2.3 Sensitive Populations

Kittitas County Public Health provides advisory recommendations for the community based on air quality ratings. Sensitive populations in Kittitas County include the following:[48]

- People with health conditions, such as lung or heart diseases, diabetes, stroke survivors or have a cold, should limit their time outside, avoid intense physical activities and keep indoor air clean when smoke levels are “moderate."
- Babies, children, people over 65, and pregnant women should follow this advice when smoke levels are “unhealthy for sensitive groups.”
- Everyone else should do this when smoke levels are “unhealthy for everyone.”

The Washington State Department of Health also identifies Sensitive Populations for the Environmental Health Disparities Map, which is used to identify disparities. See the **Socioeconomic section** for more information on disproportionate impacts on sensitive communities.

### 4.2.4 Greenhouse Gases and Climate Change

The four main GHGs, as defined by the EPA, include:

- **Carbon dioxide (CO2):** Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials, and also as a result of certain chemical reactions (e.g., cement production). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH4):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use, and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous oxide (N2O):** Nitrous oxide is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater.
- **Fluorinated gases:** Synthetic, powerful greenhouse gases that are emitted from a variety of household, commercial, and industrial applications and processes.

[46] Washington State Department of Ecology, Overburdened Communities Highly Impacted by Air Pollution, https://gis.ecology.wa.gov/portal/apps/storymaps/stories/c10bdbfc69984a9d85346be1a23f6338

[47] Washington State Department of Health, Wildfire Smoke Exposure Ranking https://geo.wa.gov/datasets/f2fb7086f74448479bdf287313300738_0/about

[48] Kittitas County, Air Quality, https://www.co.kittitas.wa.us/health/programs/environmental-health/air-quality.aspx

These GHG emissions can come from four major sources, as categorized by the Intergovernmental Panel on Climate Change (IPCC):[49]

- **Stationary combustion** occurs when equipment is used to produce electricity, steam, heat, or power (such as boilers or generators). There are two ways these occur:
  - Direct emissions result from on-site combustion at the point of use.
  - Indirect emissions occur off-site when heat or electricity are purchased from a utility provider.
- **Mobile combustion** occurs when fuel is burned for transportation (such as in cars, trucks, ships, trains, and planes).
- **Industrial process emissions** result from manufacturing cement, aluminum, ammonia, and other products where the process itself creates emissions.
- **Fugitive emissions** are released by production, processing, transmission, storage, or use of fuels and other substances that do not involve combustion (e.g., the release of fluorinated gases from electrical equipment, natural gas pipeline leaks, or emissions of nitrous oxide from fertilizers).

GHG emissions within Kittitas County are generated from a variety of sources, including transportation, residential and commercial energy consumption, industrial and commercial activities, agriculture, waste management, and electricity use. In the 2026 comprehensive plan update, Kittitas County was not required to prepare a GHG emissions reduction element and does not have a current county-level inventory of GHG emissions.

# 4.3 Impact Analysis

## 4.3.1 Overview

This section evaluates how large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal facilities, and small modular reactors (SMRs) could impact air quality and GHG emissions in Kittitas County. The analysis is organized by alternative, facility type, and project phase: construction, operation, and decommissioning.

Potential impacts include fugitive dust; exhaust from construction equipment, trucks, worker vehicles, and emergency generators; operational releases from certain facility types; toxic air pollutants during abnormal events; and direct and life cycle GHG emissions. The magnitude of impacts would depend on:

- Facility location, size, layout, technology, and construction schedule;
- Amount of clearing, grading, excavation, blasting, drilling, and material hauling;
- Number and type of diesel-powered equipment, trucks, worker trips, generators, and other combustion sources;
- Distance to residences, schools, healthcare facilities, and other sensitive receptors;
- Existing conditions, including winter inversions, wildfire smoke, and elevated particulate matter; and
- Effectiveness of emissions controls, dust suppression, equipment maintenance, monitoring, and emergency response.

[49] Washington State Department of Ecology, Washington State Greenhouse Gas Emissions Interim Inventory Report: 1990-2022, https://apps.ecology.wa.gov/publications/documents/2614030.pdf

Impacts would be considered significant if an alternative would:

- Emissions that cause or contribute to a violation of the NAAQS or Washington Ambient Air Quality Standards.
- Emissions that exceed an applicable air-permitting, Prevention of Significant Deterioration, new-source-review, General Conformity, or project-specific significance threshold.
- Annual emissions of 100 tons or more of volatile organic compounds, nitrogen oxides, sulfur dioxide, carbon monoxide, PM10, or PM2.5 in an attainment area, unless a different regulatory threshold applies to the project or location.
- Fugitive dust, diesel exhaust, odors, smoke, or other emissions that substantially affect nearby residences, schools, health care facilities, outdoor workers, vulnerable populations, biological resources, or water quality.
- Toxic air pollutant emissions that exceed an applicable acceptable source impact level or create a substantial human-health risk.
- An accidental or emergency release of toxic, hazardous, radiological, or combustion-related air pollutants with the potential to substantially affect off-site populations.
- GHG emissions that conflict with applicable state reduction requirements, reporting requirements, permit conditions, or adopted plans and cannot be reduced through feasible measures.
- Cumulative emissions that substantially worsen existing particulate matter, wildfire-smoke, winter-inversion, or other air-quality conditions in Kittitas County.

*Table 8: Primary Air Quality Concerns*

| Facility Type | Primary Air Quality Concerns |
|---|---|
| Large-Scale Solar | Temporary dust and exhaust emissions from clearing, grading, pile installation, construction traffic, and material hauling; localized dust from exposed soils and unpaved roads during operation; and greenhouse gas emissions from construction, maintenance, and decommissioning equipment. |
| Large-Scale Wind | Temporary dust and exhaust emissions from foundation excavation, blasting, access-road construction, heavy equipment, and oversized deliveries; localized dust from long-term use of unpaved roads; and greenhouse gas emissions from construction, maintenance, and decommissioning activities. |
| BESS | Temporary dust and exhaust emissions during site preparation and installation; smoke, toxic air pollutants, or other combustion products if a battery fire or thermal runaway event occurs; emissions from emergency generators or cooling equipment; and greenhouse gas emissions associated with construction and maintenance. |
| Geothermal | Dust and exhaust emissions from exploration, drilling, road and pipeline construction, and material hauling; operational releases of hydrogen sulfide, carbon dioxide, steam, or other geothermal constituents depending on the resource and technology; and greenhouse gas emissions from drilling, facility operation, and maintenance. |
| SMRs | Temporary dust and exhaust emissions from extensive excavation, concrete production, heavy construction, material delivery, and worker travel; emissions from emergency generators, cooling systems, and other support equipment; potential radiological or hazardous air releases during an abnormal event; and greenhouse gas emissions from construction, operation, and decommissioning. |

### 4.3.2 No Action – Alternative #1

Under the No Action Alternative, the County would continue to review energy facilities under existing County regulations and applicable federal and state air-quality requirements. New or modified stationary emission sources would obtain required air permits, and projects would remain subject to fugitive-dust, opacity, odor, toxic air pollutant, and GHG reporting requirements, when applicable.

#### 4.3.2.1 Impacts from Construction, Operation, and Decommissioning Under Current Processes

Construction and decommissioning would temporarily generate particulate matter and combustion emissions from clearing, grading, excavation, drilling, blasting, diesel equipment, trucks, worker vehicles, and travel on unpaved roads. These emissions could temporarily worsen local air quality, especially during dry or windy conditions, winter inversions, or wildfire smoke events. Larger facilities and overlapping construction schedules would be anticipated to produce greater emissions.

Operational emissions would vary by technology. Solar, wind, and BESS facilities would generally have low routine emissions, primarily from maintenance vehicles, road dust, and emergency generators. Geothermal facilities could release geothermal gases or steam, depending on the resource and technology. SMRs could produce emissions from generators, cooling systems, and other support equipment. Abnormal events at BESS, geothermal, or SMR facilities could cause short-term releases.

All facility types would produce GHG emissions during material production, transportation, construction, maintenance, and decommissioning. Solar, wind, and nuclear generation do not directly emit GHGs during normal electricity generation, while geothermal operational emissions can but vary by technology and design.

Impacts would generally be less than significant with compliance and mitigation, but project-level analysis would be required for major stationary sources or facilities near sensitive receptors.

### 4.3.2.2 Mitigation Measures

*4.3.2.2.1.1 Required Measures*

- Obtain any required Notice of Construction approval, Prevention of Significant Deterioration permit, operating permit, registration, or EFSEC air-quality approval.
- Comply with WAC 173-400 requirements for fugitive dust, fallout, opacity, odors, and general emissions.
- Comply with WAC 173-460 requirements for new sources of toxic air pollutants, when applicable.
- Report GHG emissions under state or federal programs when applicable thresholds are met.
- Use permitted portable concrete or rock-processing equipment, when required.

### 4.3.2.3 Significant Unavoidable Adverse Impacts

No significant unavoidable air-quality or GHG impacts are anticipated under the No Action Alternative if projects comply with applicable permits and implement feasible controls. Project-level review could identify significant impacts if emissions exceed applicable thresholds, substantially affect sensitive receptors, or cannot be reduced through permit conditions or other feasible measures.

## 4.3.3 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Alternative 2 would revise the solar and wind overlays and could establish BESS development standards. Overlay screening could reduce impacts by directing facilities away from communities and sensitive receptors and toward sites with existing roads and electrical infrastructure. Site-specific review would still be required because emissions depend on project size, schedule, equipment, and technology.

### 4.3.3.1 Large-Scale Solar

#### 4.3.3.1.1 Construction Impacts

Solar construction would generate temporary dust from clearing, grading, trenching, pile installation, material handling, and travel on unpaved surfaces. Diesel equipment, trucks, worker vehicles, and portable generators would emit PM, nitrogen oxides, carbon monoxide, volatile organic compounds, and GHGs. Large sites could produce substantial short-term dust without control measures. Impacts would generally be less than significant because emissions would be temporary.

#### 4.3.3.1.2 Operation Impacts

Solar panels would not directly emit air pollutants or GHGs during operation. Maintenance vehicles, panel cleaning, unpaved road travel, vegetation management, and emergency generators would create low, intermittent emissions. Exposed or poorly stabilized soil could generate dust during high winds. Operational impacts would generally be less than significant.

#### 4.3.3.1.3 Decommissioning Impacts

Decommissioning would temporarily generate dust and exhaust during equipment removal, hauling, grading, and restoration. Emissions would generally be lower or shorter than construction emissions because established roads and work areas would be available. Recycling or disposal would also contribute to life cycle GHG emissions.

#### 4.3.3.1.4 Mitigation Measures

##### *4.3.3.1.4.1 Required Mitigation*

- Obtain applicable air permits for stationary or portable emission sources.
- Control fugitive dust and prevent off-site fallout under WAC 173-400.
- Comply with applicable open-burning, opacity, odor, and GHG reporting requirements.

##### *4.3.3.1.4.2 Recommendations for Siting and Design*

- Prioritize previously disturbed sites near existing roads and transmission infrastructure.
- Provide adequate setbacks from sensitive receptors where substantial construction activity is expected.
- Minimize grading, unpaved roads, and exposed soil in the site layout.

##### *4.3.3.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Use water or approved suppressants, stabilize entrances, cover haul loads, limit vehicle speeds, and suspend high-dust work when controls are ineffective.
- Use newer, lower-emitting equipment; prohibit unnecessary idling; and maintain engines and emission controls.
- Stabilize disturbed soils promptly and maintain vegetation or other ground cover during operation.
- Apply the same controls during decommissioning and restore stable ground cover.

##### *4.3.3.1.4.4 Other Mitigation for Potentially Significant Impacts*

If modeling or monitoring identifies a potentially significant effect, require additional dust controls, cleaner equipment, schedule limits, receptor monitoring, or a health-risk assessment. Reduce or phase construction until emissions remain below applicable thresholds.

### 4.3.3.2 Large-Scale Wind

#### 4.3.3.2.1 Construction Impacts

Wind construction would generate dust and exhaust from turbine-foundation excavation, blasting, concrete work, crane pads, access roads, collection lines, heavy equipment, and oversized deliveries. The dispersed footprint and road network could create dust across a broad area. Impacts would be greater during dry, windy periods or where construction occurs near residences.

#### 4.3.3.2.2 Operation Impacts

Routine operation would generate limited emissions from maintenance vehicles, road dust, emergency generators, and occasional repair equipment. Wind turbines would not directly emit air pollutants or GHGs during electricity generation. Impacts would generally be less than significant.

#### 4.3.3.2.3 Decommissioning Impacts

Decommissioning would generate temporary dust and exhaust from dismantling turbines, breaking or removing foundations, hauling materials, road work, and site restoration. Repowering could create similar but more localized emissions.

#### 4.3.3.2.4 Mitigation Measures

##### *4.3.3.2.4.1 Required Mitigation*

- Obtain applicable air permits and portable-source approvals.
- Comply with fugitive dust, fallout, blasting, opacity, and open-burning requirements.
- Comply with GHG reporting requirements if thresholds are met.

*4.3.3.2.4.2 Recommendations for Siting and Design*

- Use existing roads and disturbed corridors where feasible.
- Minimize road length, grading, blasting, and disturbance near sensitive receptors.
- Locate concrete or material-processing areas to reduce off-site exposure.

*4.3.3.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Apply dust controls to roads, excavation, blasting, and material handling.
- Use lower-emitting equipment, limit idling, and coordinate oversized deliveries to reduce congestion and emissions.
- Maintain road surfaces and vegetative cover during operation.
- Use dust and exhaust controls during repowering or decommissioning and stabilize restored areas promptly.

*4.3.3.2.4.4 Other Mitigation for Potentially Significant Impacts*

If predicted emissions or dust effects remain significant, require construction phasing, additional setbacks, enclosed or controlled processing equipment, cleaner fleets, or temporary monitoring at nearby receptors.

### 4.3.3.3 Battery Energy Storage Systems (BESS)

#### 4.3.3.3.1 Construction Impacts

BESS construction would be likely to create localized dust and exhaust from grading, foundations, trenching, delivery trucks, cranes, and interconnection work. Facilities would generally have a concentrated development footprint relating to more localized impacts. Construction impacts would usually be temporary and less than significant.

#### 4.3.3.3.2 Operation Impacts

Routine BESS operation would generate minimal air emissions, primarily from maintenance vehicles, heating and cooling equipment, and emergency generators. Abnormal operating conditions, such as a battery fire or thermal runaway event, could result in short term releases of smoke, particulate matter, toxic air pollutants, and other combustion products. The type and magnitude of emissions would vary based on battery chemistry, system design, detection, suppression, emergency response, and nature of the event. These risks are addressed further in the Environmental Health and Safety section.

#### 4.3.3.3.3 Decommissioning Impacts

Decommissioning would result in temporary dust and vehicle and equipment exhaust associated with removing battery units and supporting infrastructure, transporting materials, and restoring the site. Damaged batteries or contaminated materials affected by a fire or other release could require controlled handling, transport, and disposal to avoid releases. Recycling and disposal would contribute to life-cycle GHG emissions.

#### 4.3.3.3.4 Mitigation Measures

*4.3.3.3.4.1 Required Mitigation*

- Obtain applicable air permits for generators or other stationary sources.
- Comply with fire-code, hazardous-material, toxic-air-pollutant, and emergency-planning requirements.
- Comply with fugitive-dust and GHG reporting requirements, when applicable.

*4.3.3.3.4.2 Recommendations for Siting and Design*

- Locate BESS facilities away from sensitive receptors where feasible and provide separation consistent with fire and safety review.
- Use listed systems, monitoring, ventilation, gas detection, and emergency shutdown features appropriate to the battery chemistry.
- Design emergency access and containment to support rapid response and limit off-site smoke exposure.

*4.3.3.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Control construction dust and diesel emissions.
- Inspect ventilation, cooling, gas-detection, and fire-protection systems.
- Maintain current emergency response procedures and coordinate with local responders.
- Use qualified contractors and controlled transport for damaged or retired batteries.

*4.3.3.3.4.4 Other Mitigation for Potentially Significant Impacts*

If a hazard analysis identifies a potentially significant off-site air release, require additional separation, deflagration control, ventilation treatment, monitoring, operational limits, or other technology-specific controls. A site should not proceed if feasible measures cannot reduce off-site risk to an acceptable level.

### 4.3.3.4 Significant Unavoidable Adverse Impacts

Alternative 2 is not expected to cause significant unavoidable air-quality or GHG impacts if revised overlays consider sensitive receptors and projects comply with permits and mitigation.

A BESS project could have a potentially significant impact if a credible failure could cause an off-site toxic air release that cannot be adequately controlled.

## 4.3.4 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

Alternative 3 would evaluate geothermal and SMR siting and development standards. The siting conditions could screen for proximity to sensitive receptors, prevailing winds, existing transportation and utility infrastructure, and the ability to meet air-permitting requirements. Further analysis of facility emissions and potential health-risks would be reviewed as part of project-level SEPA review.

### 4.3.4.1 Geothermal

#### 4.3.4.1.1 Construction Impacts

Geothermal exploration and construction would generate dust and exhaust from drilling rigs, road and pad construction, pipeline installation, generators, heavy equipment, trucks, and worker travel. Well testing could temporarily release steam and geothermal gases. Impacts would depend on the number of wells, drilling duration, resource chemistry, and proximity to sensitive receptors.

#### 4.3.4.1.2 Operation Impacts

Operational emissions vary by technology and geothermal resource. Closed-loop or binary systems generally have low routine releases, while other systems may release hydrogen sulfide, carbon dioxide, methane, ammonia, mercury, or other constituents in geothermal fluids or gases. Hydrogen sulfide can create odor concerns at low concentrations. Cooling towers, generators, maintenance traffic, and well workovers could also produce emissions. GHG emissions would generally be lower than fossil-fuel generation but should be

quantified for the selected technology. Project-level review should provide additional depth on the type of geothermal facility and anticipated emissions during future SEPA review.

#### 4.3.4.1.3 Decommissioning Impacts

Decommissioning would generate temporary dust and exhaust during well plugging, pipeline and equipment removal, hauling, and restoration. Well venting or fluid handling could cause short-term releases if not adequately controlled.

#### 4.3.4.1.4 Mitigation Measures

##### *4.3.4.1.4.1 Required Mitigation*[50]

- Obtain required air permits and approvals for wells, generators, cooling systems, abatement equipment, and other emission sources.
- Comply with ambient-air, toxic-air-pollutant, odor, opacity, and GHG reporting requirements.
- Monitor and control emissions as required by permit conditions.

##### *4.3.4.1.4.2 Recommendations for Siting and Design*

- Characterize geothermal gas and fluid chemistry before final design.
- Favor closed-loop or low-emission technology where feasible.
- Locate wells, vents, cooling equipment, and abatement systems to reduce exposure at sensitive receptors.
- Design hydrogen sulfide detection, treatment, and emergency shutdown systems where warranted.

##### *4.3.4.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Control construction dust and diesel exhaust.
- Minimize uncontrolled well venting and route gases to approved control systems.
- Monitor hydrogen sulfide and other permit pollutants; maintain abatement equipment; and investigate odor complaints promptly.
- Control releases during well closure and restore disturbed areas.

##### *4.3.4.1.4.4 Other Mitigation for Potentially Significant Impacts*

If emissions modeling or monitoring identifies significant effects, require enhanced abatement, enclosed systems, operational limits, additional monitoring, or greater separation. Suspend well testing or operation when emissions exceed permit limits or established action levels.

### 4.3.4.2 Small Nuclear Reactors (SMR)

#### 4.3.4.2.1 Construction Impacts

SMR construction could generate temporary dust, diesel exhaust from vehicles and equipment, and GHG emissions associated with excavation, dewatering, concrete placement, steel and material deliveries, worker travel, and a long construction period. Production and transportation of concrete, steel, and other facility components would also contribute to life-cycle GHG emissions. Construction-related emissions would vary based on reactor design, site conditions, construction schedule, and phasing.

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[50] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

#### 4.3.4.2.2 Operation Impacts

Normal SMR operations would be anticipated to generate limited direct air pollutant and GHG emissions from electricity generation. Operational emissions could occur from emergency generators, boilers, cooling systems, maintenance vehicles, and other support equipment. Cooling towers could generate particulate drift or visible plumes depending on project specific design.

SMR facilities using nuclear fission would not be anticipated to produce significant air pollutants or GHG emissions; however, such facilities would be subject to SEPA environmental review through the EFSEC process for project-level specifics.

Depending on final technology design, SMR facilities using nuclear fusion may include highly controlled radioactive process streams containing tritium or other regulated byproduct materials. As an example of potential impacts, the fusion facility in Malaga, Washington identified five byproducts in the associated SEPA checklist. These included: a proton (or, hydrogen-1), helium-3, helium-4, tritium (or, hydrogen-3), and a neutron. Of these byproducts, tritium has the potential for impacts. Tritium is a rare and radioactive isotope of hydrogen. It decays at a rate of roughly 5.5 percent per year for a total half-life of roughly 12 years. As it decays, the tritium becomes helium-3. Facility systems can be designed to recapture tritium and helium-3 for reuse reducing the risk for potential impacts. As part of normal operations, tritium may be emitted in small planned-for measures. [51]

Any radioactive air emissions would be monitored and regulated through federal and state permitting processes and would be released only through engineered containment, filtration, and monitoring systems designed to protect public health and the environment.

#### 4.3.4.2.3 Decommissioning Impacts

Decommissioning could extend over many years and generate dust, vehicle exhaust, and GHG emissions from decontamination, demolition, material handling, waste transport, and site restoration. Radiological controls could affect the sequence and duration of work.

#### 4.3.4.2.4 Mitigation Measures

##### *4.3.4.2.4.1 Required Mitigation*

- Obtain U.S. Nuclear Regulatory Commission licensing, EFSEC certification, and applicable air permits.
- Comply with criteria pollutant, toxic-air-pollutant, radiological-emission, monitoring, and reporting requirements.
- Permit emergency generators, concrete plants, and other stationary sources as applicable.

##### *4.3.4.2.4.2 Recommendations for Siting and Design*

- Locate facilities and major emission sources away from sensitive receptors where feasible.
- Use existing industrial or energy sites and transportation infrastructure to reduce construction travel and disturbance.
- Select lower-emitting construction systems and cooling designs that minimize drift and chemical use.
- Design monitoring and emergency systems to meet federal and state requirements.

[51] Chelan County, MDNS for Helion Fusion Power Plant: SEPA Environmental Checklist, 2025, https://apps.ecology.wa.gov/separ/Main/SEPA/Record.aspx?SEPANumber=202502238

*4.3.4.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Prepare and implement a construction emissions and dust-control plan.
- Use lower-emitting equipment, limit idling, phase high-emission activities, and manage worker transportation.
- Test, maintain, and operate generators and emission controls under permit limits.
- Use controlled demolition, containment, monitoring, and transport during decommissioning.

*4.3.4.2.4.4 Other Mitigation for Potentially Significant Impacts*

If project emissions could exceed applicable thresholds or substantially affect sensitive receptors, require additional controls, schedule changes, cleaner equipment, offsets where allowed, or continuous monitoring. A site or design should not proceed if federal safety and air-emission standards cannot be met.

### 4.3.4.3 Significant Unavoidable Adverse Impacts

Alternative 3 is not expected to cause significant unavoidable air-quality or GHG impacts if projects meet applicable licensing and air-permitting requirements and implement feasible controls.

Potentially significant impacts could occur if geothermal emissions or odors cannot be adequately controlled, or if construction or support-source emissions from an SMR exceed applicable thresholds. Project-level review would determine whether such impacts can be mitigated.

# 5 Land Use

## 5.1 Overview

The Land Use section reviews the existing conditions, alternatives impact analysis, and mitigation measures, including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures, associated with land use within Kittitas County.

Large-scale solar, wind, battery energy storage system (BESS), geothermal, and small modular reactor (SMR) facilities are subject to applicable federal, state, and local land use planning and development requirements. Through the Washington State Growth Management Act (GMA), a framework is provided for the County's long-range planning efforts that then guide future development through the implementation of land use designations, zoning, allowed uses, development standards, and permit requirements. At the local level, land use decisions are guided by the Kittitas County Countywide Planning Policies, Kittitas County Comprehensive Plan, applicable subarea plans, and implemented through Kittitas County development regulations. Potentially applicable regulations, policies, plans, and guidelines are further identified in Appendix A. Applicability depends on project location, facility type and design, land use designation and zoning, and surrounding land uses.

The factors analyzed in this section include:

- Land Ownership and Jurisdiction
- Land Use Designations
- Zoning Districts
- Overlay Zones
- Subarea Plans and Master Planned Resorts
- Urban Areas
- Wildland Urban Interface
- Critical Areas
- Shorelines
- Military Uses
- Agricultural Uses
- Recreational Uses

Impacts of the alternatives would be considered significant if they result in:

- Conversion of land from existing resource lands of long-term commercial significance to a new energy use
- Land use conflicts with rural character
- Potential for co-location of other land uses with energy facilities
- Potential conflicts with aviation or military operations
- Effects on existing or future land uses resulting from off-site changes in road networks, views, and increased noise, traffic, or water use
- Inconsistency with local, state, or federal land use plans, policies, or regulations

# 5.2 Existing Conditions

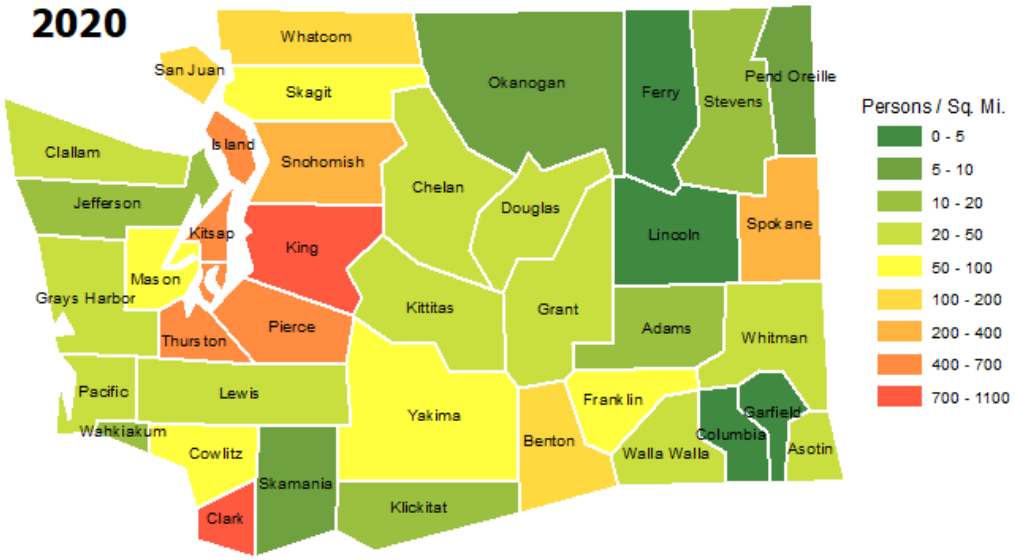
This section provides an overview of the Kittitas County population, land ownership, and land-use types. The affected environment represents existing conditions as of July 2026, the time at which the Kittitas County CESP EIS was prepared.

## 5.2.1 County Description

Kittitas County encompasses approximately 1.48 million acres (2,315 square miles) and contains a diverse range of landscapes, ecological systems, and land uses.[52] The county remains predominantly rural in character. More than half of the county is covered by coniferous forestlands, while approximately 30 percent consists of pasture, rangeland, or unimproved grazing lands. Urban development occupies less than two percent of the county's total land area. Most of the county remains characterized by working lands, natural resource areas, open space, recreation lands, and public ownership.[53]

As of 2026, Kittitas County has a population of approximately 49,250 people.[54] As shown in **Figure 14**, Kittitas County has a comparatively low population density compared with western Washington counties such as King, Pierce, Snohomish, and Kitsap. The county falls within the category of approximately 20 to 50 persons per square mile, reflecting its predominantly rural character and large areas of open land.

*Figure 14: 2020 Population Density Map*




*Source: Washington State Office of Financial Management, Population Density by County, 2020, https://ofm.wa.gov/data-research/population-demographics/estimates/population-density/county/#section-2020*

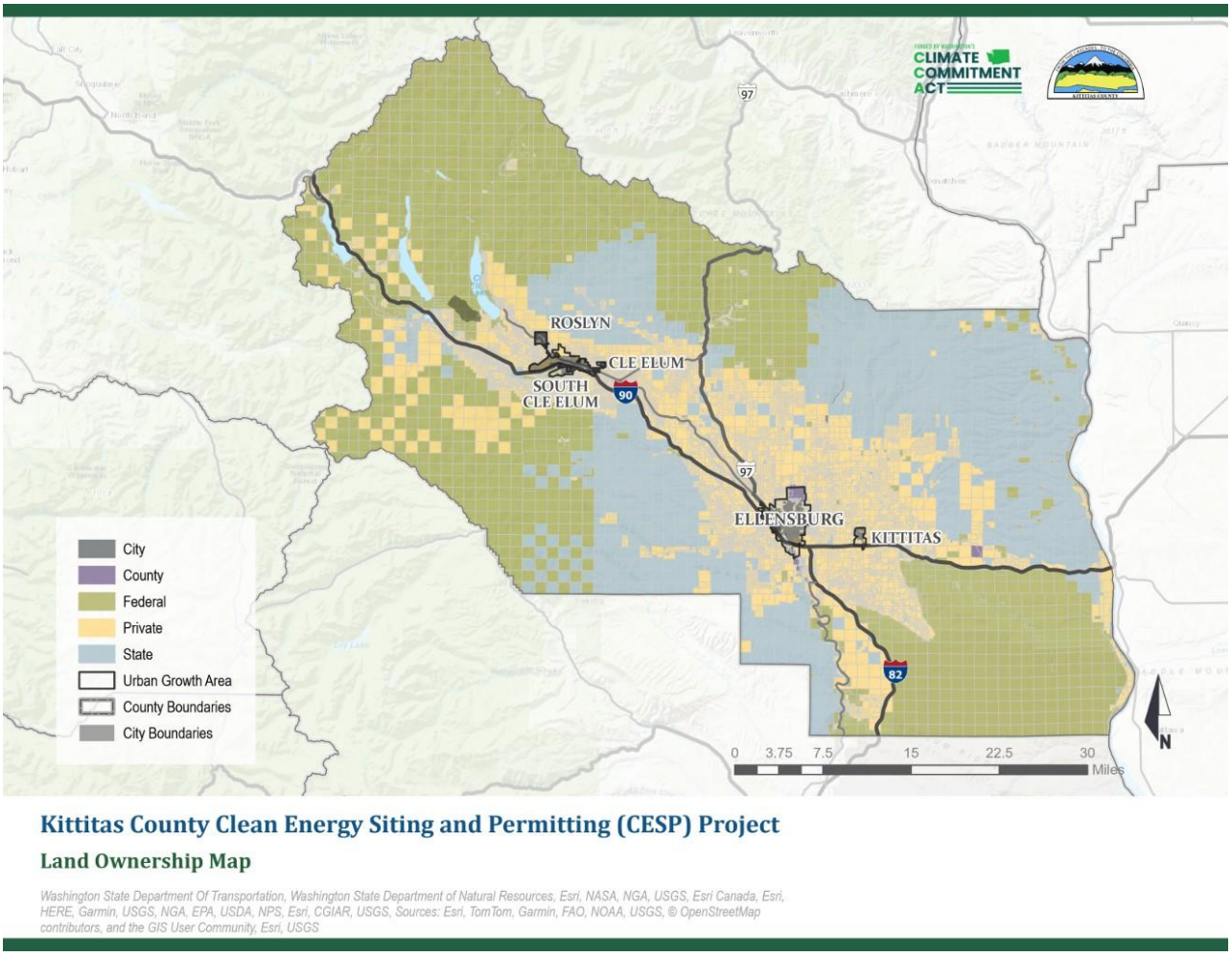
## 5.2.2 Land Ownership

Land ownership in Kittitas County influences land use, resource management, recreation, conservation, agricultural activities, and future development opportunities. As shown in **Figure 15**, ownership is divided

[52] Kittitas County 2026 Comprehensive Plan
[53] Kittitas County 2026 Comprehensive Plan
[54] Washington State Office of Financial Management, Population Density by County, 2020, https://ofm.wa.gov/data-research/population-demographics/estimates/population-density/county/#section-2020

among federal, state, local, and private interests. Public agencies own the majority of the land in Kittitas County.

*Figure 15: Kittitas County Land Ownership*




*Source: Kittitas County and Kimley-Horn, 2026*

### 5.2.2.1 Public Land Ownership

According to the Kittitas County Comprehensive Plan, approximately 73 percent of Kittitas County consists of publicly owned lands managed by federal and state agencies. These lands are concentrated primarily in the Cascade Mountains, forested uplands, shrubsteppe environments, wildlife habitat areas, and other natural resource landscapes. [55] While these publicly owned lands may have land use designations and zoning, Kittitas County does not have regulatory authority over land use of federal lands.

The largest federal landowner within the county is the U.S. Forest Service, which administers extensive portions of the Okanogan-Wenatchee National Forest. Additional federal lands are administered by agencies such as the Bureau of Land Management (BLM) and the U.S. Department of Defense (DoD). [56] While Kittitas

[55] Kittitas County 2026 Comprehensive Plan
[56] Kittitas County 2026 Comprehensive Plan

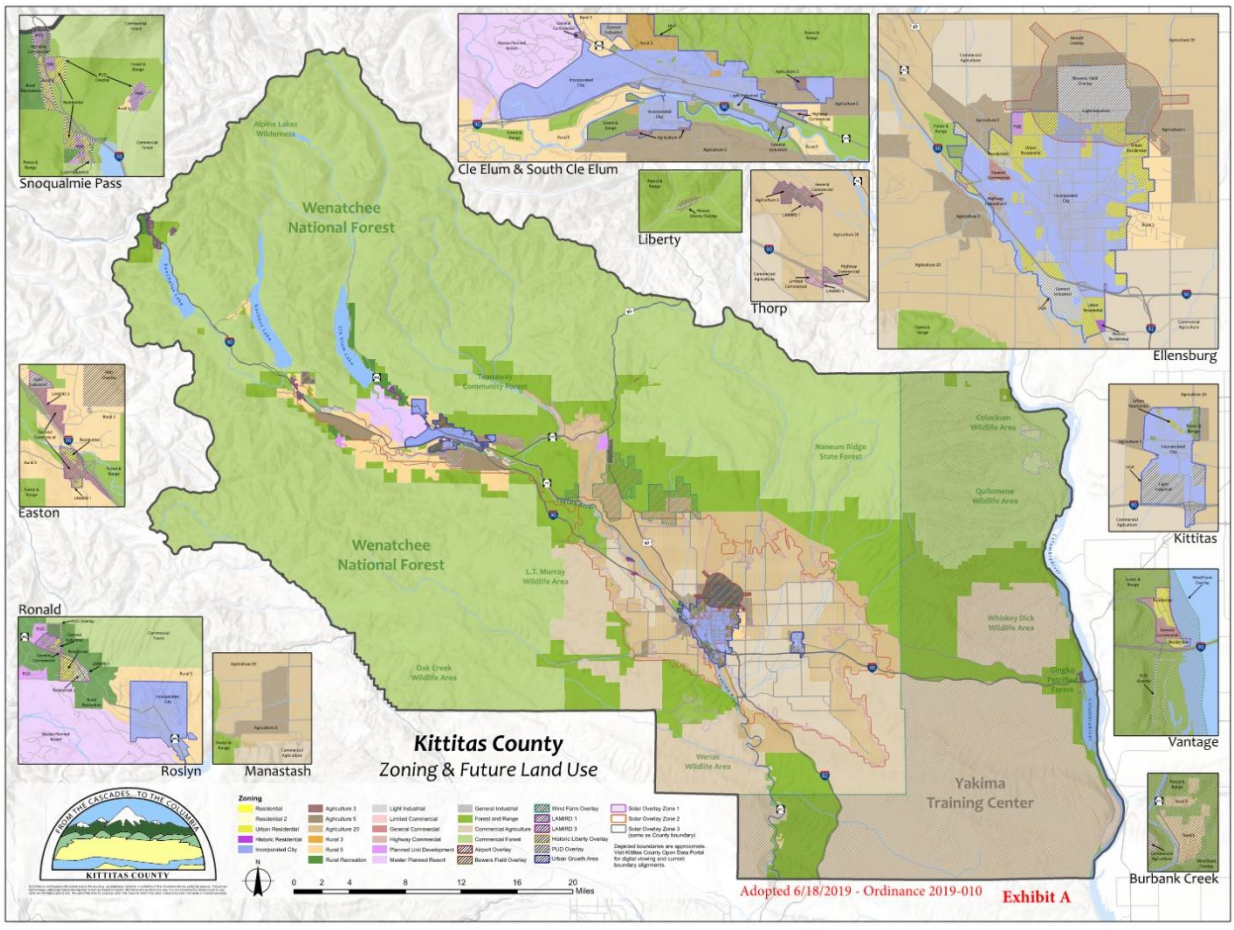
County may have land use designations and implementing zoning on federal lands, Kittitas County does not have jurisdictional authority to regulate land uses on federal lands.

State-owned lands are managed primarily by the Washington State Department of Natural Resources (DNR), Washington Department of Fish and Wildlife (WDFW), and Washington State Parks. DNR-managed trust lands also contribute revenue to public institutions through resource management activities.

### 5.2.3 Land Use Designations

Land use patterns in Kittitas County generally follow elevation, climate, and historical settlement patterns. Land use designations identify the types of uses envisioned for different areas of the county, such as residential, commercial, agricultural, and forest uses. The County's Comprehensive Plan establishes these designations and supporting policies, which are implemented through zoning and development regulations. **Figure 16** illustrates the land use designations throughout the county.

*Figure 16: Land Use Map*




*Source: Kittitas County, 2019*

The Kittitas County Comprehensive Plan establishes a series of land use designations intended to guide future growth and development, including:

- **Commercial Agriculture** This type of Resource Lands accounts for 19.5 percent of the county and supports commercial farming, ranching, irrigated agriculture, forage crops

(crops to feed livestock, like hay and alfalfa), grazing operations, and other agricultural activities that contribute to the county's economy and rural character. The designation is intended to conserve productive agricultural soils and reduce conflicts between agricultural operations and non-agricultural development.

- **Commercial Forest** This type of Resource Lands accounts for 54 percent of the county and is intended to preserve and support commercial timber production, sustainable forest management, and related resource-based industries. Commercial Forest lands also provide wildlife habitat, watershed protection, recreation opportunities, carbon storage, and scenic open space. The designation seeks to protect forest resources from fragmentation and conversion to incompatible development while maintaining their long-term economic productivity.
- **Mineral Lands** This type of Resource Lands accounts for 0.4 percent of the county and contains commercially valuable deposits of sand, gravel, aggregate, stone, and other mineral resources necessary for construction, infrastructure, and economic development. The designation is intended to preserve access to mineral resources and prevent development that could interfere with future extraction opportunities.
- **Rural Residential** Rural Residential lands account for 2 percent of the county and are intended to provide opportunities for low- to moderate-density residential development outside Urban Growth Areas (UGAs) and Limited Areas of More Intensive Rural Development (LAMIRDs) while maintaining the county's rural character. These areas accommodate housing in rural settings where limited services and infrastructure are available. The designation balances residential growth with the preservation of open space, natural resources, and agricultural activities.
- **Rural Working** Rural Working lands account for 22.2 percent of the county and are low-intensity rural areas intended to support agriculture, forestry, mineral-related activities, and other resource-based uses that occur outside designated resource lands. These areas provide flexibility for working landscapes, limited rural businesses, and resource-supporting activities while maintaining rural character and avoiding urban-level development. Rural Working lands often serve as a transition between designated resource lands and more residential portions of the county.
- **Rural Recreation** Rural Recreation lands account for 0.7 percent of the county and are intended to support recreation-oriented uses that capitalize on the county's natural amenities, scenic landscapes, and tourism opportunities. Typical uses may include resorts, campgrounds, recreation facilities, seasonal lodging, outdoor recreation destinations, and tourism-related businesses. The designation promotes recreational opportunities and economic activity while preserving the rural and natural character of the surrounding area.





- **LAMIRDs** — LAMIRDs account for 0.1 percent of the county and are areas recognized under the GMA as existing concentrations of development located outside UGAs. These areas may contain historic communities, commercial centers, industrial sites, residential neighborhoods, or mixed-use development that existed prior to the GMA. The purpose of a LAMIRD designation is to allow limited growth and redevelopment within existing development patterns without encouraging urban expansion into surrounding rural lands
- **Urban Areas** — Urban Areas account for 1 percent of the county and include incorporated cities and their unincorporated UGAs. Under the GMA, these areas are intended to accommodate future population growth, housing, employment, public services, commercial development, industrial activities, and infrastructure investments. Urban Areas are served or planned to be served by urban governmental services such as public water, sewer, transportation networks, and emergency services. Growth is directed to these areas to reduce sprawl and preserve rural and resource lands elsewhere in the county.

The most common designations are Commercial Forest, Commercial Agriculture, and Rural Working lands, which together encompass 95.7 percent of the county's land area. Urban designations are concentrated around incorporated cities, while Rural Residential and Rural Recreation designations are typically located near existing communities, recreational destinations, and transportation corridors.[57]

### 5.2.3.1 Resource Lands

Resource Lands are areas designated under the GMA for the long-term conservation and commercial use of agricultural, forest, and mineral resources.[58] In Kittitas County, Resource Lands include Commercial Forest, Commercial Agriculture, and Mineral Resource Lands, which together account for approximately 1.1 million acres, or nearly 74 percent of the county's total land area. These lands are recognized for their long-term economic, environmental, and cultural value, or “long-term commercial significance”, and are protected from incompatible development that could impair their resource productivity.[59]

#### 5.2.3.1.1 Commercial Agriculture

Commercial agricultural lands of long-term commercial significance are generally located within the Kittitas Valley and surrounding agricultural areas. They are mainly used for hayfields, pasture, and livestock operations within the Kittitas Valley. Timothy, alfalfa, orchards, grass, and other forage crops are grown in this area for both domestic and export markets. These lands are also used for cattle ranching and grazing, which contribute to the County’s agricultural economy. [60]

Working agriculture land in Kittitas County is typically characterized by productive fields, irrigation systems, barns, hay storage, equipment areas, fences, and livestock facilities. Operations and uses on commercial agriculture lands in the county include irrigation, baling hay, moving equipment and agricultural products, and

[57] Kittitas County 2026 Comprehensive Plan
[58] RCW 36.70A.170, https://app.leg.wa.gov/rcw/default.aspx?cite=36.70a.170
[59] Kittitas County 2026 Comprehensive Plan
[60] “Agriculture in Kittitas County”, WSU Extension, https://extension.wsu.edu/kittitas/agriculture/.

managing livestock. Production is dependent upon reliable irrigation and connected acreage. Access for farm equipment is also necessary for operation.

#### 5.2.3.1.2 Commercial Forest

Commercial Forest lands of long-term commercial significance represent the county's largest resource land designation. These lands are concentrated primarily within the Cascade Mountains and higher-elevation portions of western Kittitas County.[61]

Commercial forests support timber production, watershed protection, recreation, wildlife habitat, carbon storage, and ecosystem services. Historically, timber production served as one of the county's primary economic activities. These lands also provide scenic resources that contribute significantly to the county's tourism and recreation economy.[62]

While commercial forestry remains an activity in Snoqualmie Pass, Cle Elum, Roslyn, and the Upper County region, recreation, tourism, outdoor amenities, and residential development have grown in these areas. Former timber-producing lands have increasingly transitioned to recreation-oriented developments, residential neighborhoods, resorts, and recreational subdivisions. Despite these changes, large areas of designated commercial forest and forest-and-range lands remain under public and private resource management.[63]

#### 5.2.3.1.3 Mineral Lands

Kittitas County designates Mineral Lands of long-term commercial significance to ensure continued access to aggregate, sand, gravel, and other mineral resources necessary for construction, infrastructure, and economic development.

Mineral resource classifications are based on:[64]

- Geologic characteristics
- Economic viability
- Existing land uses
- Environmental constraints
- Ownership patterns
- Resource availability

### 5.2.3.2 Rural Areas

Rural areas represent approximately 25 percent of land uses in Kittitas County. Rural land use designations include Rural Residential, Rural Working, Rural Recreation, and LAMIRDs. These areas support a mix of residential, agricultural, forestry, recreation, tourism, and resource-based activities while maintaining the county's rural character. Rural land use patterns vary across the county, ranging from agricultural areas in the Kittitas Valley to recreation-oriented communities in the Upper County and forested lands near the Cascade Mountains.[65]

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[61] Kittitas County 2026 Comprehensive Plan
[62] Kittitas County 2026 Comprehensive Plan
[63] Kittitas County 2026 Comprehensive Plan; Kittitas Conservation Trust, Suncadia Property Easements, https://www.kittitasconservationtrust.org/projects/suncadia-property-conservation-easements/
[64] WAC 365-190-070, https://app.leg.wa.gov/wac/default.aspx?cite=365-190-070
[65] Kittitas County 2026 Comprehensive Plan

**Rural Residential** areas provide opportunities for residential development outside urban growth areas while maintaining the county's rural character. These areas are generally located near cities, UGAs, existing rural communities, or established residential concentrations where services and infrastructure can support limited residential growth.

**Rural Working** lands support activities associated with farming, ranching, agricultural processing, storage, forestry, and compatible commercial or industrial uses. These lands are intended to maintain working landscapes while accommodating limited economic activities that support the county's resource-based economy.[66]

Agricultural and forestry activities often occur at a smaller scale than lands formally designated as commercial agricultural or forest resource lands. Rural Working lands create a transition between intensive agricultural resource lands and more developed rural residential areas.[67]

**Rural Recreation** areas are intended to preserve and support recreation-oriented activities that capitalize on the county's natural amenities and scenic resources. Many Rural Recreation areas are located in western Kittitas County, where access to these land uses are greatest. These areas support tourism-related businesses and seasonal populations while retaining a predominantly rural character. Tourism, outdoor recreation, and second-home development have contributed to growth in the Upper County, including Cle Elum, Roslyn, South Cle Elum, and Snoqualmie Pass.[68]

#### 5.2.3.3 Limited Areas of More Intensive Rural Development (LAMIRDs)

Kittitas County designates LAMIRDs in accordance with the GMA, under the Rural element of the Comprehensive Plan, to recognize existing concentrations of development located outside incorporated cities and UGAs.[69] LAMIRDs function as small rural activity centers with access services, employment opportunities, community facilities, and local businesses without requiring urban levels of development. These areas help support rural lifestyles while reducing pressure to expand urban services into the broader rural landscape.[70]

Kittitas County contains several designated LAMIRDs throughout the county, such as Easton, Thorp, Vantage, and other historic rural settlements and commercial nodes.[71] The County's LAMIRDs are regulated according to their related LAMIRD type, applicable subarea plans, and Kittitas County Code.

### 5.2.1 Zoning Districts

Kittitas County implements its Comprehensive Plan and land-use designations through zoning regulations. Zoning establishes permitted uses, development standards, density requirements, and land-use compatibility requirements.

Kittitas County implements the following zoning districts:

| | | |
|---|---|---|
| **R** | **Residential** | Intended for low-density residential development in areas where public services and infrastructure are available or planned. Primarily accommodates |

[66] Kittitas County 2026 Comprehensive Plan
[67] Kittitas County 2026 Comprehensive Plan
[68] Kittitas County 2026 Comprehensive Plan
[69] WAC 365-196-425, https://app.leg.wa.gov/wac/default.aspx?cite=365-196-425
[70] Kittitas County 2026 Comprehensive Plan
[71] Kittitas County 2026 Comprehensive Plan

| | | |
|---|---|---|
| | | single-family homes and compatible neighborhood uses. |
| **R-2** | **Residential** | Provides for medium-density residential development, including a mix of housing types and residential neighborhoods with access to urban services. |
| **R-3** | **Rural-3** | Allows low-density residential development in rural areas while maintaining rural character and open space. Lots are generally larger than those found in urban residential zones. |
| **UR** | **Urban Residential** | Supports residential development within urbanizing areas and UGAs where public utilities and services are available or anticipated. |
| **HT-C** | **Historic Trailer Court** | Applies to existing manufactured home or trailer court developments and provides standards for their continued operation and maintenance. |
| **A-3** | **Agriculture-3** | Allows a mix of agricultural and rural residential uses on relatively small agricultural parcels while preserving agricultural activities and rural character. |
| **A-5** | **Agriculture** | Intended for agricultural and rural residential uses on parcels generally five acres or larger. Supports farming, grazing, and rural living while preventing excessive subdivision. |
| **A-20** | **Agriculture** | Designed for larger agricultural parcels and working lands. Supports farming, ranching, and resource-based uses while limiting non-agricultural development. |
| **R-R** | **Rural Recreation** | Supports recreation-oriented uses such as resorts, campgrounds, recreational facilities, and tourism-related development in rural areas. |
| **R-5** | **Rural-5** | Accommodates rural residential development on larger lots while maintaining rural character and limiting demands for urban services. |
| **CA** | **Commercial Agricultural** | Protects agricultural lands of long-term commercial significance and supports farming, ranching, agricultural processing, and related agricultural enterprises. |
| **C-L** | **Limited Commercial** | Allows small-scale commercial development intended to serve surrounding rural communities while maintaining compatibility with nearby land uses. |
| **PUD** | **Planned Unit Development** | Allows flexibility in site design, lot layout, and land uses through a unified development plan that achieves specific planning objectives. |
| **C-G** | **General Commercial** | Intended for a broad range of retail, service, office, and commercial activities that serve local and regional markets. |
| **C-H** | **Highway Commercial** | Accommodates businesses that depend on highway access and visibility, including lodging, fuel stations, restaurants, vehicle services, and traveler-oriented uses. |
| **I-L** | **Light Industrial** | Supports light manufacturing, processing, warehousing, distribution, and other industrial activities with limited impacts on surrounding properties. |
| **I-G** | **General Industrial** | Intended for heavier industrial operations, manufacturing, processing, storage, and distribution activities that require larger sites and greater separation from |

| | | |
|---|---|---|
| | | residential uses. |
| **F-R** | **Forest and Range** | Supports forestry, grazing, resource management, and other low-intensity rural land uses on large tracts of land while protecting natural resource values. |
| **CF** | **Commercial Forest** | Protects forest lands of long-term commercial significance for timber production, sustainable forestry, and related resource management activities. |
| **Airport Zone** | | Applies to lands surrounding airports and establishes standards intended to protect aviation operations, maintain safety, and prevent incompatible development. |
| **Liberty Historic Zone** | | Preserves the historic character, cultural resources, and development patterns of the Liberty Historic District while allowing compatible uses and development. |

For more information surrounding the zones applicable to current energy permitting in Kittitas County, see **Volume I**.

### 5.2.2 Overlay Zones

Overlay zones are special zoning areas that apply additional regulations to specific geographic locations while retaining the underlying zoning designation. Property owners must comply with both the requirements of the underlying zoning and any applicable overlay district standards.

Outside the energy overlay zones for wind and solar discussed in Volume I, Kittitas County has the following overlay zones:

- **Airport Overlay Zone** Applies to lands surrounding public airports and is intended to protect aviation operations and public safety. The overlay establishes additional development restrictions on structure height, land-use compatibility, airspace protection, and other activities that could interfere with aircraft operations. The purpose of the overlay is to minimize aviation hazards and reduce conflicts between airport activities and surrounding development.
- **Bowers Field Overlay Zone** A specialized airport protection area associated with Kittitas County Airport (Bowers Field) near Ellensburg. The overlay establishes additional standards to protect airport operations, approach and departure paths, navigable airspace, and aviation-related infrastructure. Development within the overlay may be subject to height limitations, notification requirements, and other restrictions intended to ensure the continued safe operation of the airport and compatibility with surrounding land uses.

See **Volume I** for additional information on the current Wind Farm Resource Overlay Zone and the Solar Power Production Facilities Overlay.

### 5.2.3 Subarea Plans and Master Planned Resorts

Kittitas County utilizes subarea planning to address the unique characteristics, opportunities, and challenges of specific geographic areas.

Current subarea and plans include:

- Snoqualmie Pass Subarea Plan
- Easton Subarea Plan
- Suncadia Resort Master Planned Resort

These planning areas reflect locations experiencing unique growth pressures, recreation demands, tourism activity, environmental considerations, or infrastructure needs.

#### 5.2.3.1 Master Planned Resorts (MPRs)

MPRs are intended to function as self-contained destination resorts that provide lodging, recreational facilities, supporting commercial services, and limited residential development within a unified planning and management framework. There is one MPR in Kittitas County, Suncadia Resort, which serves as a major recreational and tourism destination in the Upper Kittitas Valley.

### 5.2.4 Urban Areas

Urban areas represent approximately one percent, roughly 15,360 acres, of Kittitas County's land area and include the county's incorporated cities: Ellensburg, Cle Elum, Roslyn, South Cle Elum, and Kittitas. These communities serve as the primary centers for residential, commercial, industrial, institutional, and civic development within the county. Urban areas contain the highest concentration of population, employment, public services, and infrastructure, including schools, government facilities, healthcare services, utilities, transportation networks, and commercial centers.[72]

#### 5.2.4.1 Urban Growth Areas (UGAs)

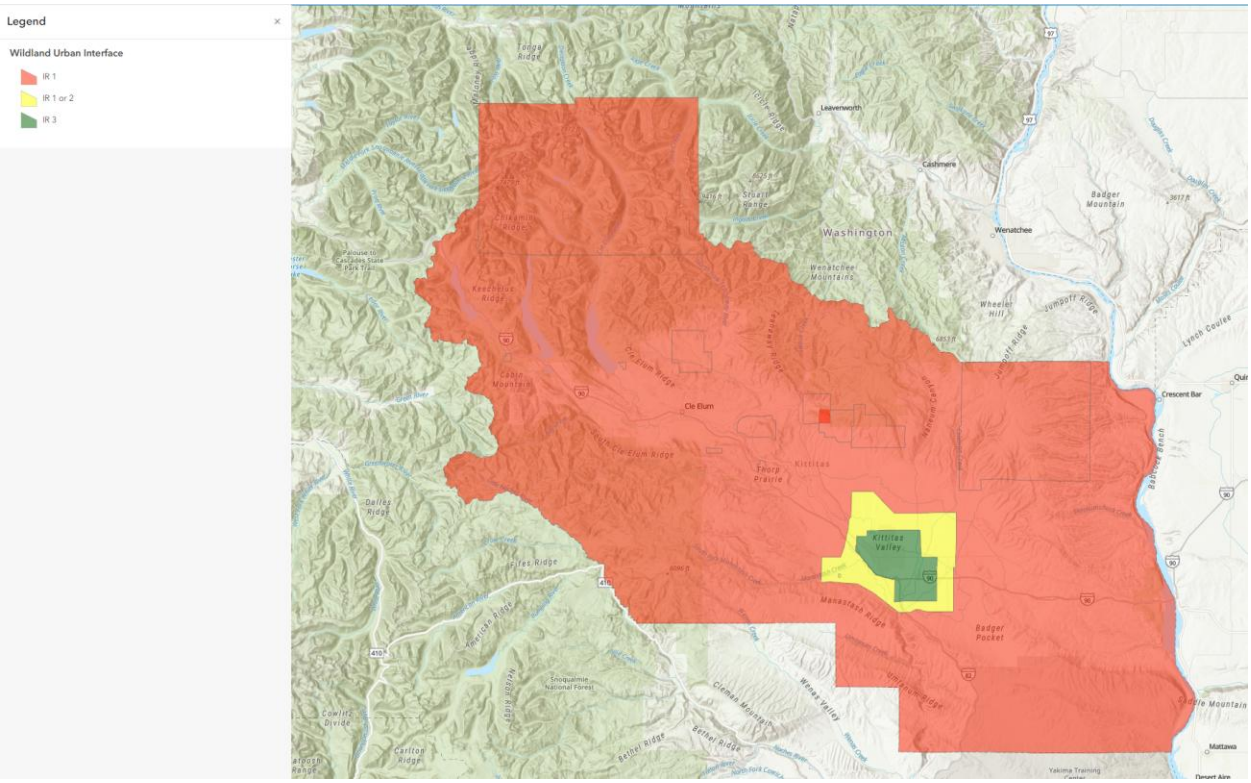
UGAs are intended to concentrate future population growth, housing, employment centers, public services, and infrastructure within designated locations while protecting rural, agricultural, and forest lands, as well as other resource areas, from sprawling development patterns. Within Kittitas County, there are five UGAs. These are designated for the cities of Ellensburg, Cle Elum, Roslyn, Kittitas, and the Town of South Cle Elum. The five UGAs encompass approximately 5,577 acres.[73]

### 5.2.5 Wildland Urban Interface (WUI)

All of unincorporated Kittitas County are designated as Wildland Urban Interface (WUI) areas. WUI is the zone of transition between unoccupied land and human development. It is the geographical areas where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. WUI designations and development standards applicable to different designations are found under Kittitas County Code Chapter 20.10, Wildland Urban Interface Code. **Figure 17** below shows the most current WUI designations within the County.

[72] Kittitas County 2026 Comprehensive Plan
[73] Kittitas County 2026 Comprehensive Plan

*Figure 17: Wildland-Urban Interface*




*Source: Kittitas County, Wildland Urban Interface, 2024, https://data-kitcogis.opendata.arcgis.com/datasets/kitcogis::wildland-urban-interface/about*

Future energy facilities sited in the county would be subject to development standards within the applicable WUI designations.

### 5.2.6 Critical Areas

Areas within Kittitas County that are environmentally sensitive are referred to as “critical areas”. These areas include the following environments.

- Wetlands
- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Geologically hazardous areas
- Critical aquifer recharge areas
- Shoreline environments

Development within or adjacent to critical areas may be subject to buffers, setbacks, mitigation requirements, and additional environmental review to protect ecological functions and public safety. The location and extent of critical areas can influence the suitability of lands for future development. For more information regarding critical areas within Kittitas County, see the **Biological Resources, Geology, Water Resources** sections.

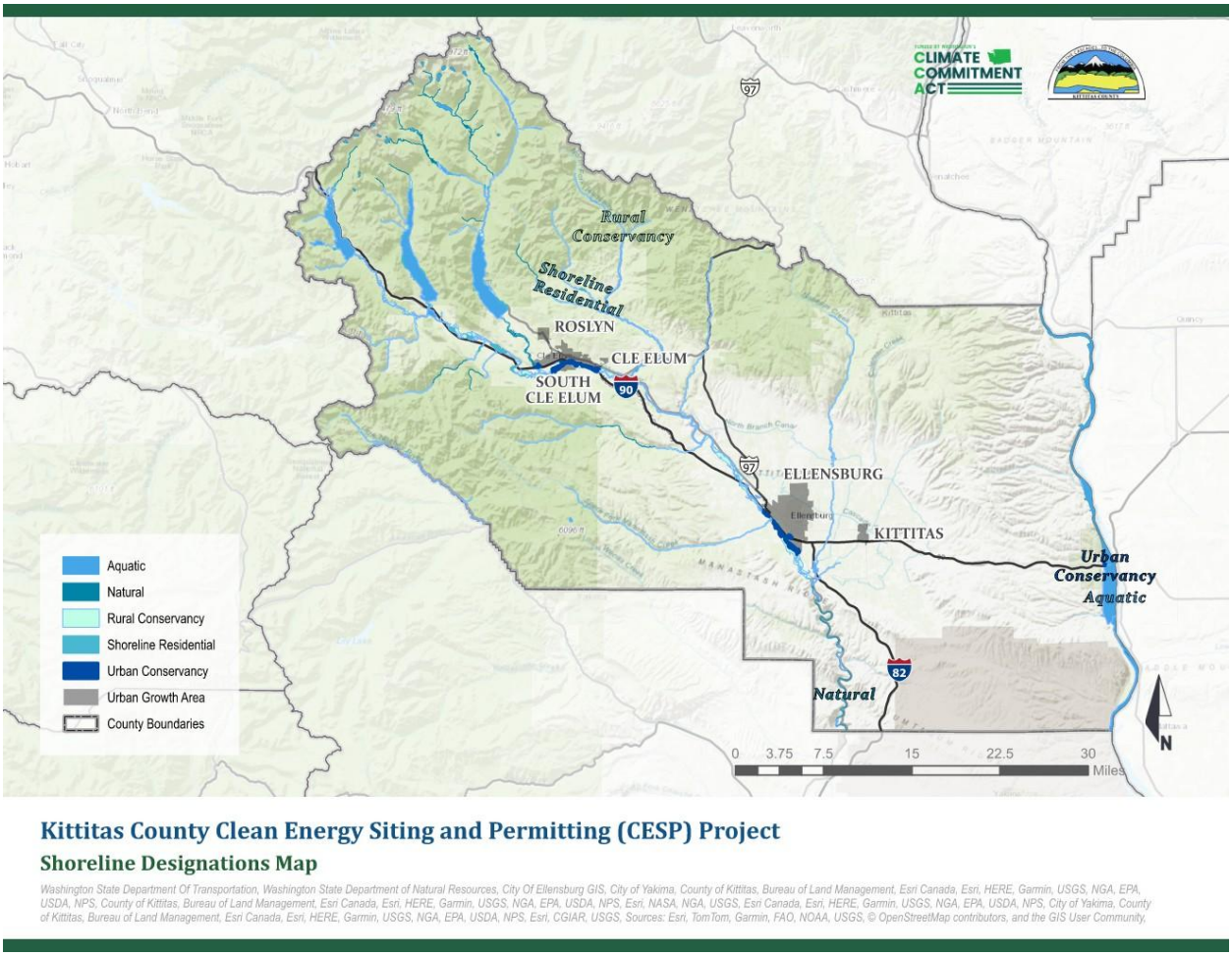
### 5.2.7 Shorelines

Kittitas County is required to have a local Shoreline Master Program (SMP) to regulate development within 200 feet of all designated shorelines. The shorelines that are regulated under the SMP are those streams that have an annual mean flow greater than 20 cubic feet per second and lakes larger than 20 acres. Streams and waterbodies that do not meet the threshold for regulation under the Shoreline Master Program usually are protected under the County's Critical Area Ordinance.

The shoreline environment designation system includes five (5) environments listed below with their related purposes:

- **Natural Shoreline Environment Designation**: Relatively free of human influence or include intact or minimally degraded shoreline functions intolerant of human use. The natural shoreline environment designation maintains the ecological functions and ecosystem-wide processes of such areas by limiting future uses to low intensity uses that are compatible with the natural characteristics that make these areas unique and valuable.
- **Rural Conservancy**: Protect ecological functions, natural resources, and valuable historic and cultural areas in order to provide for sustained resource use, natural flood plain processes, and recreational opportunities.
- **Urban Conservancy**: Protect and restore ecological functions of open space, floodplain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses.
- **Shoreline Residential**: Accommodate residential development and accessory structures as well as appropriate public access and recreational uses.
- **Aquatic**: Protect, restore, and manage the unique characteristics and resources of the areas waterward of the Ordinary High Water Mark (OHWM).

*Figure 18: Map of Shoreline Designations*




*Source: Kimley-Horn prepared using 2024 Kittitas County Shoreline Master Plan GIS, 2026*

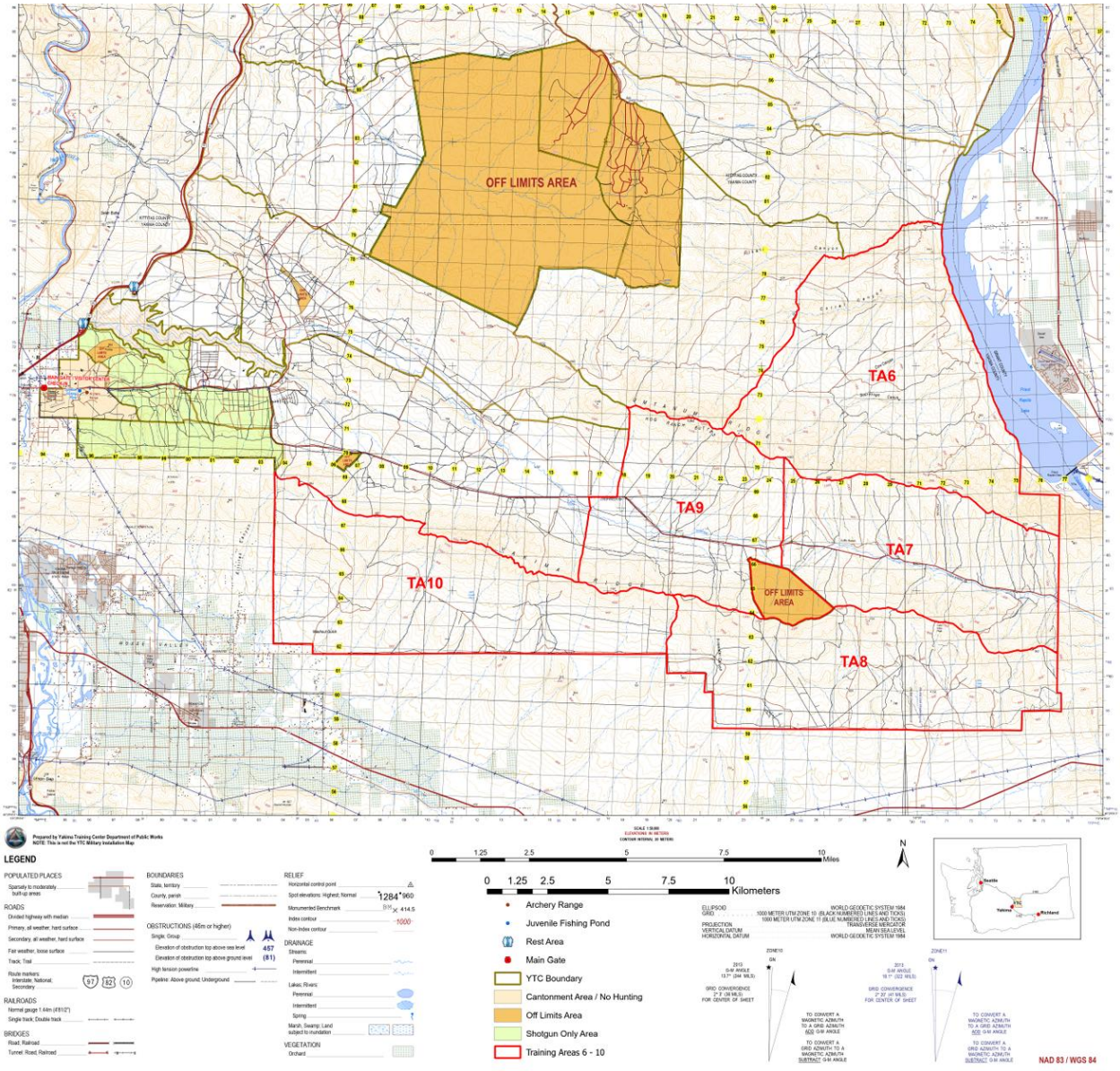
Each shoreline designation contains a purpose, management policies and designation criteria. As it relates to energy uses, power generating facilities and related transmission facilities within all shoreline designations require a conditional use permit.[74]

## 5.2.8 Military Uses

The Yakima Training Center (YTC) is located in southeastern Kittitas County. The training center includes approximately 164,132 acres within county boundaries. The YTC serves as a major military training facility for the U.S. Department of Defense and supports a wide variety of military operations, exercises, testing activities, and resource management programs. **Figure 19** identifies the location of military lands, training areas, and associated operational areas.

[74] Kittitas County, Shoreline Master Program, 2021
https://www.co.kittitas.wa.us/uploads/documents/cds/smp/2020/2021%20SMP%20Document%20FINAL.pdf

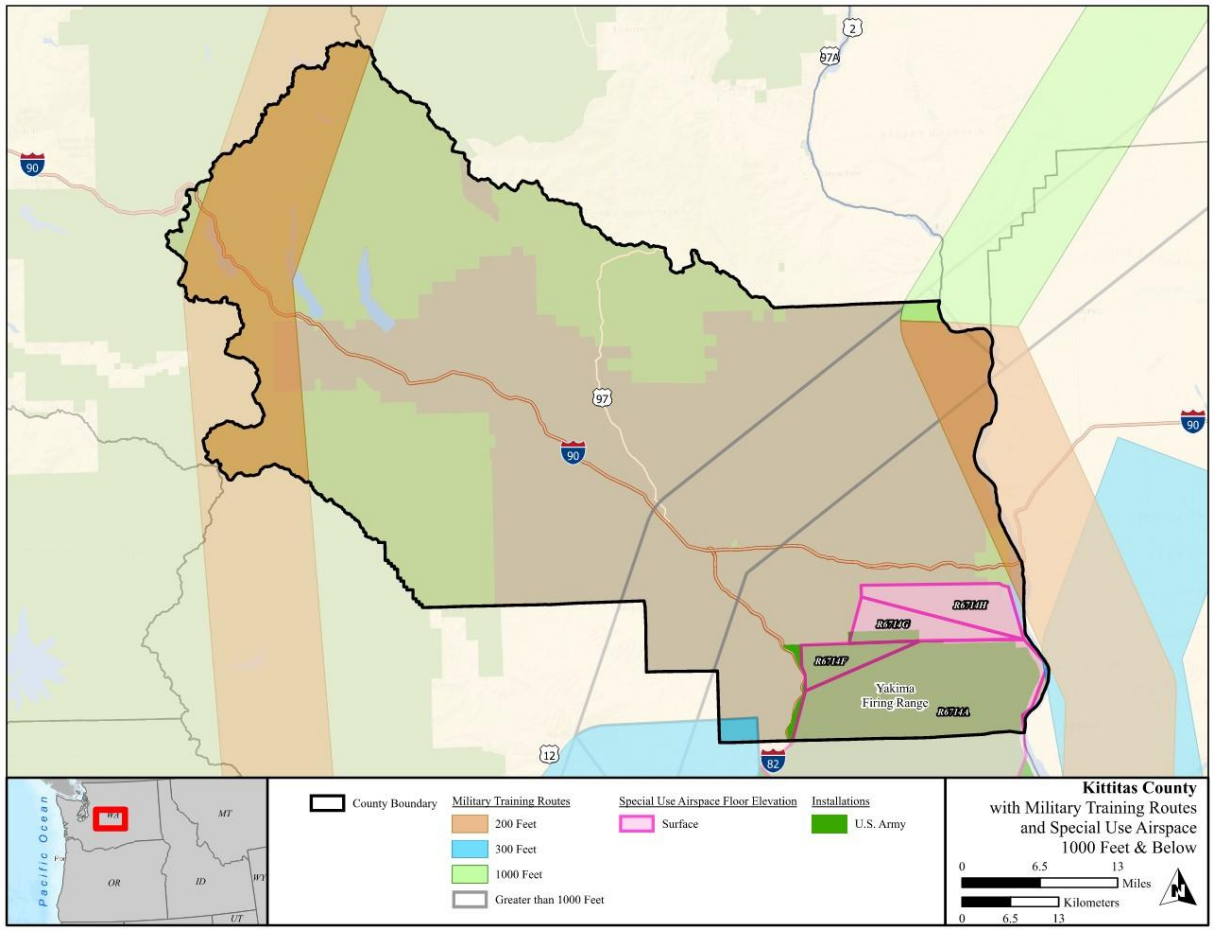
*Figure 19: Map of Military Installations and Operations Areas*




*Source: Yakima Training Center Department of Public Works, 2024 US Army - Yakima Training Center - Outdoor Recreation, https://home.army.mil/yakima/3317/6600/2070/YTC_Outdoor_Recreation_2026.pdf*

Scoping comments submitted by Northwest Training Complex Airspace Operations identified areas within Kittitas County where future energy facility development may require consideration of military operations and airspace compatibility, particularly for taller structures. Energy facilities proposed within these areas may be subject to consultation with the U.S. Department of Defense to ensure compatibility with military training activities and airspace use. Figure 20 illustrates the current military energy siting considerations identified for the County. As military operations and airspace conditions may change over time, future project proponents should coordinate with relevant military agencies during project planning and permitting to identify and address potential conflicts.

*Figure 20: Military Training Routes and Special Use Airspace in Kittitas County*




*Source: Northwest Training Range Complex, Scoping Comment Letter, 2026.*

## 5.2.9 Agricultural Uses

The agricultural economy in Kittitas County focuses on forage production, livestock grazing, and irrigated crop agriculture. According to the 2022 Census of Agriculture County Profile, the county had 738 farms encompassing approximately 165,205 acres of agricultural land, including:

- Pastureland accounted for 96,286 acres (58 percent)
- Cropland represented 59,201 acres (36 percent)
- Woodland covers 5,706 acres (three percent)
- Other agricultural uses totaled 4,012 acres (two percent)

Approximately 49,757 acres, or 30 percent of farmland, were irrigated.[75]

Agricultural sales in Kittitas County are primarily driven by crop production. Crops accounted for approximately 82 percent of total agricultural sales, while livestock, poultry, and related products accounted for 18 percent.

[75] Unites States Department of Agriculture, 2022 Census of Agriculture Community Profile – Kittitas County, https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Washington/cp53037.pdf

Hay and forage production is the county's dominant agricultural activity, with 36,161 acres dedicated to forage crops, considerably exceeding the acreage devoted to wheat, apples, vegetables, and other crops. The prevalence of forage production reflects the close relationship between crop agriculture and livestock operations in the county, as locally produced hay serves as an important feed source for cattle, sheep, horses, and other livestock.[76]

Livestock production remains a key component of the agricultural economy, despite contributing a smaller share of total agricultural sales than crops do. The county reported an inventory of approximately 15,848 cattle and calves, making cattle the most prevalent livestock commodity. Other livestock inventories included 1,624 horses and ponies, 1,259 goats, 1,254 sheep and lambs, and smaller numbers of hogs and poultry.[77]

### 5.2.9.1 Voluntary Stewardship Program (VSP)

The VSP was established in 2011 as an alternative approach for protecting agricultural lands while maintaining the viability of ongoing agricultural operations. It is administered through the Kittitas County Conservation District (KCCD), which includes all unincorporated lands, as well as Cle Elum and Roslyn. Participating agricultural producers voluntarily implement stewardship practices intended to protect environmental resources while preserving agricultural productivity. Agricultural lands enrolled in the program are generally governed by VSP requirements rather than by certain portions of the County's Critical Areas Ordinance. The program emphasizes cooperative conservation efforts that balance environmental protection with working agricultural landscapes.[78]

### 5.2.9.2 Agritourism

Agritourism activities allow residents and visitors to experience working agricultural landscapes while providing education opportunities, tourism experiences, and supplemental income opportunities for local agricultural producers. The Kittitas County Chamber of Commerce identifies agritourism as an opportunity for farms and ranches to diversify revenue, support local businesses, and educate the public about agricultural practices and rural lifestyles.

Within Kittitas County, agritourism centers on working farms and ranches that grow crops or raise livestock and offer visitors historical, cultural, educational, or recreational experiences. Common agritourism activities include:

- Farm stands
- Farmers markets
- U-pick operations
- Pumpkin patches
- Harvest festivals
- Educational farm tours
- Hayrides
- Horseback riding
- Fishing opportunities
- Workshops
- On-farm events

[76] Unites States Department of Agriculture, 2022 Census of Agriculture Community Profile – Kittitas County, https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Washington/cp53037.pdf
[77] Unites States Department of Agriculture, 2022 Census of Agriculture Community Profile – Kittitas County, https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Washington/cp53037.pdf
[78] Kittitas County 2026 Comprehensive Plan

## 5.2.10 Recreational Uses

Recreation and tourism are significant components of the county's economy and land use patterns. The 2025 Tourism Strategic Plan reported:

- Approximately $359 million in annual visitor spending countywide.
- Approximately 1.3 million overnight trips annually.
- Approximately 2.7 million visitor nights annually.
- Approximately 85 percent of overnight visitors stay one to two days.

More than half of surveyed visitors originate from the Puget Sound region.[79]

Recreation demand is generally highest between July and December, although Snoqualmie Pass experiences substantial winter visitation associated with skiing, snowboarding, and other winter recreation activities.[80] Kittitas County features a network of trails and recreation routes that support year-round outdoor activities. An estimated 1,000+ miles of public trails exist across the county.[81]

Recreation destinations that experience particularly high seasonal demand include:[82]

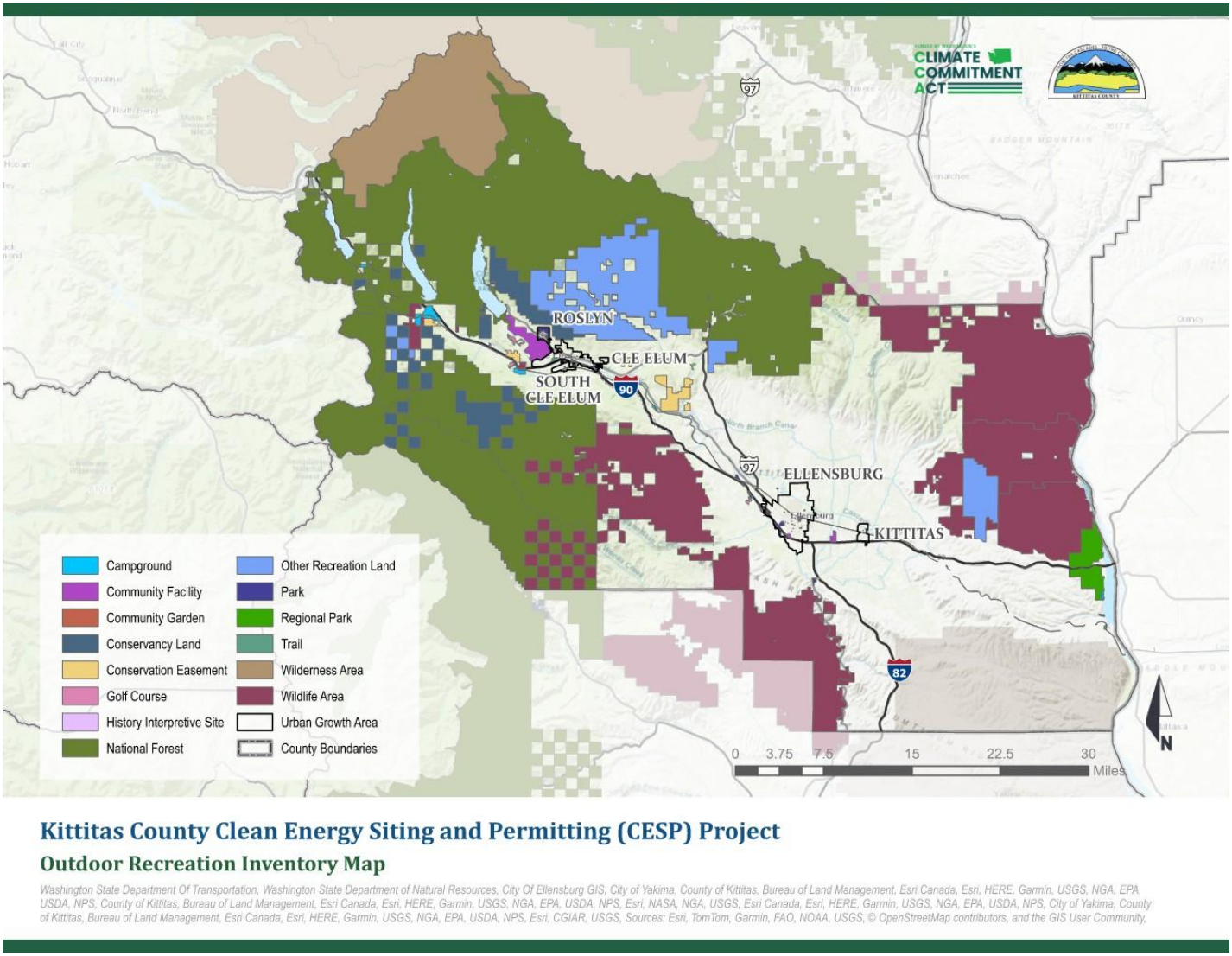
- Snoqualmie Pass
- Suncadia Resort
- Lake Easton State Park
- Cle Elum area recreation sites
- Upper County trailheads and public lands
- Yakima River Canyon trailheads and public lands

Hunting and fishing are longstanding recreational activities within Kittitas County and occur across large portions of public and private lands. The WDFW manages hunting opportunities through Game Management Units (GMUs), hunting regulations, and district-level hunting prospects. GMUs in and around Kittitas County support hunting opportunities for:[83]

- Deer
- Elk
- Bighorn Sheep
- Mountain Goats
- Black Bear
- Cougar
- Small Game
- Waterfowl
- Upland game birds

[79] Kittitas County 2025 Tourism Strategic Plan, https://www.co.kittitas.wa.us/uploads/auditor/accounting/lodging-tax/Kittitas%20County%20Tourism%20Strategic%20Plan_2025.pdf
[80] Kittitas County 2025 Tourism Strategic Plan, https://www.co.kittitas.wa.us/uploads/auditor/accounting/lodging-tax/Kittitas%20County%20Tourism%20Strategic%20Plan_2025.pdf
[81] Kittitas County 2025 Tourism Strategic Plan, https://www.co.kittitas.wa.us/uploads/auditor/accounting/lodging-tax/Kittitas%20County%20Tourism%20Strategic%20Plan_2025.pdf
[82] Kittitas County 2025 Tourism Strategic Plan, https://www.co.kittitas.wa.us/uploads/auditor/accounting/lodging-tax/Kittitas%20County%20Tourism%20Strategic%20Plan_2025.pdf
[83] Washington Department of Fish and Wildlife, 2025 District 8 Hunting Prospects for Yakima and Kittitas Counties, https://wdfw.wa.gov/sites/default/files/publications/02643/Prospects_2025_Region%203_District%208.pdf

*Figure 21: Map of Recreational Uses*




*Source: Kimley-Horn, 2026*

# 5.3 Impact Analysis

## 5.3.1 Overview

This section evaluates how large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal energy facilities, and small modular reactors (SMRs) could affect land use in Kittitas County. Consistent with the Washington Department of Ecology's PEIS approach, the analysis is organized by facility type and project phase, meaning construction, operation, and decommissioning.

Potential land-use impacts include temporary or permanent land conversion, displacement or restriction of existing uses, fragmentation of resource lands, conflicts with adjacent uses, changes to rural character, limitations on recreation access, and incompatibility with airport or military operations.

The magnitude of impacts would depend on:

- Facility location, size, configuration, and design;
- Existing land-use designation and zoning;
- Amount and type of land converted or restricted;
- Compatibility with adjacent and nearby uses;
- Effects on agricultural, forestry, grazing, mineral, recreation, and public uses;
- Extent of access roads, transmission corridors, pipelines, security areas, and other supporting infrastructure;
- Proximity to residences, communities, recreation areas, airports, and military operations;
- Duration of the facility and ability to restore the site; and
- Effectiveness of siting, design, and mitigation measures.

*Table 9: Primary Land Use Concerns*

| Facility Type | Primary Land Use Concerns |
|---|---|
| Large-Scale Solar | Conversion of large contiguous areas; displacement or fragmentation of agriculture and grazing; compatibility with rural residences and recreation; fencing; transmission infrastructure; and restoration after decommissioning. |
| Large-Scale Wind | Dispersed development across large areas; compatibility with agriculture, grazing, forestry, recreation, residences, airports, and military operations; access roads; transmission corridors; and long-term changes to rural landscapes. |
| BESS | Compatibility with adjacent uses; industrial character; safety-related separation; security fencing; interconnection infrastructure; and siting of standalone facilities where no specific County standards exists. |
| Geothermal | Compatibility of exploration, drilling, wellfields, pipelines, and industrial facilities with resource lands, rural uses, recreation, public lands, and adjacent development. |
| SMRs | Conversion of land for reactor facilities and supporting infrastructure; controlled site access; compatibility with surrounding uses; cooling, water, and transmission requirements; and potential limits on reuse during decommissioning. |

Land conversion is evaluated separately from land use compatibility. Conversion occurs where an existing use is displaced by facility infrastructure or operating restrictions. Compatibility concerns arise where a facility affects the continued use of adjacent or nearby land, even when that land is not directly occupied. The analysis also distinguishes temporary construction disturbance, conversion lasting through facility operation, and permanent changes that would remain after decommissioning.

## 5.3.2 No Action – Alternative #1

Under the No Action Alternative, the County would continue to review solar, wind, BESS, geothermal, and SMR development under existing County regulations and applicable state and federal requirements. Existing County processes and development standards would remain in effect, including KCC Chapter 17.61 for utilities, Chapter 17.61A for wind facilities, Chapter 17.61B for small wind energy systems, and Chapter 17.61C for solar power production facilities. Facilities eligible for Energy Facility Site Evaluation Council (EFSEC) review could pursue the state certification process, while nuclear fission facilities would require state certification.

### 5.3.2.1 Impacts From Construction, Operation, And Decommissioning Under Current Processes

Construction, operation, and decommissioning could temporarily or permanently convert land and affect existing agricultural, forestry, grazing, recreation, residential, public, and resource-management uses. The type

and magnitude of impact would vary by technology, project location, facility footprint, supporting infrastructure, and compatibility with surrounding uses.

Existing solar and wind overlay zones would continue to direct those facilities to areas identified under current County regulations. Geothermal facilities would continue to be considered through the special utility process. Standalone BESS and SMR proposals would require interpretation of existing County definitions as current code does not establish technology-specific clear local permitting pathways for those facilities.

Existing project-level review could address compatibility, setbacks, access, screening, reclamation, and other site-specific impacts. However, without revised overlays or additional countywide siting standards, the County would have fewer opportunities to direct future facilities away from high-value agricultural land, commercial forestland, recreation areas, concentrations of sensitive uses, airport influence areas, and locations that may conflict with military operations.

### 5.3.2.2 Mitigation Measures

#### 5.3.2.2.1 Required Mitigation

- Comply with applicable comprehensive plan policies, zoning, overlay, critical-area, shorelines, airport, resource-land, and development standards.
- Obtain applicable land-use permits, leases, easements, access approvals, and federal or state land-management authorizations.
- Comply with applicable setbacks, screening, fencing, height, access, lighting, and compatibility requirements.
- Complete required aviation and military coordination for facilities that could affect airports, navigable airspace, or military operations.
- Implement applicable decommissioning, financial-assurance, and site-restoration requirements.

#### 5.3.2.2.2 Recommendations for Siting and Design

- Select locations that minimize conflicts with agricultural, forestry, grazing, recreation, residential, airport, and military uses.
- Use existing roads and utility corridors where practicable.
- Configure facilities to minimize land conversion, fragmentation, and interference with surrounding uses.
- Preserve access to adjoining properties, working lands, public lands, and recreation areas.
- Evaluate measures through existing project-review processes without establishing new overlay boundaries or countywide standards.

#### 5.3.2.2.3 Recommendations for Construction, Operation, and Decommissioning

- Coordinate construction schedules and access arrangements with affected landowners, resource operators, and recreation providers.
- Maintain access to adjacent properties and established uses throughout construction, operation, and decommissioning.
- Protect fences, gates, irrigation systems, roads, and other infrastructure supporting existing uses.
- Confine staging and temporary disturbance to approved areas and restore those areas after construction.
- Remove infrastructure and restore the site according to applicable decommissioning requirements and approval conditions.





#### 5.3.2.2.4 Other Mitigation for Potentially Significant Impacts

- Evaluate alternative layouts, smaller disturbance areas, increased setbacks, and additional screening where substantial compatibility conflicts remain.
- Relocate roads, utility corridors, or equipment to reduce fragmentation and displacement of established uses.
- Provide replacement access where project activities would interrupt existing access.
- Incorporate additional mitigation into project approvals where supported by the reviewing agency's authority.
- Identify residual impacts that cannot be adequately mitigated in project-specific environmental review.

#### 5.3.2.2.5 Significant Unavoidable Adverse Impacts

Impacts would generally be less than significant where projects comply with applicable land-use requirements and avoid incompatible locations. Significant impacts could remain if a project permanently converts or fragments protected resource land, displaces an established use, substantially restricts recreation or public access, or creates an incompatibility with residential, airport, or military uses that cannot be adequately mitigated.

## 5.3.3 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Under Alternative 2, local regulations governing large-scale solar, wind, and BESS facilities would be revised to identify areas suitable for development within Kittitas County and provide greater clarity and predictability in project siting and review.

Existing overlay zones under KCC Chapters 17.61A and 17.61C would be modified, and new BESS siting and development standards would be established. Revised overlays could direct facilities toward locations with fewer land-use conflicts, but they would not replace project-specific review of land use compatibility or compliance with development standards.

### 5.3.3.1 Large-Scale Solar

#### 5.3.3.1.1 Construction Impacts

Construction of solar facilities could temporarily displace existing agricultural, grazing, recreation, or other rural uses within the project footprint. Clearing, grading, fencing, access roads, substations, construction staging, and gen-tie corridors could fragment working lands or temporarily affect access, irrigation infrastructure, livestock movement, recreation and public access, and other activities necessary to continue existing nearby land uses.

Impacts would generally increase with the amount, type, and extent of land disturbed because utility-scale solar requires relatively large, contiguous sites. Effects would be greater where construction occurs on commercial agricultural land, irrigated farmland, high-value ranchland, Rural Working land, or land actively used for farming, grazing, agritourism, or recreation. Effects could also occur near Rural Recreation lands, recreation destinations, trails, or public lands where construction restricts established recreation or public access. Construction on previously disturbed or lower-conflict land would generally reduce displacement of existing uses. Potential compatibility with military operations would depend on facility location, solar facility design, and the relationship to identified military operational areas or airspace.

#### 5.3.3.1.2 Operation Impacts

During operation, solar arrays, fencing, substations, access roads, and electrical infrastructure could convert or constrain existing land uses for the operating life of the facility. Agricultural impacts could occur where facility development displaces agricultural production, fragments working lands, or affects irrigation, access, livestock movement, or other infrastructure necessary to maintain agricultural operations.

Some agricultural activities could remain compatible with solar development where facility design accommodates dual uses, including grazing, pollinator habitat, or certain crop production. The extent of compatibility and ability for dual use would depend on facility design and the requirements of the existing use, including panel heights, fencing, water and equipment access, and livestock needs. Agricultural production could be reduced or displaced where facility design or vegetation management limits continued cultivation, livestock use, or other existing agricultural activities. Certain livestock uses, such as cattle or goats, may be incompatible with solar facilities where animals could damage equipment or where facility infrastructure could pose risks to livestock.

In the Kittitas Valley, continued grazing beneath or between panels would not necessarily maintain existing irrigated agriculture, hay production, or the level of same agricultural output. Effects could also extend to adjoining agricultural land where facility fencing, roads, or utility corridors interrupt shared access, irrigation infrastructure, or movement between fields.

Solar facilities could alter the character of rural, recreation, and residential areas. Potential conflicts include proximity to residences, loss of open-space character, restricted recreation access, and conversion of land associated with agritourism or working landscapes. Recreation impacts could also occur where solar facilities displace existing recreational uses or restrict access to trails, public lands, or other recreation areas.

Compatibility with military operations depends on facility location and design, including associated electrical and transmission infrastructure, and potential overlap with military operational areas or airspace.

#### 5.3.3.1.3 Decommissioning Impacts

Decommissioning would temporarily renew construction-related land-use effects during removal of panels, foundations, fencing, access roads, substations, and electrical infrastructure. Equipment removal could temporarily restrict access to surrounding agricultural, grazing, recreation, public or rural lands.

Long-term effects would depend on the approved end use and the success of site reclamation. Removing infrastructure and restoring soils, access, drainage, and irrigation systems could allow agricultural, grazing, recreation, or other rural uses to resume. Full restoration may be more difficult where construction substantially altered soils, parcel configuration, irrigation systems, or supporting agricultural infrastructure.

#### 5.3.3.1.4 Mitigation Measures

##### *5.3.3.1.4.1 Required Mitigation*

- Obtain applicable land-use, building, grading, road-access, and construction permits.
- Complete State Environmental Policy Act review and implement applicable permit conditions and mitigation.
- Obtain applicable federal or state leases, easements, rights-of-way, and land-management approvals for development on public lands.
- Comply with applicable decommissioning, financial-assurance, infrastructure-removal, and site-restoration requirements.

*5.3.3.1.4.2 Recommendations for Siting and Design*

- Direct large-scale solar development toward previously disturbed or lower-conflict land near existing roads and electrical infrastructure.
- Exclude or limit development on commercial agricultural land, irrigated farmland, commercial forestland, mineral resource land, and other working lands where solar development would substantially impair long-term resource use.
- Establish siting criteria addressing rural and residential compatibility, recreation resources, public access, critical areas, shorelines, airports, and military operations.
- Require facility layouts that minimize land conversion, parcel fragmentation, access roads, substations, security areas, and transmission corridors.
- Establish standards that preserve access to adjoining properties, irrigation systems, grazing areas, public lands, and recreation resources.
- Allow or encourage continued agricultural use, including grazing or agrivoltaics, where compatible with site conditions and facility operations.

*5.3.3.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Maintain access to adjoining properties, agricultural operations, public lands, and recreation areas throughout construction, operation, and decommissioning.
- Limit construction staging and temporary disturbance to approved areas.
- Restore temporarily disturbed land promptly after construction.
- Remove unnecessary infrastructure and restore the site to its previous or another County-approved use at decommissioning.

*5.3.3.1.4.4 Other Mitigation for Potentially Significant Impacts*

Establish criteria that allow reduced facility footprints, alternative layouts, larger setbacks, enhanced screening, replacement access, or exclusion of sensitive portions of a site. Prohibit or limit solar development where it would cause substantial permanent conversion or fragmentation of protected resource land or another locally important use that cannot be adequately mitigated.

## 5.3.3.2 Large-Scale Wind

### 5.3.3.2.1 Construction Impacts

Wind facility construction could temporarily affect agriculture, grazing, forestry, recreation, and rural residential uses through turbine foundations, crane pads, access roads, collection lines, substations, laydown areas, and transmission corridors. Although turbine foundations occupy a limited area, associated infrastructure may extend across large, dispersed project sites. New roads and collection lines could divide working lands, remove land from production, affect farm or forest access, and alter grazing patterns. Construction could also restrict public recreation access or conflict with seasonal use of public and private lands. Impacts would depend on turbine layout, road density, transmission routing, and whether infrastructure follows existing disturbed corridors.

### 5.3.3.2.2 Operation Impacts

Agriculture and grazing may continue between turbines where facility infrastructure does not prevent access or equipment operation. Forestry, recreation, and rural residential compatibility would vary based on turbine placement, access controls, setbacks, lighting, and maintenance activity.

Wind facilities could affect airport and military compatibility because turbines are tall structures and may occur within or near navigable airspace, training areas, or operational corridors. Project-level review would need to address applicable airport overlay requirements, Federal Aviation Administration (FAA) review, and coordination with the U.S. Department of Defense (DOD).

Wind development could also alter rural and recreation settings over a broad area. Effects would be greater where turbines or associated infrastructure occur near residential concentrations, recreation destinations, public trails, scenic routes, or lands managed for conservation and public access.

#### 5.3.3.2.3 Decommissioning Impacts

Decommissioning would temporarily affect surrounding land uses during turbine dismantling, foundation removal, hauling, road use, and removal of collection and transmission equipment. Agricultural, grazing, forestry, and recreation access could be temporarily restricted.

Restoration could return turbine pads, roads, and collection-line corridors to their prior uses. Retaining roads or other infrastructure could continue parcel fragmentation or alter existing land-management patterns unless those facilities serve an approved continuing use.

#### 5.3.3.2.4 Mitigation Measures

##### *5.3.3.2.4.1 Required Mitigation*

- Obtain applicable land-use, building, grading, road-access, and construction permits.
- Complete State Environmental Policy Act review and implement applicable permit conditions and mitigation.
- Complete required Federal Aviation Administration review and applicable coordination with the U.S. Department of Defense.
- Comply with applicable decommissioning, financial-assurance, infrastructure-removal, and site-restoration requirements.

##### *5.3.3.2.4.2 Recommendations for Siting and Design*

- Revise overlay boundaries to minimize conflicts with agriculture, grazing, forestry, mineral extraction, recreation, rural residences, airports, and military operations.
- Establish exclusion areas or additional review standards for commercial agricultural land, commercial forestland, important recreation areas, residential concentrations, public-access areas, and other locally important uses.
- Incorporate airport safety, navigable airspace, and military compatibility criteria into overlay mapping and application requirements.
- Require applicants to use existing roads and utility corridors and cluster turbines and supporting infrastructure where practicable.
- Establish standards that minimize the number and width of access roads, collection lines, substations, staging areas, and transmission corridors.
- Require project layouts to preserve access and continued use of agricultural, grazing, forestry, recreation, residential, and public lands.

##### *5.3.3.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Require coordination with affected landowners, resource operators, public land managers, recreation providers, airport operators, and military representatives.

- Require construction phasing and access plans that reduce disruption to agriculture, forestry, grazing, recreation, and public access.
- Protect and restore fences, gates, irrigation systems, roads, and other infrastructure supporting existing land uses.
- Require removal and restoration of turbine pads, roads, collection systems, and other facilities at decommissioning unless the County approves their continued use.
- Establish enforceable financial-assurance and restoration-performance standards.

##### *5.3.3.2.4.4 Other Mitigation for Potentially Significant Impacts*

Require relocation or reconfiguration of turbines, roads, substations, and transmission infrastructure where site-specific conflicts remain. Prohibit facilities that would create unresolved conflicts with airport safety, navigable airspace, military operations, protected resource lands, or established uses.

### 5.3.3.3 Battery Energy Storage Systems (BESS)

#### 5.3.3.3.1 Construction Impacts

BESS construction would generally affect a compact disturbance area for battery enclosures, foundations, transformers, access, drainage, fire protection, and interconnection equipment. Construction could temporarily displace existing uses within the facility footprint and associated access, fire-protection, stormwater, substation, and interconnection areas.

Land-use compatibility would depend on whether the facility is co-located with an existing energy or industrial use or developed as a standalone facility. Standalone development on rural, agricultural, recreation, or residential land could convert existing land uses depending on scale and/or introduce an industrial use into an area not previously developed for energy infrastructure. Compatibility would depend on the existing land use, surrounding development, and the location and extent of supporting infrastructure.

#### 5.3.3.3.2 Operation Impacts

BESS operation would create a long-term industrial or utility use characterized by battery enclosures, transformers, inverters, fencing, lighting, fire-protection systems, and electrical interconnection equipment. Effects would generally be localized but could be greater near residences, recreation areas, agricultural or resource lands, public facilities, or other sensitive uses.

Safety-related setbacks, emergency-access areas, or fire-protection infrastructure could increase the facility's effective footprint and affect compatibility with adjoining uses. Security fencing or access restrictions could also limit existing recreation or public access where facilities are located near recreation areas or public lands.

Co-location with an existing substation, solar facility, wind facility, or industrial use could reduce new land conversion and compatibility conflicts. Standalone facilities could result in greater land use conflicts where they convert agricultural or other resource lands or are located near rural residences, recreation areas, airport influence areas, or military operational areas

#### 5.3.3.3.3 Decommissioning Impacts

Decommissioning would temporarily affect surrounding uses during removal of battery units, electrical equipment, foundations, fencing, and fire-protection systems. Equipment removal and site restoration could temporarily restrict access to adjoining agricultural, recreation, public, or other lands.

Following removal and site restoration, the affected land could return to its previous or another future approved use. Long-term effects could remain if contaminated materials, foundations, or utility infrastructure are not fully removed or if site development substantially altered conditions necessary to support the previous or future use.

#### 5.3.3.3.4 Mitigation Measures

##### *5.3.3.3.4.1 Required Mitigation*

- Obtain applicable land-use, building, electrical, grading, road-access, interconnection, and construction permits.
- Complete State Environmental Policy Act review and implement applicable permit conditions and mitigation.
- Comply with applicable hazardous-material, emergency-planning, waste-management, and battery recycling or disposal requirements.
- Comply with applicable decommissioning, financial-assurance, equipment-removal, and site-restoration requirements.

##### *5.3.3.3.4.2 Recommendations for Siting and Design*

- Prioritize co-location with existing substations, energy facilities, industrial uses, or previously disturbed land.
- Define where standalone and accessory BESS facilities are permitted, conditionally permitted, or prohibited.
- Direct standalone facilities away from residential concentrations, recreation destinations, public-access areas, critical areas, and high-value agricultural, forest, mineral, and other resource lands.
- Establish setbacks, screening, fencing, lighting, access, and compatibility standards based on facility scale and surrounding land uses.
- Minimize facility, security, access, fire-protection, stormwater, and interconnection footprints.
- Require use of existing utility corridors and protection of access to adjoining properties and established uses.

##### *5.3.3.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Construction staging and material storage within approved disturbance areas.
- Continued access to adjacent properties, utilities, public facilities, and established land uses.
- Compliance monitoring for setbacks, screening, lighting, access, and other land-use permit conditions.
- Removal of batteries, electrical equipment, foundations, fencing, and unnecessary utility infrastructure at decommissioning.
- Financial assurance sufficient to complete equipment removal, waste management, site restoration, and corrective work.

##### *5.3.3.3.4.4 Other Mitigation for Potentially Significant Impacts*

Require larger setbacks, additional screening, alternative access, reduced facility footprints, equipment relocation, or co-location with an existing energy or industrial use. Prohibit standalone BESS facilities where they would create an unresolved conflict with residential, recreation, public-access, or protected resource-land uses.

#### 5.3.3.4 Significant Unavoidable Adverse Impacts

Revised overlays and development standards could reduce land-use impacts by directing solar, wind, and BESS facilities toward areas with fewer conflicts. However, overlay designation would not eliminate the need for project-level review.

Significant impacts could remain if development permanently converts or fragments protected resource land, substantially restricts recreation or public access, displaces an established use, or creates an unresolved incompatibility with residential development, airports, or military operations.

### 5.3.4 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

Under Alternative 3, Kittitas County would evaluate potential geothermal and small nuclear siting and associated development standards. Changes to current code could guide development toward locations with fewer land-use conflicts, but they would not replace project-specific review, EFSEC certification where applicable, federal licensing, or other required approvals.

Land use impacts would vary substantially based on facility technology, site size, footprint, security needs, access and transmission requirements, existing ownership, and compatibility with agricultural, forestry, recreation, rural, residential, airport, and military uses.

#### 5.3.4.1 Geothermal

##### 5.3.4.1.1 Construction Impacts

Geothermal construction could occur in phases and include exploration areas, test wells, drilling pads, production and injection wells, pipelines, generation equipment, substations, access roads, and staging areas. Exploration could temporarily affect multiple locations before selecting a final production site.

Drilling pads, roads, and pipelines could displace or fragment agriculture, grazing, forestry, recreation, and other rural uses. Effects could extend beyond the generating facility because wellfields and pipelines may span a broader area. Development on public or state trust lands could also require leases, easements, or land-management approvals. Construction could also temporarily restrict access to recreation areas, public lands, resource lands, or other existing uses where drilling, roads, or pipeline corridors overlap existing access routes.

##### 5.3.4.1.2 Operation Impacts

Operating geothermal facilities would establish long-term industrial uses at well pads, generating facilities, pipeline corridors, access roads, substations, and transmission connections. Some agriculture, grazing, or forestry may continue around dispersed infrastructure if access and land-management functions are maintained.

Compatibility concerns could arise near residences, recreation areas, public lands, and rural communities because of industrial equipment, lighting, maintenance activity, access controls, and the continued presence of wells and pipelines. Effects would depend on the production field's size and configuration and its relationship to existing uses. Pipeline and access corridors could also affect the continuity of agricultural, forestry, recreation, or other resource uses where such components cross larger working or public lands.

#### 5.3.4.1.3 Decommissioning Impacts

Decommissioning would involve well closure, removal of aboveground equipment and pipelines, dismantling of generation and electrical infrastructure, road and pad reclamation, and restoration of affected lands. Temporary restrictions on agricultural, grazing, forestry, recreation, or public access could occur during closure.

Long-term effects would depend on successful well closure, infrastructure removal, and restoration. Retained roads, pipelines, easements, or subsurface facilities could continue to restrict future land uses.

#### 5.3.4.1.4 Mitigation Measures

##### *5.3.4.1.4.1 Required Mitigation*[84]

- Obtain applicable land-use, drilling, well-construction, grading, building, road-access, water, discharge, and construction permits.
- Complete State Environmental Policy Act review and implement applicable permit conditions and mitigation.
- Obtain applicable federal or state leases, easements, rights-of-way, and land-management approvals for development on public lands.
- Comply with applicable well-closure, infrastructure-removal, financial-assurance, reclamation, and site-restoration requirements.

##### *5.3.4.1.4.2 Recommendations for Siting and Design*

- Evaluate the complete exploration, wellfield, generating facility, pipeline, access, water, and transmission footprint when identifying suitable areas.
- Prioritize locations near existing industrial, utility, transportation, and energy infrastructure.
- Exclude or limit development where the complete facility footprint would substantially fragment commercial agricultural land, commercial forestland, important recreation areas, public land, or other resource lands.
- Establish siting criteria addressing rural and residential compatibility, recreation, public access, critical areas, and existing resource uses.
- Require applicants to minimize the number and size of exploration areas, well pads, access roads, pipelines, and transmission corridors.
- Require use of existing roads and utility corridors and preservation of agricultural, grazing, forestry, recreation, residential, and public access where practicable.
- Establish setbacks and screening standards for generating equipment, well pads, pipelines, and other industrial components near residences and recreation uses.

##### *5.3.4.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Address the full exploration-to-closure sequence rather than only the final generating facility.
- Require coordination with affected landowners, resource operators, public land managers, recreation providers, and utility providers.
- Require prompt restoration of unsuccessful exploration sites and temporary roads, pads, or staging areas.

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[84] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

- Protect access to adjoining properties and established agricultural, forestry, grazing, recreation, residential, and public uses.
- Establish enforceable well-closure, infrastructure-removal, site-restoration, monitoring, and financial-assurance requirements.
- Allow roads, pipelines, or other infrastructure to remain only when the County approves a continuing use.

*5.3.4.1.4.4 Other Mitigation for Potentially Significant Impacts*

Reduce or relocate exploration areas, well pads, pipelines, roads, generating equipment, and transmission facilities where significant land-use conflicts remain. Exclude locations where the complete geothermal footprint would cause substantial permanent fragmentation or displacement of protected resource land, recreation resources, public access, or established uses.

## 5.3.4.2 Small Modular Reactors

### 5.3.4.2.1 Construction Impacts

SMR construction could require a large site containing reactor modules, cooling and water-treatment systems, security areas, switchyards, emergency facilities, support buildings, access roads, laydown areas, and transmission infrastructure. Construction could permanently displace existing agricultural, grazing, forestry, recreation, rural, or other uses within the secured site.

Associated water, transmission, transportation, and security infrastructure could extend land use effects beyond the reactor site and affect access to or compatibility with surrounding uses. Construction could also temporarily affect adjoining land uses through staging, access restrictions, and installation of supporting infrastructure. Development of previously disturbed industrial or land designated for energy facilities would generally reduce conversion of undeveloped or resource land.

### 5.3.4.2.2 Operation Impacts

SMR operation would establish a long-term industrial and secured use. Security perimeters, controlled-access areas, emergency-planning considerations, and supporting infrastructure could restrict nearby land use or reduce compatibility with residences, recreation facilities, public access, and other sensitive uses.

The facility could also limit future development within or near the site because of security, safety, infrastructure, or licensing requirements. Land use compatibility would depend on reactor design, site size, cooling system, surrounding ownership, adjacent uses, and proximity to population centers, airports, public lands, and military operations. Effects could be greater near residential uses, where development displaces agricultural or resource uses, restricts recreation or public access, or creates conflicts with airport or military operations.

### 5.3.4.2.3 Decommissioning Impacts

SMR decommissioning could extend over a prolonged period and include shutdown, dismantlement, waste handling, infrastructure removal, license termination, and site restoration. Existing land-use restrictions and security controls could remain in place during decommissioning.

Future reuse could be delayed until applicable decontamination, closure, and license-termination requirements are met. Restoration and reuse of the site would depend on the extent of infrastructure removed, site conditions following decommissioning, and compliance with applicable state and federal requirements for release of the site for future use. Retained infrastructure or continuing land-use restrictions could constrain the types or timing of future uses.

#### 5.3.4.2.4 Mitigation Measure

##### *5.3.4.2.4.1 Required Mitigation*

- Obtain applicable U.S. Nuclear Regulatory Commission licensing and Energy Facility Site Evaluation Council site certification.
- Complete applicable land-use consistency, State Environmental Policy Act, and federal environmental review.
- Comply with applicable airport, water, access, security, emergency-planning, and development requirements.
- Obtain applicable federal, state, and local approvals for supporting transportation, utility, transmission, cooling, and water infrastructure.
- Comply with applicable decommissioning, financial-assurance, waste-management, license-termination, and site-restoration requirements.

##### *5.3.4.2.4.2 Recommendations for Siting and Design*

- Prioritize previously disturbed industrial or energy sites with adequate transportation, utilities, emergency services, and transmission infrastructure.
- Establish exclusion criteria for commercial agricultural land, commercial forestland, mineral resource land, important ranchland, recreation destinations, residential concentrations, public-access areas, and other incompatible uses.
- Evaluate the full reactor, security, cooling, water, transmission, access, emergency-support, and utility footprint when mapping potentially suitable areas.
- Incorporate minimum separation and compatibility criteria for residences, recreation areas, public lands, airports, navigable airspace, and military operations.
- Exclude sites where the required security area or supporting infrastructure would unnecessarily fragment surrounding properties or restrict established access.
- Minimize the permanent facility and security footprint where consistent with applicable federal and state requirements.
- Require early coordination with federal and state licensing agencies, affected jurisdictions, airport operators, military representatives, utility providers, and public land managers.

##### *5.3.4.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Require construction, security, access, utility, and land-use plans covering the entire facility and all supporting infrastructure.
- Require continued access to adjoining properties and established uses unless access restrictions are required for safety or security.
- Limit staging and temporary disturbance to approved areas and require prompt restoration where practicable.
- Establish monitoring and enforcement procedures for land-use, access, security, setback, and compatibility conditions.
- Address land-use restrictions throughout operation, decommissioning, and federal license termination.
- Require enforceable financial assurance, infrastructure-removal provisions, site-restoration standards, and an approved future-use plan.

#### *5.3.4.2.4.4 Other Mitigation for Potentially Significant Impacts*

Require selection of an alternative site, reduced or reconfigured facility boundaries, increased separation, relocated supporting infrastructure, or replacement access where significant land-use conflicts cannot otherwise be mitigated. An area may be highly constrained as part of SMR siting standards if development would permanently displace a protected or locally important use or create an unresolved conflict with residential development, recreation, public access, airport operations, or military activities.

### 5.3.4.3 Significant Unavoidable Adverse Impacts

Alternative 3 could reduce conflicts by identifying areas where geothermal and SMR facilities would be more compatible with existing land-use patterns. However, geothermal development could create dispersed and long-term effects across wellfields, roads, and pipeline corridors. SMRs could permanently convert a large site and impose long-term security and land-use restrictions.

Impacts could be significant where geothermal or SMR development permanently converts or fragments protected resource land, substantially restricts established recreation or public access, displaces an existing use without a practicable replacement, or creates an incompatibility with nearby residential, airport, or military uses that cannot be adequately mitigated. SMR-related restrictions could remain through operation and decommissioning.

# 6 Public Services and Utilities

## 6.1 Overview

The Public Services and Utilities section reviews the existing conditions, alternatives impact analysis, and mitigation measures, including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures associated with public services and utilities within Kittitas County. This section evaluates how clean energy siting and permitting alternatives could affect public services and utilities in Kittitas County during facility construction, operation, and decommissioning. The analysis considers changes in service demand, emergency-response capabilities, utility capacity, infrastructure needs, and waste-management requirements.

Local land use designations and decisions in Kittitas County are regulated by the statutes, regulations, and guidelines listed below; Appendix A includes a comprehensive list.

- **RCW 36.70A.070, Growth Management Act**: Requires comprehensive plans to address utilities, capital facilities, public services, and wildfire risk.
- **Chapters 51-50, 51-52, 51-54A, and 51-55 WAC, Washington State Building Code**: Establish building, mechanical, fire-safety, and wildland-urban interface requirements.
- **Chapter 70A.105 RCW, On-Site Sewage Disposal Systems**: Regulates septic and other on-site sewage systems.
- **Chapter 70A.205 RCW, Solid Waste Management**: Governs solid-waste handling, disposal, reduction, and recycling.
- **RCW 80.28.440, Wildfire Mitigation Plans**: Requires applicable investor-owned electric utilities to maintain wildfire mitigation plans.

At the local level, local land use designations and decisions in Kittitas County are regulated by:

- **Kittitas County Code**: Regulates water and sewer systems, construction, environmental review, permitting, zoning, critical areas, and fire and life safety.
- **Kittitas County 2026-2046 Comprehensive Plan**: Guides public services, utilities, capital facilities, emergency services, water, wastewater, and solid waste.
- **Kittitas County Countywide Planning Policies**: Guide coordination of public facilities, infrastructure, utilities, and service levels among local jurisdictions.
- **Kittitas County Capital Improvement Program, 2026-2031**: Identifies planned investments in County facilities and infrastructure.
- **Kittitas County Comprehensive Emergency Management Plan**: Establishes local emergency preparedness, response, and recovery responsibilities.
- **Kittitas County Community Wildfire Protection Plan**: Guides wildfire preparedness and risk-reduction activities.
- **Kittitas County Solid Waste Management Plan**: Guides waste collection, recycling, transfer, and disposal.
- **Kittitas County Broadband Action Team Planning Framework**: Guides local efforts to improve broadband access in underserved areas.

Public services and utilities analyzed in this section include:

- Public services
    - Law enforcement
    - Fire prevention and response
    - Emergency medical services
    - Hospitals and other medical facilities
    - Public Schools
- Utilities
    - Communications
    - Gas and electric
    - Water and wastewater
    - Solid waste landfills and recycling

Impacts of the alternatives would be considered significant if they result in:

- Substantially increased demand for fire protection, emergency medical services, law enforcement, emergency management, health care, schools, or other public services beyond the capacity of existing providers;
- The need for substantial unplanned public facilities, equipment, staffing, training, or service expansions to maintain acceptable service levels;
- Inadequate emergency access, response times, communications, fire-suppression capacity, or specialized response capabilities that could threaten people, property, infrastructure, or responders;
- Substantial disruption, relocation, or extension of electrical, communications, water, wastewater, or other utility systems that could interrupt service or reduce capacity available to existing customers;
- Water-supply, wastewater-treatment, electrical, communications, or other utility demands that exceed available or planned system capacity;
- Substantial increases in solid, hazardous, radiological, or facility-specific waste that cannot be safely managed through available reuse, recycling, treatment, transport, or disposal systems; or
- Public service or utility impacts that cannot be adequately reduced through facility siting, design, provider coordination, infrastructure improvements, operational controls, emergency planning, or other feasible mitigation.

# 6.2 Existing Conditions

## 6.2.1 Public Services

### 6.2.1.1 Emergency Response

Kittitas County Emergency Management, which operates through the Sheriff's Office, coordinates planning and response for emergencies that exceed the routine capabilities of individual agencies. During larger incidents, the County may activate an Emergency Operations Center to collect and distribute information, coordinate resources, support incident planning, and request mutual aid or state assistance.[85] Emergency response in Kittitas County involves coordination among:

- Emergency management
- Law enforcement
- Fire departments
- Emergency medical agencies
- Public health
- Public works
- Healthcare providers
- Communications personnel
- Other partner organizations

Kittitas County has adopted the 2024 Comprehensive Emergency Management Plan (CEMP). The purpose of the CEMP is to establish policies, procedures, roles and responsibilities, and an organizational structure for responses to a major emergency.[86]

The County has experienced wildfires, floods, severe weather, and other emergencies that require multijurisdictional response. Rural settlement patterns, mountainous terrain, seasonal recreation, winter conditions, and long travel distances can affect agency access and response times, particularly outside incorporated communities. The County's emergency-management framework uses the National Incident Management System (NIMS) and Incident Command System (ICS) for coordinated incident response.[87]

### 6.2.1.2 Law Enforcement

The Kittitas County Sheriff's Office provides law-enforcement and public-safety services in unincorporated Kittitas County. Its responsibilities include:[88]

- Patrol
- Criminal investigations
- Civil and warrant services
- Marine patrol
- Search and rescue
- Emergency management
- Property and evidence management
- Operation of the County jail

The Sheriff's Office maintains its principal facility in Ellensburg and a substation in Cle Elum.

Law-enforcement agencies coordinate with fire, emergency medical services (EMS), emergency management, and KITTCOM during incidents requiring a multiagency response. The County's large geographic area and

[85] Kittitas County, Emergency Management, https://www.co.kittitas.wa.us/sheriff/emergency.aspx
[86] Kittitas County, 2024 Comprehensive Emergency Management Plan, https://www.co.kittitas.wa.us/sheriff/cemp/BasicPlan2024final.pdf
[87] Kittitas County, 2024 Comprehensive Emergency Management Plan, https://www.co.kittitas.wa.us/sheriff/cemp/BasicPlan2024final.pdf
[88] Kittitas County, Sheriff's Office, https://www.co.kittitas.wa.us/sheriff/default.aspx

dispersed rural population may require longer travel distances when responding to incidents outside urban areas.[89]

### 6.2.1.3 Fire Prevention and Response

Municipal fire departments, county fire-protection districts, and regional fire and rescue agencies provide structural fire protection and emergency response. Many rural agencies depend in part on volunteer personnel and mutual-aid agreements to provide coverage across large service areas.[90]

The Kittitas County Fire Marshal's Office supports fire prevention through inspections, code enforcement, permitting, fire investigation, regulation, and public education. Its responsibilities focus on reducing deaths, injuries, and property loss associated with fire, explosion, and other life-safety hazards. Fire protection in rural areas may be affected by distance from stations, limited road access, terrain, water availability, weather, and the number of personnel and apparatus available at the time of an incident.[91]

#### 6.2.1.3.1 Wildfire Response

Wildfire response involves local fire districts and departments, the County Sheriff and Emergency Management, the Washington State Department of Natural Resources, federal land-management agencies, and other mutual-aid partners. Responsibility for initial attack and ongoing suppression depends on the location, land ownership, jurisdiction, and incident severity. Large or complex fires can require resources from outside the county, including specialized crews, equipment, and aircraft.[92]

Kittitas County contains forest, shrubsteppe, grassland, agricultural land, and developed areas where structures and infrastructure may be exposed to wildfire. The County's Community Wildfire Protection Plan provides a countywide framework for identifying wildfire hazards, coordinating agencies and communities, and prioritizing risk-reduction activities. Local preparedness efforts include evacuation planning, fuel reduction, defensible-space programs, public education, and Firewise activities.[93]

### 6.2.1.4 Emergency Medical Services (EMS)

Kittitas County's EMS system is coordinated by the Kittitas County EMS Division, a nonprofit corporation governed by the County EMS and Trauma Care Council. The division supports the County Medical Program Director, the EMS and Trauma Care Council, licensed EMS agencies, and prehospital care providers. According to the division, the county system includes ten licensed EMS agencies and approximately 180 prehospital EMS providers.[94]

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[89] Kittitas County, Sheriff's Office, https://www.co.kittitas.wa.us/sheriff/default.aspx

[90] Kittitas County, Fire Marshal's Office, https://www.co.kittitas.wa.us/cds/firemarshal/default.aspx; Kittitas County, 2018 Community Wildfire Protection Plan, https://www.co.kittitas.wa.us/uploads/documents/cds/fire-marshal/Kittitas_County_CWPP_Update_10-9-2018.pdf

[91] Kittitas County, Fire Marshal's Office, https://www.co.kittitas.wa.us/cds/firemarshal/default.aspx; Kittitas County, 2018 Community Wildfire Protection Plan, https://www.co.kittitas.wa.us/uploads/documents/cds/fire-marshal/Kittitas_County_CWPP_Update_10-9-2018.pdf

[92] Kittitas County, Fire Marshal's Office, https://www.co.kittitas.wa.us/cds/firemarshal/default.aspx; Kittitas County, 2018 Community Wildfire Protection Plan, https://www.co.kittitas.wa.us/uploads/documents/cds/fire-marshal/Kittitas_County_CWPP_Update_10-9-2018.pdf

[93] Kittitas County, 2018 Community Wildfire Protection Plan, https://www.co.kittitas.wa.us/uploads/documents/cds/fire-marshal/Kittitas_County_CWPP_Update_10-9-2018.pdf; Wildfire Risk to Communities, From Risk to Resilience, https://wildfirerisk.org/wp-content/uploads/2026/02/WRC-LANDFIRE-CWDG-Kittitas-Co.pdf

[94] Kittitas County EMS Division, About Us, https://www.kittitascountyems.org/about-us.html

Local fire and EMS agencies provide ambulance and emergency medical response throughout the county. Upper-county services include agencies in the Cle Elum, Roslyn, Easton, Ronald, and Snoqualmie Pass areas, while agencies based in and around Ellensburg serve much of the lower county.[95]

#### 6.2.1.5 Hospitals and Other Medical Facilities

Kittitas Valley Healthcare is the county's public healthcare system. A hospital operates in Ellensburg with 25 acute-care, critical-care, and birthing beds, along with clinics and specialty services in Upper and Lower Kittitas County. The system provides 24-hour emergency care, inpatient and outpatient services, primary care, specialty care, home health, hospice, rehabilitation, and behavioral-health services. The Washington State Department of Health has designated the hospital's emergency department as a Level IV trauma service, staffed 24 hours a day by an emergency physician.[96]

#### 6.2.1.6 Public Schools

Public education in Kittitas County is provided by six local school districts:

- **Ellensburg**: The largest district in the county and serves approximately 3,200 students through four elementary schools, Morgan Middle School, Ellensburg High School, and alternative programs.
- **Kittitas**: Serves central Kittitas County through Kittitas Elementary School and Kittitas Secondary School.
- **Cle Elum-Roslyn**: Located in western Kittitas County and includes Cle Elum-Roslyn Elementary School, Walter Strom Middle School, and Cle Elum-Roslyn High School.
- **Thorp**: Located in Thorp and serves students in kindergarten (k) through 12$^{th}$ grade.
- **Easton**: A small, rural district in the upper part of the county. It operates Easton School for grades k-12.
- **Damman**: Located south of Ellensburg and operates Damman School for grades k -five.

### 6.2.2 Utilities

Kittitas County utility service comes from a mix of municipal systems, public utility districts, investor-owned utilities, special-purpose districts, community systems, and private providers. Municipal services are generally concentrated in incorporated cities and urban growth areas. Outside these areas, residents and businesses may rely on rural utility districts, community systems, private wells, on-site sewage systems, propane, and other decentralized services.

#### 6.2.2.1 Communications

Communications infrastructure includes wired and wireless telephone service, broadband internet, fiber, radio, satellite service, and emergency communications systems. Service availability and speed vary across the county. Kittitas County reports that high-speed internet access remains limited or unavailable in some locations, particularly in rural and underserved areas.

#### 6.2.2.2 Gas and Electric

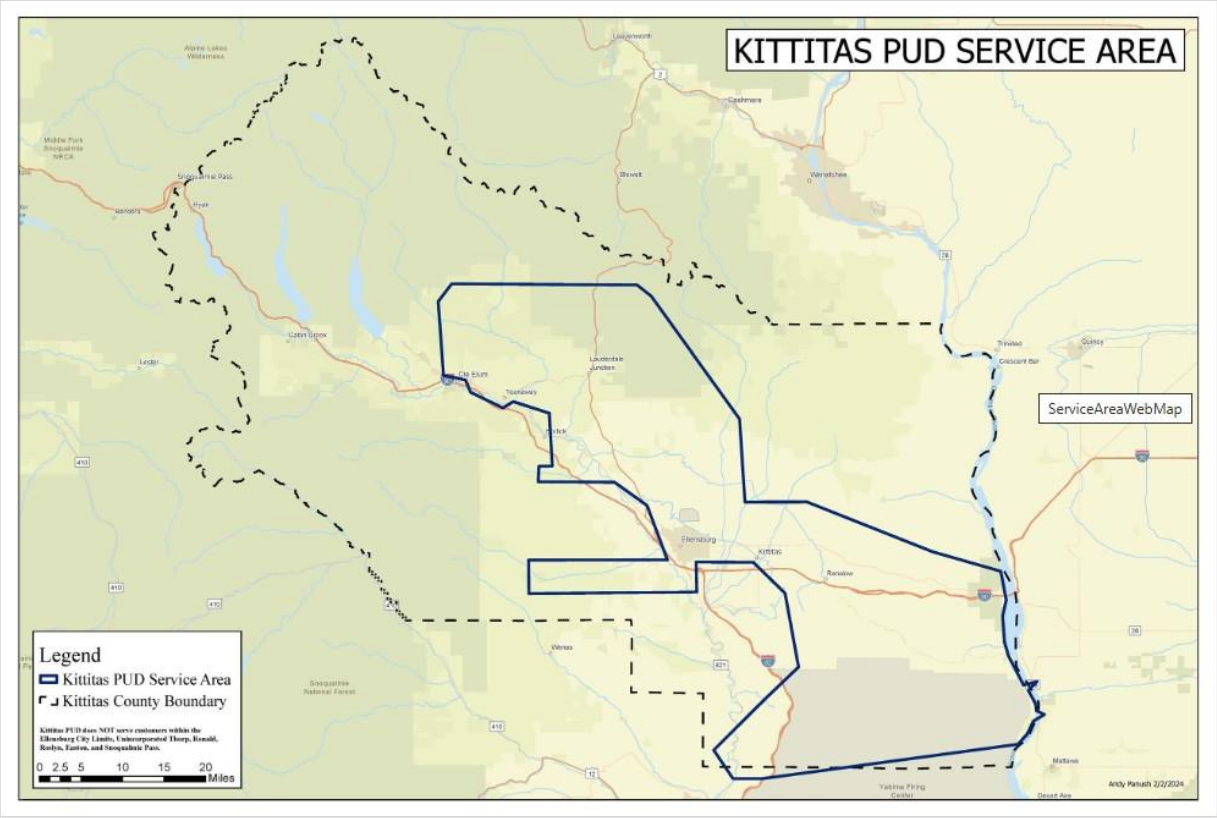
The Kittitas County Public Utility District (PUD) provides electric service within its service territory, while Puget Sound Energy (PSE) provides electric or natural-gas service in other portions of the county. The City of

[95] South Central Region EMS & TCC, Kittitas County, https://screms.org/kittitas/; Kittitas County EMS Division, About Us, https://www.kittitascountyems.org/about-us.html

[96] Kittitas Valley Healthcare, About KVH, https://www.kvhealthcare.org/about-us/

Ellensburg also operates municipal electric and natural-gas utilities within its service area. Utility service territories do not necessarily align with city or county boundaries, so the responsible provider varies by location.[97]

*Figure 22: Kittitas County PUD Service Area Map*




*Source: Kittitas PUD Service Area Map | Kittitas Public Utility District, WA*

Electricity in Kittitas County is supplied through the regional bulk power system and local utility distribution networks. County electricity loads include residential, commercial, institutional, agricultural, and industrial uses. The source of electricity serving customers varies by utility provider. Kittitas PUD and the City of Ellensburg purchase power from the Bonneville Power Administration, which markets electricity from federal hydroelectric dams, a nuclear generating facility, and other resources. [98] PSE serves customers through a broader generation portfolio that includes hydropower, natural gas, wind, and solar.

Kittitas County also hosts electricity generation, including PSE's Wild Horse Wind and Solar Facility near Ellensburg. [99] Local generation contributes to the regional electricity system, while the supply serving county customers depends on each utility's power purchases and generation portfolio.

Electric infrastructure includes transmission lines, substations, distribution lines, and connections serving homes, businesses, agricultural operations, and public facilities. Transmission infrastructure moves electricity

[97] Puget Sound Energy, PSE Locations, https://www.pse.com/en/Customer-Service/pse-locations-2; Kittitas PUD, Electric Service, https://www.kittitaspud.com/143/Electric-Service; Kittitas County, 2026 Comprehensive Plan
[98] "Rates". Kittitas PUD. https://www.kittitaspud.com/157/Rates.
[99] "Wild Horse Wind and Solar Facility". Puget Sound Energy. https://www.pse.com/en/pages/facilities/wild-horse.

between generating facilities and the regional grid, while distribution infrastructure delivers electricity to individual customers. Natural-gas infrastructure includes pipelines and associated pressure-regulation and distribution equipment. These systems require access for inspection, maintenance, repair, and replacement. Available electrical capacity varies by location and depends on the condition of nearby substations, transmission line capacity, and any planned utility upgrades.

Utilities are undertaking improvements to support reliability and reduce wildfire risk. PSE identifies grid-strengthening and wildfire-prevention investments in Kittitas County. Kittitas PUD identifies an Ellensburg substation rebuild and implementation of its Wildfire Mitigation Plan among its capital investments

### 6.2.2.3 Water and Wastewater

As stated in the Kittitas County 2026 Comprehensive Plan, state law establishes that urban governmental services such as municipal sewer and water should primarily be directed toward Urban Growth Areas (UGAs) to prevent rural sprawl. These municipal utilities are strictly limited from extending into rural Kittitas County.

Outside public utility service areas, individual wells or smaller public water systems commonly supply domestic water. The Kittitas County Public Health Department administers local drinking-water programs, including inspections, education, testing, and adequate-water-supply determinations. The Washington State Department of Ecology regulates well construction and water rights. Within the Yakima Basin portion of the county, new groundwater uses are subject to County mitigation and metering requirements.[100]

> ***"Under RCW 90.44.050, many rural residences utilize permit-exempt wells for domestic water supply, while larger developments may establish 'Group A' or 'Group B' public water systems regulated by WAC 246-290 and WAC 246-291. These regulations ensure that private water systems provide safe, potable water through rigorous engineering and testing standards. Similarly, rural wastewater is managed through On-Site Sewage Systems (OSS) and Large On-Site Sewage Systems (LOSS), which are governed by RCW 70A.105 and WAC 246-272A. These rules allow for innovative private technologies—including community drainfields and proprietary treatment systems—that protect groundwater quality while supporting development at rural densities."***
>
> ***(Kittitas County 2026 Comprehensive Plan)***

The County can also contract with private entities to operate water or sewerage systems, reinforcing the role of private enterprise in rural infrastructure. By acknowledging these private utilities (including power, irrigation, and high-speed data), the County helps ensure rural areas remain economically resilient and self-sustaining, provided these systems meet all state health and environmental standards.[101]

[100] Kittitas County, Drinking Water, https://www.co.kittitas.wa.us/health/environmental/water.aspx; Kittitas County, Water Resources Management, https://www.co.kittitas.wa.us/public-works/water-bank/default.aspx

[101] Kittitas County, 2026 Comprehensive Plan

### 6.2.2.4 Solid Waste Landfills and Recycling

The Kittitas County Solid Waste Programs department administers countywide solid-waste planning and works with the Solid Waste Advisory Committee and Board of County Commissioners. County programs address:[102]

- Waste reduction
- Reuse
- Recycling
- Composting
- Special wastes
- Moderate-risk waste
- Batteries
- Transfer stations
- Litter control

The County operates the Ellensburg Transfer Station and the Ryegrass facility and provides information on transfer stations, fees, and accepted materials.[103]

Private collection service is also available in portions of the county. Waste Management provides garbage collection in Roslyn, Kittitas, and unincorporated Kittitas County, with recycling service available within specified areas. Service arrangements, collection frequency, and recycling access vary by jurisdiction and location.[104]

## 6.3 Impact Analysis

### 6.3.1 Overview

The impacts analysis section evaluates how large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal energy facilities, and small modular reactors (SMRs) could affect public services and utilities in Kittitas County. Consistent with the Washington Department of Ecology's Programmatic Environmental Impact Statement (PEIS) approach, the discussion is organized by resource type and project phase, including construction, operation, and decommissioning. Ecology's final 2025 solar and onshore wind programmatic EISs provide relevant background for those technologies, including co-located battery storage. Ecology's separate programmatic EIS for standalone BESS facilities remained in preparation as of November 2026. Geothermal and SMR impacts are evaluated separately based on their technology-specific service and infrastructure needs.

The magnitude of impacts would depend on the following factors:

- Location, size, configuration, and design of each facility;
- Construction workforce and operational staffing needs;
- Demand for emergency response, fire protection, law enforcement, and medical services;
- Proximity to existing electrical, communications, water, wastewater, and solid waste infrastructure;

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[102] Kittitas County, Solid Waste, https://www.co.kittitas.wa.us/solid-waste/default.aspx; Kittitas County, 2020 Solid Waste and Moderate Risk Waste Management Plan Update, https://www.co.kittitas.wa.us/solid-waste/documents/kittitas-county-solid-waste-management-plan.pdf

[103] Kittitas County, Solid Waste, https://www.co.kittitas.wa.us/solid-waste/default.aspx; Kittitas County, 2020 Solid Waste and Moderate Risk Waste Management Plan Update, https://www.co.kittitas.wa.us/solid-waste/documents/kittitas-county-solid-waste-management-plan.pdf

[104] Kittitas County, Solid Waste, https://www.co.kittitas.wa.us/solid-waste/default.aspx; Kittitas County, 2020 Solid Waste and Moderate Risk Waste Management Plan Update, https://www.co.kittitas.wa.us/solid-waste/documents/kittitas-county-solid-waste-management-plan.pdf

- Capacity of public service providers and utility systems to serve the facility;
- Extent of required utility extensions, interconnections, and infrastructure upgrades; and
- Effectiveness of coordination, facility design, and mitigation measures.

*Table 10: Primary Public Services and Utilities Concerns*

| Facility Type | Primary Public Services and Utilities Concerns |
|---|---|
| Large-Scale Solar | Electrical interconnection and transmission needs; temporary construction demands; fire and wildfire response; emergency access and communications; and recycling or disposal of photovoltaic modules and other facility components. |
| Large-Scale Wind | Electrical interconnection and transmission needs; emergency access to remote facilities; fire and wildfire response; communications coverage; specialized equipment transport; and recycling or disposal of turbine components. |
| BESS | Fire and emergency response; specialized responder training; emergency access and communications; electrical interconnection; hazardous-material management; and battery recycling or disposal. |
| Geothermal | Water supply and wastewater management; electrical interconnection; emergency response to drilling or industrial incidents; communications and utility service in rural locations; and management of drilling materials and facility waste. |
| SMRs | Emergency planning and public safety coordination; specialized responder training; water supply and wastewater service; reliable and redundant communications and utilities; electrical transmission infrastructure; security needs; and long-term waste management and decommissioning demands. |

Subsequent project-level environmental review would need to identify the affected providers, evaluate facility-specific demands, and determine whether additional resources or service improvements would be necessary.

#### 6.3.1.1 Workforce and Cumulative Service Demands

Construction workforce could increase demand for medical care, emergency response, water, sanitation, and waste management. These effects depend on the size of the workforce, as well as the duration of the construction.

If multiple facilities were put into place, they could all rely upon the same services and systems. Overlapping construction schedules could create greater demand than that of a single project. Regional emergencies could be a greater constraint, restricting service access to facilities and existing communities.

The alternatives are therefore evaluated in terms of both individual facility demands and potential concentration of development within shared service areas. Where the number, scale, or timing of future projects is unknown, cumulative demand remains an uncertainty requiring consideration during subsequent planning and project review.

### 6.3.2 No Action - Alternative #1

Under the No Action Alternative, the County would continue to review solar, wind, BESS, geothermal, and SMR development under existing County regulations and applicable state and federal requirements. Kittitas County would carry forward the processes and development code standards currently established and described under:

- KCC Chapter 17.61, Utilities;
- KCC Chapter 17.61A, Wind Farm Resource Overlay Zone;

- KCC Chapter 17.61B, Small Wind Energy Systems; and
- KCC Chapter 17.61C, Solar Power Production Facilities.

Any uses not permitted through the current local government process could still be permitted through the Washington State Energy Facility Site Evaluation Council (EFSEC) process. The No Action Alternative considers the energy uses permitted to date, impacts observed so far, and how these processes would continue.

### 6.3.2.1 Impacts From Construction, Operation, And Decommissioning Under Current Processes

Construction, operation, and decommissioning activities could result in temporary or long-term demands on emergency response services, law enforcement, fire protection, EMS, utility infrastructure, communications systems, water and wastewater services, and solid waste facilities. The magnitude of impacts would depend on project type, location, workforce requirements, infrastructure needs, and proximity to existing public services and utility systems. Utility providers and service agencies would continue to evaluate project-specific infrastructure needs and facility capacity through existing review processes.

Under current processes, impacts associated with utility extensions, transmission improvements, emergency response planning, communications infrastructure, solid waste management, and water supply would continue to be addressed on a project-by-project basis. However, because the County would not establish revised energy overlays or additional countywide siting standards, opportunities to proactively direct development toward areas with existing infrastructure and service capacity may be more limited. As a result, individual projects could require greater levels of utility coordination and project-specific review to identify and address potential impacts on public services and utilities.

### 6.3.2.2 Mitigation Measures

#### 6.3.2.2.1 Required Mitigation

- Comply with applicable building, fire, utility, water, wastewater, solid-waste, hazardous-material, emergency-planning, and decommissioning requirements.
- Coordinate project design and operations with affected utility providers, fire districts, emergency medical services, law enforcement, emergency management, and other public service providers.
- Maintain emergency access, communications, fire-protection systems, and adequate water supply for facility operations and emergency response.
- Obtain required utility interconnection, electrical inspection, water-supply, wastewater, and waste-management approvals.
- Implement approved emergency-response, fire-prevention, decommissioning, and site-restoration plans.

### 6.3.2.3 Significant Unavoidable Adverse Impacts

Impacts would generally be less than significant where projects demonstrate adequate service capacity and fund necessary infrastructure, equipment, training, or service improvements. Significant impacts could remain if a project exceeds available emergency-response or utility capacity, requires major unplanned public facilities, or creates service demands that cannot be adequately mitigated.

### 6.3.3 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Under Alternative 2, local regulations governing large-scale solar, wind, and battery energy storage system (BESS) facilities would be revised to identify areas suitable for development within Kittitas County and to provide greater clarity and predictability in project siting and review.

Existing overlay zones established under KCC 17.61A and KCC 17.61C.040 could be modified based on the findings, and new siting and associated development standards for BESS facilities may be established. The alternative may update development standards to incorporate known mitigation measures and provide clearer guidance for project design, siting, and permitting.

Alternative 2 could change the geographic distribution of solar, wind, and BESS development by modifying eligible siting areas and associated standards. Areas with shorter emergency-response travel distances, reliable year-round access, adequate communications, and feasible utility connections could reduce some service and infrastructure impacts relative to more remote locations. Proximity alone would not establish adequate capacity.

Expanded eligible areas or greater concentration of facilities could increase demands on individual response agencies or shared utility systems. New standards could reduce these effects where they establish enforceable requirements for access, emergency planning, provider review, and necessary improvements. The extent of any improvement relative to No Action depends on the specific overlays and standards adopted.

#### 6.3.3.1 Large-Scale Solar

##### 6.3.3.1.1 Construction Impacts

Construction of solar facilities may affect public services and utilities through temporary increases in demand for emergency response, law enforcement, solid waste management, and utility services. Site preparation, grading, panel installation, substation construction, and associated infrastructure may require a temporary workforce, construction water, portable sanitation facilities, fuel deliveries, and increased communications capacity.

Construction traffic could increase demand on law enforcement, EMS, fire response agencies, and emergency communications systems. Construction activities could also generate solid waste requiring transportation and disposal at permitted facilities. Depending on project location, temporary utility extensions or upgrades may be necessary to support construction activities.

The magnitude of impacts would depend on project size, workforce requirements, proximity to existing utility infrastructure, and emergency services availability.

##### 6.3.3.1.2 Operation Impacts

Operation of solar facilities could increase long-term demand for electrical transmission infrastructure, communications systems, emergency response planning, and fire protection services. Solar facilities typically require limited staffing and minimal water use during routine operations; therefore, operational demands on schools, hospitals, law enforcement, and other public services would generally be limited.

Solar projects may require upgrades to substations, transmission facilities, or interconnection infrastructure depending on facility size and location. Utility providers would review and approve any required upgrades through existing planning and regulatory processes. Operational activities may also require coordination with

local fire districts and emergency responders, particularly where facilities are located in wildfire-prone areas. Limited operational staffing would generally reduce routine workforce-related service demands. However, the significance of operational impacts would also depend on emergency-response needs, utility improvements, site access, and the capacity of affected providers.

#### 6.3.3.1.3 Decommissioning Impacts

Decommissioning would involve removal of photovoltaic panels, electrical equipment, access roads, fencing, and associated infrastructure. Temporary increases in traffic, solid waste handling, emergency response readiness, and utility coordination would be similar to, but generally less extensive than, construction impacts.

Large volumes of recyclable and non-recyclable materials may require transport and disposal or recycling through approved facilities. Temporary service demands would decline following site restoration and closure activities. Impacts would generally be temporary and less than significant.

#### 6.3.3.1.4 Mitigation Measures

##### *6.3.3.1.4.1 Required Mitigation*

- Obtain applicable utility interconnection, building, electrical, fire, water, wastewater, solid-waste, and emergency-response approvals.
- Maintain emergency access and comply with applicable fire-prevention and wildfire-protection requirements.
- Manage photovoltaic modules, electrical equipment, hazardous materials, and other waste through approved reuse, recycling, treatment, or disposal facilities.
- Implement approved decommissioning and site-restoration plans.

##### *6.3.3.1.4.2 Recommendations for Siting and Design*

- Locate facilities near existing electrical, communications, transportation, and emergency-service infrastructure where practicable.
- Confirm that affected service providers and utility systems have adequate capacity or identify necessary project-funded improvements.
- Design emergency access, communications, fire-protection systems, and fire-suppression water supplies appropriate to the site's conditions and wildfire risk.
- Minimize new utility extensions and design facilities to support equipment removal, recycling, and waste management.

##### *6.3.3.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Coordinate construction schedules, utility work, planned outages, and emergency procedures with affected utilities and service providers.
- Maintain emergency access, reliable communications, fire-prevention measures, and adequate sanitation and water services throughout all project phases.
- Provide facility information and training to emergency responders, as appropriate.
- Reuse or recycle facility components where feasible and remove unnecessary infrastructure during decommissioning.

##### *6.3.3.1.4.4 Other Mitigation for Potentially Significant Impacts*

If project demands would exceed available service or utility capacity, phase construction or fund necessary infrastructure, equipment, training, staffing, or mutual-aid improvements. Relocate or redesign project

components if reliable emergency access, fire protection, communications, or utility service cannot be provided.

### 6.3.3.2 Large-Scale Wind

#### 6.3.3.2.1 Construction Impacts

Construction of wind facilities could increase temporary demand for public services and utilities due to workforce presence, transportation of oversized equipment, construction water use, waste generation, and emergency response needs. Turbine foundations, access roads, substations, collection systems, and transmission infrastructure may require substantial construction activity across large geographic areas.

Transport of turbine components may require coordination with law enforcement and emergency management personnel. Construction in remote locations could increase travel times for emergency services and may require additional coordination with fire districts, EMS providers, and emergency communications systems.

Utility providers may also need to evaluate transmission upgrades or new interconnection facilities. Construction impacts would generally be temporary and would be managed through permitting requirements and coordination with service providers

#### 6.3.3.2.2 Operation Impacts

Wind facilities may increase demand for electric transmission infrastructure and could require ongoing coordination with utility providers responsible for transmission and distribution systems. Operational activities may also require emergency response planning related to turbine malfunctions, wildfires, severe weather events, or maintenance incidents.

Because wind facilities typically employ a relatively small permanent workforce, operational demands on schools, medical facilities, law enforcement, wastewater systems, and other community services would generally be limited.

#### 6.3.3.2.3 Decommissioning Impacts

Decommissioning wind facilities would temporarily increase demand for emergency response coordination, communications, and solid waste management during turbine removal and site restoration activities. Large turbine components may require specialized hauling and disposal or recycling. Temporary impacts would be similar to construction impacts and would decline following completion of decommissioning and restoration activities.

#### 6.3.3.2.4 Mitigation Measures

##### *6.3.3.2.4.1 Required Mitigation*

- Obtain applicable utility interconnection, building, electrical, fire, water, wastewater, solid-waste, and emergency-response approvals.
- Maintain emergency access to turbines, substations, and other facility components.
- Comply with applicable wildfire-protection, electrical-inspection, communications, and waste-management requirements.
- Implement approved decommissioning, financial-assurance, and site-restoration plans.

##### *6.3.3.2.4.2 Recommendations for Siting and Design*

- Consider emergency-response times, road access, terrain, communications coverage, and fire-suppression water availability when selecting turbine and substation locations.

- Locate facilities near existing transmission and communications infrastructure and minimize new utility extensions.
- Design access roads, gates, turnarounds, communications, and fire-protection systems for year-round emergency response.
- Coordinate facility design with electric utilities, fire districts, emergency medical services, law enforcement, emergency management, and communications providers.

*6.3.3.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Coordinate construction activities, oversized deliveries, utility upgrades, and planned service interruptions with affected agencies and providers.
- Maintain emergency access and reliable communications throughout construction, operation, and decommissioning.
- Provide responders with current facility maps, access information, emergency procedures, and technology-specific training, as appropriate.
- Recycle or properly dispose of turbine components and restore roads and utility infrastructure that will not serve an approved continuing use.

*6.3.3.2.4.4 Other Mitigation for Potentially Significant Impacts*

If remote locations or limited service capacity would substantially delay or constrain emergency response, provide additional access, communications, fire-suppression resources, equipment, training, or mutual-aid support. Relocate facility components where adequate emergency response or utility service cannot be provided.

### 6.3.3.3 Battery Energy Storage Systems

#### 6.3.3.3.1 Construction Impacts

Construction of BESS facilities would generally create localized, temporary demands on public services and utilities. Activities may require construction water, electric service, communications infrastructure, construction waste management, and emergency response readiness. Site grading, equipment delivery, enclosure installation, fire-protection infrastructure, and utility interconnections could temporarily increase traffic and demand for public services.

#### 6.3.3.3.2 Operation Impacts

BESS operations may affect public services, particularly fire protection, emergency response, and utility system operations. Energy storage facilities may require specialized emergency planning, fire-suppression systems, emergency-responder training, and coordination with utility providers.

Potential incidents involving battery systems could require emergency response resources, emergency communications, and temporary road access restrictions. Depending on battery chemistry, facility size, and location, local fire districts, emergency management agencies, and waste management providers may require additional coordination to maintain existing service levels.

Additionally, BESS operational impacts potentially include a temporary increase in waste streams, including replacement battery systems and mechanical components. This increase in waste generation may impact the county's waste management systems and facilities. Ongoing coordination with utility providers may be necessary to manage grid interconnection requirements, system reliability, and the integration of power generation or storage resources into the local or regional electric network.

#### 6.3.3.3.3 Decommissioning Impacts

Decommissioning BESS facilities would involve removing battery units, electrical equipment, fire-protection systems, foundations, and related infrastructure. Equipment removal and disposal would temporarily increase demands on emergency response agencies and waste management facilities.

Battery recycling, transportation, and disposal would require compliance with applicable hazardous-material and solid-waste requirements. Following removal and site restoration, service demands would be anticipated to return to pre-project conditions.

#### 6.3.3.3.4 Mitigation Measures

##### *6.3.3.3.4.1 Required Mitigation*

- Comply with applicable building, electrical, fire, hazardous-material, utility, waste-management, and emergency-planning requirements.
- Obtain required interconnection approvals and provide emergency access, fire-detection, fire-suppression, ventilation, and shutdown systems appropriate to the battery technology.
- Prepare and maintain an emergency-response plan coordinated with local fire, emergency medical, law-enforcement, emergency-management, and utility providers.
- Manage batteries, damaged equipment, contaminated materials, and other regulated wastes through approved facilities.

##### *6.3.3.3.4.2 Recommendations for Siting and Design*

- Prioritize sites near existing substations, industrial uses, energy facilities, and adequate emergency-response infrastructure.
- Confirm that responders have sufficient access, equipment, communications, water supply, and response capacity.
- Design redundant emergency communications, equipment isolation, containment, fire detection, and emergency shutdown systems appropriate to facility hazards.
- Configure emergency access and staging areas so response vehicles do not obstruct public roads or evacuation routes.

##### *6.3.3.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Provide facility information and technology-specific training to emergency responders before operation.
- Conduct periodic inspections and emergency exercises with affected agencies and utility providers.
- Update emergency plans when battery technology, facility layout, hazards, or operating procedures change.
- Maintain emergency access and communications and use qualified contractors to remove, transport, recycle, or dispose of batteries.

##### *6.3.3.3.4.4 Other Mitigation for Potentially Significant Impacts*

If existing providers lack that capacity to respond safely, fund necessary equipment, training, communications, water supply, staffing, or mutual-aid improvements. Increase setbacks, modify facility design, or relocate the facility if adequate emergency response cannot be demonstrated.

### 6.3.3.4 Significant Unavoidable Adverse Impacts

Most impacts would be less than significant with utility coordination, emergency planning, adequate access and communications, first-responder training, and project-funded infrastructure or service improvements. Significant impacts could remain if a facility exceeds available emergency-response capacity, requires substantial unplanned public facilities, or cannot provide reliable utility service or emergency access. BESS facilities present the greatest potential for specialized emergency-response demands.

## 6.3.4 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

### 6.3.4.1 Geothermal

#### 6.3.4.1.1 Construction Impacts

Construction of geothermal energy facilities could affect public services and utilities through increased demand for emergency response services, utility infrastructure, communications systems, water supplies, wastewater management, and solid waste facilities. Geothermal development may occur in multiple phases and could include exploration activities, test wells, production and injection wells, access roads, pipelines, substations, transmission connections, water infrastructure, staging areas, and temporary worker facilities.

Construction activities may require substantial coordination with utility providers, emergency management personnel, fire districts, EMS providers, and public works agencies. Drilling operations could require temporary water supplies, wastewater management, fuel deliveries, communications services, and emergency-response planning. Rural locations and long travel distances within Kittitas County could increase the need for coordination with emergency responders during drilling and construction activities. Existing utility systems may also require upgrades or extensions to support geothermal development, depending on project size and location. Impacts would generally be temporary and would be evaluated through project-specific permitting and utility-provider review processes.

#### 6.3.4.1.2 Operation Impacts

Operation of geothermal facilities could create ongoing demands on utility infrastructure, water supplies, emergency response services, and communications systems. Water supply and wastewater management needs depend on the geothermal technology, cooling systems, and production methods used.

Geothermal facilities could require long-term coordination with utility providers for electrical interconnection, transmission upgrades, communications infrastructure, and maintenance access. Operations may also require emergency-response planning related to equipment failures, hazardous materials, well integrity issues, fires, or other industrial incidents. Utility demand and service needs would vary substantially depending upon the size and design of individual facilities.

#### 6.3.4.1.3 Decommissioning Impacts

Decommissioning geothermal facilities may involve closing wells, removing aboveground facilities and pipelines, demolishing support infrastructure, transporting equipment and materials, and restoring the site. These activities could temporarily increase demand for emergency response services, communications systems, solid waste facilities, and utility coordination.

Removal and disposal of equipment, well materials, and infrastructure could generate substantial waste streams requiring recycling, reuse, or disposal at approved facilities. Temporary increases in traffic and service demands would be similar to construction activities but would end after decommissioning and site restoration.

### 6.3.4.1.4 Mitigation Measures

#### *6.3.4.1.4.1 Required Mitigation*[105]

- Obtain applicable drilling, utility interconnection, water-supply, wastewater, fire, hazardous-material, waste-management, building, and emergency-response approvals.
- Comply with applicable requirements for well construction, electrical systems, communications, wastewater and geothermal fluid management, fire protection, and decommissioning.
- Maintain emergency access and implement approved emergency-response, spill response, fire-prevention, well-closure, and site-restoration plans.
- Manage drilling materials, geothermal fluids, equipment, and other waste through approved treatment, recycling, or disposal facilities.

#### *6.3.4.1.4.2 Recommendations for Siting and Design*

- Evaluate service and utility needs for the complete exploration, drilling, construction, operation, and closure sequence.
- Locate facilities near adequate electrical, communications, water, wastewater, transportation, and emergency-service infrastructure where practicable.
- Confirm that affected providers have sufficient capacity or identify required project-funded improvements.
- Minimize new utility extensions and provide reliable emergency access, communications, fire protection, and containment systems.

#### *6.3.4.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Coordinate phased exploration, drilling, utility work, service interruptions, and emergency procedures with affected agencies and providers.
- Maintain communications, water supply, and wastewater management throughout all project phases.
- Provide responders with current facility information and training addressing wells, geothermal fluids, hazardous materials, and industrial equipment.
- Properly close wells, remove unnecessary infrastructure, manage waste, and restore affected utility and service areas during decommissioning.

#### *6.3.4.1.4.4 Other Mitigation for Potentially Significant Impacts*

If project demands would exceed available water, wastewater, communications, emergency-response, or utility capacity, phase development or fund necessary facility and service improvements. Relocate or redesign components if adequate service capacity and emergency response cannot be provided.

[105] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

### 6.3.4.2 Small Modular Reactors (SMR)

#### 6.3.4.2.1 Construction Impacts

Construction of SMR facilities could place significant demands on public services and utilities because of the scale and complexity of the required infrastructure. Site preparation, reactor construction, cooling systems, water-treatment facilities, switchyards, transmission interconnections, security infrastructure, support facilities, emergency management planning, and access improvements could require significant utility capacity, construction water supplies, communications systems, and emergency-response resources.

Large construction workforces could temporarily increase demand for medical services, public safety services, emergency management, communications networks, and solid waste facilities. Utility providers may need to evaluate substantial upgrades to electrical transmission, communications facilities, water infrastructure, and other supporting services.

Construction impacts would depend on facility size, cooling requirements, workforce needs, location, and availability of existing utility infrastructure. SMRs are anticipated to require extensive infrastructure, though project-specific review would identify specific necessary improvements and service requirements.

#### 6.3.4.2.2 Operation Impacts

Operating SMR facilities could create long-term demand for emergency-response capabilities, utility infrastructure, communications systems, water supplies, wastewater services, and public safety resources. Facility operations would require ongoing coordination among utility providers, emergency management agencies, fire districts, law-enforcement agencies, healthcare providers, and communications providers.

SMR facilities may require dedicated emergency planning, specialized first-responder training, reliable communications systems, redundant utility infrastructure, and extensive security measures. Depending on reactor design and cooling requirements, operational water demand has the potential for significant demand. SMRs using nuclear fission have the potential for significant impacts on public services and utilities and would rely on further project-level review through EFSEC. SMR facilities using nuclear fusion would be anticipated to have reduced impacts in comparison, but may still demand connections and services associated with utility infrastructure, communications systems, water supplies, wastewater services, and public safety resources.

#### 6.3.4.2.3 Decommissioning Impacts

SMR decommissioning could occur over an extended period and would involve dismantlement, equipment removal, waste management, infrastructure removal, and site restoration. Temporary demands for public safety services, emergency-response coordination, communications systems, and utility infrastructure would continue throughout decommissioning activities.

Waste handling, facility demolition, and site remediation could require substantial coordination with local, state, and federal agencies. Service demands would gradually decrease following facility closure and restoration. Long-term impacts would depend on the approved end use of the site, and the extent of infrastructure retained following decommissioning.

#### 6.3.4.2.4 Mitigation Measures

##### *6.3.4.2.4.1 Required Mitigation*

- Obtain applicable federal licensing, state certification, utility, water, wastewater, air, waste-management, building, security, and emergency-planning approvals.

- Demonstrate adequate emergency response, fire-protection, law-enforcement, medical, communications, water, wastewater, electrical, and transportation capacity.
- Comply with applicable nuclear safety, security, emergency preparedness, radioactive-material, waste-management, monitoring, and decommissioning requirements.
- Maintain reliable primary and backup communications, utilities, emergency access, and water supplies throughout operation and decommissioning.

*6.3.4.2.4.2 Recommendations for Siting and Design*

- Prioritize sites with adequate electrical transmission, water, wastewater, communications, transportation, emergency-response, and health care capacity.
- Avoid sites where distance, terrain, limited access, or inadequate communications would prevent timely emergency response.
- Minimize new utility extensions and provide redundant utilities, communications, emergency access, security, and fire-protection systems.
- Evaluate the combined service demands of the reactor, cooling systems, workforce, security operations, emergency facilities, transmission improvements, and supporting infrastructure.

*6.3.4.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Coordinate construction phasing, workforce mobilization, utility upgrades, service interruptions, emergency planning, and decommissioning with affected agencies and providers.
- Provide specialized training, equipment, communications, facility information, and periodic exercises for emergency responders.
- Monitor demands on emergency services, health care, utilities, water and wastewater systems, communications, and waste-management facilities.
- Maintain emergency plans and service agreements throughout operation and update them when facility conditions, technology, or hazards change.
- Plan for long-term waste management, infrastructure removal, utility transitions, and continuation of essential services during decommissioning.

*6.3.4.2.4.4 Other Mitigation for Potentially Significant Impacts*

If existing systems cannot accommodate facility demands, fund necessary infrastructure, equipment, staffing, training, health care, communications, water, wastewater, or emergency-service improvements. Modify project phasing, facility capacity, or design if service demands would exceed available capacity. A site should not proceed if reliable utilities, emergency access, communications, security, and response capacity cannot be demonstrated.

### 6.3.4.3 Significant Unavoidable Adverse Impacts

Geothermal and SMR facilities could require more extensive utility infrastructure and emergency-response capacity than facilities under Alternative 2. Impacts would generally be less than significant where applicants demonstrate adequate capacity and fund necessary improvements.

Significant impacts could remain if a facility requires substantial unplanned public infrastructure, exceeds available water or wastewater capacity, reduces service to existing customers, or creates emergency-response and public-safety demands that local and regional providers cannot adequately meet. SMRs present the greatest potential for long-term and specialized service demands because of their security, emergency planning, utility reliability, waste management, and decommissioning requirements.

# 7 Transportation

## 7.1 Overview

The Transportation section reviews the existing conditions, alternatives impact analysis, and mitigation measures, including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures, associated with transportation within Kittitas County.

Transportation facilities within Kittitas County are shaped by various federal, state, and local policies including county code, adopted plans, and regional transportation policies. These regulations and guidance documents address roadway design, access, safety, freight movement, multimodal transportation, capital improvements, and coordination with future growth. Appendix A includes a list of applicable regulations, statutes, and guidelines.

For this analysis, the transportation system refers to the roads, highways, rail lines, airports, transit services, bicycle and pedestrian facilities, and related infrastructure that support the movement of people, goods, services, and emergency responders throughout the county. This broad definition provides the basis for evaluating existing conditions and potential transportation impacts.

The transportation networks analyzed in this section include:

- Roadways,
- Rail network,
- Airport Facilities, Flight Paths, and Safety Zones,
- Public Transportation,
- School Bus Routes,
- Bicycle and Pedestrian Facilities, and
- Freight Routes.

Impacts would be considered significant if they result in:

- Permanent, significant impacts on traffic patterns, volumes, hazards, or risks to other users, including commercial and military aircraft
- Long-term road closures or interruptions to traffic patterns or volumes, causing the movement of people and goods to be impacted in the long term
- Substantial damage to roadways or related infrastructure (e.g., culverts or bridges) that could not be safely used without major repairs or replacement to return to pre-impact conditions
- Substantial damage or change to transit, rail, air, or water transportation that could not be safely used without major repairs or replacement to return to pre-impact conditions
- Substantially interfere with emergency access or established freight, transit, school bus, rail, airport, bicycle, or pedestrian operations.

## 7.2 Existing Conditions

This section provides an overview of the Kittitas County transportation system, safety and system needs, as well as the regulatory and permitting context. The affected environment represents existing conditions as of August 2026, the time at which the Kittitas County CESP EIS was prepared.

Kittitas County's transportation system reflects the county's rural character, dispersed communities, and regional travel connections. Roads and highways form the primary transportation network, connecting communities, employment areas, recreation destinations, and regional corridors. Private vehicles remain the primary mode of travel. Incorporated cities generally have more connected street networks, while rural areas rely on county roads and state highways with fewer pedestrian facilities.[106]

### 7.2.1 Roadways

As defined by the Kittitas County Comprehensive Plan, the county has established a number of roadway classifications:[107]

- **Interstate Facilities**: At the top of the hierarchy is I-90, a major east-west corridor that enables fast, high-capacity travel across the county and connects residents to destinations throughout Washington State. I-82 is a north-south corridor that runs from central Kittitas County, near Ellensburg, to Yakima Valley. These facilities are essential for long-distance commuting, freight movement, and access to urban centers such as Seattle and Spokane. Interstate facilities are owned and operated by WSDOT.
- **Other Freeway/Expressway Facilities**: Supplementing the interstates are other freeway and expressway routes, designed for high-speed, limited-access travel. These roads help residents move efficiently between key destinations, reduce congestion, and provide alternative routes for through-traffic and emergency detours.
- **Principal Arterials**: Principal arterials, such as SR-97 and SR-10, are vital for connecting cities and towns like Ellensburg, Cle Elum, and Roslyn. These roads carry higher traffic volumes and are crucial for daily commuting, school transportation, and access to major activity centers, hospitals, and shopping districts.
- **Minor Arterials**: Minor arterials serve as feeders to principal arterials and expressways, linking smaller communities and neighborhoods to the broader network. These roads support local traffic and provide alternative routes during peak travel times, helping residents reach schools, parks, and local businesses.
- **Major Collectors**: Major collectors gather traffic from local roads and funnel it to arterials. These facilities connect rural areas, agricultural zones, and residential developments to urban centers, making it easier for residents to access essential services, shopping, and employment opportunities.
- **Minor Collectors**: Minor collectors serve local traffic, connecting neighborhoods, rural communities, and recreational areas to the major collector and arterial network. These roads are important for short trips, school bus routes, and access to parks, trailheads, and community facilities.
- **Local Access Roads**: Local roads primarily serve residential areas, rural priorities, and small community destinations, providing direct access to homes, farms, and local businesses. These roads typically accommodate short trips at lower speeds, generally ranging from 20 to 35 miles per hour, and are used by passenger vehicles, school buses, delivery trucks, and occasional agricultural equipment. Local roads often connect to minor collectors, supporting access to parks, trailheads, and neighborhood facilities, but are not intended for heavy through traffic or high volumes.

[106] Kittitas County 2026 Comprehensive Plan
[107] Kittitas County 2026 Comprehensive Plan

### 7.2.1.1 Commuting

Workforce commuting patterns show Kittitas County functioning as both an employment center and a residential location for workers employed elsewhere in the region. Approximately 10,639 workers both lived and worked within the county in 2023, while 7,673 workers commuted into Kittitas County for employment and 10,386 county residents commuted outside the county for work.[108]

### 7.2.1.2 Destinations

Kittitas County contains a diverse network of recreation and tourist destinations that generate substantial visitor travel throughout the county. Several of the county's most significant destinations are located along the I-90 corridor and in the upper county:

- **Snoqualmie Pass Ski Resort** is a major winter recreation destination that attracts thousands of visitors annually from both eastern and western Washington.
- **Lake Easton State Park** provides year-round recreation opportunities, including camping, boating, fishing, and hiking, with visitation peaking during the summer season.
- **Suncadia Resort** serves as a major tourism destination and second-home community, drawing visitors for lodging, golf, outdoor recreation, conferences, and special events.
- **Columbia River** provides opportunities for aquatic recreation opportunities, including fishing, boating, and swimming.

In addition to recreation destinations, several regional activity centers generate substantial travel demand:

- **Central Washington University (CWU)** attracts students, faculty, visitors, and attendees of athletic and cultural events from across the state.
- **Bowers Field Airport** serves general aviation, flight training, business travel, and educational programs.
- **Kittitas Valley Event Center** hosts the Kittitas County Fair, Ellensburg Rodeo, concerts, trade shows, and community events that attract large numbers of visitors annually.

### 7.2.1.3 Level of Service

As population and employment have grown, transportation demand has increased. Rural roadway systems generally experience relatively low traffic volumes; however, seasonal recreational travel has created localized congestion along major corridors, particularly near Snoqualmie Pass. As part of the Comprehensive Plan Update process, Kittitas County conducted a level-of-service (LOS) analysis to evaluate peak-hour traffic volumes relative to roadway capacity. In Kittitas County, an “acceptable” roadway standard is LOS C for rural roads and LOS D for roads within UGA boundaries. Based on the analysis, only one segment in the county is projected to exceed LOS standards over the 20-year planning horizon. Bowers Road, north of Ellensburg, is projected to reach LOS E by 2038, primarily due to rapid development. However, Kittitas County plans a project to address this need as part of the Comprehensive Plan.[109]

### 7.2.1.4 Regulatory Framework

Future energy facilities must comply with applicable transportation, access, right-of-way, oversized/overweight vehicle, aviation, hazardous-material, and environmental-review requirements. Kittitas County regulates roadway access and development through County road and bridge standards, access permits, traffic review,

[108] United States Census Bureau, OnTheMap, https://onthemap.ces.census.gov/
[109] Kittitas County, 2026 Comprehensive Plan

and special motor vehicle permits. WSDOT regulates access, work within state highway rights-of-way, utility crossings, and oversized or overweight vehicle movements on state highways. Projects affecting navigable airspace, airports, railroads, federal or state lands, or hazardous-material transportation would require applicable agency review and approvals.

Most state highways, including I-90, are designed to accommodate standard freight traffic and provide sufficient clearance for most commercial vehicles. Oversized loads that exceed legal height, width, weight, or length limits require permits from WSDOT or Kittitas County, depending on the roadway jurisdiction.

The County and WSDOT maintain permitting processes and route reviews to ensure oversized vehicles can safely navigate the transportation network while minimizing impacts on infrastructure, public safety, and traffic operations.

Kittitas County uses a Special Motor Vehicle Permit to authorize overweight, overheight, and overwidth vehicles onto the County Roads, as detailed in **Table 11**.[110]

*Table 11. Special Motor Vehicle Permit Requirements*

| Special Motor Vehicle Permit | General Specifications | |
|---|---|---|
| **Overwidth** | Requires Permit<br>Overwidth includes any vehicle or load over 8.5 feet wide<br>Maximum width allowed is 12 feet on County Roads<br>(RCW 46.44.010; KCC 10.16.050)<br>FEE: $ 3.00 | |
| **Overweight** | Requires Permit<br>Legal Capacity 80,000 lbs. | |
| | 6,000 lbs over legal capacity | $ 0.10 per mile |
| | 12,000 lbs over legal capacity | $ 0.20 per mile |
| | 18,000 lbs over legal capacity | $ 0.30 per mile |
| | 24,000 lbs over legal capacity | $ 0.50 per mile |
| | 36,000 lbs over legal capacity | $ 0.90 per mile |
| | over 36,000 lbs over legal capacity | $ 1.10 per mile |
| **Overlength** | Requires Permit, No Charge | |
| **Overheight** | Requires Permit, No Charge | |
| **Overhang** | Requires Permit, No Charge | |

*Source: Kittitas County, Overlegal Permit, https://www.co.kittitas.wa.us/public-works/administration/over-legal-permit.aspx*

Oversize and overweight vehicles require a WSDOT permit to move on state highway systems.[111] The Kittitas County Public Works office acts as a liaison to the WSDOT permitting office located in Cle Elum for oversize and overweight vehicle permits.[112]

[110] Kittitas County, Overlegal Permit, https://www.co.kittitas.wa.us/public-works/administration/over-legal-permit.aspx
[111] Washington State Department of Transportation, Commercial Vehicle Permits, https://wsdot.wa.gov/travel/commercial-vehicles/commercial-vehicle-permits
[112] Kittitas County, Overlegal Permit, https://www.co.kittitas.wa.us/public-works/administration/over-legal-permit.aspx

Legal dimensions on state highway systems are:[113]

- 8'6" wide, 14' tall, 53' length (tractor/trailer)
- 40' single unit
- 75' overall with a truck and trailer
- 3' of front overhang and 15' of rear overhang.

## 7.2.2 Rail Transportation

No regularly scheduled passenger rail service currently operates in Kittitas County. The county has two historical train depots that do not operate today:

- **Northern Pacific Railroad Passenger Depot** (Ellensburg Depot), constructed in 1910, served as a major passenger and freight facility for the Northern Pacific Railroad. The depot remains a prominent historic structure in downtown Ellensburg and is identified as a potential future passenger rail facility should service be restored along the corridor.[114]
- **South Cle Elum Depot**, constructed in 1909 as part of the Milwaukee Road's Pacific Coast Extension, served passengers, railroad employees, and freight operations. The depot is part of the South Cle Elum Rail Yard Historic District and is listed on the National Register of Historic Places.[115]
- **Kittitas Depot**, constructed in 1909, as part of the Milwaukee Road's Pacific Coast Extension, primarily served freight and agriculture operations. The depot is listed on the National Register of Historic Places and part of the Palouse to Cascades State Park Trail.

### 7.2.2.1 Rail Yards and Facilities

The county contains several rail-related facilities associated with both active and historic rail operations. The most significant historic facility is the South Cle Elum Rail Yard, established in 1909 as a division point for the Milwaukee Road. The yard included a depot, rail yard, substation, bungalows, a bunkhouse, and associated railroad infrastructure. Today, the site functions as a historic interpretation area within the Palouse to Cascades State Park Trail and represents one of the most intact remaining Milwaukee Road rail facilities in the western United States.[116]

## 7.2.3 Air Transportation

Kittitas County's air transportation consists of three public-use airports: Bowers Field Airport (ELN) near Ellensburg, Cle Elum Municipal Airport near Cle Elum, and Easton State Airport (ESW) near Snoqualmie Pass. While neither airport provides scheduled commercial passenger service, both play important roles in serving general aviation users and providing access to different parts of the county. In addition, the county is located adjacent to the Yakima Training Center (YTC), one of the largest military installations in the Pacific Northwest, which has aviation operations.

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[113] Washington State Department of Transportation, Commercial Vehicle Permits, https://wsdot.wa.gov/travel/commercial-vehicles/commercial-vehicle-permits

[114] Washington Trust for Historic Preservation, Kittitas County, http://preservewa.org/counties/kittitas/; All Aboard Washington, East-West Passenger Rail Service, https://aawa.us/impact/current-projects/east-west/

[115] Mountain to Sound Greenway National Heritage Area, South Cle Elum Depot and Rail Yard, https://mtsgreenway.org/location/milwaukee-road-depot-sth-cle-elum-depot/

[116] Cascade Rail Foundation, Visit, https://www.milwelectric.org/visit/

### 7.2.3.1 Airports

#### 7.2.3.1.1 Bowers Field Airport (ELN)

Bowers Field is the largest airport in Kittitas County and serves as the county's primary aviation facility. Located approximately two miles north of Ellensburg, the airport is owned and operated by Kittitas County and is classified by the Federal Aviation Administration (FAA) and Washington State Department of Transportation (WSDOT) as a regional airport.[117]

The airport is home to CWU's Flight Training Program, making it an important center for aviation education in Central Washington. Flight training activity accounts for a significant share of airport operations and contributes to a consistent year-round level of aviation activity.[118] According to WSDOT's Aviation Economic Impact Study, Bowers Field recorded approximately 57,380 annual aircraft operations, with roughly one-third consisting of transient aircraft activity.[119]

WSDOT estimates that airport-related activities support approximately 214 jobs and generate approximately $39.5 million in annual economic activity. Airport users include local businesses, agricultural operators, emergency responders, air medical services, and visitors traveling to and from Central Washington.[120]

#### 7.2.3.1.2 Cle Elum Airport

Cle Elum Municipal Airport is located one mile east of the City of Cle Elum. The City has owned and operated the airport since 1959. It is surrounded by forested mountains to the immediate north and across the valley to the south. The runway experienced renovations in 2009 and is a length of 2,379 feet with a width of 60 feet. There is one midfield connector taxiway. The runway is designed for aircrafts less than 12,500 pounds.[121]

#### 7.2.3.1.3 Easton State Airport (ESW)

Easton State Airport is a smaller public-use airport located near the community of Easton on the eastern side of Snoqualmie Pass. The airport is owned and managed by the Washington State Department of Transportation Aviation Division and serves as a state-managed aviation facility. Easton primarily functions as a recreational and emergency-use airport serving the upper Yakima Basin and Cascade recreation areas.[122]

Easton State Airport features a single 2,640-foot turf runway and is generally open from June through September or early October, depending on weather and snow conditions. WSDOT identifies Easton as one of the more heavily visited airports within its state-managed airport system, averaging approximately 30 aircraft visits per month during its operating season.[123]

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[117] Kittitas County, Kittitas County Airport – Bowers Field, https://www.co.kittitas.wa.us/airport/default.aspx
[118] Daily Record, CWU to Unveil New Aviation Training Center, https://www.dailyrecordnews.com/ellensburg/cwu-to-unveil-new-aviation-training-center/article_4ab5a4e2-b720-4335-ad0d-5e6d1f7d7588.html
[119] Washington Aviation Economic Impact Study, Airport Profile – ELN, https://wsdot.wa.gov/publications/fulltext/aviation/ELN-BowersField.pdf
[120] Washington Aviation Economic Impact Study, Airport Profile – ELN, https://wsdot.wa.gov/publications/fulltext/aviation/ELN-BowersField.pdf
[121] City of Cle Elum, Airport, https://cleelum.gov/city-services/airport/
[122] Washington State Department of Transportation, Easton State, https://wsdot.wa.gov/travel/aviation/airports-list/easton-state
[123] Washington State Department of Transportation, Easton State, https://wsdot.wa.gov/travel/aviation/airports-list/easton-state

#### 7.2.3.1.4 Military Aviation at Yakima Training Center

While no military airports are located within Kittitas County, the county is adjacent to the YTC. The 327,000-acre training center extends into portions of southern Kittitas County and supports year-round Army, National Guard, Reserve, and allied military training activities. Aviation operations associated with YTC include:[124]

- Helicopter training
- Air-ground coordination exercises
- Transport missions
- Emergency response training
- Military support activities

### 7.2.3.2 Airport Safety Zones

Bowers Field Airport is subject to airport overlay zoning adopted by both Kittitas County and the City of Ellensburg in 2001. The overlay applies to properties on, adjacent to, and near the airport.

The overlay establishes six airport safety zones based on runway protection areas, protected airspace, and common flight paths:

- Zone 1: Runway Protection Zone
- Zone 2: Inner Safety Zone
- Zone 3: Inner Turning Zone
- Zone 4: Outer Safety Zone
- Zone 5: Sideline Zone
- Zone 6: Airport Operations Zone

The most restrictive area is Zone 1, where uses are limited to unoccupied uses. Certain land uses are restricted because they are considered incompatible with airport safety zones.

## 7.2.4 Public Transportation

Ellensburg is the only community in the county with regular local intracity transit service, through Central Transit, serving major destinations such as downtown Ellensburg, CWU, residential neighborhoods, medical facilities, shopping areas, and community services. Central Transit logged more than 100,000 one-way boardings in 2024, more than 14,000 dial-a-rides, and 6,609 Kittitas County Connector services.[125]

Regional transit options throughout Kittitas County include:

- **Kittitas County Connector (HopeSource)** provides fare-free service between Kittitas, Ellensburg, Cle Elum, South Cle Elum, Roslyn, and Ronald seven days per week.
- **Yakima-Ellensburg Commuter service**, operated by Yakima Transit, provides connections between Ellensburg and Yakima.
- **Dial-a-Ride and paratransit services** are available for seniors, individuals with disabilities, and residents requiring specialized transportation assistance.
- **Intercity transportation providers**, including Greyhound, Apple Line, and Bellair Airporter Shuttle, provide connections to communities outside Kittitas County, including Seattle-Tacoma International Airport, Wenatchee, Chelan County, and Okanogan County.

[124] https://home.army.mil/yakima/my-fort-1/visitor-information
[125] Ellensburg Central Transit, 2025-2030 Transit Development Plan, https://centraltransit.org/reports/

### 7.2.5 School Bus Routes

School transportation is provided by several public school districts operating throughout Kittitas County, including:

- Ellensburg School District
- Cle Elum-Roslyn School District
- Kittitas School District
- Thorp School District
- Damman School District
- Easton School District

### 7.2.6 Bicycle and Pedestrian Facilities

Walking and bicycling facilities are concentrated within the county's incorporated communities and recreational corridors. Ellensburg, Cle Elum, and Roslyn contain the county's most developed pedestrian networks, with sidewalks, marked crossings, and trails providing access between residential neighborhoods, schools, parks, commercial areas, and civic destinations. Smaller communities and many unincorporated areas have more limited pedestrian infrastructure, and sidewalk gaps are common.[126]

The county's major bicycle and pedestrian facilities include:[127]

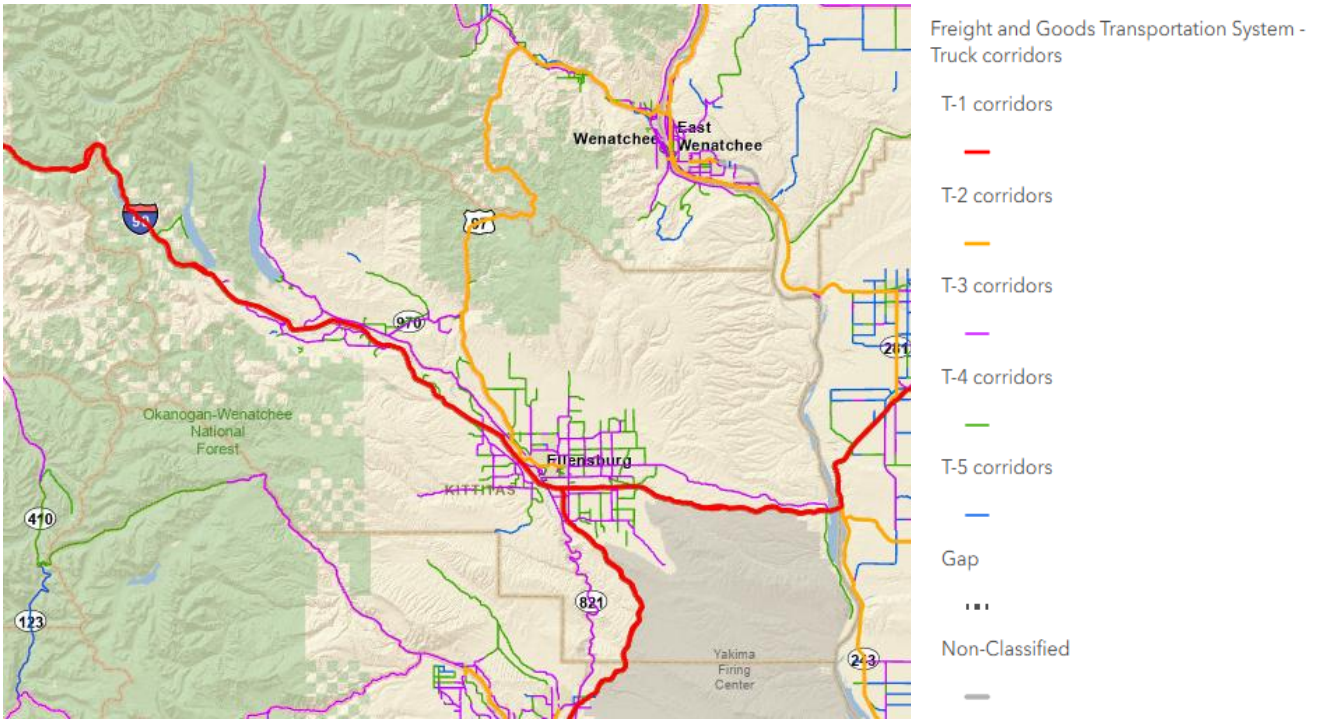
- **Palouse to Cascades State Park Trail**, a statewide multi-use trail following the former Milwaukee Road railroad corridor through Kittitas County.
- **Coal Mines Trail**, which connects Cle Elum, Roslyn, and Ronald.
- **Local trail systems** serving parks, recreation areas, and public lands throughout the county.

### 7.2.7 Freight Routes

Freight movement is a critical component of Kittitas County's transportation system and supports the county's agricultural, forestry, manufacturing, construction, and retail sectors. The county's primary freight routes are illustrated in **Figure 23** and **Figure 24**.

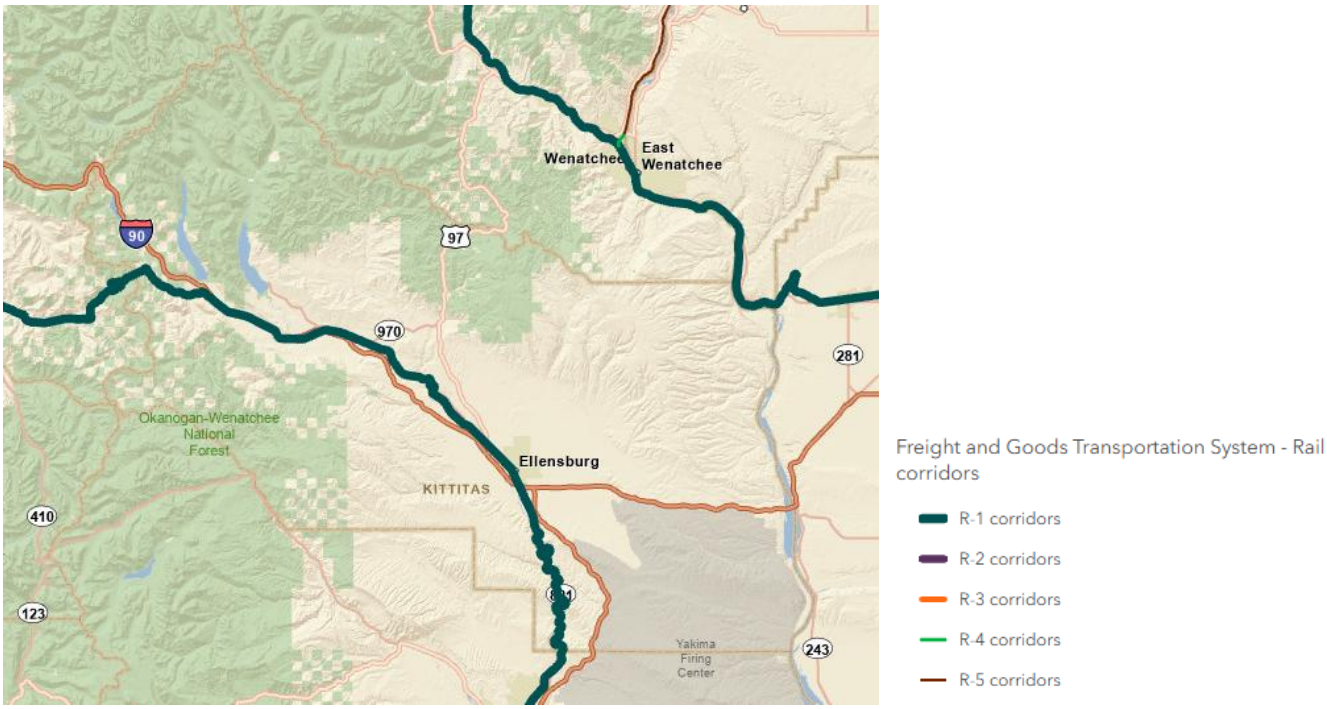
[126] Kittitas County, 2026 Comprehensive Plan
[127] Kittitas County, 2026 Comprehensive Plan

*Figure 23: Freight and Goods Transportation System – Rail Corridor*




*Source: Washington State Department of Transportation, Freight Transportation System in Washington State, https://wsdot.maps.arcgis.com/apps/mapviewer/index.html?layers=09185bbba7c94253a26961489bb8ad20*

*Figure 24: Freight and Goods Transportation System – Rail Corridor*




*Source: Washington State Department of Transportation, Freight Transportation System in Washington State, https://wsdot.maps.arcgis.com/apps/mapviewer/index.html?layers=09185bbba7c94253a26961489bb8ad20*

# 7.3 Impact Analysis

## 7.3.1 Overview

This section evaluates how large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal energy facilities, and small modular reactors (SMRs) could affect transportation in Kittitas County. Consistent with the Washington Department of Ecology's PEIS approach, the analysis is organized by facility type and project phase, including construction, operation, and decommissioning.

Potential transportation impacts include:

- Temporary increases in worker and truck traffic.
- Oversized and overweight vehicle movements.
- Roadway, shoulder, and bridge wear.
- Increased traffic delay.
- Safety conflicts.
- Temporary access restrictions.
- Effects on freight, transit, school bus, bicycle, pedestrian, rail, airport, and emergency-response operations.

The magnitude of impacts would depend on:

- Facility location, size, configuration, and construction schedule.
- Number, type, weight, and dimensions of construction and delivery vehicles.
- Proximity and access to I-90, I-82, state routes, county roads, rail crossings, airports, and designated freight routes.
- Roadway width, pavement condition, bridge capacity, intersection operations, grades, clearances, and seasonal load restrictions.
- Overlap with commuter periods, school transportation, agricultural activity, recreation travel, or special events.
- Need for new or improved access roads, turn lanes, intersection controls, rail facilities, or temporary traffic control.
- Ability to maintain emergency access and multimodal travel.
- Effectiveness of siting, design, traffic management, roadway protection, and restoration measures.

Impacts would be considered potentially significant where a project would:

- Cause prolonged failure of an adopted level-of-service standard.
- Create a substantial traffic-safety hazard.
- Damage a roadway, bridge, rail crossing, or other transportation facility beyond its design capacity.
- Substantially interfere with emergency access or established freight, transit, school bus, rail, airport, bicycle, or pedestrian operations.
- Require transportation improvements that are infeasible or cannot adequately mitigate the impact.

*Table 12: Primary Transportation Concerns*

| Facility Type | Primary Transportation Concerns |
|---|---|
| Large-Scale Solar | Concentrated construction traffic; transformer transport; rural-road wear; safe site access; and temporary conflicts with school, agricultural, recreation, bicycle, pedestrian, and emergency travel. |

| | |
|---|---|
| Large-Scale Wind | Transport of turbine blades, tower sections, nacelles, transformers, and cranes; route geometry and clearance; bridge and pavement capacity; temporary roadway modifications; airport and military aviation compatibility; and dispersed access roads. |
| BESS | Concentrated container and transformer deliveries; emergency-vehicle access; hazardous-material transport; temporary road closures during an incident; and access to standalone rural sites. |
| Geothermal | Phased exploration and drilling traffic; movement of drilling rigs, casing, pipe, cranes, and transformers; remote-road access; recurring well-maintenance traffic; and closure-related hauling. |
| SMRs | Multiyear workforce and freight traffic; transport of large modules and heavy plant equipment; potential rail use; secure primary and secondary access; fuel and regulated-waste shipments; emergency planning; and long-term decommissioning traffic. |

## 7.3.2 No Action – Alternative #1

Under the No Action Alternative, the County would continue to review solar, wind, BESS, geothermal, and SMR development under existing County regulations and applicable state and federal requirements. Existing transportation review, access permitting, oversized or overweight vehicle permitting, roadway standards, and project-specific State Environmental Policy Act (SEPA) review processes would remain in effect. Projects using state highways would remain subject to Washington State Department of Transportation (WSDOT) access, right-of-way, utility, and commercial-vehicle requirements.

### 7.3.2.1 Impacts From Construction, Operation, And Decommissioning Under Current Processes

Construction, operation, and decommissioning could affect the transportation system through worker trips, heavy-truck traffic, delivery of oversized or overweight equipment, temporary lane or shoulder closures, construction at site access points, and increased use of rural roads.

Construction would generally generate the greatest traffic demand. Concentrated truck activity could temporarily increase delay, turning conflicts, dust, debris, and roadway wear, particularly on narrow rural roads or at intersections not designed for frequent heavy vehicles. Oversized components could require route surveys, pilot vehicles, temporary traffic control, and temporary relocation of signs, barriers, or overhead utilities.

Construction traffic could also conflict with commuter travel, school buses, agricultural equipment, recreation traffic, bicyclists, pedestrians, transit, and emergency vehicles.

Operational traffic would generally consist of employee trips, inspections, maintenance vehicles, security or emergency-response vehicles, and periodic equipment deliveries. These volumes would typically be substantially lower than construction traffic, except where a facility requires continuous staffing, recurring material deliveries, servicing, or specialized shipments. Decommissioning would temporarily renew construction-type effects as equipment is dismantled and removed. Roadway restoration needs would depend on the condition of haul routes after construction and decommissioning. Existing project-level review could address access, haul routes, traffic control, oversized/overweight loads, roadway protection, and repair.

### 7.3.2.2 Mitigation Measures

#### 7.3.2.2.1 Required Mitigation

- Obtain applicable roadway access, right-of-way, utility, and oversized or overweight vehicle permits from the responsible roadway agency.
- Comply with applicable County and state roadway, bridge, traffic-control, aviation, railroad, and hazardous-material transportation requirements.
- Repair project-related damage to public roads, bridges, shoulders, drainage facilities, signs, and other transportation infrastructure.
- Maintain safe access for emergency responders and affected properties during construction, operation, and decommissioning.

#### 7.3.2.2.2 Significant Unavoidable Impacts

Significant transportation impacts could remain if a project requires repeated oversized or overweight movements on routes that cannot safely or structurally accommodate them, causes prolonged unacceptable roadway operations, substantially interferes with emergency or other established transportation services, or causes infrastructure damage that cannot be adequately repaired.

## Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Under Alternative 2, local regulations governing large-scale solar, wind, and BESS facilities would be revised to identify suitable development areas and provide clearer, more predictable project siting and review. The County could modify existing solar and wind overlays and establish BESS development standards. Revised overlays could direct facilities toward locations with adequate roadway and emergency access and fewer conflicts with constrained roads, bridges, rail crossings, airports, and multimodal routes. Project-specific review would still be required because impacts depend on the exact site, access point, haul route, equipment, and schedule.

### 7.3.2.3 Large-Scale Solar

#### 7.3.2.3.1 Construction Impacts

Large-scale solar construction would generate worker trips and frequent deliveries of panels, racking, piles, transformers, inverters, fencing, aggregate, and other materials. Traffic would increase during site preparation and installation. The length of the impact depends on project size and phasing. Most components may be transported by standard commercial trucks, while transformers and selected electrical equipment could require oversized or overweight permits.

Construction traffic could increase turning movements and delay at rural intersections and site access points. Heavy trucks could accelerate pavement deterioration or affect unpaved-road surfaces, shoulders, drainage facilities, and bridges. New or widened driveway approaches could create temporary conflicts with school buses, agricultural equipment, recreation travel, transit, bicyclists, pedestrians, and emergency vehicles. Impacts would be greater where a site is distant from interstate, state, or designated freight routes and relies on narrow county roads.

#### 7.3.2.3.2 Operation Impacts

Solar operation would generally generate low traffic volumes associated with inspections, vegetation management, panel maintenance, security, and periodic equipment replacement. These trips would typically

have limited effects on roadway capacity. Localized safety impacts could occur where access points are located on high-speed roads or have limited sight distance. Replacement of transformers or other major equipment could require renewed oversized/overweight permitting and temporary traffic control. An emergency could temporarily increase traffic from fire, law enforcement, utility, or hazardous-material response vehicles.

#### 7.3.2.3.3 Decommissioning Impacts

Decommissioning would generate truck traffic during removal of panels, racking, foundations, fencing, and electrical equipment. Traffic volumes could resemble a shorter construction period and could include heavy or oversized loads. Temporary delay, roadway wear, and conflicts with other roadway users could occur along haul routes. Work within public rights-of-way may also be needed to remove access or interconnection improvements that are not retained for an approved future use.

#### 7.3.2.3.4 Mitigation Measures

##### *7.3.2.3.4.1 Required Mitigation*

- Obtain applicable County and state access, right-of-way, utility, and oversized or overweight vehicle permits.
- Implement approved traffic-control measures for work within or affecting public roadways.
- Maintain emergency access and repair project-related damage to roads and transportation infrastructure.
- Comply with applicable requirements for transporting hazardous, regulated, or oversized materials.

##### *7.3.2.3.4.2 Recommendations for Siting and Design*

- Locate primary access near roads capable of accommodating construction, maintenance, and emergency vehicles.
- Minimize access points and design approaches with adequate sight distance, grades, and truck-turning dimensions.
- Use designated freight routes and higher-capacity roads before transitioning to local roads.
- Avoid routes with deficient bridges, steep grades, tight curves, limited clearance, or substantial conflicts with transit, school buses, agricultural equipment, recreation travel, bicyclists, or pedestrians.

##### *7.3.2.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Prepare construction and decommissioning transportation plans identifying trip volumes, haul routes, delivery schedules, traffic controls, and emergency-access procedures.
- Coordinate major deliveries and temporary access restrictions with roadway agencies, emergency responders, schools, transit providers, agricultural operators, recreation managers, and affected properties.
- Document preconstruction road conditions and repair project-related damage.
- Maintain safe access for residences, businesses, farms, public lands, recreation areas, transit, school buses, bicyclists, pedestrians, and emergency responders.

##### *7.3.2.3.4.4 Other Mitigation for Potentially Significant Impacts*

If significant impacts remain, modify haul routes or delivery schedules, phase construction, improve intersections or access roads, strengthen affected roadways or bridges, or provide additional traffic control. Relocate the primary access or project components if available routes cannot safely accommodate project traffic.

### 7.3.2.4 Large-Scale Wind

#### 7.3.2.4.1 Construction Impacts

Wind facility construction would generate worker trips, concrete and aggregate deliveries, crane movements, and transport of tower sections, nacelles, hubs, transformers, and turbine blades. Wind facility components are longer, taller, and heavier than standard freight loads and could require specialized trailers, route surveys, bridge and pavement analysis, temporary traffic control, pilot vehicles, and roadway modifications.

Delivery routes may require widened intersections, temporary turnouts, vegetation trimming, shoulder reinforcement, or temporary relocation of signs, barriers, or overhead utilities. New access roads across dispersed turbine sites could increase traffic on multiple rural roads and create conflicts with agricultural, recreation, school bus, bicycle, pedestrian, transit, and emergency travel. Cranes, turbines, and meteorological towers could also require coordination with the airports, the FAA, and military aviation operations.

#### 7.3.2.4.2 Operation Impacts

Wind operation would generate relatively low routine traffic for inspection, maintenance, and security. Periodic major maintenance could require cranes, heavy trucks, or replacement turbine components and could temporarily recreate oversized/overweight and traffic-control needs. Permanent access roads could improve access to some properties but could also alter traffic patterns or attract unauthorized use if not controlled. Turbines and meteorological towers could affect navigable airspace, flight paths, or military operations and would require applicable aviation review and coordination.

#### 7.3.2.4.3 Decommissioning Impacts

Decommissioning would involve crane mobilization, turbine dismantling, hauling large components, removing electrical equipment, and restoring turbine pads and access roads. Oversized and overweight movements could be comparable to construction. Temporary closures, intersection controls, and roadway repairs could be required. Retaining access roads could reduce removal traffic but would continue access-related effects unless the roads serve an approved ongoing use.

#### 7.3.2.4.4 Mitigation Measures

##### *7.3.2.4.4.1 Required Mitigation*

- Obtain applicable access, right-of-way, utility, and oversized or overweight vehicle permits.
- Complete required aviation review and coordination for turbines, meteorological towers, cranes, and other tall structures.
- Implement approved traffic-control and roadway-restoration measures.
- Maintain emergency access and repair project-related damage to transportation infrastructure.

##### *7.3.2.4.4.2 Recommendations for Siting and Design*

- Complete route-feasibility, swept-path, vertical-clearance, pavement, bridge, and intersection analyses before selecting the final turbine and delivery route.
- Use state highways and designated freight routes to the greatest extent practicable.
- Minimize new access roads and avoid routes requiring extensive widening, utility relocation, vegetation removal, or modification of constrained bridges and intersections.
- Design permanent access roads, gates, and turnarounds to accommodate maintenance, fire, and emergency-response vehicles.

*7.3.2.4.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Prepare transportation plans addressing oversized and overweight deliveries, cranes, traffic control, road modifications, restoration, and emergency access.
- Coordinate major movements with County Public Works, the Washington State Department of Transportation, law enforcement, emergency services, utilities, railroad and airport operators, and affected landowners.
- Schedule turbine deliveries during lower-volume periods and avoid peak school, agricultural, recreation, commuter, and special-event travel where practicable.
- Document and repair damage to roadways, bridges, shoulders, drainage facilities, signs, utilities, and other affected infrastructure.
- Prepare a decommissioning transportation plan and maintain financial assurance for roadway restoration.

*7.3.2.4.4.4 Other Mitigation for Potentially Significant Impacts*

If a proposed route cannot safely or structurally accommodate turbine components, use an alternative route, modify the turbine or delivery configuration, strengthen affected infrastructure, or relocate facility components. Additional measures may include delivery phasing, temporary roadway improvements, alternate transportation modes, or limits on delivery timing.

### 7.3.2.5 Battery Energy Storage Systems (BESS)

#### 7.3.2.5.1 Construction Impacts

BESS construction would generally generate limited trips and affect a compact environment, though would be dependent on the facility size. Traffic would include worker vehicles and material deliveries. Some components could be heavy or oversized and require route review or oversized/overweight permits. Effects would generally be localized but could be greater for standalone facilities on rural roads or where many battery units are delivered within a short period.

#### 7.3.2.5.2 Operation Impacts

Routine BESS operation would generate low traffic volumes associated with inspections, maintenance, testing, security, and periodic battery replacement. Emergencies are the primary operational transportation concern because a fire, thermal event, or hazardous-material incident could require specialized response vehicles, temporary closures, traffic control, evacuation support, or restricted access. Gates, access roads, turning areas, and staging locations would need to accommodate fire apparatus and other emergency vehicles without blocking adjacent roads.

#### 7.3.2.5.3 Decommissioning Impacts

Decommissioning would generate truck trips during removal of battery units, enclosures, transformers, foundations, fire-protection systems, and interconnection equipment. Traffic effects would generally be temporary and localized. Damaged, degraded, or regulated battery materials may require specialized carriers, packaging, routing, and handling. Project-related roadway damage would require repair.

#### 7.3.2.5.4 Mitigation Measures

*7.3.2.5.4.1 Required Mitigation*

- Obtain applicable access, right-of-way, hazardous-material transportation, and oversized or overweight vehicle permits.

- Comply with applicable requirements for transporting batteries, transformers, hazardous materials, and regulated waste.
- Maintain year-round emergency access and implement approved traffic-control measures.
- Repair project-related damage to public roads and transportation infrastructure.

*7.3.2.5.4.2 Recommendations for Siting and Design*

- Prioritize co-location with substations, energy facilities, industrial uses, or previously disturbed sites with adequate roadway and emergency access.
- Design access roads, gates, staging areas, and internal circulation for battery deliveries, fire apparatus, hazardous-material response, and equipment removal.
- Avoid sites where constrained roads, bridges, rail crossings, or a single access route could limit emergency response.
- Configure emergency staging and facility access so response vehicles would not block public roads or established evacuation routes.

*7.3.2.5.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Prepare delivery and traffic-control plans for concentrated battery-container and transformer shipments.
- Coordinate emergency access, road-closure, and traffic-control procedures with fire, emergency medical, law-enforcement, transportation, and public works agencies.
- Maintain access for transit, school buses, bicyclists, pedestrians, nearby properties, and emergency responders.
- Provide advance notice and traffic control for major deliveries, emergency exercises, battery removal, and decommissioning.
- Use qualified carriers and applicable routing and handling procedures for damaged, degraded, or regulated batteries.

*7.3.2.5.4.4 Other Mitigation for Potentially Significant Impacts*

If significant impacts remain, improve or relocate facility access, provide secondary emergency access, modify delivery schedules or routes, increase off-road emergency staging, or strengthen affected roadways. A site should not proceed if emergency vehicles or regulated material shipments cannot safely and reliably reach or leave the facility.

### 7.3.2.6 Significant Unavoidable Adverse Impacts

Most transportation impacts under Alternative 2 would be temporary and could be reduced through route selection, permitting, traffic control, scheduling, infrastructure protection, and repair. Significant impacts could remain if a facility requires long-term or repeated use of roads or bridges that cannot safely accommodate project traffic, causes prolonged unacceptable roadway operations, or substantially interferes with emergency response, freight, transit, school bus, rail, airport, bicycle, pedestrian, agricultural, or recreation travel.

Wind facilities would present the greatest potential for route constraints because of turbine-component dimensions and weight. BESS facilities would present a distinct potential for temporary road closures and transportation disruption during emergency response.

## 7.3.3 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

Under Alternative 3, Kittitas County would evaluate potential geothermal and small nuclear siting and associated development standards. Siting could direct development toward locations with adequate highway, county-road, bridge, rail, airport, and emergency-access capacity and establish consistent transportation-study, haul-route, site-access, and restoration requirements. Project-specific review would remain necessary because effects depend on technology, facility size, construction sequence, workforce, security, fuel and waste needs, and the selected transportation network.

### 7.3.3.1 Geothermal

#### 7.3.3.1.1 Construction Impacts

Geothermal construction could occur in phases, beginning with exploration and test drilling and followed by production and injection wells, pipelines, generating equipment, substations, water infrastructure, and transmission connections. Each phase would generate worker trips and deliveries of drilling rigs, casing, cement, fuels, drilling fluids, pipe, aggregate, cranes, and transformers. Exploration could spread traffic across several temporary sites before selecting a final production area.

Heavy and oversized vehicles could increase delays, turning conflicts, roadway wear, and safety risks. Drilling rigs, cranes, transformers, and long pipe sections could require route surveys, oversized/overweight permits, pilot vehicles, temporary traffic control, and verification of bridge, pavement, grade, intersection, and vertical-clearance parameters. Effects would be greater where resources are accessed by steep, narrow, unpaved, seasonally restricted, or remote roads.

#### 7.3.3.1.2 Operation Impacts

Operation would generate employee, inspection, maintenance, chemical or material delivery, water-service, and periodic well-workover traffic. Routine volumes would generally be lower than construction traffic but could exceed solar and wind traffic where a plant is staffed continuously or requires recurring deliveries. Well maintenance, pump replacement, pipeline repair, and major equipment replacement could require heavy trucks, cranes, and temporary traffic control. Access roads would need to remain passable year-round for maintenance and emergency response. Routine waste removal could require access to rail facilities.

#### 7.3.3.1.3 Decommissioning Impacts

Decommissioning would generate traffic during well plugging, pipeline and generating-equipment removal, demolition, waste transport, and road and pad restoration. Heavy or oversized loads could temporarily affect roadway operations and pavement condition. Impacts could occur over an extended period if wells and facilities close in phases. Retaining access roads or buried infrastructure could reduce removal traffic but would continue access effects unless they support an approved ongoing use.

### 7.3.3.1.4 Mitigation Measures

#### *7.3.3.1.4.1 Required Mitigation*[128]

- Obtain applicable access, right-of-way, utility, hazardous-material transportation, and oversized or overweight vehicle permits.
- Implement approved traffic-control measures for work affecting public roads.
- Maintain year-round emergency access and comply with applicable seasonal load restrictions.
- Repair project-related damage to transportation infrastructure and implement required roadway restoration at closure.

#### *7.3.3.1.4.2 Recommendations for Siting and Design*

- Evaluate transportation needs for the full exploration, drilling, construction, operation, maintenance, and closure sequence.
- Use existing roads and designated freight routes where practicable and minimize new access-road construction.
- Complete route, pavement, bridge, intersection, grade, turning-radius, and vertical-clearance analyses for drilling rigs, cranes, transformers, and other large equipment.
- Avoid sites dependent on steep, narrow, unstable, seasonally restricted, or otherwise constrained roads where safe access cannot be provided.
- Design access and circulation for drilling, maintenance, fire, hazardous-material, and emergency-response vehicles.

#### *7.3.3.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Prepare transportation plans identifying workforce trips, haul routes, delivery schedules, oversized or overweight movements, traffic controls, and emergency-access procedures.
- Phase deliveries to reduce conflicts with commuter, school, agricultural, forestry, recreation, and special-event travel.
- Coordinate routes and schedules with roadway agencies, law enforcement, emergency services, school districts, utilities, railroad operators, public land managers, and affected properties.
- Maintain year-round emergency access and identify an alternate route where blockage of a single route could isolate the facility.
- Document and repair roadway damage and maintain financial assurance for closure-related transportation and roadway restoration.

#### *7.3.3.1.4.4 Other Mitigation for Potentially Significant Impacts*

If significant impacts remain, use alternative drilling or delivery routes, improve or strengthen affected infrastructure, phase exploration and construction, reduce equipment dimensions or weights where feasible, or relocate project components. Development should not proceed at a location that cannot provide safe and reliable construction, operational, and emergency access.

[128] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

### 7.3.3.2 Small Modular Reactors

#### 7.3.3.2.1 Construction Impacts

SMR construction could generate substantial worker and freight traffic over multiple years. Deliveries could include reactor modules or major plant components, structural steel, concrete, cranes, transformers, cooling and water-treatment equipment, emergency generators, security systems, fuel-handling equipment, and transmission infrastructure. Site preparation could also require large volumes of aggregate and excavation hauling.

Major components could be oversized or overweight and may require specialized truck or rail transport. Project-level analysis would need to confirm that highways, county roads, bridges, intersections, rail crossings, and site-access routes can accommodate the selected design and construction equipment. Temporary widening, intersection modification, utility relocation, rail improvements, traffic control, or phased delivery could be required. Workforce trips concentrated during shift changes could cause recurring peak-hour effects.

#### 7.3.3.2.2 Operation Impacts

SMR operation could generate daily employee and contractor trips, security and inspection traffic, maintenance deliveries, waste shipments, fuel-related shipments for fission technologies, and periodic transport of major replacement components. Operational traffic could be greater than for other energy facilities because an SMR may require continuous staffing, security, regulatory oversight, and specialized maintenance. Shift changes could create recurring peak traffic at site access points and nearby intersections.

Transportation of nuclear fuel and radioactive material, where applicable, would be subject to federal requirements for packaging, carriers, security, routing, notification, and emergency response. These shipments would be infrequent relative to employee traffic but would require interagency coordination. Emergency planning could require reliable primary and secondary access, controlled entry, staging areas, and procedures for checkpoints, closures, evacuation support, and emergency exercises.

#### 7.3.3.2.3 Decommissioning Impacts

SMR decommissioning could extend over many years and generate employee trips, heavy-equipment movements, demolition hauling, waste shipments, and transport of large plant components. Transportation needs would depend on the nuclear fuel, reactor technology, decommissioning method, waste classification, disposal availability, and the extent of infrastructure removal. Specialized shipments could require federal and state approvals, security, route coordination, and temporary traffic control. Road, bridge, rail, and site-access improvements may need to remain throughout decommissioning and license termination.

#### 7.3.3.2.4 Mitigation Measures

##### *7.3.3.2.4.1 Required Mitigation*

- Obtain applicable federal, state, and County approvals for site access, right-of-way work, oversized or overweight vehicles, hazardous materials, nuclear fuel, radioactive materials, and regulated waste transportation.
- Comply with applicable federal security, packaging, routing, notification, inspection, and emergency-response requirements for regulated shipments.
- Demonstrate safe and reliable primary and secondary access for employees, freight, security, and emergency responders.
- Repair project-related damage and maintain transportation infrastructure needed through decommissioning and license termination.

*7.3.3.2.4.2 Recommendations for Siting and Design*

- Prioritize sites with direct access to high-capacity highways, structurally adequate bridges and intersections, and rail access where needed.
- Complete multimodal route-feasibility studies before selecting the final site and reactor design.
- Avoid locations where constrained bridges, intersections, rail crossings, steep grades, limited clearances, or a single access route could prevent reliable construction or emergency access.
- Design secure primary and secondary access routes, inspection areas, emergency staging, employee entrances, and internal circulation without obstructing public roads.
- Evaluate the transportation effects of the complete construction workforce, major-component deliveries, routine operations, emergency planning, fuel and waste shipments, and decommissioning program.

*7.3.3.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Prepare project-specific transportation plans addressing workforce trips, shift changes, major-component deliveries, traffic controls, security, emergency access, regulated shipments, and decommissioning.
- Use staggered shifts, worker shuttles, ridesharing, or other demand-management measures where workforce traffic could affect roadway operations.
- Coordinate construction and operational transportation with the EFSEC, Nuclear Regulatory Commission, Washington State Department of Transportation, Kittitas County, Tribal governments, law enforcement, emergency services, railroad and airport operators, and the U.S. Department of Defense, as applicable.
- Maintain continuity of emergency, freight, rail, transit, school bus, bicycle, pedestrian, residential, agricultural, and recreation travel.
- Monitor traffic and roadway conditions and adjust schedules, routes, access controls, or workforce transportation when unanticipated effects occur.
- Maintain transportation and roadway-restoration plans and financial assurance throughout decommissioning and license termination.

*7.3.3.2.4.4 Other Mitigation for Potentially Significant Impacts*

If significant impacts remain, select an alternative site or reactor configuration, use alternate highway or rail routes, phase major deliveries, improve affected intersections or bridges, provide additional employee transportation, or construct secondary emergency access. A site should not proceed if major components, regulated materials, emergency vehicles, or evacuation traffic cannot be safely and reliably accommodated.

### 7.3.3.3 Significant Unavoidable Adverse Impacts

Early route screening, site selection, transportation planning, permitting, scheduling, infrastructure improvements, and restoration could reduce most transportation effects. Significant impacts could remain if geothermal development requires repeated heavy-equipment movements on remote or structurally constrained roads, or if an SMR generates sustained workforce traffic or requires major-component, fuel, radioactive-material, or waste shipments on routes that cannot safely or reliably accommodate them.

Impacts could also be significant if construction, operation, emergency response, or decommissioning substantially interferes with emergency response, freight, rail, airport, transit, school bus, bicycle, pedestrian, agricultural, recreation, or general roadway operations and no practicable route or improvement can adequately mitigate the effect.

# 8 Energy and Natural Resources

## 8.1 Overview

The Energy and Natural Resources section reviews the existing conditions, alternatives impact analysis, and mitigation measures including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures, associated with energy and natural resources within Kittitas County.

For purposes of this programmatic analysis, energy resources include electricity supplied to or generated within the County, and fuels used by construction vehicles, maintenance equipment, and emergency generators. Natural resources include sand, gravel, and crushed stone used for foundations, access roads, equipment pads, drainage improvements, and other facility components. The quantity and timing of demand, the availability of utility or supplier capacity, and the need for new extraction or delivery infrastructure determine the potential magnitude of impacts.

Federal protection of energy and natural resources is primary governed by the Energy Policy Act, the Federal Power Act, and Federal Energy Regulatory Commission (FERC) regulations. Collectively, these laws, among others on the federal, state, and local level, establish requirements for the production and use of energy and natural resources. A more comprehensive list of federal, state, and local level regulations that govern energy and natural resources is as follows:

Federal

- Federal Energy Regulatory Commission (FERC) requirements for interstate transmission and wholesale power
- U.S. Nuclear Regulatory Commission (NRC) licensing for nuclear facilities

State

- Washington Clean Energy Transformation Act
- Washington State Environmental Policy Act (SEPA)
- Department of Ecology Clean Fuel Standards
- Surface Mine Reclamation requirements
- Electrical Permits (Washington State Department of Labor and Industries): These permits ensure all electrical installations meet federal and state safety standards.
- Sand and Gravel General Permit (Washington State Department of Ecology): Required for extraction of sand and gravel aggregate materials that have a discharge of process wastewater, stormwater, or mine dewatering water.
- Surface Mining Reclamation Permit (DNR): Required for extraction of materials such as sand, gravel, or rock from state- or privately owned lands. Required for each surface mine that results in more than 3 acres of disturbed ground, or has a high-wall or disturbance area that meets certain criteria.

Local

- Kittitas County Comprehensive Plan policies
- Kittitas County Code

The resources analyzed in this section include:

- Electricity
- Fuel for Transportation and Equipment
- Construction Aggregate

Impacts of the alternatives would be considered significant if they result in:

- Increased demand for electricity, fuel, or construction aggregate that could require new mines or affect annual production.

# 8.2 Existing Conditions

## 8.2.1 Energy Transmission

There are 24 substations and approximately 700 miles of electric transmission lines in Kittitas County, operated primarily by Bonneville Power Administration, Puget Sound Energy, and Kittitas PUD. **Table 13** and **Table 14** below detail the substations and transmission line types in the County.

*Table 13: Number of Substation Types in Kittitas County*

| Maximum Substation Voltage (kV) | Number within County |
|---|---|
| **Unknown** | 1 |
| **115** | 16 |
| **138** | 1 |
| **230** | 5 |
| **500** | 1 |
| **TOTAL** | 24 |

*Source: U.S. Energy Atlas, Geospatial Energy Mapper, 2024, https://gem.anl.gov/tool/r/conus*

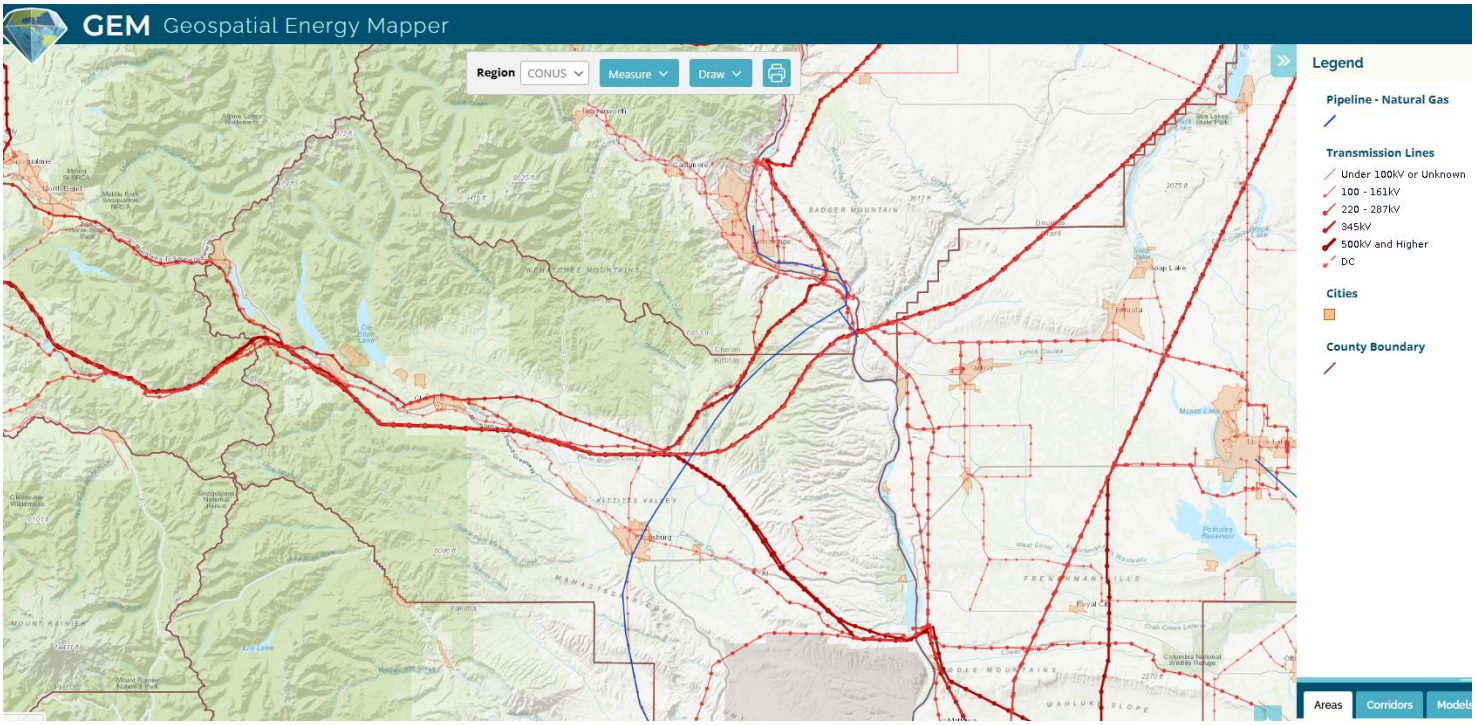
*Table 14: Transmission Line Length in Kittitas County*

| Voltage Class (kV) | Total Length (mi) in County |
|---|---|
| **100-161** | 128.70 |
| **220-287** | 233.43 |
| **345** | 65.07 |

*Source: U.S. Energy Atlas, Geospatial Energy Mapper, 2024, https://gem.anl.gov/tool/r/conus*

Transmission lines are primarily located along major transportation corridors. As shown in **Figure 25**, the largest transmission lines are along I-90 and I-82.

*Figure 25: Transmission Lines in Kittitas County*




*Source: U.S. Energy Atlas, Geospatial Energy Mapper, 2024, https://gem.anl.gov/tool/r/conus*

## 8.2.2 Fuel for Transportation and Equipment

Fuel for transportation and equipment is supplied through regional production and retail stores. Fuel consumption varies by activity type, vehicle and equipment fleet, and travel distance. Agriculture relies on transportation fuels and energy resources for field operations, food processing, irrigation systems, and product distribution. Industrial facilities and commercial operations similarly depend on regional fuel supplies. Major transportation corridors, including Interstate 90, Interstate 82, and regional rail networks, facilitate the movement of fuel, equipment, construction materials, and goods throughout the county and the broader region. There is one gas transmission pipeline in Kittitas County and is located in the east portion of the County.

Washington has crude oil refining capacity and distributes gasoline, diesel, renewable fuel, and other transportation fuels throughout the state. The Clean Fuel Standard, established under Chapter 70A.535 Revised Code of Washington (RCW), regulates the lifecycle of carbon transportation fuels in the state. Suppliers are required to reduce the carbon intensity of fuels 20 percent below 2017 estimates by 2034.

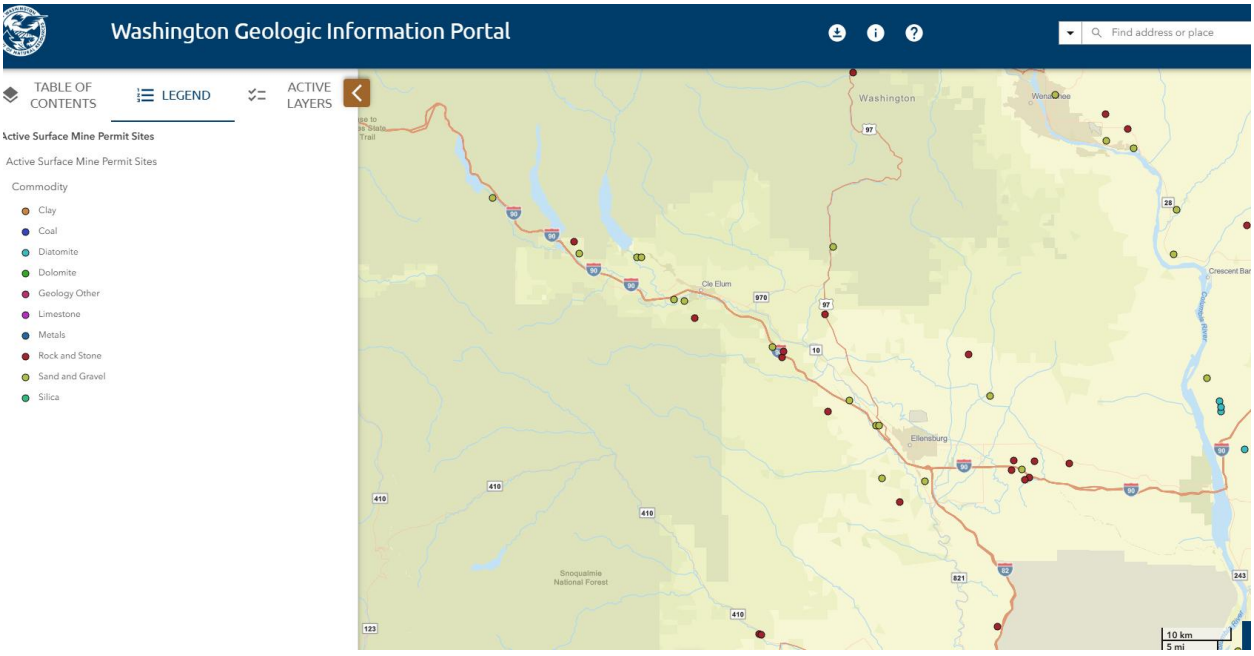
## 8.2.3 Construction Aggregate

Construction aggregate includes sand, gravel, and stone used in roads, foundations, equipment pads, drainage features, and other civil engineering materials. Aggregate is obtained from surface mines and processing facilities and transported to construction sites by truck. Sand and gravel are typically regulated separately from crushed stone. The U.S. Geological Survey surveys the production of aggregate, and the Washington State Department of Natural Resources (DNR) manages surface mine permitting.

**Figure 26** shows the location of active permitted surface mines in Kittitas County. All of the active permitted surface mines in Kittitas County are for either rock and stone or sand and gravel. Aggregate availability is a key

consideration for construction planning. Transportation costs increase significantly with hauling distance, making nearby access to local or regional aggregate supplies more beneficial for construction costs.

*Figure 26: Aggregate Resource Locations in Washington State*




*Source: Washington State Department of Natural Resources, Washington Geologic Information Portal, https://geologyportal.dnr.wa.gov/#wigm?-13609787,-13316269,5895029,6022067?Active_Surface_Mine_Permit_Sites!0!*

# 8.3 Impact Analysis

## 8.3.1 Overview

This section evaluates how large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal energy facilities, and small modular reactors (SMRs) could affect energy and natural resources in Kittitas County. The analysis considers the direct demand of these facilities for electricity, fuel, and aggregate, and indirect effects from new utility connections, hauling, or resource extraction. Construction typically creates the highest short-term demand for fuel and aggregate. Operational demand varies by facility, while decommissioning generally produces less demand than construction.

## 8.3.2 No Action Impacts

Under the No Action Alternative, the County would continue to review energy facilities under existing County regulations and applicable state and federal requirements. Project-level review would continue to address grading, drainage, stormwater, building design, and other site-specific requirements. Existing County processes and development standards would remain in effect, including KCC Chapter 17.61 for utilities, Chapter 17.61A for wind facilities, Chapter 17.61B for small wind energy systems, and Chapter 17.61C for solar power production facilities.  Facilities eligible for Energy Facility Site Evaluation Council (EFSEC) review could pursue the state certification process.

#### 8.3.2.1 Impacts from construction, operation, and decommissioning under current processes

Under the No Action Alternative, permitted or allowed development could continue to increase electricity, fuel, and aggregate use. Because demand would occur incrementally and projects would remain subject to utility coordination, electrical permits, SEPA review, and applicable mining and discharge requirements, regional suppliers would generally be expected to accommodate. Localized effects could occur where distribution or transmission capacity is limited, or where several large projects rely on the same aggregate sources or haul routes.

#### 8.3.2.2 Mitigation Measures

##### 8.3.2.2.1 Required Mitigation

At the project level, any proposal would be required to obtain applicable federal, state, and local permits, approvals, and authorizations related to land use, natural resource protection, construction, utilities, stormwater management, grading, transportation, and reclamation. Existing local construction requirement measures would remain in place to mitigate for expected impacts in the short and long term. These requirements include those in KCC Titles 10-14.

#### 8.3.2.3 Significant Unavoidable Adverse Impacts

Existing regulatory requirements and project conditions would continue to provide mitigation. Measures could include early coordination with the serving utility, confirmation of interconnection and temporary power capacity, use of permitted aggregate suppliers, preparation of fuel and material estimates, phased construction, and coordination of haul routes and schedules.

### 8.3.3 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Under Alternative 2, local regulations governing large-scale solar, wind, and BESS facilities would be revised to identify suitable development areas and provide clearer, more predictable project siting and review. The County could modify existing solar and wind overlays and establish BESS development standards. Revised overlays could direct facilities toward locations with adequate energy infrastructure and fewer conflicts with natural resources. Project-level review would remain necessary because countywide screening cannot identify all resources or determine their significance.

#### 8.3.3.1 Large-Scale Solar

##### 8.3.3.1.1 Construction Impacts

Construction of a solar facility would create short-term demand for fuel, electricity, and aggregate used for access roads, equipment areas, drainage features, and support facilities. Use of existing roads and suitable material available on site would help limit resource demand. The construction of large-scale solar facilities would also require the shipping of all the aggregate. Per the ECY PEIS for Utility-Scale Solar Energy Facilities, demand for aggregate during the construction phase would be about 287 cubic yards per MW of project capacity. Assuming a minimum 20 MW project, a project could demand between 5,750 cubic yards and 345,000 cubic yards of aggregate. Assuming one cubic yard of aggregate weighs one metric ton, relative to the 45.3 million metric tons of sand, gravel, and crushed stone produced in Washington in 2023, these aggregate

demands would range from 0.01 percent to 0.76 percent of the total available resource produced annually in Washington.[129] Aggregate may need to be obtained from multiple mines, depending on the project location.

#### 8.3.3.1.2 Operation Impacts

In the operation phase, solar facilities send electricity to the grid while using small amounts of electricity and fuel for lighting, vegetation management, and maintenance activities. Aggregate use would generally be limited to maintaining roads or drainage features. Interconnection improvements may be required if existing transmission infrastructure is at capacity.

Demand for fuels for operations would be relatively constant throughout the lifetime of the project. Aggregate would be used situationally for maintenance of screening, access roads, and maintenance/access pathways.

#### 8.3.3.1.3 Decommissioning Impacts

Decommissioning a solar facility would temporarily increase fuel use for equipment operation and hauling. Some aggregate may be needed to stabilize roads or restore drainage. Salvage and recycling of facility materials would reduce disposal needs. Site work associated with decommissioning involves similar impacts to construction of the facility, including energy and fuel usage. Aggregate material would be hauled away and replaced with site coverage approved in the site restoration or decommissioning plan.

#### 8.3.3.1.4 Mitigation Measures

- Obtain all applicable federal, state, and local permits, approvals, and authorizations related to land use, natural resource protection, construction, utilities, stormwater management, grading, transportation, and reclamation.
- Comply with all applicable federal, state, and local requirements related to fuel storage, transportation, handling, spill prevention, and emergency response.
- Coordinate early with the serving utility and transmission provider to identify interconnection and temporary service requirements.
- Source aggregate as close as possible to the project site
- Time project construction around other nearby developments to avoid overburdening construction material sources, aggregate sources, and common hauling routes
- Source construction materials and aggregate from multiple sources
- Use portable generators during construction and decommissioning
- Prepare project-specific estimates of fuel, aggregate, and electrical demand and confirm supplier capacity before construction.
- Using alternative fuel, electric, or latest-model-year vehicles as project service
- vehicles
- Use existing access routes, permitted aggregate sources, and reuse suitable on-site material where practicable during construction, maintenance, and decommissioning.
- During construction, maintenance, and decommissioning limit engine idling time and shut down equipment when not in use
- Encouraging carpooling or electric vehicle use by work crews or setting up ridesharing or shuttle programs

[129] Washington State Department of Ecology, Final Programmatic Environmental Impact Statement for Utility-Scale Solar, 2025, https://apps.ecology.wa.gov/publications/documents/2506002.pdf

#### 8.3.3.1.5 Significant Unavoidable Adverse Impacts

Through compliance with laws and permits and with the implementation of measures to avoid, reduce, and mitigate impacts, the construction, operation, or decommissioning of large-scale solar facilities would be anticipated to have no significant and unavoidable adverse impacts on energy and natural resources.

### 8.3.3.2 Large-Scale Wind

#### 8.3.3.2.1 Construction Impacts

Wind facility construction would require substantial temporary fuel use for heavy haul deliveries, cranes, excavation, concrete placement, and worker travel. On-site equipment needed for site preparation, turbine foundation construction, and turbine erection (e.g., heavy earthmoving equipment, cranes) would remain at the facility site for the duration of construction activities. Aggregate demand could be comparatively high because of turbine access roads, crane pads, substations, and operations facilities. Gravel would likely be used for building roads, while sand and gravel are key components of the concrete used for turbine foundations, operations buildings, and crane pads. Impacts on aggregate resources in the vicinity of a project site would primarily include a temporary reduction in available supply of those materials for other projects. Electricity would be needed for temporary facilities. Electricity demands for construction of large-scale wind projects are typical of construction projects generally, and they are often dominated by construction trailers.

#### 8.3.3.2.2 Operation Impacts

A wind facility would generate electricity for export but would also consume electricity for turbine controls, heating, lighting, and communications. This energy consumption is much less than the energy generated by the project and may be drawn from the project's own generation or may be drawn from the local electric utility. Routine fuel and aggregate use would support inspections, component replacement, snow removal, and road maintenance. Transmission upgrades may be necessary depending on project capacity and the selected interconnection point.

Demand for fuels for operations would be relatively constant throughout the lifetime of the project. Aggregate would be used situationally for maintenance of screening, access roads, and maintenance/access pathways.

#### 8.3.3.2.3 Decommissioning Impacts

Decommissioning would require cranes, haul trucks, and other heavy equipment to remove turbines and supporting infrastructure. Fuel demand would be temporary, and aggregate may be needed to maintain safe access and complete reclamation. Transportation and equipment for large-scale wind facilities would consume gasoline and diesel fuels for decommissioning or repowering activities and would mirror the demand for these fuels for the construction phase. Site work associated with decommissioning involves similar impacts to construction of the facility, including energy and fuel usage. Aggregate material would be hauled away and replaced with site coverage approved in the site restoration or decommissioning plan. Large-scale wind facilities are not demolished but are dismantled, with most materials transported to recycling facilities.

#### 8.3.3.2.4 Mitigation Measures

- Obtain all applicable federal, state, and local permits, approvals, and authorizations related to land use, natural resource protection, construction, utilities, stormwater management, grading, transportation, and reclamation.
- Comply with all applicable federal, state, and local requirements related to fuel storage, transportation, handling, spill prevention, and emergency response.

- Evaluate aggregate quantities and source locations during design and coordinate with permitted suppliers.
- Source construction aggregate as close as possible to the project site.
- Projects able to draw electricity from their own generation may still draw from the local electric utility when wind speed is low.
- Minimize new road length and design road sections and crane pads to use material efficiently.
- Coordinate oversized deliveries, utility service, and interconnection upgrades before construction.
- Use staged construction and anti-idling practices to reduce peak fuel demand.
- During construction, decommissioning, and maintenance, encourage carpooling or electric vehicle use by work crews or setting up ridesharing or shuttle programs
- Implement a Site Restoration Plan for interim reclamation following temporary construction and operations disturbance.
- Implement a Decommissioning Plan for site reclamation at the end of a project.
- Minimize electricity demand by using project power for operational needs whenever possible, using high-efficiency fixtures and appliances in operations buildings, and using high-efficiency security lighting.
- Schedule project construction to avoid simultaneous large demands on aggregate resources by other local projects.

#### 8.3.3.2.5 Significant Unavoidable Adverse Impacts

Through compliance with laws and permits and with the implementation of measures to avoid, reduce, and mitigate impacts, the construction, operation, or decommissioning of large-scale wind facilities would not be anticipated to have significant and unavoidable adverse impacts on energy and natural resources.

### 8.3.3.3 Battery Energy Storage Systems (BESS)

#### 8.3.3.3.1 Construction Impacts

Construction of standalone BESS facilities would require excavation, site grading, concrete foundations/pads, battery enclosures, electrical equipment, transformers, and substation infrastructure. BESS construction would use fuel for grading, trenching, deliveries, cranes, and worker travel. Aggregate would be required for access roads, equipment foundations, drainage controls, and fire access. Temporary and permanent electrical service would be needed for construction, testing, controls, thermal management, and safety systems. A BESS would typically be installed on a concrete slab and/or gravel area. Aggregate would be needed for the construction of the concrete slabs and gravel areas of the BESS facility site.

#### 8.3.3.3.2 Operation Impacts

During operation, BESS facilities withdraw electricity from and discharge electricity to the grid. Cooling controls, lighting, and fire detection systems would create ongoing electricity demand. Fuel and aggregate use would generally be limited to inspections and maintenance activities. Aggregate resource demands would primarily be associated with maintenance of access roads, equipment pads, drainage facilities, and other supporting infrastructure on a routine basis. Demand for fuels for operations would be relatively constant throughout the lifetime of the project as part of routine maintenance. Electricity use may be more intensive for short periods during testing of the installed BESS equipment, prior to regular operations.

#### 8.3.3.3.3 Decommissioning Impacts

Decommissioning would require disconnection, transport, and removal or disposal of battery and electrical equipment. Fuel demand would be temporary. Recovery of materials through qualified recycling programs

would reduce the impact of disposal. Site work associated with decommissioning involves similar impacts to construction of the facility, including energy and fuel usage. Aggregate material would be hauled away and replaced with site coverage approved in the site restoration or decommissioning plan. Electrical and interconnection infrastructure would be removed or otherwise addressed in accordance with project-specific decommissioning requirements.

#### 8.3.3.3.4 Mitigation Measures

- Obtain all applicable federal, state, and local permits, approvals, and authorizations related to land use, natural resource protection, construction, utilities, stormwater management, grading, transportation, and reclamation.
- Comply with all applicable federal, state, and local requirements related to fuel storage, transportation, handling, spill prevention, and emergency response.
- Confirm auxiliary load and interconnection requirements with the utility and transmission provider.
- Size foundations and access improvements to site conditions and reuse suitable excavated material.
- Establish procurement, replacement, and recycling procedures for battery equipment.
- Provide backup power and operational protocols appropriate to fire protection systems.
- Minimize new road length and design road sections and crane pads to use material efficiently.
- Coordinate oversized deliveries, utility service, and interconnection upgrades before construction.
- Use staged construction and anti-idling practices to reduce peak fuel demand.
- During construction, decommissioning, and maintenance, encourage carpooling or electric vehicle use by work crews or setting up ridesharing or shuttle programs
- Implement a Site Restoration Plan for interim reclamation following temporary construction and operations disturbance.
- Implement a Decommissioning Plan for site reclamation at the end of a project.
- Minimize electricity demand by using project power for operational needs whenever possible, using high-efficiency fixtures and appliances in operations buildings, and using high-efficiency security lighting.
- Schedule project construction to avoid simultaneous large demands on aggregate resources by other local projects.
- Operate batteries within manufacturer-specified parameters to maintain performance and extend useful life.
- Use battery-management, monitoring, cooling, and auxiliary systems efficiently to limit parasitic electricity consumption.
- Perform preventive maintenance to identify poorly performing battery modules and avoid premature replacement of entire battery units.

#### 8.3.3.3.5 Significant Unavoidable Impacts

With implementation of applicable regulations and the mitigation measures identified above, BESS development is not expected to cause a significant unavoidable reduction in regional electricity, fuel, or aggregate availability.

## 8.3.4 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

### 8.3.4.1 Geothermal

#### 8.3.4.1.1 Construction Impacts

Geothermal construction could involve exploratory drilling, production and injection wells, pipelines, access roads, substations, and transmission facilities. These activities would require fuel, drilling materials, electricity, water, concrete, and aggregate. Exploration and well development could result in repeated or extended resource demands where multiple wells are drilled or tested before the final production field is established. Demand and duration would depend on facility design, resource conditions, the number and depth of wells, and the extent of supporting infrastructure.

#### 8.3.4.1.2 Operation Impacts

A geothermal facility would generate electricity continuously or at a high capacity while consuming auxiliary power for pumps, cooling, controls, and fluid management. Operational resource use would depend on the geothermal technology, characteristics of the geothermal resource, cooling system, and requirements for production and reinjection. Fuel, replacement materials, and aggregate could also be required for inspection, maintenance, well work, and repair of roads, pipelines, and other supporting infrastructure. Supplemental electricity or emergency generation may be required during outages or startups.

Additional resource demand could occur if production or injection wells require maintenance, modification, or replacement over the operating life of the facility. Long-term operation would also depend on management of the geothermal resource and production and injection systems to support continued energy generation.

#### 8.3.4.1.3 Decommissioning Impacts

Decommissioning would include closure of wells in accordance with applicable requirements, removal of plant and pipeline components, dismantling of generation and electrical equipment, removal or modification of supporting infrastructure, and site reclamation. Temporary fuel and aggregate demand could be substantial but would occur over a limited period.

Reuse, recycling, or salvage of plant equipment, steel, and other materials could reduce disposal volumes and demand for new raw materials. Infrastructure retained for future use could also reduce material demands associated with removal and redevelopment.

#### 8.3.4.1.4 Mitigation Measures

- Obtain all applicable federal, state, and local permits, approvals, and authorizations related to land use, natural resource protection, construction, utilities, stormwater management, grading, transportation, and reclamation. [130]
- Comply with all applicable federal, state, and local requirements related to fuel storage, transportation, handling, spill prevention, and emergency response.
- Coordinate electrical service and interconnection needs early in design.
- Source aggregate from permitted mines and reclaim temporary work areas promptly.

[130] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

- Provide backup power and operational protocols appropriate to fire protection systems.
- Minimize new road length and design road sections and crane pads to use material efficiently.
- Coordinate oversized deliveries, utility service, and interconnection upgrades before construction.
- Use staged construction and anti-idling practices to reduce peak fuel demand.
- During construction, decommissioning, and maintenance, encourage carpooling or electric vehicle use by work crews or setting up ridesharing or shuttle programs
- Implement a Site Restoration Plan for interim reclamation following temporary construction and operations disturbance.
- Implement a Decommissioning Plan for site reclamation at the end of a project.
- Minimize electricity demand by using project power for operational needs whenever possible, using high-efficiency fixtures and appliances in operations buildings, and using high-efficiency security lighting.
- Schedule project construction to avoid simultaneous large demands on aggregate resources by other local projects.

#### 8.3.4.1.5 Significant Unavoidable Impacts

Through compliance with laws and permits and with the implementation of measures to avoid, reduce, and mitigate impacts, the construction, operation, or decommissioning of geothermal energy facilities would not be anticipated to have significant and unavoidable adverse impacts on energy and natural resources.

### 8.3.4.2 Small Modular Reactors

#### 8.3.4.2.1 Construction Impacts

Construction for SMR facilities could require large quantities of concrete, aggregate, steel, fuel for heavy equipment and deliveries, and electricity for construction facilities. Associated transmission, cooling, and emergency power infrastructure could add to resource demand. Resource demands would vary based on the facility design, generating capacity, site conditions, and infrastructure requirements. A larger facility and/or a facility with a larger generation capacity would likely have greater resource demands. Fission SMRs would have a higher construction impact that fusion SMR due to the relative size of the facilities and area required by the facilities. The larger area needed for fission would require a greater amount of aggregate, construction time, fuel usage, and power draw during construction.

Transportation fuel demand could result from delivery of heavy equipment, specialized facility components and construction materials, worker commuting, excavation, and other construction activities.

#### 8.3.4.2.2 Operation Impacts

During operation, an SMR would generate electricity while using auxiliary power for reactor systems, cooling, security, monitoring, and site services. Uranium fuel and specialized components would be obtained through regulated supply chains. The range for electrical demand and generation from future fusion or fission SMRs is unclear as of this EIS and would vary depending on facility design and technology. Smaller and more modular facilities are likely to allow for greater diversity in scale for both initial energy demand and energy generation.

Routine local fuel and aggregate use would be relatively small, although emergency generators, periodic outages, and major maintenance could create temporary demand. Other fuel demands during operations would generally be limited to employee transportation, maintenance activities, emergency generators, and periodic equipment replacement.

#### 8.3.4.2.3 Decommissioning Impacts

Decommissioning activities would use electricity, fuel, and materials for dismantling, transport, waste management, and site restoration. Nuclear fuels are anticipated to be managed, handled, and transported in accordance to applicable federal regulations and state agency coordination. The timing and magnitude of these needs would depend on reactor design, fuel source, site operating history, coordination with federal and state agencies, and the selected decommissioning approach.

#### 8.3.4.2.4 Mitigation Measures

- Obtain all applicable federal, state, and local permits, approvals, and authorizations related to land use, natural resource protection, construction, utilities, stormwater management, grading, transportation, and reclamation.
- Comply with all applicable federal, state, and local requirements related to fuel storage, transportation, handling, spill prevention, and emergency response.
- Develop project-specific energy and materials management plans that identify quantities needed, suppliers, and delivery timing.
- Coordinate early with federal and state regulators, utilities, transmission providers, emergency service providers, and local road authorities.
- Phase construction to avoid abrupt demands on local suppliers and infrastructure.
- Provide backup power and operational protocols appropriate to fire protection systems.
- Minimize new road length and design road sections and crane pads to use material efficiently.
- Coordinate oversized deliveries, utility service, and interconnection upgrades before construction.
- Use staged construction and anti-idling practices to reduce peak fuel demand.
- During construction, decommissioning, and maintenance, encourage carpooling or electric vehicle use by work crews or setting up ridesharing or shuttle programs
- Implement a Site Restoration Plan for interim reclamation following temporary construction and operations disturbance.
- Implement a Decommissioning Plan for site reclamation at the end of a project.
- Minimize electricity demand by using project power for operational needs whenever possible, using high-efficiency fixtures and appliances in operations buildings, and using high-efficiency security lighting.
- Schedule project construction to avoid simultaneous large demands on aggregate resources by other local projects.

#### 8.3.4.2.5 Significant Unavoidable Impacts

Through compliance with laws and permits and with the implementation of measures to avoid, reduce, and mitigate impacts, the construction, operation, or decommissioning of SMR facilities would be anticipated to not have a significant and unavoidable adverse impacts on energy and natural resources.

# 9 Socioeconomic

## 9.1 Overview

The Socioeconomic section reviews the existing conditions, alternatives impact analysis, and mitigation measures, including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures, associated with socioeconomic factors within Kittitas County.

For the CESP EIS, socioeconomic factors include the people and workforce conditions that may be affected by clean energy siting and permitting decisions. This section evaluates how existing social and economic conditions may be impacted by the selected alternatives.

Socioeconomic factors are influenced by a combination of federal, Tribal, state, regional, and local laws, policies, and programs across housing, employment, environmental justice, public services, economic development, and community well-being.

At a state level, under the Healthy Environment for All Act (HEAL), the State of Washington has made it a priority to identify and address environmental disparities in overburdened communities and for vulnerable populations.[131] The following factors are assessed in this section:

- **Environmental Justice** means the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, rules, and policies. Environmental justice includes addressing disproportionate environmental and health impacts in all laws, rules, and policies with environmental impacts by prioritizing vulnerable populations and overburdened communities, the equitable distribution of resources and benefits, and eliminating harm.[132]
- **Overburdened communities** are geographic areas where vulnerable populations face combined, multiple environmental harms and health impacts, and include, but are not limited to, highly impacted communities as defined in RCW 19.405.020.[133]
- **Vulnerable populations** means population groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to:
    - Adverse socioeconomic factors, such as unemployment, high housing and transportation costs relative to income, limited access to nutritious food and adequate health care, linguistic isolation, and other factors that negatively affect health outcomes and increase vulnerability to the effects of environmental harms; and
    - Sensitivity factors, such as low birth weight and higher rates of hospitalization.[134]
- **Environmental Health Disparities** are the increasing combination of factors (social, medical, climate, and environmental) that create inequities in health. These inequities, which cause more sickness, disease, pollution, and other problems for Washington communities with more economic need. Health

[131] State of Washington Department of Ecology, Washington's Environmental Justice Law (HEAL Act), https://ecology.wa.gov/about-us/who-we-are/environmental-justice/heal
[132] RCW 70A.02.010, https://app.leg.wa.gov/RCW/default.aspx?cite=70A.02&full=true#70A.02.080
[133] RCW 70A.02.010, https://app.leg.wa.gov/RCW/default.aspx?cite=70A.02&full=true#70A.02.080
[134] RCW 70A.02.010

disparities are the result of historical inequities from systems of oppression, such as racism and colonization.[135]

As part of local and regional efforts, the following local regulations and planning documents guide conditions in Kittitas County:

- Countywide Planning Policies
- Comprehensive Plan
- Economic Development Strategic Plan
- Housing Needs Assessment
- 2025 Kittitas County Tourism Strategic Plan
- 2021 Kittitas County Recreation and Tourism Plan
- 2021 Shoreline Master Program
- Six-Year Capital Improvement Plan

A list of regulations, statutes, plans, and guidelines applicable to socioeconomics is included in Appendix A.

The socioeconomic factors analyzed in this section include:

- Overburdened Communities
- Vulnerable Populations
- Workforce
- Displacement Risk
- Impacted Communities

This analysis represents existing conditions as of July 2026, the time at which the Kittitas County CESP EIS was prepared.

Impacts of the alternatives would be considered significant if they result in:

- Material reduction in housing availability or affordability, substantial increases in housing costs, or increased displacement risk attributable to energy development.
- Displacement of residents, businesses, agricultural operations, or community-serving resources without suitable replacement, relocation assistance, or other feasible mitigation.
- Substantial and sustained loss of employment, business activity, access, lease revenue, public revenue, or the viability of an existing economic sector.
- Workforce-related demand for housing, transportation, health care, emergency response, or other community services that exceeds available capacity.
- Substantial interruption of access to employment, education, health care, businesses, agricultural operations, recreation, or other community resources.
- Substantial adverse environmental-health or quality-of-life effects resulting from project-related noise, dust, traffic, lighting, odors, safety risks, access restrictions, or similar disturbances.
- Worsening of an existing environmental-health disparity or cumulative burden.

[135] Washington State Department of Health, Washington Environmental Health Disparities Map, https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map

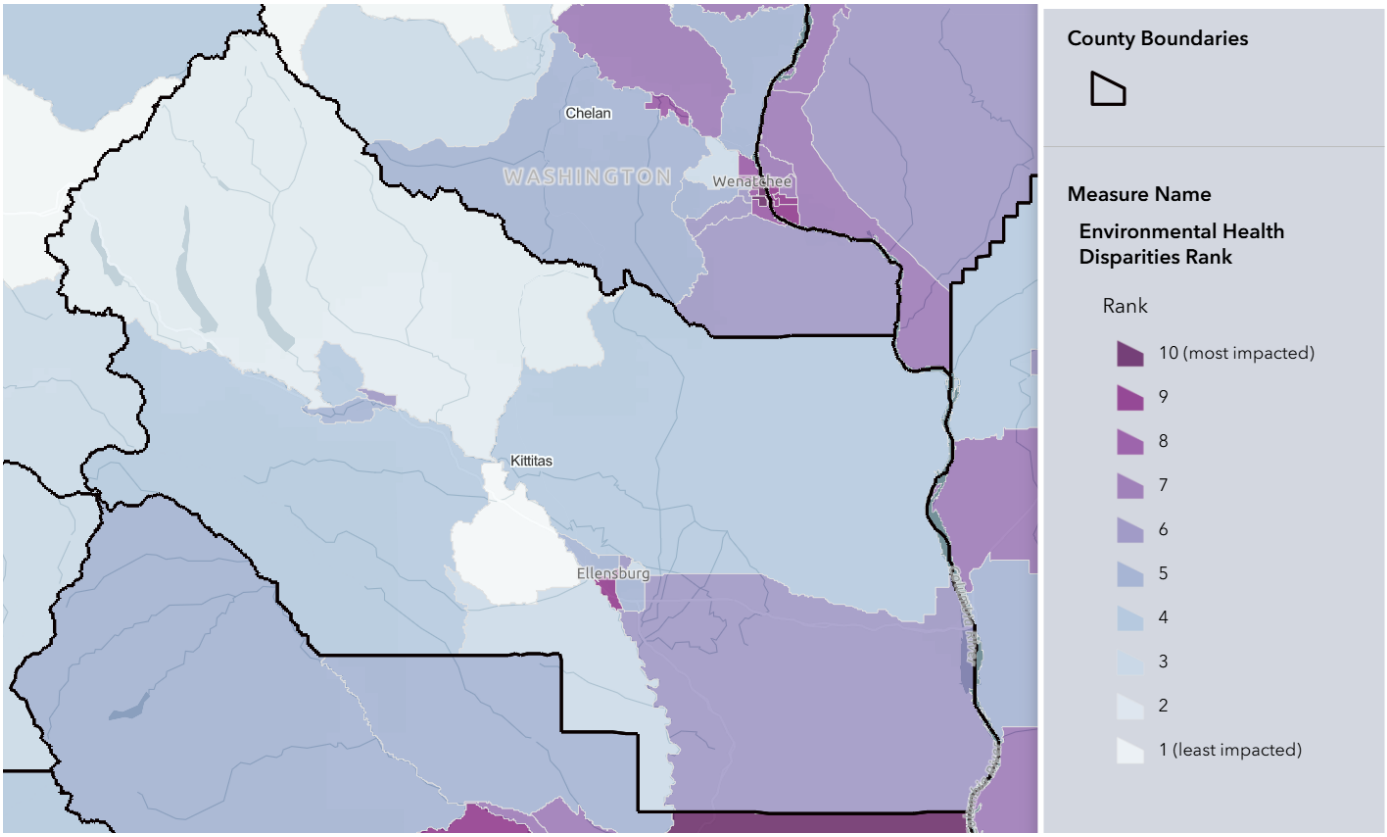
- Disproportionate adverse effects on an overburdened community or vulnerable population after consideration of mitigation.

# 9.2 Existing Conditions

## 9.2.1 Environmental Health Disparities and Overburdened Communities

The Washington State Department of Health (DOH) maps environmental health disparities (EHD) and assigns an overall rank to identify the communities most affected. The rank combines 25 measures related to environmental exposures, socioeconomic conditions, and health outcomes. Together, these measures show how pollution, cost of living, and other social conditions can compound the continuing effects of systemic injustices on community health. **Figure 27** below shows the highest-ranked areas in Kittitas County.

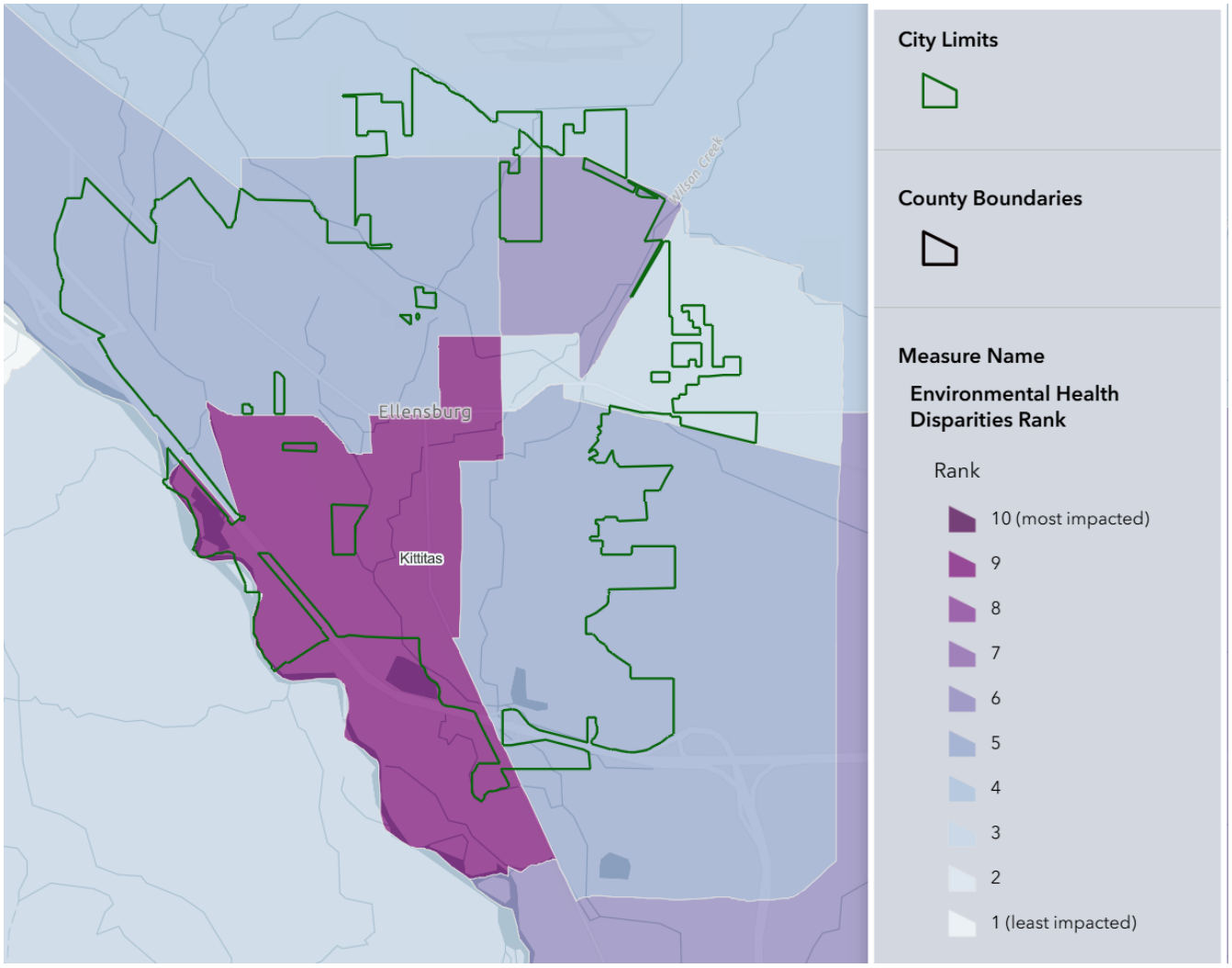
*Figure 27: Kittitas County Environmental Health Disparities Rank*




*Source: Washington State Department of Health, Environmental Health Disparities Map, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

As shown in **Figure 28**, Kittitas County experiences low to moderate environmental health disparities countywide. The highest-ranked area is around the City of Ellensburg. This area is identified as an overburdened community.

*Figure 28: Ellensburg Environmental Health Disparities Rank*




*Source: Washington State Department of Health, Environmental Health Disparities Map, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

The environmental health disparity factors that rank among the highest in the county include:

- **Wildfire smoke exposure** is based on how many smoky days there were and the severity of smoke pollution.[136] This measure is consistently elevated across Kittitas County with ranking scores of 9/10 (**Figure 27**).
- **Water quality** reflects the summed number of unique pollutants detected in waters tested and classified as "impaired."[137] Scores for this measure are moderate to high in many census tracts, predominantly in the north and southeast sections of the county (**Figure 28**).

[136] Washington State Department of Health, Environmental Health Disparities Map Report V.3.0, https://doh.wa.gov/sites/default/files/2026-04/EHDMapReport.pdf

[137] Washington State Department of Health, Environmental Health Disparities Map Report V.3.0, https://doh.wa.gov/sites/default/files/2026-04/EHDMapReport.pdf

- **Transportation expenses** represent transportation costs based on the percentage of income for the regional moderate household.[138] This measure ranks a 10/10 impact level across the entirety of the county, except for moderate scores in Ellensburg and Cle Elum.
- **Community Retail Food Environment** reflects the percentage of stores offering fresh, nutrient-dense foods to those primarily selling processed or fast food.[139] This measure ranks a 10/10 impact level across the entirety of the county, except for low scores in Ellensburg.
- **Pesticide exposure** is the total amount of pesticides applied to all crops summed and divided by the area of each census tract.[140] Scores for this measure are generally moderately high throughout the eastern half of the county.
- **Digital infrastructure** represents a summary of the availability and speed of internet access.[141] This measure is scored highly in the southwestern area of the county, with moderate scores in the eastern half.

### 9.2.2 Vulnerable Populations

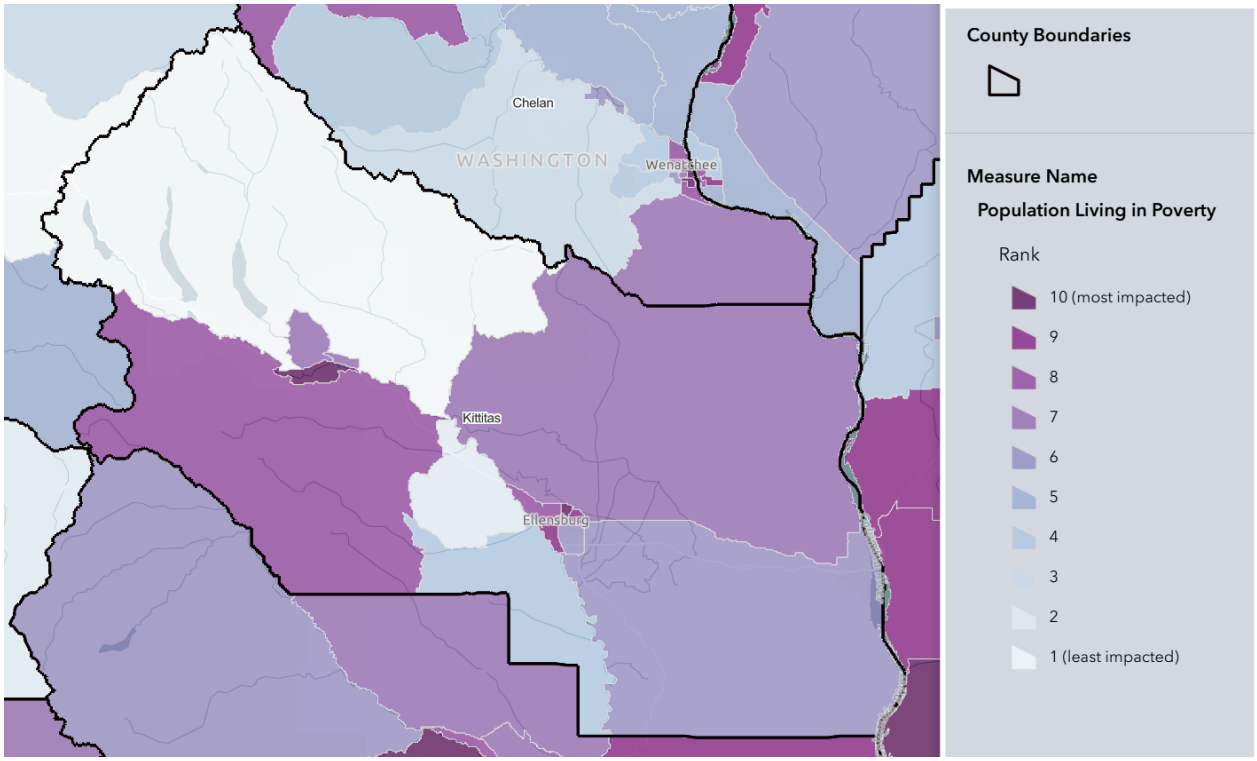
Kittitas County's Comprehensive Plan identifies several groups that may be particularly vulnerable to environmental hazards, including:

- Children
- Seniors
- Pregnant women
- Outdoor workers
- Students
- Low-income households

These populations may experience greater impacts from extreme heat, wildfire smoke, poor air quality, flooding, and other climate-related hazards due to health, economic, mobility, occupational, or housing-related factors.[142] **Figure 29** through **Figure 33** illustrates the prevalence of vulnerable populations throughout Kittitas County, as mapped by the Environmental Health Disparities (EHD) Map.

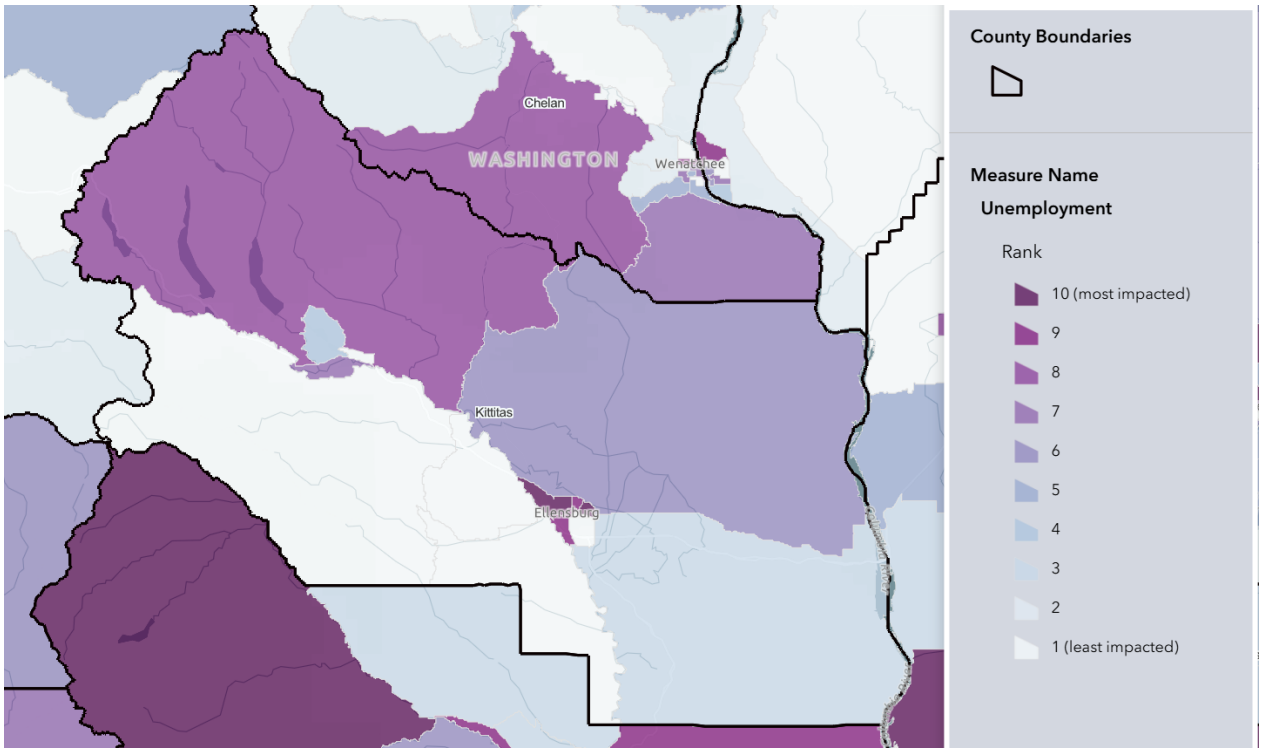
[138] Washington State Department of Health, Environmental Health Disparities Map Report V.3.0, https://doh.wa.gov/sites/default/files/2026-04/EHDMapReport.pdf
[139] Washington State Department of Health, Environmental Health Disparities Map Report V.3.0, https://doh.wa.gov/sites/default/files/2026-04/EHDMapReport.pdf
[140] Washington State Department of Health, Environmental Health Disparities Map Report V.3.0, https://doh.wa.gov/sites/default/files/2026-04/EHDMapReport.pdf
[141] Washington State Department of Health, Environmental Health Disparities Map Report V.3.0, https://doh.wa.gov/sites/default/files/2026-04/EHDMapReport.pdf
[142] Kittitas County 2026 Comprehensive Plan

*Figure 29: EHD Population Living in Poverty Rank*



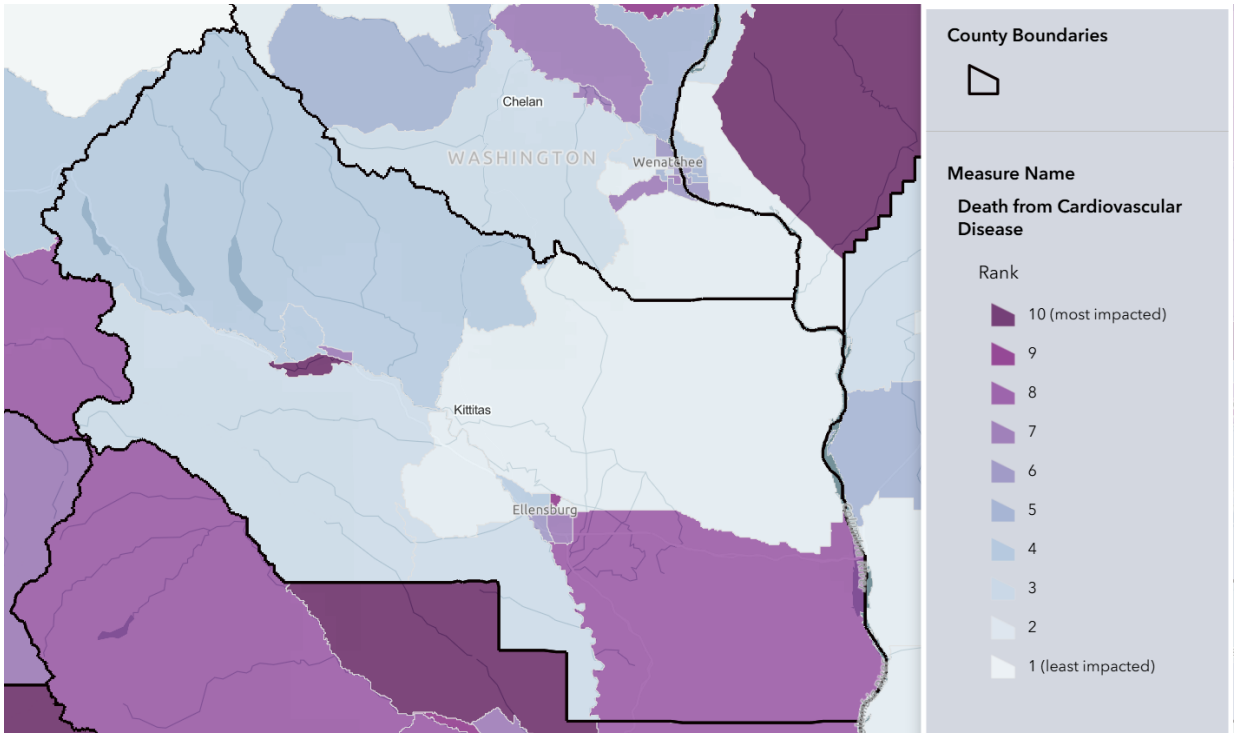

*Source: Washington State Department of Health, Environmental Health Disparities Map, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

*Figure 30: EHD Unemployment Rank*



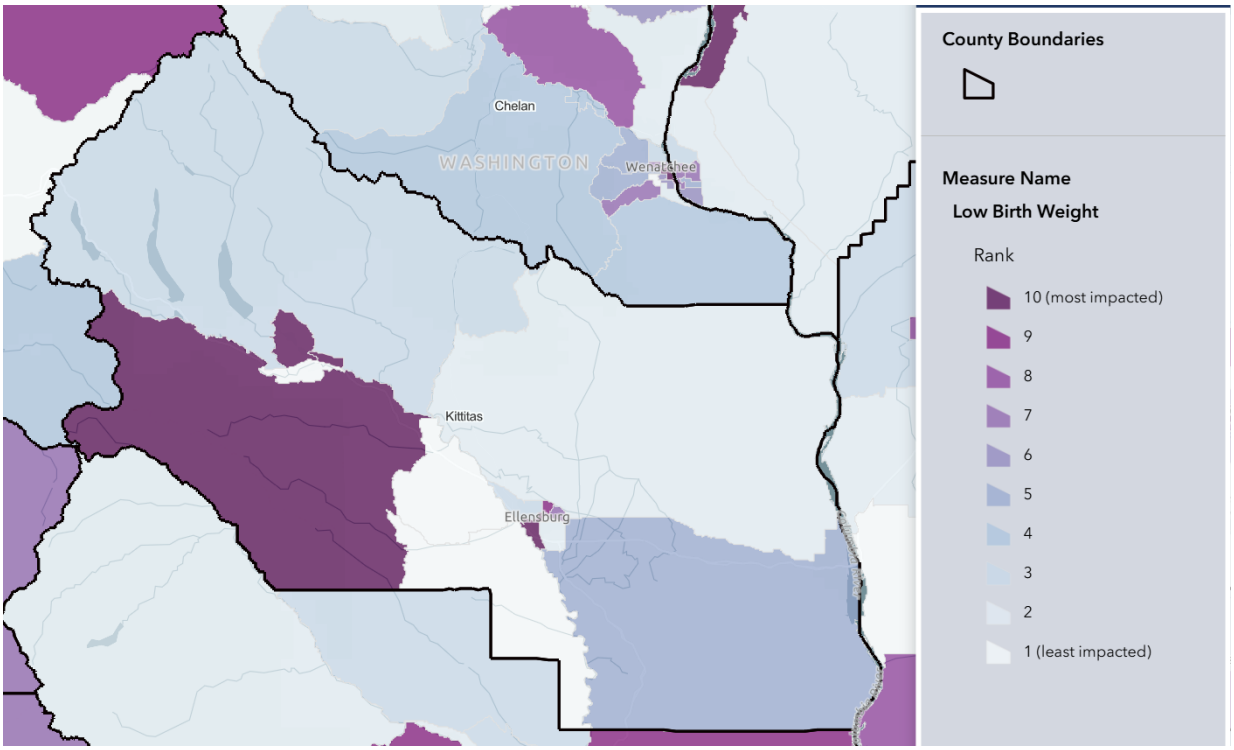

*Source: Washington State Department of Health, Environmental Health Disparities Map, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

*Figure 31: EHD Death from Cardiovascular Disease Rank*



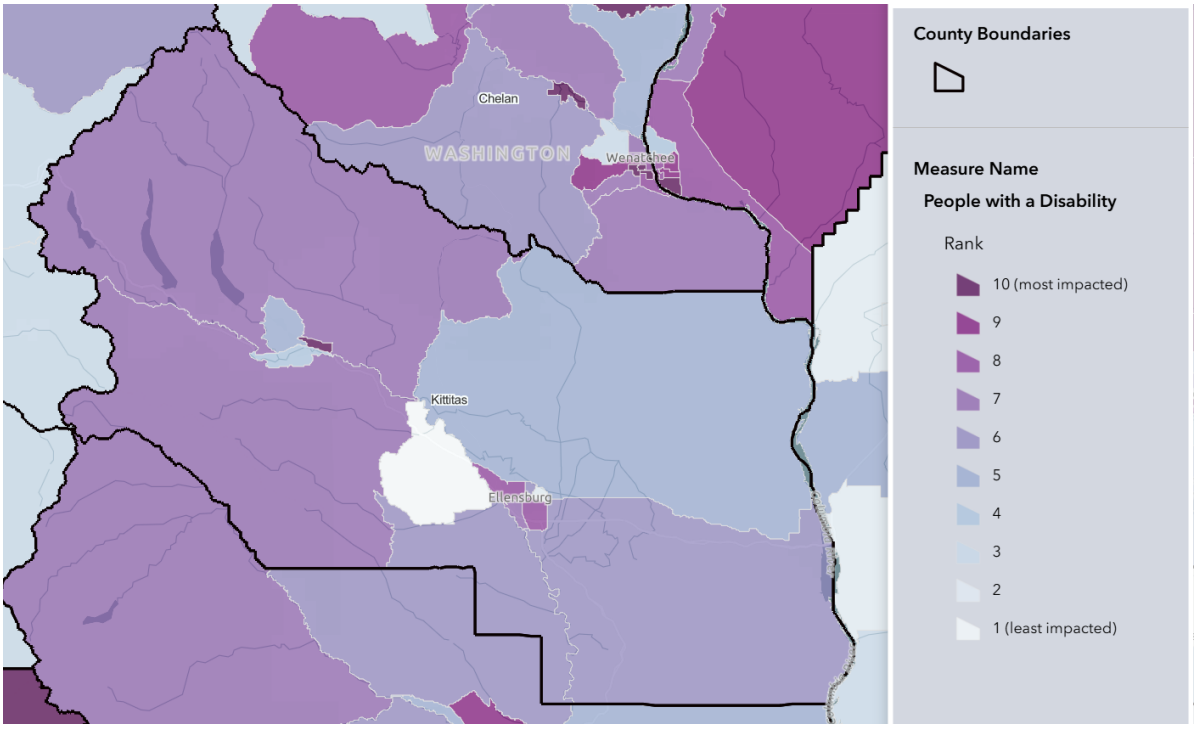

*Source: Washington State Department of Health, Environmental Health Disparities Map, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

*Figure 32: EHD Low Birth Weight Rank*




*Source: Washington State Department of Health, Environmental Health Disparities Map, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

*Figure 33: EHD People with a Disability Rank*




*Source: Washington State Department of Health, Environmental Health Disparities Map, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

### 9.2.3 Opportunity Zones

Opportunity Zones are census tracts eligible under the federal Tax Cuts and Jobs Act of 2017 for tax incentives to encourage long-term private investment in economically distressed communities. Opportunity Zones are generally associated with areas targeted for:[143]

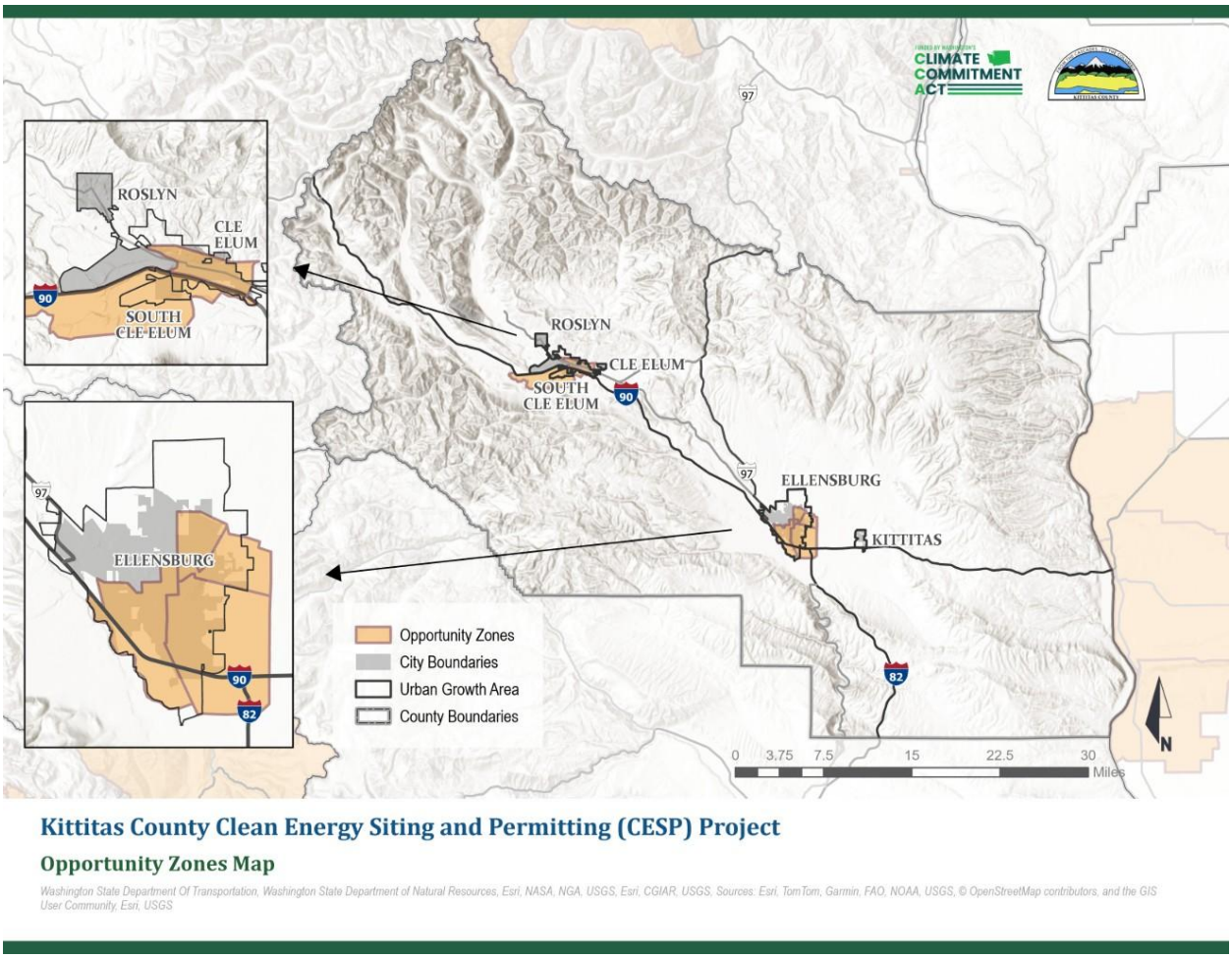
- Economic development
- Business growth
- Infrastructure investment
- Redevelopment
- Employment opportunities

Within Kittitas County, there are six eligible Opportunity Zones. These zones are illustrated in **Figure 34**.

[143] Washington State Department of Commerce, Washington Opportunity Zones, https://www.commerce.wa.gov/opportunity-zones/

**Table** 15 provides the eligibility details of each census tract identified in **Figure 34**.

*Figure 34: Map of Eligible Opportunity Zones*




*Source: Kimley-Horn, 2026 using data from Washington Department of Commerce, Opportunity Zone Eligibility Details, https://experience.arcgis.com/experience/035ad15299ae4a25ac7585d4d23ec309/page/All-Census-Tracts*

*Table 15: Opportunity Zones Eligibility Details*

| OZ Eligibility Details | Rural Census Tracts | | | | | |
|---|---|---|---|---|---|---|
| | 53037975102 | 53037975103 | 53037975402 | 53037975403 | 53037975404 | 53037975600 |
| Community | South Cle Elum | Cle Elum | Ellensburg | | | |
| Population | 1,313 | 1,454 | 4,952 | 2,209 | 5,492 | 2,624 |
| Metropolitan Statistical Area? | No | | | | | |
| Median Family Income | $45,444 | $74,871 | $81,837 | $122,560 | $113,333 | $74,653 |
| Reference MFI | $118,075 | | | | | |
| MFI Ratio | 38% | 63% | 69% | 104% | 9% | 63% |
| Poverty Rate | 7.69% | 9.7% | 11.5% | 28.77% | 35.39% | 25.32% |
| Unemployment Rate | 3.55% | 1.63% | 1.15% | 4.86% | 8.67% | 8.87% |

*Source: Washington State Department of Commerce, Opportunity Zones 2.0*

Opportunity Zones represent existing economic development areas where investment objectives may overlap with broader county goals. These areas may support future commercial, industrial, and infrastructure investments and can influence development patterns within the county.[144]

## 9.2.4 Workforce

### 9.2.4.1 Workforce Characteristics and Wages

Employment in Kittitas County is predominantly population-driven and low-wage sectors.[145] As of 2023, the county has approximately 18,312 total jobs. The top three sectors include Educational Services (16.6%), Accommodation and Food Services (13.6%), and Health Care and Social Assistance (11.8%).[146]

The county's workforce is relatively mature, with workers aged 30 to 54 comprising approximately 48 percent, or roughly 8,844 individuals. About 28 percent are 29 or younger, and 24 percent are 55 or older.[147]

[144] Washington State Department of Commerce, Washington Opportunity Zones, https://www.commerce.wa.gov/opportunity-zones/

[145] Kittitas County, 2023 Economic Development Strategic Plan, https://growthzonecmsprodeastus.azureedge.net/sites/1719/2023/02/2023-02-014-Kittitas-County-EDSP-FINAL-1f0d2c4d-d607-4c3e-9237-27ec04da3462.pdf

[146] United States Census Bureau, OnTheMap, https://onthemap.ces.census.gov/

[147] United States Census Bureau, OnTheMap, https://onthemap.ces.census.gov/

According to the Kittitas County Housing Needs Assessment, the median household income in 2024 was $69,928. Approximately 44 percent of county workers earn less than $3,333 per month (about $40,000 annually), while approximately 27 percent earn less than $1,250 per month. In contrast, approximately 46 percent of workers earn more than $3,333 per month.[148]

Income levels vary by occupation. Higher-paying occupations in Kittitas County as provided below with their median annual incomes:[149]

- Computer and mathematical occupations: ($136,807)
- Legal occupations ($101,841)
- Architecture and engineering occupations ($101,065)
- Management occupations ($95,628)
- Healthcare practitioners ($93,418)

Lower-wage occupations include:[150]

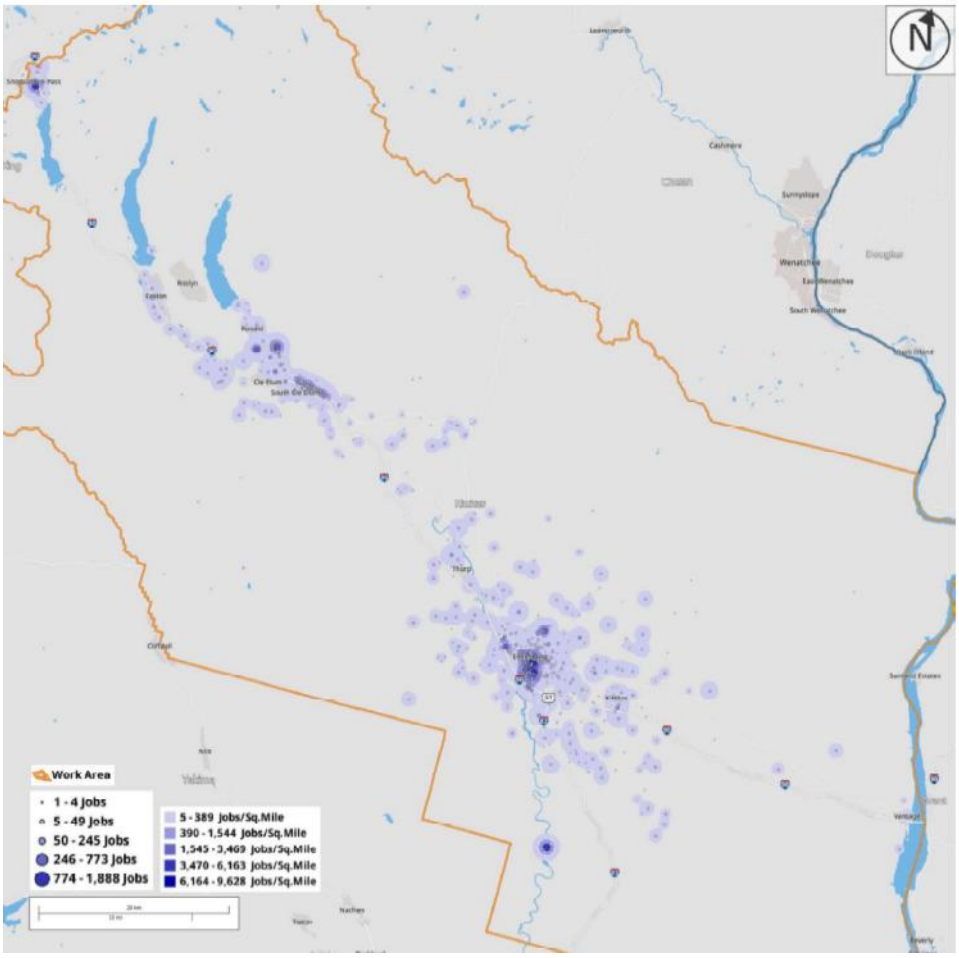
- Material moving ($34,923)
- Building and grounds cleaning and maintenance ($32,687)
- Personal care and service ($29,451)
- Farming, fishing, and forestry ($26,509)
- Food preparation and serving ($23,219)

### 9.2.4.2 Employment Centers and Commuting Patterns

Employment density is highest in Ellensburg with additional employment centers occurring in Cle Elum, Roslyn, and other communities along the Interstate 90 corridor, as shown below in **Figure 35**.

[148] Kittitas County, 2025 Housing Needs Assessment
[149] Kittitas County, 2025 Housing Needs Assessment
[150] Kittitas County, 2025 Housing Needs Assessment

*Figure 35: Job Counts by Location*

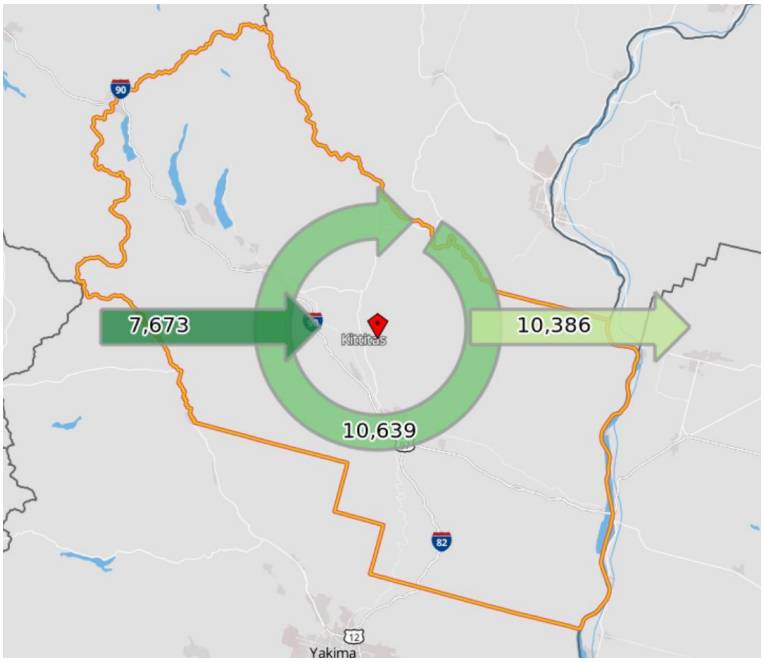



*Source: United States Census Bureau, OnTheMap, https://onthemap.ces.census.gov/*

As of 2023, a majority share of the Kittitas County workforce lives and works locally, 58 percent; however, roughly 49 percent of Kittitas County residents work outside of the county. **Figure 36** below provides an illustration of the job flow in the county.[151]

[151] United States Census Bureau, OnTheMap, https://onthemap.ces.census.gov/

*Figure 36: Inflow/Outflow Job Counts*




*Source: United States Census Bureau, OnTheMap, https://onthemap.ces.census.gov/*

### 9.2.4.3 Energy Employment

The U.S. Energy & Employment Report provides energy employment data across the nation on a national, state, and county level. As of the 2026 report, energy employment in Kittitas County largely centers traditional transmission, distribution, and storage (597 jobs), energy efficiency (190 jobs), motor vehicles (138 jobs), and wind power generation (82 jobs). [152]

### 9.2.4.4 Local Hiring Potential

The Kittitas County Housing Needs Assessment lists projected occupation growth rates as provided by the State Employment Security Department. The following occupations that relate to the renewable energy sector are projected to experience growth in Kittitas County between 2027 and 2032:[153]

- Computer and Mathematical Occupations (1.1 percent)
- Construction and Extraction Occupations (1.06 percent)
- Installation, Maintenance, and Repair Occupations (0.88 percent)
- Architecture and Engineering Occupations (0.78 percent)
- Building and Grounds Cleaning and Maintenance Occupations (1.21 percent)
- Transportation and Material Moving Occupations (1.09 percent)

### 9.2.4.5 Training, Apprenticeship, and Workforce Programs

Kittitas County is served by workforce and apprenticeship programs that provide training in construction, utilities, infrastructure, and clean energy applicable to utility-scale renewable energy development.

[152] US Department of Energy, 2026 US Energy and Employment Report County Data, 2026, https://www.energy.gov/policy/us-energy-employment-jobs-report-useer

[153] Kittitas County, 2025 Housing Needs Assessment

#### 9.2.4.5.1 Construction Apprenticeships and Skilled Trades Training

The Construction Industry Training Council (CITC) serves Central Washington and offers registered apprenticeship programs that combine classroom instruction with paid on-the-job training. CITC programs support workforce development in construction occupations and provide connections between trainees and employers throughout the region.[154]

Additional apprenticeship opportunities are available through Washington State Building and Construction Trades Council. These programs prepare workers for careers in electrical, construction, mechanical, and infrastructure-related industries.[155]

#### 9.2.4.5.2 Workforce Development Services

WorkSource Kittitas County, located in Ellensburg, serves as the county's primary workforce development resource. Services include:

- Career counseling
- Job placement assistance
- Skills development
- Connections to apprenticeship and training programs

WorkSource also helps eligible participants access workforce funding and training assistance that can support entry into construction, utility, and technical occupations.[156]

#### 9.2.4.5.3 Clean Energy and Renewable Energy Training

CWU provides several training programs focused on renewable energy technologies and clean energy workforce development. Available coursework and certification preparation programs include solar energy systems, photovoltaic installation, system design, and industry certification training.[157]

#### 9.2.4.5.4 Wind Energy Workforce Opportunities

The Puget Sound Energy Wild Horse Wind and Solar Facility, located east of Ellensburg, provides opportunities for students and early-career professionals to gain exposure to renewable energy technologies and facility operations. Internship and educational programs associated with the Wild Horse Renewable Energy Center provide participants with experience related to wind energy operations, renewable energy education, and site management.[158]

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[154] Construction Industry Training Council, Apprenticeship, https://citcwa.org/apprenticeship/
[155] Washington State Building and Construction Trades Council, Apprenticeship and Training, https://www.wabuildingtrades.org/apprenticeship--training.html
[156] Kittitas County Chamber of Commerce, WorkSource Kittitas County, https://business.kittitascountychamber.com/list/member/worksource-kittitas-county-363
[157] Central Washington University, Renewable Energy Programs, https://careertraining.cwu.edu/construction-and-trades-renewable-energy-programs/
[158] Puget Sound Energy, Students and Recent Graduates, https://jobs.pse.com/go/Students-and-Recent-Graduates/7838800/

#### 9.2.4.5.5 Youth Workforce Development

The annual Construction Youth Summit in Ellensburg connects high school and college students with contractors, trade organizations, apprenticeship programs, and industry professionals. The event introduces students with real careers that build the county's communities and infrastructure.[159]

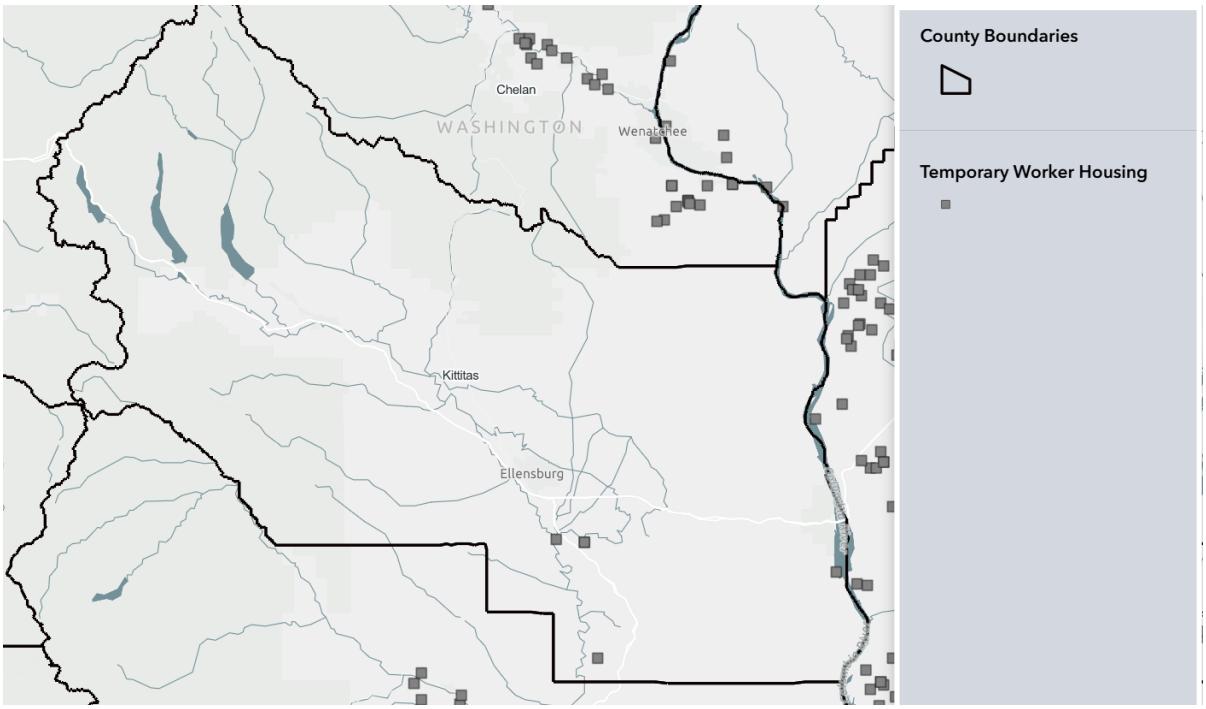
### 9.2.4.6 Temporary Worker Housing Capacity

As of 2024, there are three temporary workforce housing locations in Kittitas County as inventoried by the Washington State Department of Health. Temporary housing can be associated with season or agricultural jobs.

The temporary housing locations in Kittitas County include:

- Zirkle Fruit Company – Wildcat Ranch (8 units)
- Zirkle Fruit Company – Ellensburg (4 units)
- Washington Orchard Management - Burbank Creek Housing (4 units)

*Figure 37: Temporary Worker Housing*




*Source: Washington State Department of Health, Environmental Health Disparities Map, https://experience.arcgis.com/experience/d133fa97a3854f8eac905ec152f16b05/page/Measures*

## 9.2.5 Displacement Risk

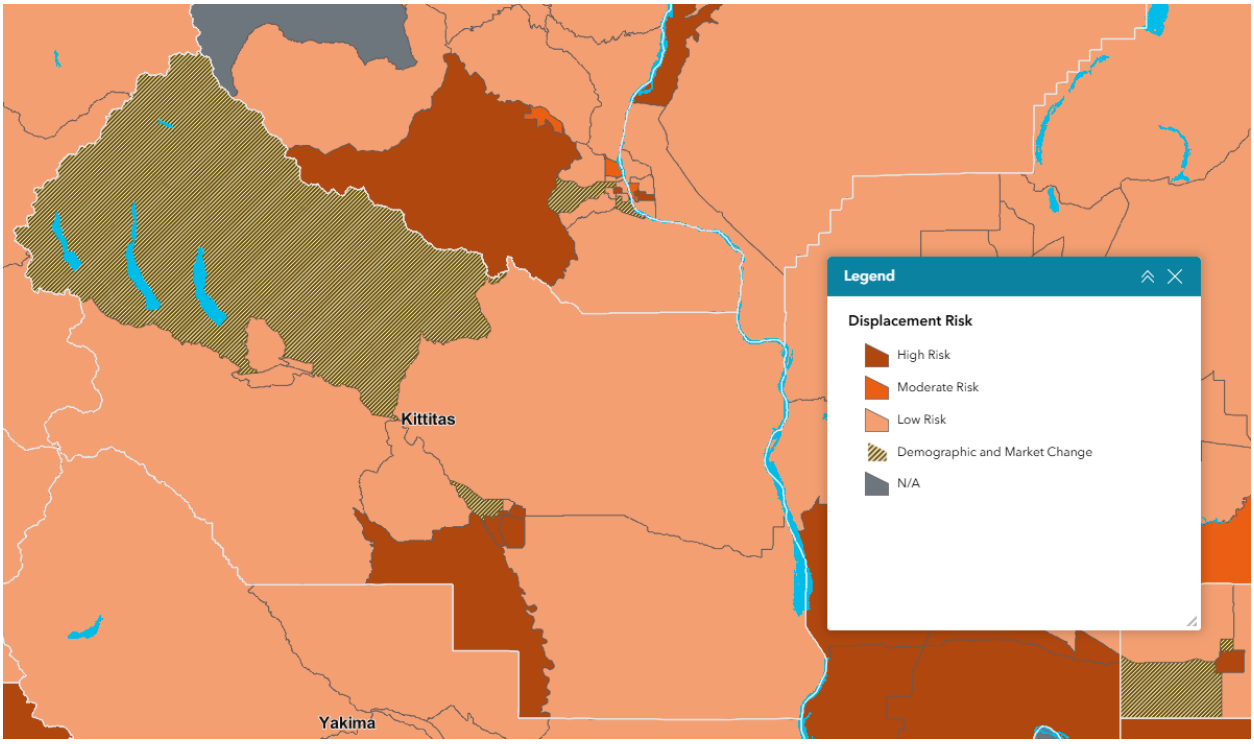
Displacement risk reflects the likelihood that households may be forced to leave their homes because of rising housing costs, redevelopment, or other conditions outside their control and cannot find suitable replacement

[159] Kittitas County Chamber of Commerce, Construction Youth Summit, https://www.kittitascountychamber.com/construction-youth-summit/

housing in the same neighborhood. The displacement risk analysis evaluates social vulnerability, demographic change, and housing market trends at the census tract level.

- **High risk**: Social vulnerability overlaps with demographic change associated with gentrification and/or accelerating housing market conditions, indicating greater potential for displacement.
    - Census tract 9754.03:
        - Social Vulnerability: No
        - Demographic Change: Gentrification
        - Market Trend: Accelerating
        - Population: 1,751
    - Census tract 9754.02:
        - Social Vulnerability: Yes
        - Demographic Change: Gentrification
        - Market Trend: Stable
        - Population: 5,644
    - Census tract 9756:
        - Social Vulnerability: Yes
        - Demographic Change: Gentrification
        - Market Trend: Stable
        - Population: 2,418
    - Census tract 9752.02:
        - Social Vulnerability: No
        - Demographic Change: Gentrification
        - Market Trend: Accelerating
        - Population: 1,528
- **Low risk**: Limited evidence exists of the combined social, demographic, and market conditions associated with displacement. The majority of the county reports low risk.
- **Demographic and market change**: Demographic shifts and housing market changes may indicate neighborhood transition or possible past displacement, but current displacement risk is not established.
    - Census tract 9751.01 in the northwest corner of the county reports:
        - Social Vulnerability: No
        - Demographic Change: Gentrification
        - Market Trend: Appreciated
        - Population: 2,894
    - Census tract 9755 in Ellensburg reports:
        - Social Vulnerability: Yes
        - Demographic Change: Gentrification
        - Market Trend: Appreciated
        - Population: 6,667

*Figure 38: Displacement Risk*

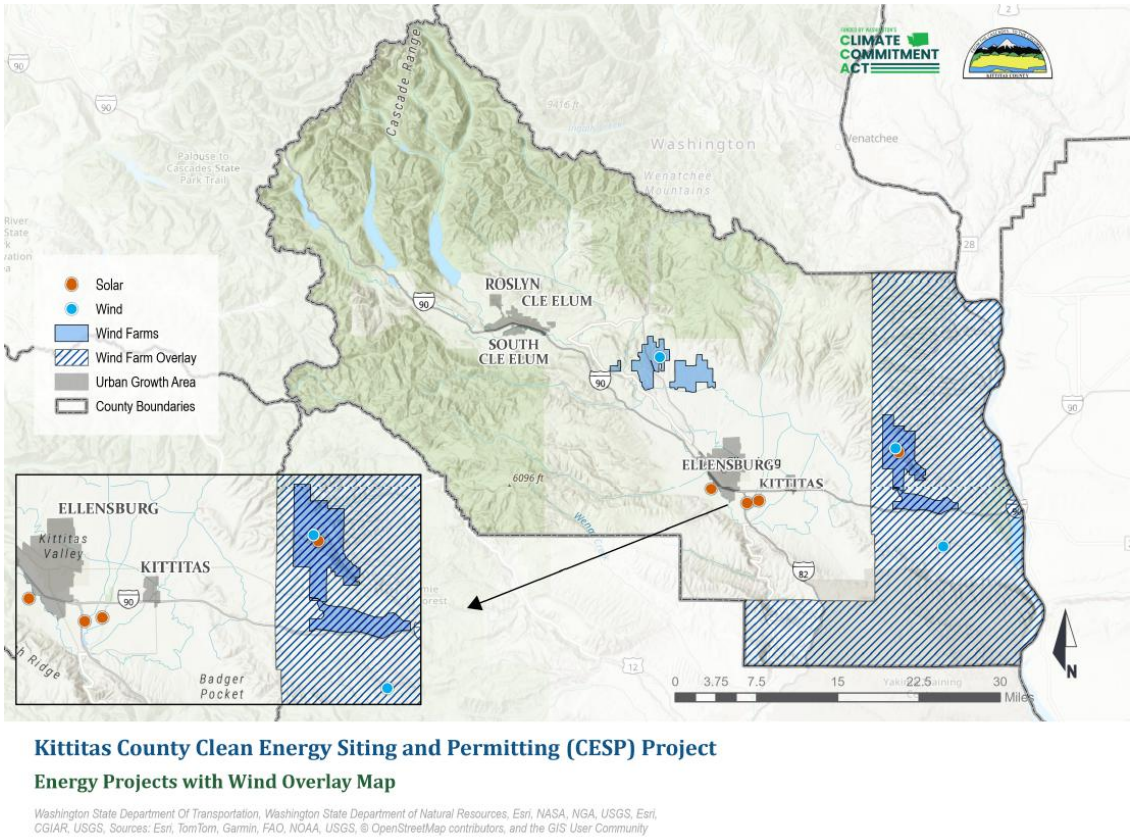



*Source: Washington State Department of Commerce, Displacement Risk Map, https://experience.arcgis.com/experience/d26f4383cab3411cb45f39ddfc666b74/#data_s=id%3A83713d4b3ea34743bed49d3d61be4fb3-187dd75e9f2-layer-27-187dcfb6357-layer-4%3A499*

## 9.2.6 Impacted Communities

This section intends on providing an overview of how communities have been affected by wind farms and solar fields. Kittitas County has several existing wind and solar facilities, as illustrated in **Figure 39**. Development of such facilities first began in the early 2000s, and today, community-wide sentiment differs between wind projects and more recent solar proposals.

*Figure 39: Existing Renewable Energy Developments Map*




*Source: Kimley-Horn, 2026*

As of the DEIS issuance, no publicly available information references community feedback post-construction for the operational facilities. It is anticipated that more information may be shared during the DEIS public comment period after issuance.

# 9.3 Impact Analysis

## 9.3.1 Overview

This section evaluates how large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal energy facilities, and small modular reactors (SMRs) could affect Kittitas County's socioeconomics. Consistent with the Washington Department of Ecology's PEIS approach, the analysis is organized by facility type and project phase, including construction, operation, and decommissioning.

Potential socioeconomic effects include changes in employment, workforce demand, local business activity, tax revenue, housing demand, commuting, community services, environmental health, and community displacement. Effects may be beneficial or adverse and may vary among communities and population groups.

The magnitude of impacts would depend on:

- Facility location, size, configuration, and design;
- Construction workforce and operational staffing needs;
- Availability of qualified local workers;
- Duration and timing of construction;

- Availability and cost of temporary and permanent housing;
- Amount of local spending and procurement;
- Effects on existing industries, businesses, and resource-based activities;
- Proximity to residences, overburdened communities, vulnerable populations, and community-serving facilities;
- Distribution of project benefits, costs, and environmental burdens;
- Duration of operations and decommissioning; and
- Effectiveness of community engagement, local hiring, workforce development, and mitigation measures.

*Table 16: Primary Socioeconomic Concerns*

| Facility Type | Primary Socioeconomic Concerns |
|---|---|
| Large-Scale Solar | Temporary construction employment; limited long-term staffing; construction-worker housing demand; effects on agriculture and other existing economic uses; and local spending and tax revenue. |
| Large-Scale Wind | Temporary construction employment; specialized labor needs; limited long-term staffing; effects on agriculture, recreation, and nearby communities; local spending and tax revenue; and compatibility with existing economic activity. |
| BESS | Short-term construction employment; limited operational employment; specialized emergency-response and technical workforce needs; localized health and safety concerns; and proximity to residences or vulnerable populations. |
| Geothermal | Phased exploration and construction employment; specialized drilling and technical labor; temporary housing demand; effects on recreation and resource-based businesses; and long-term operational employment. |
| SMRs | Large and potentially prolonged construction workforce; substantial demand for specialized labor and housing; long-term operational employment; local business and tax effects; emergency-planning and community-perception concerns; and long-term decommissioning workforce needs. |

## 9.3.2 No Action - Alternative #1

Under the No Action Alternative, the County would continue to review solar, wind, BESS, geothermal, and SMR development under existing County regulations and applicable state and federal requirements. Existing permitting processes would continue, and facilities eligible for Energy Facility Site Evaluation Council (EFSEC) review could pursue the state certification pathway.

### 9.3.2.1 Impacts from Construction, Operation, and Decommissioning Under Current Processes

#### 9.3.2.1.1 Construction Impacts

Future energy development could create temporary construction employment, demand for specialized contractors, purchases of goods and services, and additional economic activity. Construction impacts would depend on whether workers, contractors, materials, lodging, and services are obtained locally. Projects requiring specialized labor could rely partly on workers from outside Kittitas County. The level of need would depend on project-specific construction and operational requirements, the availability of local workers, and whether employers provide housing or financial assistance for housing.

An influx of non-local workers could temporarily increase demand for lodging, rental housing, food service, retail, emergency response, health care, and other local services. This demand could affect local businesses and could also reduce the availability or increase the cost of temporary or long-term housing, particularly during large or overlapping construction projects. These impacts could disproportionately affect lower-income households, renters, people experiencing housing instability, and other vulnerable populations. The existing conditions identify limited inventoried temporary-worker housing and housing-cost concerns in portions of the county.

Construction could also expose nearby residences, workplaces, schools, recreation areas, and community facilities to dust, noise, vibration, traffic, lighting, visual changes, and increased human activity. Ground disturbance and construction traffic could reduce local air quality, increase noise levels, damage roads, or delay access to homes, businesses, farms, schools, health care, and recreation areas. These effects could interrupt work, education, agricultural operations, outdoor activities, and daily travel. Older adults, children, people with disabilities, people with health sensitivities, households without reliable transportation, and people who work outdoors could experience greater difficulty avoiding or adapting to these temporary effects.

Construction-related traffic and workforce activity could also increase demand for emergency services and create traffic-safety concerns along rural roads, near population centers, and in areas with limited alternative routes. Projects located near overburdened communities or areas already affected by industrial activity, transportation corridors, wildfire smoke, or existing energy infrastructure could add to cumulative environmental-health and quality-of-life burdens.

#### 9.3.2.1.2 Operation Impacts

Operational employment would generally be lower than construction employment, although the number and type of jobs would vary by facility. Long-term economic impacts could include employment, local purchases, lease payments, and public revenue. Impacts on agriculture, recreation, tourism, and other existing sectors would depend on project location and the extent to which energy development displaces or restricts existing economic uses. The distribution of these impacts would also depend on where facilities are located, who owns or leases the affected land, whether local workers have access to required training, and how the resulting revenue supports affected communities.

Facility operations could continue to generate traffic, noise, lighting, visual changes, security restrictions, and maintenance activity. The type and intensity of these effects would vary by technology and facility design. For example, wind facilities could alter views; BESS facilities could raise concerns related to fire, smoke, and emergency response; and geothermal or SMR facilities could involve sustained industrial activity, security measures, truck trips, and changes to the visual character of surrounding areas. These effects could influence residents' quality of life, perceptions of safety, use of outdoor spaces, and access to recreation or culturally important places.

Energy development could also affect agriculture, recreation, tourism, and other existing economic sectors if facilities displace existing uses, restrict access, alter community character, or interfere with business operations. Agricultural workers and producers could experience dust, traffic delays, access limitations, or disruption to seasonal activities. Recreation and tourism businesses could be affected if construction or facility operations restrict access to recreation areas or alter the qualities that attract visitors. Schools and workplaces near project sites or transportation routes could experience interruptions from noise, traffic, or construction activity.

Long-term changes in views, noise, traffic, perceived environmental conditions, or access could affect the desirability and use of nearby properties. Depending on local housing conditions, these changes could contribute to displacement pressures or create difficulty for residents who wish to relocate but cannot afford to do so. Effects could be greater in communities with limited housing choices, lower household incomes, high housing-cost burdens, or existing displacement risk.

#### 9.3.2.1.3 Decommissioning Impacts

Decommissioning would temporarily renew many construction-related effects, including employment, truck traffic, dust, noise, vibration, road use, waste generation, and demand for transportation, waste-management, and site-restoration workers. Heavy equipment and material removal could temporarily disrupt nearby residences, businesses, farms, schools, and access to recreation. Decommissioning could also create environmental health or safety concerns if facilities contain hazardous materials or if waste is transported through populated or overburdened areas.

Facility closure would eliminate operational jobs and could reduce project-related spending, lease payments, and public revenue. These effects would depend on the facility's role in the local economy and whether workers, property owners, and affected businesses could transition to other activities. Successful removal and site restoration could reduce long-term noise, visual, access, and land-use effects and allow some sites to return to prior or compatible uses. Incomplete restoration or extended decommissioning could prolong community disruption and limit future economic use of the site.

Project-level review could identify and address specific socioeconomic effects. However, without revised overlays or standards, opportunities to avoid concentrating projects near overburdened communities, vulnerable populations, areas with housing constraints, or communities already affected by energy infrastructure may be more limited.

### 9.3.2.2 Mitigation Measures

#### 9.3.2.2.1 Required Measures

Large-scale solar and wind facilities must comply with applicable Kittitas County siting, permitting, development, public-notice, safety, and decommissioning requirements. KCC Chapter 17.61C regulates solar power production facilities and KCC Chapter 17.61A regulates wind farms.

Existing solar regulations protect agricultural land through overlay-based siting, require identification of nearby residences, establish screening, glare, lighting, setback, fire-management, and decommissioning standards, and require public notice to property owners within one mile of a proposed facility.

Existing wind regulations require applicable permits and development agreements, project-specific review of noise, visual, traffic, and other effects, and findings that a proposed facility would not unreasonably harm the County's economic welfare or create excessive public costs for facilities and services.

Current County code does not establish requirements for workforce housing, local hiring, potential displacement, environmental justice, or socioeconomic monitoring for the selected energy facilities.

### 9.3.2.3 Significant Unavoidable Adverse Impacts

Construction, operation, and decommissioning could create localized adverse impacts where projects increase housing costs, reduce housing availability, displace existing economic or community uses, interrupt access, or expose nearby populations to dust, noise, traffic, lighting, visual changes, safety concerns, or other environmental-health burdens.

The severity of these effects would depend on the project's scale, technology, location, construction duration, workforce needs, proximity to sensitive community uses, and existing environmental and socioeconomic conditions. Effects could be greater where multiple projects occur concurrently or where affected communities already experience housing instability, displacement risk, environmental-health disparities, limited transportation options, or constraints on emergency and community services.

## 9.3.3 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Under Alternative 2, the County would revise local regulations governing large-scale solar, wind, and BESS facilities to identify suitable development areas and provide greater clarity and predictability in project siting and review.

Revised solar and wind overlays and a potential BESS standards could direct development away from communities with greater socioeconomic vulnerability, elevated displacement risk, limited community-service capacity, or existing environmental-health burdens. Standards could also establish consistent requirements for community engagement, workforce and housing planning, environmental-health analysis, access protection, complaint response, decommissioning, and mitigation.

Future amendments could consider proximity to residences, schools, workplaces, health care facilities, recreation areas, agricultural operations, Opportunity Zones, overburdened communities, and areas with vulnerable populations. Areas eligible as Opportunity Zones could help with potential economic investment, but it would not by itself establish that energy development would benefit existing residents or avoid displacement and environmental-health effects. Project-specific review would remain necessary to determine how benefits and burdens would be distributed.

### 9.3.3.1 Large-Scale Solar

#### 9.3.3.1.1 Construction Impacts

Solar construction could create temporary employment in site preparation, civil construction, electrical work, equipment installation, transportation, security, and project management. Local economic benefits would depend on the availability of qualified workers and the extent to which developers use local contractors, suppliers, lodging, and services.

Workers from outside the county could increase demand for short-term lodging, rental housing, food service, retail, transportation, and other services. This demand could generate local business revenue but could also reduce housing availability or increase costs. Effects could be greater during tourism seasons, agricultural work periods, or overlapping construction projects. Lower-income households, renters, seasonal workers, and people already experiencing housing instability could have greater difficulty absorbing increased housing costs.

Construction activities could generate dust, noise, vibration, lighting, traffic, road wear, visual changes, and increased human activity. These effects could temporarily reduce quality of life, interrupt work or education, interfere with outdoor activity, or limit access to residences, businesses, agricultural land, and recreation areas. People who work outdoors, children, older adults, people with respiratory or other health conditions, and households with limited transportation options could be more sensitive to these effects.

Where construction occurs near agricultural operations, dust and traffic could affect crop production, livestock movement, equipment access, worker safety, and time-sensitive agricultural activities. Where construction

occurs near schools, workplaces, health care facilities, or residential areas, noise and traffic could interrupt normal activities or delay access.

#### 9.3.3.1.2 Operation Impacts

Solar facilities generally require fewer workers during operation than during construction. Long-term positions may include facility maintenance, vegetation management, security, electrical work, and administration. Lease payments, local purchases, and public revenue could provide continuing economic benefits, although the distribution of those benefits would depend on property ownership, employment practices, and applicable revenue arrangements.

Operational effects could include changes in views, lighting, glare, traffic, security, access, and community character. Vegetation maintenance, panel washing, equipment repair, and other activities could generate intermittent noise, dust, water demand, or vehicle trips. Glare or visual contrast could affect nearby residences, workplaces, road users, recreation areas, or other activities depending on panel orientation, topography, screening, and distance.

Nearby residents could experience changes in community character, use of outdoor spaces, and perceptions of property desirability. These effects could contribute to displacement concerns in communities already facing housing instability or limited housing choices. The magnitude of these effects would depend on facility scale, screening, setbacks, proximity to residences and community resources, and the presence of other energy facilities.

#### 9.3.3.1.3 Decommissioning Impacts

Decommissioning would create temporary employment associated with equipment removal, hauling, recycling, waste management, demolition, and site restoration. Local businesses could benefit from project spending during closure.

Decommissioning could also generate truck traffic, dust, noise, vibration, road wear, visual disturbance, and temporary access restrictions similar to construction. Material removal could interrupt nearby residences, agricultural operations, businesses, schools, workplaces, or recreation access. Workers and nearby communities could face environmental, health, or safety risks if damaged equipment or other materials are not handled properly.

Operational employment, lease payments, local spending, and project-related public revenue could end. Restoration of agriculture or another productive use could support renewed economic activity. Incomplete or delayed restoration could limit future use, prolong visual or access effects, and reduce associated employment or revenue opportunities.

#### 9.3.3.1.4 Mitigation Measures

##### *9.3.3.1.4.1 Required Measures*

Solar facilities must comply with applicable environmental review and Kittitas County siting, conditional use, public notice, screening, glare, lighting, setback, fire-management, and decommissioning requirements. Current County code does not require workforce housing, local hiring, displacement, or environmental justice analysis; those measures would require new standards or project-specific conditions, which could be developed under Alternative 2.

*9.3.3.1.4.2 Recommendations for Siting and Design*

- Avoid displacing occupied housing, established businesses, agricultural operations, or community-serving facilities.
- Avoid concentrating facilities near overburdened communities, vulnerable populations, or areas with elevated displacement risk.
- Consider environmental health disparities, cumulative burdens, housing and service capacity, and the distribution of project benefits when evaluating sites, including sites near eligible Opportunity Zones.
- Locate equipment, access roads, staging areas, and worker-support facilities to minimize effects on nearby residences and community resources.

*9.3.3.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Conduct early and continuing engagement with affected communities and provide accessible information, notices, and complaint procedures.
- Prepare worker housing and transportation plans when substantial nonlocal hiring is anticipated and coordinate employment and training opportunities with local workforce organizations.
- Maintain access to residences, businesses, farms, schools, health care facilities, workplaces, recreation areas, and emergency routes.
- Monitor housing demand, access effects, community-service demands, and complaints during major construction and decommissioning activities.

*9.3.3.1.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain, modify construction phasing or workforce mobilization; provide worker housing, transportation, relocation, or business-transition assistance; and require enhanced environmental health and equity analysis, monitoring, and corrective actions.

## 9.3.3.2 Large-Scale Wind

### 9.3.3.2.1 Construction Impacts

Wind construction could create temporary employment in civil construction, turbine assembly, electrical work, transportation, crane operation, road construction, and project management. Some positions may require specialized workers from outside the county.

Nonlocal workers could increase demand for lodging, rental housing, restaurants, retail, health care, transportation, and other local services. Economic benefits would be greatest where workers stay and purchase goods locally. Housing pressure could occur if demand overlaps with tourism seasons, agricultural work periods, or other major construction activity.

Construction of turbine pads, access roads, substations, collection lines, and transmission connections could generate noise, dust, vibration, lighting, heavy truck traffic, oversized-load movements, road closures, and increased human activity. These effects could disrupt nearby residents, businesses, schools, agricultural operations, workplaces, and recreation areas. Heavy transport and road construction could delay local travel, emergency response, agricultural equipment movement, and access to homes or businesses.

Wind facilities may allow agriculture or grazing to continue between turbines, but roads, turbine pads, electrical infrastructure, and construction staging could fragment fields, change drainage, restrict equipment movement, or interrupt livestock operations. Landowners hosting turbines may receive lease income, while agricultural workers, tenant operators, nearby residents, or businesses may experience costs without receiving direct payments.

Construction could temporarily affect recreation and tourism if roads, trails, public lands, or scenic areas are closed or disrupted. The severity of these effects would depend on construction timing, duration, haul routes, topography, proximity to communities, and the scale and concentration of development.

#### 9.3.3.2.2 Operation Impacts

Operational employment would be substantially lower than construction employment but could include turbine technicians, electricians, site managers, maintenance workers, and security staff. These positions could provide long-term skilled employment, although they may require specialized training.

Wind facilities could provide lease payments, local purchasing, and public revenue. Agriculture and grazing may continue across much of the project area where access is maintained. Benefits and adverse effects may not be distributed evenly among participating landowners, workers, neighboring properties, and the broader community.

Operations could result in recurring turbine noise, shadow flicker, lighting, visual changes, maintenance traffic, and access restrictions. These effects could influence residents' quality of life, use of outdoor areas, sleep, perceptions of safety, and property desirability. Visual changes could also affect recreation or tourism businesses that depend on scenic character.

The magnitude of operational effects would depend on turbine height and location, topography, weather conditions, setbacks, existing ambient noise, the duration and timing of shadow flicker, lighting requirements, and proximity to residences, workplaces, recreation areas, and other sensitive uses. Effects could be greater where multiple wind projects are visible or audible from the same community.

#### 9.3.3.2.3 Decommissioning Impacts

Decommissioning would create temporary employment for dismantling turbines, removing foundations and electrical facilities, hauling materials, recycling components, and restoring land. Operational employment, lease income, local spending, and public revenue associated with the facility could end.

Truck traffic, noise, dust, vibration, road use, temporary closures, and increased human activity could recur during closure. Temporary housing and service demand could also be similar to construction impacts if specialized workers are brought into the county.

Long-term effects would depend on the completeness of site restoration, continued use or removal of roads and transmission infrastructure, and the availability of replacement employment or economic activity. Retained infrastructure or incomplete restoration could continue to affect agricultural operations, access, scenic character, and future use.

#### 9.3.3.2.4 Mitigation Measures

##### *9.3.3.2.4.1 Required Measures*

Wind facilities must comply with applicable environmental review and Kittitas County permit, overlay, site-plan, development-agreement, setback, noise, visual, traffic, and decommissioning requirements. County approval must find that a project would not unreasonably harm the County's economic welfare or create excessive public costs. Project-specific socioeconomic conditions may be included in the required development agreement.

*9.3.3.2.4.2 Recommendations for Siting and Design*

- Avoid displacing occupied housing, businesses, agricultural operations, or community-serving facilities.
- Avoid concentrating facilities near overburdened communities, vulnerable populations, or areas with elevated displacement risk.
- Use turbine placement and setbacks to reduce noise, shadow flicker, lighting, traffic, and visual effects on nearby communities.
- Evaluate cumulative effects and whether project benefits would reach affected residents, workers, businesses, and Opportunity Zone communities.

*9.3.3.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Prepare worker housing and transportation plans when substantial nonlocal labor is anticipated and coordinate local employment and training opportunities.
- Provide advance notice of high-noise work, oversized deliveries, road closures, and other disruptive activities.
- Monitor housing demand, noise, shadow flicker, lighting, access effects, and community complaints.
- Maintain access to residences, businesses, agricultural operations, community resources, and emergency routes, and plan for workforce and economic transition before closure.

*9.3.3.2.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain, increase setbacks, apply operational curtailment, modify construction schedules, provide housing or displacement assistance, or require additional measures where multiple facilities would affect the same community.

### 9.3.3.3 Battery Energy Storage Systems (BESS)

#### 9.3.3.3.1 Construction Impacts

BESS construction would generally involve a smaller workforce and shorter construction period than large-scale solar or wind facilities, although requirements would vary by project size and interconnection needs. Employment could include civil construction, electrical work, equipment installation, fire-protection systems, security, and project management.

Temporary housing and service demands would generally be localized. Co-location with an existing energy or industrial facility could reduce the need for new roads, interconnections, and other construction, which could reduce community disruption.

Construction could generate temporary noise, dust, vibration, truck traffic, lighting, access changes, and increased human activity. Delivery of batteries, transformers, and other large equipment could affect local traffic and road access. These effects could disrupt residences, businesses, schools, health care facilities, workplaces, and community services near projects or haul routes.

Effects could be more consequential where construction occurs near overburdened communities, vulnerable populations, or locations that already experience industrial traffic, noise, poor air quality, or emergency-response constraints.

#### 9.3.3.3.2 Operation Impacts

BESS facilities would generally support a limited number of permanent positions. Operational jobs could include electrical maintenance, monitoring, security, vegetation management, and specialized technical work. Routine operation could generate intermittent equipment noise, lighting, maintenance traffic, and visual

changes. The magnitude of these impacts would depend on facility design, equipment operating duration, screening, setbacks, topography, and proximity to residences or community resources.

Potential fire, smoke, explosion, hazardous-material, or emergency-response concerns could impact nearby residents' environmental health and perception of safety. An incident could result in smoke, road closures, shelter-in-place or evacuation instructions, emergency-response activity, and temporary interruption of nearby businesses, schools, workplaces, or transportation routes. These concerns would be particularly relevant where a facility is near housing, schools, childcare facilities, health care facilities, communities with limited evacuation routes, or an overburdened community. Vulnerable populations may have greater difficulty receiving emergency information, evacuating, sheltering safely, or recovering from an incident.

BESS operation could also improve electrical-system flexibility and reliability by storing electricity for later use and supporting the availability of power during periods of high demand or variable generation. These functions could provide broader benefits by supporting reliable electricity service for residents, businesses, and public services.

#### 9.3.3.3.3 Decommissioning Impacts

Decommissioning would create temporary employment in electrical disconnection, equipment removal, battery transportation, recycling, waste management, and site restoration. Operational jobs and project-related spending would end.

Equipment removal could generate truck traffic, noise, access disruptions, and short-term safety risks. Improper handling, storage, or transportation of damaged batteries could create fire, hazardous-material, environmental-health, or emergency-response concerns for workers and nearby communities. Compliance with applicable battery transportation, recycling, and waste-management requirements would reduce, but may not eliminate, these risks.

#### 9.3.3.3.4 Mitigation Measures

##### *9.3.3.3.4.1 Required Measures*

BESS facilities must comply with applicable environmental review, building, fire, electrical, hazardous-material, worker-safety, emergency-planning, transportation, waste-management, and decommissioning requirements. Project approvals should define emergency coordination, notification, access, and battery-management responsibilities based on the facility's technology, location, and potential effects.

##### *9.3.3.3.4.2 Recommendations for Siting and Design*

- Prioritize existing utility, industrial, or previously disturbed sites where co-location would reduce community impacts.
- Avoid siting near residences, schools, childcare facilities, health care facilities, overburdened communities, vulnerable populations, and constrained evacuation routes where practicable.
- Consider prevailing winds, topography, population characteristics, cumulative environmental burdens, and emergency-response capacity when establishing setbacks.
- Evaluate whether development near an Opportunity Zone would benefit existing residents without adding disproportionate health or safety burdens.

*9.3.3.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Provide nearby communities and service providers with accessible information about emergency notifications, protective actions, and complaint procedures.
- Coordinate emergency plans and exercises with responders, schools, health care providers, transportation providers, and organizations serving vulnerable populations.
- Account for people without vehicles, people with disabilities, older adults, children, people with limited English proficiency, and people requiring continuing medical care.
- Monitor incidents, emergency-response demands, facility noise, system performance, and community complaints.

*9.3.3.3.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain, increase setbacks, modify facility design, fund additional emergency-response capacity, prepare transportation-assistance or continuity-of-service plans, conduct incident-specific environmental health monitoring, or relocate the facility.

### 9.3.3.4 Significant Unavoidable Adverse Impacts

Alternative 2 could improve socioeconomic and environmental-health outcomes by incorporating community vulnerability, environmental justice, workforce needs, housing capacity, access, emergency response, and community compatibility into revised overlay criteria. Clear siting standards could reduce the likelihood that new facilities are concentrated near overburdened communities, areas with elevated displacement risk, or sensitive community resources.

Temporary housing pressure, construction disturbance, traffic, changes in community character, uneven distribution of economic benefits, and localized effects on existing businesses or nearby residents could still occur. Wind facilities could create long-term visual, noise, or shadow-flicker effects. Solar facilities could alter community character and existing agricultural activity. BESS facilities could create environmental-health and safety concerns associated with fire, smoke, and emergency response.

## 9.3.4 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

Under Alternative 3, Kittitas County would evaluate potential geothermal and small nuclear overlays and associated development standards. Development standards could incorporate workforce availability, housing capacity, community vulnerability, environmental-health disparities, displacement risk, existing economic activity, emergency-response capacity, evacuation conditions, and proximity to community resources.

Socioeconomic and environmental-health effects would vary substantially by project size, technology, construction duration, workforce needs, operational staffing, supporting infrastructure, and location. SMR projects could have greater workforce, housing, service, safety-perception, and community effects than other technologies because of their potential scale, specialized labor requirements, security needs, and extended construction and decommissioning periods.

### 9.3.4.1 Geothermal

#### 9.3.4.1.1 Construction Impacts

Geothermal development could occur in multiple phases, including exploration, test drilling, wellfield construction, plant construction, pipeline installation, road development, and electrical interconnection.

Employment needs and construction effects could occur intermittently over an extended development sequence.

Non-local workers could increase demand for temporary housing, lodging, food service, transportation, health care, and other local services. Repeated exploration and construction phases could extend or periodically renew these demands. Effects could be greater for lower-income households, renters, and seasonal workers if workforce demand reduces housing availability or increases costs.

Drilling, road construction, pipeline installation, and facility construction could generate sustained or intermittent noise, vibration, dust, lighting, traffic, odors, visual changes, and increased human activity. These effects could disturb nearby residences, workplaces, schools, agricultural operations, recreation areas, and wildlife-oriented recreation businesses. Nighttime drilling or continuous construction could create greater disturbance than typical daytime construction.

Construction could affect recreation, tourism, agriculture, forestry, or other existing economic activities where access is restricted, roads are congested, land is disturbed, or noise and industrial activity change the visitor experience. Effects would depend on the combined footprint and location of the wellfield, pipelines, roads, generation facility, transmission facilities, and worker-support areas.

#### 9.3.4.1.2 Operation Impacts

Geothermal operation could provide long-term technical, maintenance, environmental-monitoring, and administrative employment. Local economic benefits could include wages, purchases, lease payments, and public revenue.

Operations could generate recurring industrial noise, odors, steam or vapor plumes, lighting, maintenance traffic, and visual changes. These conditions could affect quality of life, outdoor activity, recreation experiences, tourism businesses, and perceptions of environmental health or property desirability.

Effects on existing industries could occur where wellfields, pipelines, roads, or access controls interfere with agriculture, forestry, grazing, recreation, or tourism. The magnitude of these effects would depend on facility technology, emissions and odor controls, hours of operation, setbacks, topography, prevailing winds, and proximity to affected populations and economic uses.

Environmental justice concerns would be greater where nearby populations already experience environmental-health burdens, limited access to health care, housing instability, or other socioeconomic vulnerabilities.

#### 9.3.4.1.3 Decommissioning Impacts

Decommissioning would create temporary employment for well closure, equipment removal, demolition, waste management, hauling, and site restoration. Operational jobs, local purchases, lease payments, and project-related revenue would end.

Well closure and infrastructure removal could generate noise, dust, vibration, traffic, odors, temporary access restrictions, and renewed demand for temporary workers and housing. Improper well closure or incomplete restoration could create long-term safety, environmental-health, access, or economic-use concerns.

Long-term effects would depend on successful well closure and restoration of affected lands. Retained infrastructure, continued monitoring, or land-use restrictions could limit future agriculture, forestry, recreation, redevelopment, or other economic uses.

#### 9.3.4.1.4 Mitigation Measures

##### *9.3.4.1.4.1 Required Measures*

Geothermal facilities must comply with applicable environmental review, drilling and well, water, air-quality, noise, hazardous-material, worker-safety, transportation, emergency-response, waste-management, closure, and restoration requirements. Project-level review should address the full exploration-to-closure sequence, including workforce, housing, access, and effects from associated wells, pipelines, roads, and support facilities.

##### *9.3.4.1.4.2 Recommendations for Siting and Design*

- Avoid displacing occupied housing, businesses, agricultural operations, recreation resources, or community-serving facilities.
- Avoid concentrating facilities near overburdened communities, vulnerable populations, or areas with elevated displacement risk.
- Locate wells, equipment, roads, worker-support areas, and other infrastructure to minimize continuous noise, odors, lighting, traffic, and access effects.
- Evaluate cumulative effects where successive development phases could affect the same housing market, community, service area, or Opportunity Zone.

##### *9.3.4.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Provide advance notice of drilling, nighttime work, well testing, road closures, and other potentially disruptive activities.
- Prepare worker housing and transportation plans when substantial nonlocal hiring or successive drilling phases are anticipated.
- Monitor housing demand, noise, vibration, odors, traffic, access effects, and community complaints.
- Coordinate construction and closure activities with affected communities, businesses, agricultural operators, recreation providers, and service providers.

##### *9.3.4.1.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain, increase setbacks, restrict operating hours, relocate equipment, modify or suspend activities, provide housing or displacement assistance, or require enhanced environmental health and equity analysis.

### 9.3.4.2 Small Nuclear Reactors (SMR)

#### 9.3.4.2.1 Construction Impacts

SMR construction could require a large, specialized workforce over multiple construction phases. Employment could include civil construction, electrical and mechanical trades, engineering, security, quality assurance, transportation, environmental compliance, and project management.

The local workforce may not supply all required specialized positions. An influx of non-local workers could substantially increase demand for rental housing, lodging, transportation, health care, emergency services, food service, retail, and other community services. Housing effects would depend on workforce size, construction duration, available units, project-provided accommodations, and overlap with other housing demand.

Construction spending could benefit local businesses, contractors, and suppliers. Benefits would depend on procurement requirements, worker residence, and local business capacity. Rapid or temporary economic

growth could also increase housing costs, strain services, and create uneven effects between businesses that serve the project and residents or businesses that bear higher costs without receiving direct benefits.

Construction could generate sustained noise, dust, vibration, lighting, heavy traffic, oversized-load movements, visual changes, road closures, security activity, and increased human presence. These effects could interrupt nearby residences, businesses, schools, agricultural operations, health care facilities, workplaces, and recreation access. Effects could continue for several years depending on the construction schedule.

A large site and supporting roads, transmission, water, security, staging, and worker facilities could displace or restrict existing businesses, housing, agricultural operations, or other economic uses. Security requirements could also change access and circulation near the facility.

#### 9.3.4.2.2 Operation Impacts

SMR operation could provide long-term skilled employment in plant operations, engineering, maintenance, security, environmental monitoring, administration, and emergency preparedness. These jobs could support workforce development and household income.

Operation could also generate local purchases and public revenue. The magnitude and distribution of benefits would depend on project ownership, employment practices, worker residence, local procurement, and applicable tax arrangements. A large permanent workforce could support local businesses but could also contribute to sustained housing demand where housing production does not keep pace.

Routine operations could generate traffic, lighting, cooling-system noise, security activity, visual changes, and restrictions on access. Security requirements and emergency-planning zones could influence nearby transportation, development decisions, business activity, recreation access, and perceptions of community character.

Public perceptions of nuclear safety, emergency preparedness, waste management, or environmental health could impact nearby residents' well-being, property decisions, business investment, or tourism activity even when a facility operates in compliance with applicable requirements. The scale of these effects would depend on facility location, public information, emergency planning, community trust, and the presence of existing environmental or socioeconomic burdens.

Effects could be greater near vulnerable populations, overburdened communities, schools, health care facilities, areas with limited evacuation routes, or communities with limited emergency-response capacity. People without vehicles, people with disabilities, older adults, children, people with limited English proficiency, and people requiring continuing medical care could face greater challenges during an emergency.

#### 9.3.4.2.3 Decommissioning Impacts

SMR decommissioning could continue over an extended period and require specialized workers for shutdown, decontamination, dismantlement, security, waste handling, environmental monitoring, and site restoration.

Decommissioning could generate noise, traffic, lighting, security activity, waste transportation, temporary access restrictions, and community concerns about environmental health and safety. Specialized workers could renew demand for housing and services during portions of the closure process.

Employment would transition from operations to decommissioning and then decline as closure is completed. Loss of operational jobs, local spending, and public revenue could create long-term economic effects if the local economy or public-service funding becomes substantially dependent on the facility.

Security requirements, monitoring, waste management, and restrictions on site access or reuse could remain until applicable closure requirements are met. These conditions could delay redevelopment and replacement economic activity.

#### 9.3.4.2.4 Mitigation Measures

##### *9.3.4.2.4.1 Required Measures*

SMR facilities must comply with applicable federal licensing, state certification, environmental review, nuclear safety, security, emergency planning, worker safety, hazardous-material, transportation, waste management, public health, and decommissioning requirements. Project-level plans should address workforce and housing demand, emergency services, vulnerable populations, community-service capacity, long-term monitoring, and economic transition.

##### *9.3.4.2.4.2 Recommendations for Siting and Design*

- Prioritize previously disturbed industrial or energy sites with adequate infrastructure, emergency access, housing capacity, and separation from sensitive community uses.
- Avoid displacing occupied housing, businesses, agricultural operations, or community-serving facilities.
- Avoid or minimize siting near overburdened communities, vulnerable populations, schools, health care facilities, residential concentrations, and areas with elevated displacement risk.
- Evaluate cumulative facility and supporting-infrastructure effects, the distribution of benefits and burdens, and potential community dependence on project employment or revenue.

##### *9.3.4.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Phase workforce mobilization and prepare worker housing and transportation plans to reduce pressure on existing housing and community services.
- Coordinate employment and training opportunities with local educational institutions, apprenticeship programs, workforce organizations, and affected communities.
- Conduct continuing community engagement and provide accessible emergency, construction, workforce, and decommissioning information.
- Monitor housing availability and costs, displacement indicators, workforce conditions, community-service demands, business effects, and complaints.
- Maintain workforce-transition and economic-stabilization plans throughout operation and decommissioning.

##### *9.3.4.2.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain, provide or fund worker housing, housing or relocation assistance, emergency and community-service improvements, workforce-transition programs, or economic-stabilization measures. Modify construction phasing or require independent socioeconomic and environmental health review when effects remain uncertain or disproportionately affect vulnerable populations or overburdened communities.

### 9.3.4.3 Significant Unavoidable Adverse Impacts

Alternative 3 could create greater socioeconomic benefits and adverse impacts than Alternative 2 because geothermal and SMR projects may involve specialized labor, larger supporting infrastructure, longer construction periods, continuous operations, and extended decommissioning.

Potential benefits include construction employment, long-term skilled jobs, workforce training, local purchasing, lease payments, and public revenue. Adverse impacts could include housing shortages, increased housing costs, displacement, demand on public and community services, disruption of established economic activity,

noise, dust, traffic, odors, visual changes, access restrictions, safety concerns, and disproportionate burdens on vulnerable populations or overburdened communities.

SMR development could create additional impacts related to security, emergency planning, waste transportation, perceptions of nuclear safety, and long-term economic dependence. Closure could result in substantial employment and revenue losses if the local economy or public-service funding becomes dependent on the facility.

# 10 Environmental Health and Safety

## 10.1 Overview

The Environmental Health and Safety section reviews the existing conditions, alternatives impact analysis, and mitigation measures including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures, associated with environmental health within Kittitas County. Environmental health refers to the risks and hazards that can threaten the well-being of people and other environmental factors within the county. Related topics are addressed in the following sections:

- Frequently flooded areas are discussed in the **Water Resources** section.
- Geological hazards are discussed in the **Geology** section.
- The wildland-urban interface is discussed in the **Land Use** section.
- Emergency response services are discussed in the **Public Services and Utilities** section.
- Potential disproportionate impacts are discussed in the **Socioeconomic** section.

Environmental health and safety for the selected energy facilities involves federal, state, and local requirements addressing hazardous materials and waste, contaminated sites, worker and public safety, fire and life safety, emergency planning, and noise. These requirements establish standards for the handling, storage, transport, and disposal of hazardous or dangerous materials; prevention and response to releases; worker safety; and protection from fire and other facility-related hazards. State requirements also establish environmental noise standards, dangerous waste requirements, construction safety standards, and building and fire safety provisions. Industry standards, including applicable NFPA and engineering standards, may provide additional design and safety criteria depending on facility type and components. Potentially applicable federal, state, and local regulations and industry standards are further identified in Appendix A.

The environmental health factors analyzed in this section include:

- Hazardous materials
- Health and safety risks
- Contaminated sites
- Wildfire risks
- Noise and vibration

Impacts of the alternatives would be considered significant if they result in:

- Cause a hazardous material spill, leak, fire, explosion, or other release that substantially affects workers, emergency responders, the public, soil, groundwater, surface water, wetlands, habitat, or other environmental resources and cannot be effectively contained, cleaned up, or remediated;
- Disturb or mobilize contaminated soil, groundwater, sediment, or building materials in a manner that creates substantial exposure or spreads contamination beyond the affected site;
- Substantially increase the storage, use, generation, or transport of hazardous or radioactive materials in a manner that creates an unacceptable risk to people, property, or the environment;
- Create a substantial worker or public safety hazard from electrical equipment, machinery, structures, pressure systems, fire, explosion, equipment failure, falling or thrown objects, or radioactive materials;

- Materially increase wildfire ignition, spread, or emergency-response risk in a location where the risk cannot be adequately reduced through siting, defensible space, vegetation management, access, water supply, fire-resistant design, and emergency planning;
- Exceed applicable state or local environmental noise limits at a receiving property;
- Cause a substantial increase in ambient noise, including an increase of approximately 5 dBA or greater, that adversely affects nearby sensitive receptors or degrades habitat quality;
- Generate prolonged or repeated vibration that damages buildings, infrastructure, historic properties, or other structures, or substantially disrupts nearby land uses or wildlife behavior; or
- Create a facility-related hazard for which adequate emergency access, communication, containment, evacuation, shelter-in-place, firefighting, medical response, or other protective measures cannot be provided.

## 10.2 Existing Conditions

### 10.2.1 Hazardous Materials

Hazardous materials are substances that pose a potential risk to life, health, or property due to their chemical, physical, or biological nature, when released. Releases can take the form of spills, leaks, or emissions depending on the state of a substance. A potential release can pose a risk if it escapes containment and enters the environment. Substances may have explosive, flammable, corrosive, reactive, poisonous, toxic, biological, or radioactive properties associated with them.

Common hazardous materials include petroleum products, heavy metals, pesticides, fertilizers, solvents, compressed gases, and batteries. These materials may be present in larger quantities at industrial and commercial properties and on agricultural lands. The Washington State Department of Ecology regulates their storage, use, and disposal. Because Kittitas County is largely rural and agricultural, hazardous materials are commonly associated with agricultural activities, particularly fertilizer use.

### 10.2.2 Health and Safety Risks

Hazardous materials and facility-related activities could pose risks to workers and emergency responders at the energy facilities evaluated in the CESP EIS. During construction, operation, and decommissioning, potential hazards and accidents may involve hazardous materials, electrical components, structures and wiring, and nuclear waste.

### 10.2.3 Contaminated Sites

Across Kittitas County, the Department of Ecology's Toxics Cleanup Program has recorded approximately 189 contaminated sites. 120 of these sites are under the "No Further Action" site status, 30 sites are awaiting cleanup, and 39 sites have started cleanup. Of all sites, 14 have a moderate-to-high risk level assessed. As shown in **Figure 40** below, the largest concentrations of the identified contaminated sites are located in close proximity to urban areas such as the City of Ellensburg (96 sites) and the City of Cle Elum (33 sites).

*Figure 40: Concentration of Identified Contaminated Sites*




*Source: Ecology, What's In My Neighborhood, 2026*

## 10.2.4 Wildfire Risks

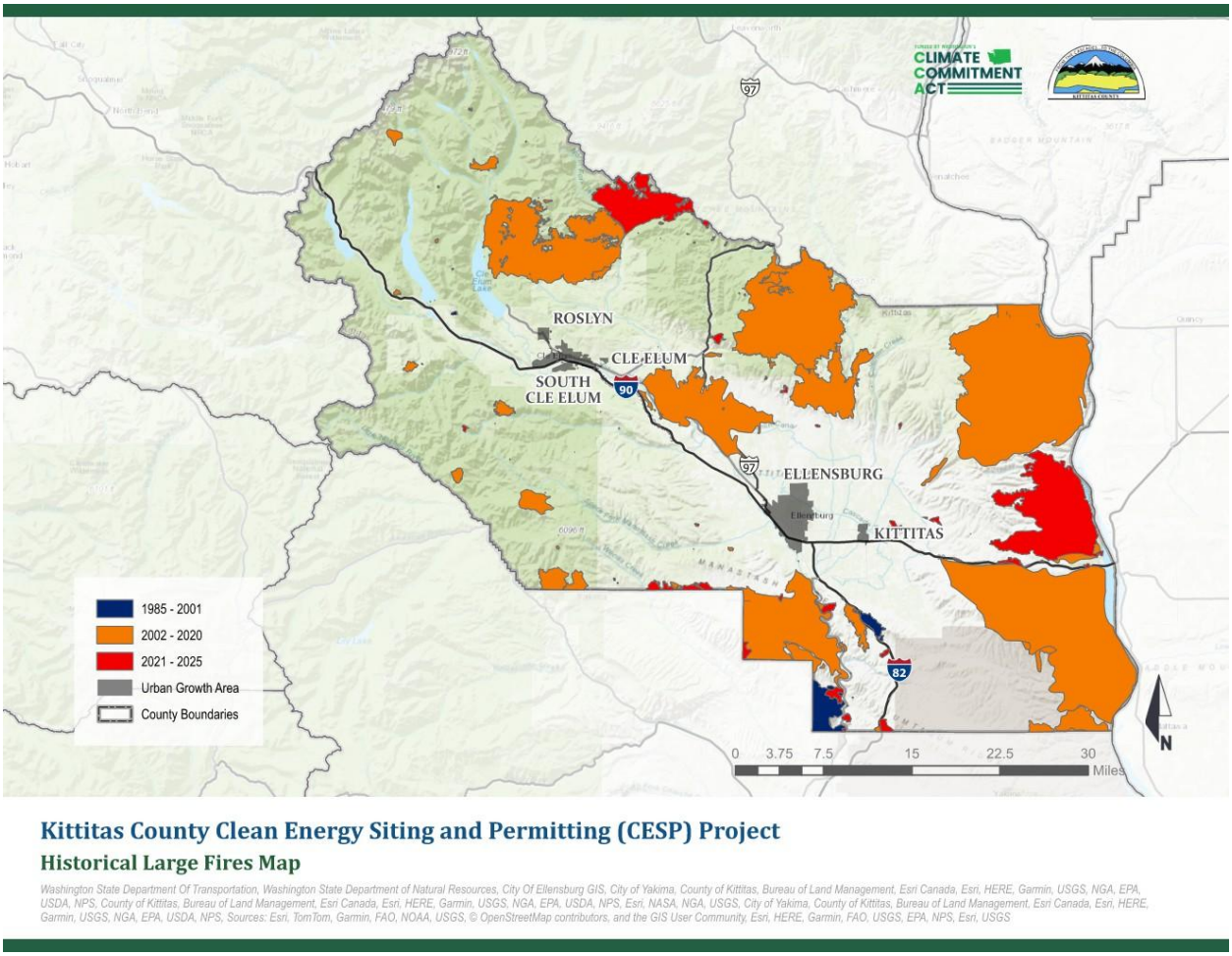
Wildfire activity and its potential risk are environmental health factors related to siting energy facilities in Kittitas County. Wildfires can cause injury, loss of life, property damage, and risks to energy facilities. Wildfires can occur naturally or from human causes.

In Kittitas County, wildfires are becoming more common based on historical data. According to the Washington State Department of Natural Resources (DNR), three wildfires[160] occurred within Kittitas County between 1973 and 2000. Wildfire activity increased after 2000, with 44 large wildfires occurring between 2001 and 2020 and 75 wildfires between 2020 and 2025.[161] **Figure 41** below shows the areas where wildfires occurred from 1973 to 2025.

[160] Fires meaning typically over 100 acres in size; however, DNR reports smaller perimeters have been included when the data was available.

[161] Washington Large Fires 1973-2025 - Overview

*Figure 41: Historic Wildfires in Kittitas County (1973-2025)*




*Source: Kimley-Horn, 2026 using data from Washington State Department of Natural Resources, https://www.arcgis.com/home/item.html?id=6f31b076628d4f8ca5a964cbefd2cccc#overview*

As of Summer 2026, DNR is developing statewide wildfire hazard and risk maps to support planning, preparedness, and community resilience efforts. These maps differ from the adopted wildland-urban interface (WUI) map, discussed in the **Land Use** section. WUI maps help define wildfire risk but do not account for potential burn probability. Wildfire hazard reflects the likelihood that a location will experience wildfire (burn probability), while wildfire risk assesses an area's exposure along with the wildfire hazard. DNR released the draft maps on July 1, 2026, for public comment.[162]

Draft wildfire risk and hazard maps identify large portions of Kittitas County as having moderate to very high wildfire hazards, with areas ranking above the 70th percentile for wildfire risk. The CESP EIS reviewed the draft maps produced by DNR; however, further review will rely on the finalization of wildfire risk and hazard maps, anticipated in December 2026.[163]

[162] SB6120 Washington State Wildfire Hazard and Risk
[163] SB6120 Washington State Wildfire Hazard and Risk

## 10.2.5 Noise and Vibration

### 10.2.5.1 Noise

Noise levels across a county vary depending on land uses, population densities, and temporary increases from construction or events. Generally, noise levels in Kittitas County are higher around transportation corridors such as Interstate 90, airports, and industrial facilities. Temporary noise increases can occur during construction activities near project sites.

Densely populated areas have ambient noise levels between 45 and 55 A-weighted decibels, while sparsely populated areas are less than 35 dBA.[164] The energy uses selected within the CESP EIS would typically be located in less developed areas with lower population densities. Noise may occasionally be elevated due to roadway noise, human activity, and construction and maintenance.

Existing noise sources across Kittitas County could include motor vehicle traffic, aircraft flyovers, equipment use, current wind turbines, and natural noises such as wildlife calls and wind interacting with vegetation and structures.

Some land uses are more sensitive to noise than others, depending on noise exposure and types of activities in the area. In Washington State, WAC 173-60 establishes maximum permissible environmental noise levels based on environmental designations for noise abatement (EDNA) class, shown in **Table 17** and described further below.

*Table 17: Maximum Permissible Environmental Noise Levels*

| EDNA of Noise Source | EDNA of Receiving Property | | |
|---|---|---|---|
| | Class A | Class B | Class C |
| Class A | 55 dBA | 57 dBA | 60 dBA |
| Class B | 57 dBA | 60 dBA | 65 dBA |
| Class C | 60 dBA | 65 dBA | 70 dBA |

*Source: WAC 173-60-040*

Class A EDNA are more sensitive areas where people live and sleep. These uses include:

- Residential, including multi-family,
- Camping facilities, parks, resorts,
- Hospitals and healthcare facilities, and
- Correctional facilities.

Class B EDNA are lands with uses that require protection against noise interference with speech. These uses include:

- Commercial services,
- Motor vehicle services,
- Theaters, stadiums, fairgrounds, and
- Schools, religious, governmental, cultural facilities.

[164] Final SEPA PEIS for Utility-Scale Solar Energy Facilities in Washington State

Class C EDNA lands involve economic activities that generate higher noise levels. Persons working in these areas are normally covered by noise control regulations of the Department of Labor and Industries. These uses include:

- Storage, warehouse, and distribution facilities;
- Industrial uses; and
- Agricultural uses.

#### 10.2.5.2 Vibration

Sources of vibration are often related to human and construction activities. These can include trains, loaded haul trucks, blasting, and operation of heavy equipment and machinery. Vibration effects can include rattling or rumbling, depending on proximity to the source and the built environment affected. People in residential areas can be sensitive to vibration effects.

## 10.3 Impact Analysis

### 10.3.1 Overview

This section evaluates how large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal energy facilities, and small modular reactors (SMRs) could affect environmental health and safety in Kittitas County. Consistent with the Washington Department of Ecology's PEIS approach, the analysis is organized by facility type and project phase, including construction, operation, and decommissioning.

Potential impacts include:

- Spills or releases of hazardous materials;
- Disturbance of contaminated soil, groundwater, or other media;
- Worker and public exposure to electrical, mechanical, chemical, thermal, fire, explosion, pressure, or radiological hazards;
- Increased wildfire ignition or spread; and
- Temporary or long-term increases in noise and vibration.

Impacts could affect workers, emergency responders, nearby residents and properties, and soil, groundwater, surface water, wetlands, habitat, and other environmental resources.

The magnitude of impacts would depend on:

- Facility location, size, configuration, technology, and operating characteristics;
- Types and quantities of hazardous materials used, stored, transported, or generated;
- Proximity to residences, schools, health care facilities, recreation areas, workplaces, and other noise- or safety-sensitive uses;
- Proximity to known contaminated sites and the nature and extent of existing contamination;
- Wildfire hazard, vegetation, terrain, weather, water availability, access, and emergency-response capacity;
- Amount and duration of clearing, excavation, drilling, blasting, pile driving, heavy-equipment use, and material hauling;
- Facility-specific electrical, mechanical, fire, explosion, pressure, chemical, and radiological hazards;
- Ability to contain spills, contaminated runoff, fire-suppression water, and other releases;

- Duration, timing, frequency, and intensity of noise and vibration; and
- Effectiveness of siting, engineering, monitoring, emergency planning, operational controls, decommissioning, and mitigation measures.

*Table 18: Primary Environmental Health and Safety Concerns*

| Facility Type | Primary Environmental Health and Safety Concerns |
|---|---|
| Large-Scale Solar | Worker exposure to electrical and construction hazards; fuels, oils, transformer fluids, cleaning products, and other hazardous materials; disturbance of contaminated sites; wildfire ignition from construction or electrical equipment; glare-related safety concerns; and temporary noise and vibration from grading, pile installation, traffic, and equipment. |
| Large-Scale Wind | Worker safety during blasting, excavation, crane operations, work at height, and turbine maintenance; fuels, lubricants, hydraulic fluids, and transformer oils; wildfire ignition; turbine or blade failure, ice throw, and electrical hazards; and noise and vibration from blasting, foundation construction, turbines, substations, and maintenance. |
| BESS | Battery fire, thermal runaway, explosion or deflagration, smoke and toxic gas releases, hazardous materials, contaminated fire-suppression water, electrical hazards, emergency-response limitations, disturbance of contaminated sites, wildfire exposure or ignition, and continuous or intermittent mechanical noise. |
| Geothermal | Drilling and industrial accidents; high-temperature and high-pressure fluids; fuels, drilling fluids, treatment chemicals, geothermal constituents, and accidental releases; well failure; wildfire ignition; disturbance of contaminated sites; and noise and vibration from drilling, well testing, pumps, cooling equipment, and pipelines. |
| SMRs | Construction and industrial hazards; radioactive and hazardous materials; potential for a severe accident and radiological release; nuclear fuel and waste management; fire and emergency preparedness; security and access requirements; disturbance of contaminated sites; wildfire exposure; and noise and vibration from excavation, construction, cooling systems, generators, and long-term decommissioning. |

### 10.3.2 No Action – Alternative #1

Under the No Action Alternative, the County would continue to review energy facilities under existing County regulations and applicable federal and state environmental, hazardous-material, fire, worker-safety, noise, cleanup, and emergency-planning requirements. Existing County processes and development standards would remain in effect for solar, wind, utilities, building, fire prevention, critical areas, noise, and other applicable development activities. Facilities eligible for EFSEC review could pursue the state certification process, and nuclear fission facilities would require EFSEC certification.

#### 10.3.2.1 Impacts from Construction, Operation, and Decommissioning Under Current Processes

Construction and decommissioning could create temporary hazards from heavy equipment, cranes, excavation, trenching, drilling, blasting, pile driving, electrical work, vehicle movements, work at height, and removal of large or heavy facility components. Fuels, oils, lubricants, solvents, batteries, compressed gases, concrete products, drilling materials, and other hazardous substances could be spilled or released during handling, storage, use, or transportation. These risks would generally be temporary and localized where materials are properly managed, and work is performed under approved health and safety, spill-prevention, and emergency-response procedures.

Ground disturbance could encounter contaminated soil, groundwater, buried containers, or other contaminated media, particularly where development occurs on or near one of the contaminated sites identified in **Section 10.2.3Contaminated Sites** above. Excavation, grading, dewatering, drilling, or demolition could expose

workers or mobilize pollutants through dust, runoff, groundwater movement, or material transport. Project-level investigation and cleanup requirements would reduce these risks, but the location and extent of contamination may not be known before site-specific testing.

Construction, operation, and decommissioning could also increase wildfire risk in dry environments through vehicle exhaust, electrical faults, equipment use, temporary power, vegetation disturbance, and storage of flammable materials. Risk would be greater in locations with moderate to very high wildfire hazard, dry vegetation, steep or remote terrain, limited emergency access, or limited fire-suppression water. Existing building, fire, vegetation-management, and emergency-response requirements would reduce risk, but current processes may not consistently direct facilities away from higher-risk areas at the earliest siting stage.

Construction and decommissioning noise and vibration could result from heavy equipment, trucks, generators, compressors, pile installation, drilling, blasting, concrete work, demolition, and material handling. Operational noise would vary by technology and could include transformers, inverters, turbines, ventilation and cooling systems, pumps, generators, alarms, and maintenance equipment. Effects would be greater in quiet rural areas and near residential, recreation, health care, school, and other Class A or Class B receiving properties. Numeric noise limits would come from WAC 173-60; KCC Chapter 9.45 addresses public disturbance rather than numeric limits and exempts construction between 6am to 10pm. Compliance with state limits and project-specific controls would generally reduce impacts to less than significant levels, although noise near sensitive receptors in quiet areas could remain noticeable.

Existing project-level review can address hazardous materials, contaminated sites, worker safety, wildfire, emergency response, noise, and vibration. However, without amendments to siting or consistent technology-specific standards, opportunities to avoid contaminated properties, high wildfire-hazard locations, noise-sensitive receptors, and areas with limited emergency response may be more limited. Demand on emergency response services and fire protection capacity would continue to be evaluated on a project-by-project basis, as described in the Public Services and Utilities section. Impacts would generally be less than significant with compliance and mitigation. A project could result in potentially significant impacts where site conditions or facility hazards cannot be reduced through feasible siting, engineering, operational, cleanup, or emergency-response measures.

### 10.3.2.2 Mitigation Measures

#### 10.3.2.2.1 Required Measures

- Comply with applicable federal, state, and local hazardous-material, worker-safety, fire, building, electrical, environmental cleanup, noise, waste-management, transportation, and emergency-planning requirements.
- Obtain applicable construction stormwater, industrial stormwater, waste-discharge, building, electrical, grading, blasting, fire-code, land-use, and other required permits.
- Evaluate suspected contaminated articles and comply with applicable investigation, cleanup, handling, transportation, and disposal requirements.
- Prepare and implement applicable spill-prevention, hazardous-material and waste-management, health and safety, fire-prevention, emergency-response, and decommissioning plans.
- Comply with applicable environmental noise limits and occupational hearing-protection requirements.
- Coordinate emergency access, fire protection, water supply, communications, and response procedures with applicable fire, emergency medical, law-enforcement, emergency-management, and public health agencies.

- If a future proposal involves using property within or near an area-wide contamination zone, testing and remediation may be necessary for all contaminated media (soil, air, or groundwater) to demonstrate that suspected contaminants are below cleanup levels.

#### 10.3.2.3 Significant Unavoidable Adverse Impacts

Most environmental health and safety impacts under the No Action Alternative would be less than significant with compliance with applicable hazardous-material, cleanup, fire, safety, noise, and emergency-planning requirements. Because current processes do not consistently direct facilities away from higher-risk areas at the earliest siting stage, significant impact could remain at individual sites where wildfire hazard, emergency-response limitations, or technology-specific hazards cannot be reduced through project-level measures.

Project-level review could identify a significant unavoidable impact if a credible fire, explosion, hazardous-material, contamination, radiological, wildfire, noise, vibration, or other safety hazard cannot be reduced to an acceptable level through feasible avoidance, engineering, operational controls, emergency planning, cleanup, or mitigation.

### 10.3.1 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Alternative 2 would revise the solar and wind overlays and establish BESS siting and associated development standards. Overlay screening could direct facilities away from high wildfire-hazard locations, concentrations of sensitive receptors, constrained evacuation routes, and areas with limited emergency-response capacity. Project-specific review would still be required. The presence of contaminated sites and/or nearby sites would be identified at the project level along with any remediation measures and materials handling protocols. The environmental health and safety risks will depend on the selected technology, site conditions, facility design, hazardous materials, surrounding uses, and emergency-response needs.

#### 10.3.1.1 Large-Scale Solar

##### 10.3.1.1.1 Construction Impacts

Solar construction could create temporary worker and public safety hazards from clearing, grading, pile installation, trenching, electrical work, cranes, trucks, and heavy equipment. Fuels, oils, lubricants, transformer fluids, concrete products, and other materials could spill or be released. Refueling, equipment maintenance, and material storage could contaminate soil or water if containment fails.

Ground disturbance on or near a contaminated site could expose contaminated soil or groundwater and mobilize pollutants through excavation, dust, stormwater runoff, dewatering, or off-site material transport. The risk would depend on the location, depth, concentration, and media affected by existing contamination.

Construction could increase wildfire ignition risk through sparks, machinery use, temporary electrical systems, smoking, vegetation clearing, and storage of combustible materials. Risk would be greater during dry or windy conditions and in areas with elevated wildfire hazard, unmanaged vegetation, constrained access, or limited fire-suppression water.

Pile installation, grading, trenching, generators, compressors, trucks, and other equipment would temporarily increase noise and vibration. Effects would generally be localized and temporary but could be greater near residences, recreation areas, healthcare facilities, schools, or other sensitive receiving properties.

#### 10.3.1.1.2 Operation Impacts

Solar facilities would generally create limited routine environmental health and safety impacts. Potential hazards include electrical shock or arc flash, transformer or equipment failure, fires, spills of oils or maintenance products, and glare affecting nearby road or aviation safety. Vegetation allowed to accumulate near equipment or electrical faults could also contribute to wildfire ignition or spread.

Operational noise would generally be associated with inverters, transformers, tracking equipment, substations, ventilation, and maintenance activities. Noise would be intermittent or continuous depending on facility design and could be more noticeable in quiet rural settings. Appropriate equipment selection, setbacks, and shielding would generally reduce noise below applicable limits.

#### 10.3.1.1.3 Decommissioning Impacts

Decommissioning would renew temporary construction-type risks during electrical disconnection, equipment removal, foundation and pile removal, demolition, hauling, and site restoration. Damaged panels, transformers, wiring, oils, fuels, and other materials would require proper handling, recycling, treatment, or disposal.

Removal of foundations and buried infrastructure could encounter contaminated soil or groundwater or create new pathways for pollutants. Dust, noise, vibration, traffic, wildfire ignition potential, and worker-safety risks would be temporary but could be substantial if decommissioning is poorly controlled.

#### 10.3.1.1.4 Mitigation Measures

##### *10.3.1.1.4.1 Required Measures*

Solar facilities must comply with applicable hazardous-material, worker-safety, fire, building, electrical, cleanup, and noise requirements. KCC Chapter 17.61C requires:

- Fire Marshal-approved fire management plan before building permit approval
- Compliance with the National Electrical Code
- Local and state building and fire codes
- Posted 24-hour emergency contact information
- Decommissioning with financial assurance

KCC Title 20 governs fire apparatus access and Wildland Urban Interface requirements. Projects must also obtain construction stormwater, building, and electrical permits and implement emergency response, hazardous materials and waste management, vegetation management, and health and safety plans. Noise is regulated by the state limits in WAC 173-60; the County's noise ordinance (KCC Chapter 9.45) addresses public disturbance and exempts construction between 6:00 a.m. and 10:00 p.m.

##### *10.3.1.1.4.2 Recommendations for Siting and Design*

- Prioritize previously disturbed lands where contamination has been investigated or remediated, and the site has been determined suitable for redevelopment.
- Use current wildfire hazard and risk information to inform the siting and development standards in areas with elevated wildfire exposure, constrained emergency access, or insufficient fire-suppression capacity.
- Locate inverters, transformers, substations, and other equipment away from residences, schools, health care facilities, recreation areas, and public roads, and use setbacks or performance standards to address noise, hazardous materials, and electrical or fire hazards.

- In areas susceptible to wildfires, determine appropriate setbacks or measures such as undergrounding to reduce risks for project components like gen-ties.
- Include standards addressing emergency access, vegetation management, defensible space, equipment separation, fire-resistant design, spill containment, and glare where appropriate.
- Require a minimum of 20 feet for defensible space around site fencing and structures to serve as a fire break.

*10.3.1.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Coordinate with fire districts and emergency-response providers throughout the project life to confirm adequate response capability and water supply.
- Limit construction hours and high-noise activities near noise-sensitive receiving properties.
- At decommissioning, properly remove, recycle, or dispose of panels, electrical equipment, transformer fluids, and foundations, and investigate and address soil or groundwater contamination from spills, equipment failure, or fire.
- Coordinate with DNR, US Forest Service, and Emergency Management to monitor wildfire activity during the project lifespan. Take appropriate measures such as modifying activities, ceasing activities, removing equipment, or changing schedule to adequately account for potential risk.

*10.3.1.1.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain, additional measures include:

- Increase setbacks;
- Add predictive monitoring and fault detection for electrical equipment;
- Fund additional fire-response training or water supply;
- Apply operational controls during high wildfire danger; or exclude portions of the site where contamination, wildfire, or noise risks cannot be reduced.

### 10.3.1.2 Large-Scale Wind

#### 10.3.1.2.1 Construction Impacts

Wind construction could create worker and public safety risks from deep excavation, blasting, crane operations, heavy lifts, turbine assembly, electrical work, work at large heights, oversized deliveries, and construction across dispersed sites. Turbine foundations, crane pads, access roads, collection lines, substations, and transmission facilities could require substantial heavy-equipment use.

Fuels, oils, lubricants, hydraulic fluids, concrete products, explosives, transformer oils, and other hazardous materials could spill or be released during storage, handling, use, or transportation. Excavation or blasting on or near a contaminated site could expose contaminated media or spread pollutants through dust, runoff, dewatering, or material transport.

Construction could increase wildfire risk through blasting, welding, vehicle and equipment use, temporary electrical systems, vegetation clearing, and work in dry grassland, shrubsteppe, or forest settings. Dispersed work areas and ridge or upland locations could complicate access and fire response.

Blasting, excavation, rock crushing, concrete work, pile or foundation construction, trucks, cranes, and generators could produce temporary noise and vibration. Effects could extend beyond individual turbine locations and affect nearby residences, recreation areas, historic structures, livestock operations, or wildlife habitat. Specifically, construction within about 2,500 feet of noise-sensitive receptors in quiet rural areas could

produce noticeable noise. Pile driving closer than about 350 feet to residences could exceed vibration criteria. Blasting within about 2,000 feet of historic structures could exceed damage thresholds depending on charge size. [165]

#### 10.3.1.2.2 Operation Impacts

Operational risks may include electrical hazards, fires, tower or blade failure, falling equipment, ice throw, lubricant or hydraulic-fluid leaks, and risks to workers during climbing and maintenance. The likelihood and affected area depend on turbine design, setbacks, weather, inspections, and maintenance. In certain weather conditions, ice can build up on blades and fall or be thrown from the rotating rotor. A commonly used safety distance is about 1.5 times the sum of the hub height and rotor diameter, although field observations suggest that actual throw distances are generally shorter. [166] Ice-detection and automatic shutdown systems help reduce the risk.

Turbines, nacelles, transformers, substations, collection systems, and transmission infrastructure could create ignition sources or be exposed to wildfire. Access roads may support emergency response, but remote locations, weather, steep terrain, or constrained water supply could limit response.

Turbine operation would generate aerodynamic and mechanical noise. Transformers and substations could generate continuous tonal noise. Noise levels would depend on turbine model, layout, wind speed, terrain, atmospheric conditions, vegetation, background sound, and distance to receiving properties. Noise modeling by EFSEC for the Horse Heaven Wind Farm in Benton County, used as a proxy for larger facilities, indicates that turbines are the predominant noise source and that the 55 dBA Leq contour extends approximately 1,260 feet from each turbine, even where turbines are clustered. Modeling for a smaller proxy project in Shasta County, California, showed the 50 dBA Leq contour extending approximately 1,000 feet from each turbine. Based on these results, turbine noise could exceed the 50 dBA nighttime limit for residential uses (Chapter 173-60 WAC) within approximately 2,400 feet. In quiet rural areas, where background levels can be 35 dBA or lower, turbine noise could produce a readily perceptible 5 dBA increase over ambient levels at distances of approximately 3,000 to 5,000 feet. Substation noise would be more localized, with estimated 50 dBA and 40 dBA contours at approximately 650 feet and 2,000 feet, respectively, and would be negligible compared with turbine noise at large facilities. Vibration would be associated primarily with construction and would generally be localized, but could affect nearby structures or sensitive uses depending on site conditions. If pile driving is required, it could exceed human-annoyance criteria within approximately 350 feet of residences and could cause cosmetic damage within about 30 feet of conventional buildings or 80 feet of historic structures. Blasting with larger charges could affect historic structures within approximately 2,000 feet. [167]

Operation of wind turbines is not expected to generate perceptible ground vibration; vibration effects would be limited to construction and decommissioning.

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[165] Washington State Department of Ecology, Appendix J: Noise and Vibration Technical Resource Report, Final Programmatic Environmental Impact Statement on Utility-Scale Onshore Wind Energy Facilities in Washington State, https://apps.ecology.wa.gov/publications/parts/2506003part12.pdf

[166] UiT The Arctic University of Norway Modelling ice throw trajectories from wind turbines, https://munin.uit.no/handle/10037/37831

[167] Washington State Department of Ecology, Appendix J: Noise and Vibration Technical Resource Report, Final Programmatic Environmental Impact Statement on Utility-Scale Onshore Wind Energy Facilities in Washington State, https://apps.ecology.wa.gov/publications/parts/2506003part12.pdf

#### 10.3.1.2.3 Decommissioning Impacts

Turbine dismantling, crane use, foundation removal, electrical disconnection, hauling, road work, and site restoration would renew construction-related safety, spill, wildfire, noise, and vibration risks. Breaking or blasting foundations could generate short-term vibration and airborne debris.

Retired blades, lubricants, transformers, electrical equipment, and other materials would require safe handling, recycling, or disposal. Contaminated soil may require testing and cleanup where spills or fires occurred during facility operation.

#### 10.3.1.2.4 Mitigation Measures

##### *10.3.1.2.4.1 Required Measures*

Wind facilities must comply with applicable hazardous-material, worker-safety, fire, building, electrical, cleanup, blasting, and noise requirements. KCC Chapter 17.61A authorizes wind farms through a Board-approved development agreement that sets project-specific setbacks, mitigation, and other standards; approval through the overlay process requires a finding that the project is not detrimental to public health, peace, or safety. In pre-identified areas, a minimum half-mile setback from existing structures applies, along with noise, visual, wildlife, and traffic analyses. Blasting requires a local permit and a Washington State explosives license. Noise is regulated by the state limits in WAC 173-60; the County's noise ordinance (KCC Chapter 9.45) addresses public disturbance and exempts construction between 6:00 a.m. and 10:00 p.m. Outside pre-identified areas, current County code does not establish uniform setback, ice-throw, or noise standards for wind farms.

##### *10.3.1.2.4.2 Recommendations for Siting and Design*

- Use current wildfire-hazard and risk information to inform siting and development standards in areas with elevated wildfire exposure, constrained emergency access, insufficient fire-suppression capacity, or conditions that could contribute to rapid fire spread.
- Coordinate with the Department of Ecology to ensure proper remediation of contaminated sites and areas, especially where blasting, excavation, or dewatering could cause contaminants to migrate.
- Establish turbine from residences, roads, historic properties, and other sensitive uses that address blade failure, falling objects, ice throw, fire, noise, and emergency access.
- Incorporate noise-based siting criteria that account for turbine layout, topography, background sound, receiving-property classifications, cumulative turbine noise, and associated substations or transformers.
- Include standards for emergency access, vegetation management, defensible space, lightning protection, fire-resistant design, hazardous-material containment, and separation of facility components.

##### *10.3.1.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Use ice-detection and shutdown systems and restrict access to turbines when ice is present.
- Limit construction and blasting near noise- and vibration-sensitive uses, notify nearby residents in advance of blasting and pile driving, and prohibit nighttime blasting.
- Require coordination with fire districts, emergency medical providers, law enforcement, and emergency-management agencies to remote turbine locations.
- Use noise-reduction measures such as low-noise blade technology, noise-reduced operating modes, and acoustical enclosures where modeling or monitoring shows exceedances, and provide a complaint resolution process.

- At decommissioning, remove or reuse turbines, blades, foundations, electrical equipment, lubricants, and transformer fluids, and investigate and address contamination where a spill, leak, equipment failure, or fire has occurred.

*10.3.1.2.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain:

- Increase turbine and substation setbacks
- Reduce turbine density or height
- Curtail operations during icing or high wildfire danger
- Apply additional noise controls such as acoustical barriers
- Exclude turbine locations where risks cannot be reduced

### 10.3.1.3 Battery Energy Storage Systems (BESS)

#### 10.3.1.3.1 Construction Impacts

BESS construction would generally create a compact disturbance area but could involve grading, foundations, trenching, battery deliveries, transformers, inverters, fire-protection systems, stormwater facilities, and interconnection work. Potential impacts include worker injuries, traffic incidents, electrical hazards, spills of fuels or transformer fluids, temporary wildfire ignition risk, and construction noise and vibration.

Construction on or near a contaminated site could disturb contaminated soil or groundwater. Excavation for foundations, conduits, drainage, vaults, and utilities could create pathways for existing contaminants or future releases to move through soil or shallow groundwater.

#### 10.3.1.3.2 Operation Impacts

BESS facilities present technology-specific risks from battery failure, thermal runaway, fire, explosion or deflagration, smoke, toxic gases, electrical faults, and hazardous-material releases. An incident could expose workers and emergency responders and could affect nearby residents or properties depending on battery chemistry, system size, ventilation, detection, suppression, separation, prevailing winds, and emergency response; however, such incidents are uncommon. The Electric Power Research Institute's (EPRI) BESS Failure Incident Database indicates that the global failure rate per unit of deployed grid-scale capacity fell by about 97 percent between 2018 and 2023, and Ecology's analysis characterizes thermal runaway events in lithium-ion systems as very rare. [168] Current requirements, including NFPA 855, UL 9540A fire testing, and the state fire code address detection, spacing, suppression, and emergency planning. These statistics do not include external events such as a wildfire reaching a facility, and the consequences of an incident, particularly for emergency responders exposed to smoke and toxic gases, can be serious when one occurs.

Fire-suppression water or rainfall contacting damaged batteries could become contaminated and reach soil, groundwater, surface water, wetlands, drainage systems, or adjacent property if containment or drainage isolation fails. An external wildfire could also damage battery enclosures, electrical equipment, or containment systems, increasing the likelihood of a release.

[168] Electric Power Research Institute, BESS Failure Incident Database, https://storagewiki.epri.com/index.php/BESS_Failure_Incident_Database; Ecology, Appendix I: Environmental Health and Safety Technical Resource Report, Final Programmatic Environmental Impact Statement on Utility-Scale Solar Energy Facilities in Washington State Section 3.5, 2025.

Cooling, ventilation, transformers, inverters, alarms, and emergency generators could produce continuous or intermittent noise. Operational noise could affect nearby receiving properties where facilities are located in quiet rural settings or near residential, recreation, school, or health care uses. Ecology's modeling of proxy projects indicates that some large, consolidated BESS layouts could exceed the 50 dBA nighttime limit for residential receivers at distances of up to about 1.5 miles, depending on layout, while distributed layouts reduce noise. [169]

#### 10.3.1.3.3 Decommissioning Impacts

Battery removal, electrical disconnection, equipment dismantling, transport, and foundation removal could expose workers to electrical energy, damaged cells, residual charge, hazardous materials, fire, or smoke. Damaged, degraded, or recalled batteries may require specialized packaging, handling, transport, recycling, or disposal.

Soil and groundwater testing may be needed where a fire, spill, coolant leak, transformer release, or contaminated fire-water discharge occurred. Removing containment or drainage systems before removing hazardous materials could increase release risk.

#### 10.3.1.3.4 Mitigation Measures

##### *10.3.1.3.4.1 Required Measures*

BESS facilities must comply with applicable building, electrical, fire, hazardous-material, worker-safety, waste-management, and noise requirements. KCC Chapter 14.04 adopts the International Building Code and International Fire Code, and KCC Title 20 provides Fire Marshal review and fire apparatus access requirements. The state fire code (chapter 51-54A WAC, including WAC 51-54A-1207) requires energy storage systems to comply with NFPA 855 and sets capacity thresholds, commissioning and decommissioning plans, a fire safety and evacuation plan, and UL 9540A large-scale fire testing where required. Projects must also prepare a BESS-specific emergency response plan and manage contaminated soil, water, and batteries under state cleanup and dangerous waste rules. Current County code does not establish BESS-specific siting or noise standards.

##### *10.3.1.3.4.2 Recommendations for Siting and Design*

- Prioritize sites near existing substations, transmission infrastructure, industrial development, or previously disturbed land where adequate emergency access and response capacity are available.
- Avoid known contaminated sites unless investigation demonstrates that development would not mobilize existing contamination or compromise existing containment or cleanup measures.
- Avoid or limit siting near residences, schools, health care facilities, recreation areas, and other sensitive receptors, and in areas with high wildfire exposure, constrained evacuation routes, or limited emergency access and response capacity.
- Establish setbacks or risk-based separation distances appropriate to facility size, battery chemistry, and surrounding land uses, and design for battery-unit separation, gas detection, ventilation, emergency shutdown, and containment of contaminated fire-suppression water.
- Establish standards for locating cooling equipment, ventilation systems, transformers, inverters, alarms, and emergency generators to minimize noise at receiving properties.

[169] Ecology, Appendix J: Noise and Vibration Technical Resource Report (Wind PEIS, 2025), Section 3.5.2, Impacts from operation (wind facilities with co-located BESS).

*10.3.1.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Establish standards requiring BESS facilities to prepare fire-prevention, emergency-response, hazardous-material, fire-water management, waste-management, and decommissioning plans during project review.
- Require coordination with affected fire districts, emergency medical providers, law enforcement, emergency management, and public health officials; provide responders with facility information, shutdown procedures, and technology-specific training; and maintain emergency access and approved water supply or other suppression resources.
- Maintain noise controls for cooling, ventilation, transformers, alarms, and emergency generators, and respond to noise complaints.
- At decommissioning, require the use qualified contractors to remove, transport, recycle, or dispose of batteries and related equipment, and investigate soil, groundwater, drainage systems, and adjacent property after any battery fire, spill, or discharge of contaminated fire-suppression water.
- Include provisions for investigating soil, groundwater, drainage systems, and adjacent property following a battery fire, spill, coolant release, transformer release, or discharge of contaminated fire-suppression water.

*10.3.1.3.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain:

- Increase setbacks
- Reduce facility capacity or divide battery units into smaller fire-control areas
- Fund additional emergency-response equipment, training, or water supply
- Add acoustical enclosures or barriers
- Relocate the facility where a credible incident could cause substantial off-site exposure or impede evacuation

#### 10.3.1.3.5 Significant Unavoidable Impacts

Alternative 2 is not expected to result in significant unavoidable environmental health and safety impacts. Significant impacts could remain if overlay boundaries include locations where identified risks cannot be adequately reduced through zoning, setbacks, facility-capacity limits, design standards, emergency-response criteria, or other enforceable development standards. Potentially significant and unavoidable wildfire impacts may exist where new ignition sources are located in remote areas with limited response capability, and potentially significant impacts to emergency responders from a thermal runaway event.

## 10.3.1 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

Alternative 3 would evaluate geothermal and SMR siting and associated development standards. Siting could exclude known high wildfire-hazard locations, noise-sensitive areas, and locations without adequate emergency access, water supply, communications, evacuation capability, or specialized response capacity. Because geothermal and SMR facilities involve substantial industrial, subsurface, or technology-specific hazards, project-level safety, environmental, and emergency analyses would remain essential.

### 10.3.1.1 Geothermal

#### 10.3.1.1.1 Construction Impacts

Geothermal development could include exploration, drilling, well construction and testing, pipelines, generating equipment, cooling systems, access roads, substations, and transmission facilities. Construction risks could include heavy-equipment and vehicle accidents, drilling incidents, pressure releases, blowouts, well-control failures, fire, explosion, high-temperature fluids, and worker exposure to fuels, drilling fluids, treatment chemicals, gases, or naturally occurring geothermal constituents.

Exploration and drilling could encounter contaminated soil or groundwater or create pathways between contaminated and uncontaminated media. Drilling fluids, cuttings, fuels, treatment chemicals, geothermal fluids, and produced water could contaminate soil or water if containment fails.

Drilling rigs, generators, compressors, pumps, trucks, well testing, and possible blasting could generate sustained noise and vibration. Exploration and drilling may occur continuously or at several locations before a viable production site is established, extending the area and duration of disturbance.

Construction and well testing could also increase wildfire ignition risk through engines, hot surfaces, electrical systems, flammable materials, welding, and work in dry vegetation. Remote or steep locations could constrain emergency access and fire response.

#### 10.3.1.1.2 Operation Impacts

Operational risks could include releases of hot or pressurized geothermal fluids, steam, gases, treatment chemicals, lubricants, and other hazardous materials. Pipeline, valve, casing, wellhead, or well-integrity failure could expose workers, responders, nearby properties, soil, or water to hazardous conditions.

Geothermal pumps, cooling equipment, generators, wellheads, pipelines, steam vents, and plant machinery could produce continuous or intermittent noise and vibration. Well workovers, testing, venting, or maintenance could temporarily increase noise. Effects would depend on technology, equipment, hours of operation, setbacks, topography, and background noise.

Electrical systems, heated equipment, fluid releases, maintenance work, and vegetation near facilities could create wildfire ignition or spread risks. An external wildfire could damage wells, pipelines, power systems, chemical storage, or emergency equipment.

#### 10.3.1.1.3 Decommissioning Impacts

Well plugging, pipeline and equipment removal, demolition, hauling, fluid disposal, and site restoration would renew construction-related risks of spills, wildfires, noise, and vibration. Residual pressure, heat, gases, geothermal fluids, treatment chemicals, and contaminated equipment could expose workers if systems are not properly isolated and characterized.

Improperly closed wells could provide long-term pathways for hazardous or contaminated fluids. Soil and groundwater testing and cleanup could be required where spills, leaks, well failures, or historical contamination occurred.

#### 10.3.1.1.4 Mitigation Measures

##### *10.3.1.1.4.1 Required Measures*

Geothermal facilities must comply with applicable drilling, hazardous-material, worker-safety, fire, cleanup, water-quality, air-quality, and noise requirements. State law requires a Department of Natural Resources

(DNR) permit before drilling, redrilling, or deepening a geothermal well or core hole (RCW 78.60.070), drilling records and reports, and notice to DNR and well plugging before abandonment (RCW 78.60.100 and 78.60.120). A notice of intent to Ecology, underground injection control authorization (chapter 173-218 WAC), and discharge permits apply where triggered. Contamination is managed under the Model Toxics Control Act, and noise is regulated by WAC 173-60 and KCC Chapter 9.45. Current County code does not establish geothermal-specific siting or safety standards beyond the general utility provisions of KCC Chapter 17.61. [170]

*10.3.1.1.4.2 Recommendations for Siting and Design*

- Avoid known contaminated sites and areas where drilling or well construction could create pathways between contaminated and uncontaminated soil, groundwater, or geologic units.
- Require applicants to demonstrate that facility siting and design address wildfire exposure, adequate emergency access, and available fire-suppression resources, including emergency access to wells, pipelines, and associated facilities.
- Maintain separation from residences, schools, health care facilities, recreation areas, water-supply wells, and surface waters.
- Locate wells, pipelines, generating equipment, cooling systems, chemical storage, and containment areas to reduce noise from drilling, well testing, pumps, and venting and to maintain emergency-access routes.
- Include noise-based siting criteria for drilling rigs, well testing, pumps, cooling equipment, generators, venting, and other continuous or intermittent noise sources.
- Design wells and facilities for well integrity, pressure control, leak detection, gas detection, emergency shutdown, fluid containment, and wildfire protection.

*10.3.1.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Coordinate with emergency-response providers on well-control incidents, high-temperature or high-pressure fluid releases, hazardous gases, fire, and access to remote facility components.
- Limit the timing of drilling, well testing, venting, and blasting that could produce substantial noise or vibration, and notify nearby residents in advance.
- Monitor well integrity, leakage, pressure, temperature, geothermal fluids, and gases, with defined response actions.
- During decommissioning, plug wells, remove pipelines and equipment, manage hazardous materials, assess contamination, and provide post-closure monitoring and site restoration.

*10.3.1.1.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain, increase setbacks, limit drilling and testing hours or facility density, require additional well-control, gas-detection, or containment measures, or exclude well locations where contaminant pathways, hazardous-gas releases, wildfire, or emergency-response limitations cannot be reduced.

## 10.3.1.2 Small Modular Reactors

### 10.3.1.2.1 Construction Impacts

SMR construction could require extensive excavation, dewatering, concrete work, heavy lifting, cranes, deep foundations, buried utilities, cooling infrastructure, switchyards, security systems, access roads, and support

[170] Washington State Department of Natural Resources, Geothermal Regulatory Framework, n.d., https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdnr.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2025-07%2Fger_geothermal_regulatory_framework_detail.xlsx&wdOrigin=BROWSELINK

facilities. Worker and public safety risks could include industrial accidents, falls, electrical hazards, heavy-equipment incidents, excavation failure, fire, hazardous-material exposure, and transportation of large or regulated components.

Construction on or near a contaminated site could disturb contaminated soil, groundwater, building materials, or infrastructure. Deep excavation, dewatering, utility installation, and foundation construction could mobilize existing pollutants and require investigation, treatment, containment, or disposal.

Construction could generate sustained noise and vibration from excavation, pile installation, blasting, concrete production, generators, trucks, cranes, and material handling. Effects could continue over an extended construction period and could affect nearby residences, schools, health care facilities, recreation areas, wildlife habitat, or structures.

Electrical equipment, temporary power, welding, vehicles, combustible materials, and vegetation disturbance could increase wildfire risk. Facility access, security, emergency water, communications, and evacuation requirements would need to remain reliable under wildfire conditions.

#### 10.3.1.2.2 Operation Impacts

SMR operations would involve facility-specific hazardous and potentially radioactive materials, nuclear fuel or other regulated materials depending on technology, industrial chemicals, electrical systems, pressure systems, cooling equipment, emergency generators, security systems, and regulated waste. Potential impacts would include worker exposure, fire, equipment failure, hazardous or radiological releases, and risks associated with material storage, handling, and transportation.

Fission facilities carry a low-probability, high-consequence risk of core damage (or “meltdown”) and a release of radioactive material to the environment. Some SMR designs rely on simplified, inherent, or passive means to accomplish safety functions, which may reduce the likelihood or size of a release, but designs vary and none could be built without U.S. Nuclear Regulatory Commission (NRC) licensing review. If a release occurred, effects on people and the environment would depend on the quantity and type of material released, weather, and the effectiveness of protective actions such as sheltering or evacuation. For SMRs, NRC rules allow a performance-based emergency preparedness approach, including an emergency planning zone sized to the specific design, rather than the 10-mile zone currently used for large reactors.[171] Nuclear fission designs would generate radioactive materials and waste requiring high-level controlled storage, monitoring, transportation, and disposal under applicable federal requirements. Environmental health and safety considerations for other small nuclear technologies would depend on the final technology, materials, facility design, and regulatory framework.

Spent fuel and other fission wastes contain fission products and actinides with a wide range of half-lives. Cesium-137 and strontium-90 lose half their radioactivity in about 30 years, plutonium-239 has a half-life of about 24,000 years, and some other constituents persist for hundreds of thousands of years or longer. [172] Spent fuel would likely be stored on site, typically in pools and dry casks, until it can be transferred to a federal disposal facility. Fusion technologies, do not involve a chain reaction and are not expected to produce long-lived radioactive waste; their main radioactive materials would be tritium, which has a half-life of about 12.3

[171] U.S. Nuclear Regulatory Commission, Performance-Based Emergency Preparedness for Small Modular Reactors, Non-Light-Water Reactors, And Non-Power Production or Utilization Facilities, https://www.nrc.gov/docs/ML2322/ML23226A036.pdf

[172] U.S. Nuclear Regulatory Commission, Backgrounder on Radioactive Waste, https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/radwaste.html

years, and neutron-activated components that may be disposed of as low-level waste or recycled.[173] The NRC has proposed to regulate fusion machines under its byproduct material framework rather than its reactor framework, so the regulatory framework for any fusion proposal would continue to develop. Cooling systems, pumps, transformers, ventilation systems, emergency generators, alarms, and maintenance activities could generate continuous or intermittent noise and vibration. Security lighting, alarms, exercises, and emergency testing could periodically affect nearby uses.

An external wildfire could threaten electrical supplies, communications, access, cooling, emergency systems, hazardous-material storage, or security functions. Facility operation could also create ignition sources. Design and emergency planning would need to address wildfire exposure, smoke, evacuation, sheltering, access interruption, and protection of safety-related systems.

#### 10.3.1.2.3 Decommissioning Impacts

SMR decommissioning could extend over a prolonged period and include shutdown, decontamination, dismantlement, demolition, excavation, removal of hazardous or radioactive materials, waste packaging and transport, security, environmental monitoring, and site restoration. Worker exposure, fire, spills, material handling, transportation, noise, vibration, and waste-management risks could continue throughout this period.

Decommissioning waste from a fission SMR would include activated reactor components, contaminated materials, and spent fuel that would require secure storage until transferred off site, with the longest-lived constituents remaining hazardous for thousands of years or longer. By comparison, fusion decommissioning waste would be dominated by tritium-contaminated and neutron-activated components, which are generally expected to decay to low levels over decades to about a century, depending on the materials used.[174]

Contaminated soil, groundwater, structures, systems, or equipment could require characterization and remediation before unrestricted reuse or another approved end use. Removal of deep foundations, cooling systems, utilities, and containment structures could create additional ground disturbance and exposure pathways.

#### 10.3.1.2.4 Mitigation Measures

##### *10.3.1.2.4.1 Required Measures*

SMR facilities must obtain a license from the U.S. Nuclear Regulatory Commission and site certification from the Washington EFSEC, and must comply with applicable nuclear safety, security, emergency planning, radiological protection, worker safety, hazardous-material, waste-management, fire-protection, cleanup, and decommissioning requirements. Within its authority, the County may apply land use, building, fire, noise, and emergency access requirements; KCC Chapter 17.61 provides the County's land use pathway for thermal power plant facilities. Current County code does not establish SMR-specific standards.

[173] U.S. Nuclear Regulatory Commission, Fusion Energy Systems frequently asked questions, https://www.nrc.gov/materials/fusion/faq.html; NRC, Regulatory Framework for Fusion Machines, https://www.federalregister.gov/documents/2026/02/26/2026-03865/regulatory-framework-for-fusion-machines.

[174] French Alternative Energies and Atomic Energy Commission (CEA), Implementing the intrinsic safety of the fusion reactor, https://irfm.cea.fr/en/scientific-and-technological-challenges/implementing-the-intrinsic-safety-of-the-fusion-reactor/; NRC, Fusion Energy Systems Frequently Asked Questions, https://www.nrc.gov/materials/fusion/faq.

*10.3.1.2.4.2 Recommendations for Siting and Design*

- Prioritize previously disturbed industrial or energy sites with adequate separation from incompatible uses and sufficient transportation, utility, communication, emergency-response, fire-protection, and security infrastructure.
- Avoid known contaminated sites unless available investigation demonstrates that development would not increase exposure, mobilize contamination, interfere with cleanup, or create additional contaminant pathways.
- Avoid locations where wildfire, smoke, constrained access, inadequate water supply, limited communications, evacuation constraints, or insufficient emergency-response capacity could impair safety-related functions.
- Consider distance from residences, schools, health care facilities, recreation areas, population concentrations, critical facilities, major transportation routes, and water resources, and apply noise-based locational standards for cooling systems, pumps, transformers, and generators.
- Provide adequate space for security boundaries, emergency access, firefighting, separation of facility components, material and waste storage, and decommissioning, and for redundant power, communications, and cooling to support safety-related functions.

*10.3.1.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Demonstrate consistency with NRC licensing, EFSEC certification, and applicable safety, security, emergency-planning, environmental-monitoring, and waste-management requirements.
- Require coordination with federal, state, Tribal, and local departments responsible for emergency management, fire response, law enforcement, public health, transportation, utilities, and environmental protection.
- Control construction noise and vibration, hazardous materials, and wildfire ignition, and maintain emergency access, security, backup systems, and protection of safety-related infrastructure.
- Plan for transportation and storage of hazardous or radioactive materials, emergency communication, evacuation or shelter-in-place, and long-term on-site waste storage.
- Prepare decommissioning plans addressing dismantlement, contaminated soil, groundwater, and materials, regulated waste, long-term monitoring, continued security, site restoration, and financial assurance.

*10.3.1.2.4.4 Other Mitigation for Potentially Significant Impacts*

If significant effects remain:

- Increase separation distances.
- Require additional redundancy for safety-related systems, emergency-response and evacuation infrastructure, or independent technical review where the selected technology presents hazards not fully evaluated.
- Exclude locations that cannot support applicable safety, security, emergency-response, waste-management, or decommissioning requirements.

### 10.3.1.2.5 Significant Unavoidable Impacts

Alternative 3 could result in significant environmental health and safety impacts for fission SMRs, given the nature of the reaction and the potential consequences of a severe accident or release and of long-lived radioactive waste. Whether those impacts could be avoided would depend on compliance with federal licensing and safety requirements, the safety measures built into the facility design, proper handling and

disposal of radioactive materials and waste, and the level of precaution applied at the project level. Siting and permitting decisions give the County an opportunity to identify where such facilities would be acceptable and where they would be prohibited. Geothermal development is not expected to result in significant unavoidable adverse impacts if establishes criteria addressing contaminated sites, hazardous gases, wildfire, noise, and emergency response.

Potentially significant impacts could remain if siting standards include locations where well-control hazards, hazardous or radioactive materials, wildfire exposure, contamination, noise, emergency-access constraints, or insufficient response capacity cannot be adequately addressed through exclusions, separation standards, allowable-use limitations, infrastructure criteria, or other enforceable provisions.

# 11 Visual Quality

## 11.1 Overview

The Visual Quality section reviews the existing conditions, alternatives impact analysis, and mitigation measures including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures, associated with visual and scenic features within Kittitas County.

Visual quality describes the scenic appeal of an area based on its natural and built elements, including landforms and waterbodies. These elements may enhance or detract from the landscape depending on their visual contrast and factors such as the viewer's experience, weather, season, and time of day. Kittitas County defines scenic vistas as "an area of natural features which is visually significant to the aesthetic character of the county and is visible from a historically significant or scenic public right-of-way.[175]

Visual and scenic considerations for large-scale energy facilities are addressed through a combination of federal and state requirements and guidance and local codes and plans. Depending on project location and design, these provisions may address scenic resources, lighting and glare, visual compatibility, and views from public roadways and other sensitive viewing locations. State guidance, including WSDOT guidance, addresses visual considerations associated with transportation corridors and scenic highways. At the local level, Kittitas County Code and comprehensive planning policies address scenic and aesthetic considerations and compatibility with surrounding land uses. Appendix A identifies potentially applicable federal, state, and local regulations, plans, policies, and guidance.

The visual areas analyzed in this section include:

- Area locally defined in comprehensive plans and land use policies as scenic or as designated/protected for its rural character
- Designated scenic vistas and corridors

Impacts of the alternatives would be considered significant if they result in:

- Potential impacts of facilities on existing visual or rural character and sensitive viewer groups or land uses
- Effects of lighting and glare on sensitive areas and groups

## 11.2 Existing Conditions

### 11.2.1 Rural Character

In rural areas, views can extend for long distances when vegetation and other objects do not obstruct the line of sight. In urban areas, buildings and other structures often limit visibility. Kittitas County includes expansive natural landscapes, working agricultural lands, forests, recreational resources, and small-town communities. The Kittitas County Comprehensive Plan defines rural character as a landscape of open spaces, mountains, forests, and farms, along with the economic and recreational activities that support and preserve these features. Rural character balances environmental stewardship, forest and agricultural protection, rural

[175] KCC 3.46.090(2)(c)

residential development, and outdoor recreation opportunities, contributing to the county's quality of life and economic vitality.

The county's land use framework supports rural character through several rural land use designations, including the Rural Recreation designation. Rural Recreation areas encompass scenic roadways, viewpoints, ski areas, trail systems, campgrounds, fishing destinations, seasonal recreation residences, and resort-oriented development. These areas are intended to accommodate recreational activities and limited commercial services that support visitors and seasonal residents while preserving the visual and environmental qualities that define the county's rural landscape. Many of these lands are associated with rivers, reservoirs, forests, and mountain settings, including locations where outdoor recreation and tourism are prevalent.

See the **Land Use** section for additional information on land use designations.

### 11.2.2 Designated Scenic Landscapes and Corridors

Kittitas County includes areas and corridors designated as scenic byways on both a federal and state level. On a federal level, Interstate 90 (I-90), referred to as the "Mountain to Sound Greenway", is designated as a National Scenic Byway stretching from Seattle to Ellensburg as shown in **Figure 42** below.

*Figure 42: National Scenic Byways in Washington*




*Source: US Department of Transportation, Federal Highway Administration, https://fhwaapps.fhwa.dot.gov/bywaysp/state/WA/map*

Under Chapter 47.39 RCW, there are several state routes (SR) and portions of routes designated as scenic areas within Kittitas County. These include the following:

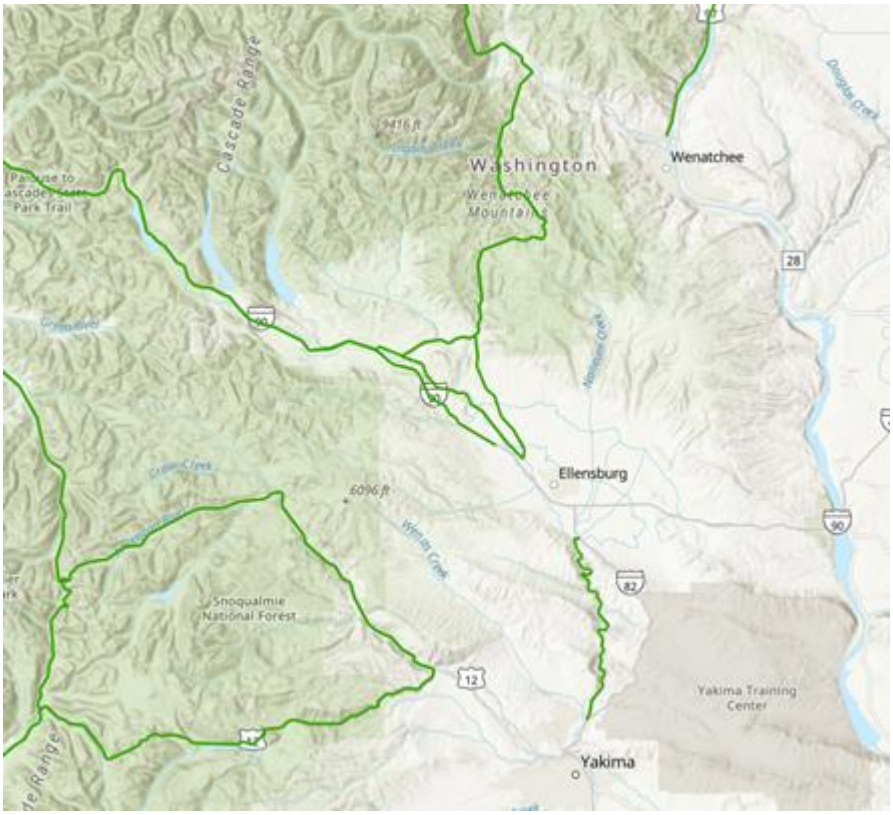
- State Route 10
- State Route 970
- State Route 97

- State Route 821 (Yakima River Canyon Scenic Byway)

In the Kittitas County comprehensive plan, the Vantage Highway is stated as a potential future scenic byway in the County. The scenic byways in the Kittitas County provide residents and visitors with access to many of the county's recognizable views, recreational destinations, agricultural areas, and rural communities.

The scenic corridor between Cle Elum and Ellensburg along SR-10 and portions of the Vantage Highway showcases the county's rolling shrubsteppe landscapes, working farms and ranches, river valleys, and mountain backdrops. These corridors contribute to the Kittitas County visitor experience and support agritourism, outdoor recreation, and local businesses. **Figure 43** below shows the state-designated scenic byways and designated scenic areas in Kittitas County.

*Figure 43: Scenic Byways in Kittitas County*




*Source: Washington Department of Transportation – Scenic and Recreation Highway Systems, https://geo.wa.gov/datasets/8e1a40fc1a5748d0b8f214d9d36b5777_0/explore?location=47.061984%2C-120.456095%2C10*

### 11.2.3 Scenic Recreational Routes

The county also contains an extensive network of non-motorized recreational routes that enhance access to scenic and natural resources. The Palouse to Cascades State Park Trail (formerly the John Wayne Pioneer Trail) traverses the county and provides regional bicycle, hiking, and equestrian connections through forests, river valleys, and rural communities. Additional facilities, such as the Coal Mines Trail and various local recreation routes, provide connectivity between communities and recreational destinations while highlighting the county's landscapes.

# 11.3 Impact Analysis

## 11.3.1 Overview

This section evaluates how large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal energy facilities, and small modular reactors (SMRs) could affect visual quality in Kittitas County. Consistent with the Washington Department of Ecology's PEIS approach, the analysis is organized by facility type and project phase, including construction, operation, and decommissioning.

Potential impacts include temporary construction-related changes to views, visible grading and vegetation removal, introduction of project infrastructure into rural or scenic landscapes, lighting and glare, shadow flicker from wind turbines, plume effects from geothermal facilities, and visual effects associated with other supporting infrastructure.

The magnitude of impacts would depend on:

- Facility type, location, size, height, and layout
- Existing landscape character and viewer sensitivity
- Proximity to scenic byways, recreational routes, rural communities, residence, public viewpoints, and Tribal or cultural resources
- Vegetation removal, grading, lighting, fencing, and supporting infrastructure

Impacts would be considered significant if an alternative would:

- Create substantial permanent visual contrast with designated scenic vistas, scenic byways, recreational routes, or rural landscapes.
- Substantially degrade views from sensitive public viewpoints or nearby residences.
- Glare or lighting if they create safety concerns or conflict with dark sky expectations.

*Table 19: Primary Visual Quality Concerns*

| Facility Type | Primary Visual Quality Concerns |
|---|---|
| Large-Scale Solar | Large visible panel arrays, glare, fencing, vegetation removal, contrast with rural or agricultural landscapes. |
| Large-Scale Wind | Tall turbines visible over long distances, blade movement, aviation lighting, shadow flicker, contrast with scenic corridors. |
| BESS | Fencing, lighting, visual compatibility with adjacent rural, residential, or other uses. |
| Geothermal | Exploration pads, drilling equipment, pipelines, lighting, potential plume effects. |
| SMRs | Security fencing and lighting, transmission infrastructure, potential contrast with scenic landscapes. |

## 11.3.2 No Action – Alternative #1

### 11.3.2.1 Impacts from construction, operation, and decommissioning under current processes

For visual quality, primary impacts of concern due to the construction, operation, and decommissioning of energy facilities are long-term changes to visual quality and character that would affect sensitive land uses, as well as the creation of a new significant source of light or glare. The degree and scale of impacts would vary based on facility size, location, design, and construction methods. Under the No Action Alternative, impacts on

visual quality would generally be similar to those under the Action Alternatives as they relate to the specific energy facilities along with their project-specific design, site location, and nearby receptors.

Construction and decommissioning activities would continue to pose potential visual impacts due to construction equipment, earthmoving activities, vegetation clearing, and temporary dust, noise, and lighting. Impacts due to operations would vary depending on facility type and scale but could result in long-term changes to visual character through the introduction of industrial or utility-scale infrastructure into the landscape and an increase in skyglow due to operational lighting. However, under the No Action Alternative, the County would not adopt the proposed code updates that could establish or strengthen standards related to screening, facility height, design, landscaping, and other measures intended to reduce visual impacts.

#### 11.3.2.2 Mitigation Measures

Under the No Action Alternative, the County would not establish new or updated development standards addressing visual compatibility for locally permitted energy facilities. Projects would still be subject and mitigated through current regulations, including local development standards, permitting processes, and SEPA review to identify and mitigate project-level impacts. Facilities subject to EFSEC jurisdiction would still be required to comply with applicable federal and state regulations regarding scenic corridors and byways, glare and aviation impacts, and undergo a project-level SEPA review.

Under current Kittitas County Code, visual quality impacts for energy facilities may partially be mitigated for solar and wind facilities. For solar facilities, Title 17.61C Solar Power Production Facilities includes provisions relating to potential glare and standards for heights, screening, fencing, and lighting. For wind facilities, a visual impact analysis may be conducted as part of the permitting process. A visual impact analysis may consider whether a proposed energy facility would alter scenic views, landscape character, or sensitive visual resources, and include mitigation measures such as project siting, screening, and facility design modifications to be considered where significant impacts are identified.

Because EFSEC can preempt local land use plans, zoning ordinances, and development regulations as part of the state certification process, some future energy facilities could be approved under EFSEC certification rather than county development regulations, with visual quality protections implemented through EFSEC conditions and existing state and federal regulatory programs and legislation.

#### 11.3.2.3 Significant Unavoidable Impacts

Significant unavoidable impacts are not anticipated under the No Action Alternative. However, project-specific significant impacts could remain where a facility would be visible from designated scenic corridors, recreational routes, rural communities, or sensitive viewpoints. Significant impacts could remain where glare, lighting, shadow flicker, or visible infrastructure could not be adequately avoided, screened, minimized, or restored.

### 11.3.1 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Under Alternative 2, Kittitas County re-evaluates locations suitable and appropriate for utility scale solar and wind along with current permitting procedures and evaluates potentially significant environmental impacts associated with BESS to identify suitable locations in Kittitas County for potential battery energy storage facility siting and related development standards.

### 11.3.1.1 Large-Scale Solar

#### 11.3.1.1.1 Construction Impacts

Construction of large-scale solar facilities could temporarily alter views. Construction activities may include road construction, grading, creation of staging areas, and use of temporary lighting. Visual impacts would be greater near scenic byways, recreation routes, residences, rural communities, or open landscapes.

#### 11.3.1.1.2 Operation Impacts

Operation of large-scale solar facilities could introduce low profile panel arrays into rural or agricultural landscapes. Visible features may include fencing, substations, gen-tie lines, access roads, and maintenance areas. Modern solar panels typically have less glare impact due to enhanced technology with antireflective coating. Potential effects could include changes in perceived rural character. Impacts would be greater where panels are visible from sensitive public viewpoints.

#### 11.3.1.1.3 Decommissioning Impacts

Decommissioning would temporarily reintroduce haul traffic, dust, and exposed soils into viewsheds. Removing panels would generally reduce long-term visual impacts.

#### 11.3.1.1.4 Mitigation Measures

##### *11.3.1.1.4.1 Required Measures*

Required measures for aesthetics and visual quality would largely be addressed at the local level. Such measures include compliance with Kittitas County code relevant to visual quality in the county and development standards for solar facilities. Such requirements include development standards under KCC 17.61C for glare, lighting, and maximum heights. Local permit conditions may also require that projects demonstrate conformance with zoning and comprehensive plan designations, which may include areas of rural character. Federally managed lands also have planning requirements for the protection of visual resources and would evaluate visual effects from proposed projects during right-of-way or leasing processes.

##### *11.3.1.1.4.2 Recommendations for Siting and Design*

- Minimize visual impacts through use of setbacks, screening, fencing, and/or natural topography to reduce the visibility of facility infrastructure.
- Conduct a visual impact analysis during siting. Map landscape characteristics, key observation points, key viewsheds, scenic landmarks, and other visually sensitive areas near the project location.
    - Use geographic information systems (GIS) and visual impact simulations to map landscape characteristics, evaluate potential impacts, and inform siting and design.
- Consult early with land management agencies, planning entities, Tribes, and the local public to identify important visual resources and inform siting and design.
- Avoid siting facilities where the landscape setting observed from national historic sites, national trails, and cultural resources may be a part of the historic context contributing to its historic significance.
- Site projects outside the viewsheds of key observation points, highly sensitive viewing locations, and areas with limited visual absorption capability or high scenic integrity. If avoidance is not feasible, maximize distance from key observation points.
- Use topography and vegetation to screen views from visually sensitive areas. Where natural screening is limited, use natural-looking earthwork berms and vegetative or architectural screening to minimize visual impacts.

- Minimize visual impacts by:
    - Avoiding siting near prominent landscape features (e.g., peaks and waterfalls).
    - Avoiding siting linear facilities, such as interconnector and gen-tie lines and roads, so that they bisect ridge tops or run down the center of valley bottoms.
    - Avoiding siting facilities on ridgelines, summits, or other locations where they would be silhouetted against the sky ("skylining") from important viewing locations.
    - Siting linear features to follow natural land contours rather than straight lines, particularly up slopes. Avoid fall-line cuts. Site facilities to take advantage of natural topographic breaks and avoid siting on steep slopes.
    - Avoiding installation of gravel and pavement where possible to reduce color and texture contrasts with the existing landscape.
    - Setting back solar panel arrays from linear public features (e.g., roads, railways, trails) to avoid a visual tunneling effect and using vegetation to screen views.
    - Using solar array trackers and other ancillary facilities with visual uniformity in shape, color, and size.
    - Choosing low-profile structures to reduce their visibility.
    - Preserving existing rocks, vegetation, and drainage patterns and varying the slope to preserve trees and nonhazardous rock outcroppings.
    - In forested areas or shrublands, site linear facilities to follow the edges of clearings rather than pass through their center. Locate openings in vegetation for facilities, structures, and roads to mimic the size, shape, and characteristics of naturally occurring openings. Include the feathering of cleared area edges (i.e., the progressive and selective thinning of trees from the edge of the clearing inward) combined with the mixing of tree heights from the edge in the vegetation-clearing design in forested areas.
    - Locate interconnector and gen-tie line right-of-way crossings of roads, trails, streams, and other linear features to avoid key observation point viewsheds and other visually sensitive areas and to minimize disturbance to vegetation and landforms. Locate rights-of-way so they cross linear features at right angles whenever possible to minimize the viewing area and duration.
    - Minimize use of overhead gen-tie and collector lines, unless underground gen-tie and collector lines are not feasible due to environmental conditions (e.g., topography, soil conductivity) or cultural or Tribal resource concerns.
    - Minimize light pollution, including using motion-activated security lights, using full cutoff designs that minimize upward light scattering and use, and avoiding steady-burn high intensity lights. Use Dark Sky International's Five Principles for Responsible Outdoor Lighting (Dark Sky International 2025) to design outdoor lighting.
    - Design facilities to prevent glint/glare and comply with FAA glare avoidance requirements.
- Avoid prominent or visually distinctive landforms, including peaks, ridgelines, and locations where facilities would be skylined from important viewpoints.
- Site roads, gen-tie lines, and other linear facilities to follow existing disturbance, clearing edges in forested areas, natural contours, and topographic breaks where feasible.
- Set solar arrays back from roads, railways, and trails to avoid a tunnel-like visual effect, and use uniform trackers, panel layouts, ancillary equipment, and low-profile structures where practicable.
- Preserve existing vegetation, drainage patterns, rock features, and nonhazardous outcrops where feasible. Minimize new gravel, pavement, vegetation removal, and landform disturbance.

- Locate gen-tie and interconnection crossings outside sensitive viewsheds where feasible. Use underground gen-tie or collector lines where appropriate.
- Reduce light pollution and glare with shielded, cutoff, motion-activated lighting; low-reflectivity materials; and applicable FAA glare considerations.

*11.3.1.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Where feasible, reuse cleared vegetation on disturbed soils as mulch or place slash in previously disturbed areas. Separate topsoil during ground disturbance and spread it back over affected areas to reduce color contrast and support revegetation. Avoid leaving piles in sensitive viewsheds.
- Limit signs to those needed for safety, operations, or compliance. Treat the backs of signs with muted colors or coating to blend with the surrounding landscape.
- Apply paint or other visual treatments before installation, or as soon as practicable afterward. Select colors and finishes that reduce contrast with surrounding landscape.
- Select non-reflective materials, coating, and finishes to limit glare.
- Provide a public contact for glare concerns. Review complaints to determine if the project is the source. If project-related glare creates a safety concern, implement appropriate glare control measures.

*11.3.1.1.4.4 Other Mitigation for Potentially Significant Impacts*

Identify appropriate visual impact mitigation measures. These may include the measures listed above, as well as other actions needed to maintain consistency with local plans.

## 11.3.1.2 Large-Scale Wind

### 11.3.1.2.1 Construction Impacts

Construction of large-scale wind facilities would temporarily affect visual quality. Activities may include grading and vegetation clearing, concrete work, heavy haul deliveries, crane activity, temporary staging and laydown areas, access-road development, and construction lighting. Construction could be visible from multiple public roads, residences, or scenic viewpoints. Visual effects would vary based on the extent of ground disturbance, duration of construction, surrounding topography and vegetation, and visibility from sensitive viewing locations.

### 11.3.1.2.2 Operation Impacts

Operation of large-scale wind facilities could result in prominent, long-term changes to existing visual character because of the height, scale, movement, and geographic distribution of wind turbines. Turbines and associated infrastructure could affect views of open valleys, ridgelines, shrubsteppe landscapes, rural areas, recreation areas, and other scenic viewsheds. Because turbines extend substantially above surrounding terrain and vegetation, they may be visible over long distances, particularly where located along exposed ridgelines or within open landscapes.

The degree of visual change would depend on turbine height and number, facility layout, topography, distance from viewers, existing vegetation and development, and the existing visual character of the surrounding landscape. Multiple turbines could create a broader visual presence where they are visible across a ridgeline, valley, or other open viewshed. Associated infrastructure, including access roads, substations, transmission connections, and meteorological towers, could contribute additional changes to landscape character.

Required aviation lighting could introduce nighttime visual effects in areas with limited existing lighting. Shadow flicker could create intermittent visual effects at nearby residences or other locations where turbine blades pass between the sun and viewers. The occurrence and duration of these effects would depend on facility layout, turbine location, surrounding topography, and the location of affected viewers.

#### 11.3.1.2.3 Decommissioning Impacts

Decommissioning would create temporary visual impacts from cranes, haul trucks, dust, temporary staging, dismantling activities, and renewed ground disturbance. These effects could be visible from many of the same locations affected during construction and operation. Long-term visual impacts would generally be reduced where turbines, meteorological towers, substations, transmission infrastructure, and other visible facility components are removed and disturbed areas are restored and revegetated. Where roads, transmission facilities, or other infrastructure are retained, some changes to the existing visual character could remain

#### 11.3.1.2.4 Mitigation Measures

##### *11.3.1.2.4.1 Required Measures*

Required measures would largely be mitigated at the local level. Such measures include compliance with Kittitas County code relevant to aesthetics and visual quality of wind facilities. Such requirements include development and siting standards under KCC 17.61A for heights and setbacks. SEPA review at the project level would help identify potential visual and aesthetic impacts. Turbines that meet FAA notice criteria would require FAA review for lighting. Project review may also require consistency with local scenic, rural character, height, setbacks, and design standards.

Federally managed lands also have planning requirements for the protection of visual resources and would evaluate visual effects from proposed projects during right-of-way or leasing processes.

##### *11.3.1.2.4.2 Recommendations for Siting and Design*

- Conduct a visual impact analysis during siting to identify key observation points, viewsheds, scenic and cultural resources, and other visually sensitive areas. Use GIS and visual simulations, as appropriate, to evaluate potential impacts and inform facility siting and design.
- Consult early with land management agencies, planning entities, Tribes, and the public to identify important visual resources and inform siting and design.
- Avoid siting wind turbines where they would substantially affect views from key observation points, highly sensitive viewing locations, historic and cultural resources, or landscapes with high scenic integrity. Where avoidance is not feasible, maximize distance from sensitive viewing locations where practicable.
- Avoid or minimize siting turbines on prominent or visually distinctive landforms where they would create substantial skylining or contrast when viewed from important locations.
- Design turbine layouts to provide visual consistency and reduce unnecessary contrast with the surrounding landscape.
- Regulate the duration of shadow flicker to avoid potential impacts, with a recommendation of not more than 30 hours per year or 30 minutes per day impacting nearby occupied buildings. [176]
- Site access roads, gen-tie lines, and other linear facilities to follow existing disturbance, natural contours, vegetation edges, and topographic breaks where feasible. Minimize vegetation clearing and landform disturbance.
- Minimize the visibility of ancillary facilities through setbacks, screening, natural topography, low-profile design, and non-reflective or visually compatible materials and finishes, where practicable.

[176] The National Association of Regulatory Utility Commissioners, Wind Energy & Wind Park Siting and Zoning Best Practices and Guidance for States, 2012, https://pubs.naruc.org/pub.cfm?id=539BA6EE-2354-D714-5157-359DDD67CE7F

- Minimize lighting to that necessary for safety, security, operations, and applicable FAA requirements. Use shielded or downward-directed lighting for ground-level facilities where practicable.
- Use visual simulations, viewshed mapping, and shadow flicker analysis to evaluate potential impacts and refine turbine layout.
- Locate access roads, gen-tie lines, substations, and laydown areas to follow existing disturbance or screened locations where feasible.
- Require neutral paint color and minimal signage.

*11.3.1.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Minimize vegetation removal, grading, and other ground disturbance and restore temporarily disturbed areas to reduce visual contrast with the surrounding landscape.
- Use non-reflective materials, coatings, and finishes for ancillary facilities and equipment where practicable.
- Limit signs and exterior lighting to those needed for safety, security, operations, or regulatory compliance.
- Remove aboveground facilities and unnecessary infrastructure during decommissioning and restore disturbed areas to reduce long-term visual contrast.

*11.3.1.2.4.4 Other Mitigation for Potentially Significant Impacts*

If significant visual impacts remain after siting and design measures, additional mitigation may include greater setbacks from sensitive viewpoints, relocation or removal of specific turbines, and operational measures for lighting or shadow flicker.

### 11.3.1.3 Battery Energy Storage Systems (BESS)

#### 11.3.1.3.1 Construction Impacts

Construction of BESS facilities would temporarily affect visual quality through grading, vegetation clearing, lighting, and dust. Impacts would generally be localized because BESS facilities are typically compact. Visual effects would be greater where construction occurs near residences, scenic corridors, rural communities, recreation routes, or open landscapes.

#### 11.3.1.3.2 Operation Impacts

Operation of BESS facilities may create an industrial appearance, especially in rural or agricultural settings. Visual impacts would vary depending on facility size, building height, and proximity to sensitive viewpoints.

#### 11.3.1.3.3 Decommissioning Impacts

Decommissioning would create temporary visual impacts from haul trucks, dust, and exposed soils. Long-term visual impacts would be reduced where battery containers and other associated infrastructure are removed.

#### 11.3.1.3.4 Mitigation Measures

*11.3.1.3.4.1 Required Measures*

BESS facilities are subject to Kittitas County land use review, SEPA review, and building and fire code requirements. Projects may need to demonstrate consistency with comprehensive plan policies for rural character and visual compatibility.

*11.3.1.3.4.2 Recommendations for Siting and Design*

- Site facilities near existing transmission, utility, industrial or other developed infrastructure where feasible to reduce new visual disturbance.

- Limit siting within or prominently visible from scenic routes, recreational areas, rural communities, and other visually sensitive locations.
- Use setbacks, existing vegetation, natural topography, berms, fencing, and screening to reduce the visibility of battery containers, substations, and other facility infrastructure.
- Minimize vegetation removal and landform modification and use visually compatible colors, materials, and finishes to reduce contrast with the surrounding landscape.
- Minimize exterior lighting and use shielded, downward-directed lighting where practicable while maintaining requirements for safety, security, and emergency response

*11.3.1.3.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Limit construction disturbance to approved footprint and restore temporary disturbed areas to reduce long-term visual contrast.
- Maintain required landscaping, screening, fencing, and other visual mitigation measures throughout facility operation.
- Use the minimum lighting needed for safety, security, and emergency response.
- Remove equipment and infrastructure that is no longer needed. Revegetate disturbed areas.

*11.3.1.3.4.4 Other Mitigation for Potentially Significant Impacts*

If significant visual impacts remain after siting, design, and operational measures, additional mitigation may include increased setback requirements, revised site layouts, or relocation of infrastructure.

## 11.3.1 Assess Potential Geothermal and Small Nuclear Siting and Permitting – Alternative #3

### 11.3.1.1 Geothermal

#### 11.3.1.1.1 Construction Impacts

Construction of geothermal facilities would temporarily affect visual quality through drilling, grading, pipe installation, vegetation clearing, well-pad and access-road development, pipeline installation, construction equipment and staging, dust, and temporary lighting. Drilling rigs and other tall construction equipment could be visually prominent, particularly in open or rural landscapes where there is limited existing development or vegetation screening. Visual effects would be greater near scenic corridors, recreational routes, rural communities, residences, or open landscapes.

Because geothermal exploration and development may occur across multiple well locations, visual disturbance could extend beyond the eventual generating facility and change as exploration proceeds and the production field is developed. The degree of visual change would depend on the extent of disturbance, height and visibility of construction equipment, topography, vegetation, and distance from sensitive viewpoints.

#### 11.3.1.1.2 Operation Impacts

Operation of geothermal facilities could introduce wellheads, pipelines, cooling systems, substations, transmission lines, access roads, and other infrastructure. These features could result in long-term changes to visual character by introducing industrial infrastructure across portions of otherwise rural, open, or undeveloped landscapes.

Visual effects could extend beyond the main generating facility because well pads, aboveground pipelines, access roads, and transmission connections may be distributed across the geothermal production field. Impacts would depend on facility size, height, layout, the geographic extent and configuration of the wellfield

and pipelines, surrounding topography and vegetation, and proximity to sensitive viewpoints. Effects could be greater where infrastructure is visible from residences, scenic corridors, recreation areas, public lands, or other locations valued for rural or natural landscape character. Facility lighting and any visible emissions, such as steam or vapor plumes, could create additional daytime or nighttime changes to visual character.

#### 11.3.1.1.3 Decommissioning Impacts

Decommissioning would create visual impacts from vehicle activity, dust, exposed soils, equipment removal, pipeline removal, demolition, and well-closure and site-restoration activities.

Long-term visual impacts would be reduced where infrastructure is removed, and disturbed areas are stabilized, recontoured, and revegetated. The extent to which pre-development visual character is restored would depend on successful reclamation and whether access roads, transmission infrastructure, or other visible features are retained.

#### 11.3.1.1.4 Mitigation Measures

##### *11.3.1.1.4.1 Required Measures*

Geothermal facilities would be reviewed under Kittitas County zoning, SEPA, road access, and fire and safety requirements. Depending on project size, location, land ownership, and interconnection needs, additional state or federal approvals may apply.

##### *11.3.1.1.4.2 Recommendations for Siting and Design*

- Site facilities near existing roads, transmission lines, and developed areas.
- Avoid locations within scenic byways, recreational routes, rural communities, and other visually sensitive areas.
- Use topography, existing vegetation, berms, or architectural screening to reduce views of well pads, pipelines, buildings, and cooling equipment.
- Select muted colors, nonreflective finishes, and low-profile equipment to reduce contrast with the surrounding landscape.

##### *11.3.1.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Limit disturbance to the approved construction footprint and restore temporary work areas.
- Use dust control measures and implement material storage practices.
- Use the minimum lighting needed for safety, security, and operations.
- Use dry-cooling technology to avoid plume effects.[177]
- Remove equipment that is not needed for future use. Stabilize, recontour, and revegetate disturbed areas.

##### *11.3.1.1.4.4 Other Mitigation for Potentially Significant Impacts*

If significant visual impacts remain after siting, design, and operational measures, additional mitigation may include increased setbacks, revised site layouts, lower-profile equipment, modified colors or finishes, or relocation of project components.

[177] Microsoft Word - BLM Visual BMP chapters 1 and 2_Rev2_130316_RGS_CMS_vs.docx

### 11.3.1.2 Small Modular Reactors

#### 11.3.1.2.1 Construction Impacts

Construction of SMR facilities would temporarily affect visual quality through grading, vegetation clearing, excavation, large-scale building construction, security and access improvements, utility and transmission installation, staging and laydown areas, cranes and other heavy equipment, lighting, dust, and construction traffic. Construction activity could introduce large structures, equipment, and disturbed areas that contrast with surrounding rural or open landscapes.

Visual effects would be greater near scenic corridors, recreational routes, rural communities, residences, or open landscapes. The degree of visual change would depend on the size and duration of construction, topography, existing vegetation and development, and visibility from sensitive viewpoints.

#### 11.3.1.2.2 Operation Impacts

Operation of SMR facilities may create a long-term industrial visual character that contrasts with rural, agricultural, or scenic settings. Visible features could include reactor and support buildings, cooling systems, security fencing and barriers, substations, switchyards, transmission infrastructure, access roads, lighting, and other supporting facilities. The combination of these features could create a concentrated industrial presence that differs substantially from surrounding open or rural landscapes.

Visual impacts would vary depending on facility size, site design and configuration, extent of supporting infrastructure, building height, topography and vegetation, and proximity to sensitive viewpoints. Effects could be greater where facilities are visible from residences, scenic corridors, recreation areas, public lands, or other locations valued for rural or natural landscape character. Facility and security lighting could also introduce nighttime visual effects, particularly in areas with limited existing development or lighting.

#### 11.3.1.2.3 Decommissioning Impacts

Decommissioning would create temporary visual impacts from dismantling activities, heavy equipment and truck traffic, dust, exposed soils, and site restoration work. Long-term visual impacts would be reduced where infrastructure is removed, and disturbed areas are stabilized, recontoured, and revegetated. The extent to which the site's previous visual character could be restored would depend on the final site condition and whether roads, transmission infrastructure, security features, or other development is retained.

#### 11.3.1.2.4 Mitigation Measures

##### *11.3.1.2.4.1 Required Measures*

SMR facilities would require review under applicable federal, state, and local requirements. The U.S. Nuclear Regulatory Commission would have federal licensing authority for reactor safety. EFSEC would provide a siting and certification pathway for fission facilities and would evaluate land use, environmental impacts, permit conditions, and compliance. Kittitas County review would focus on visual impacts from fusion facilities and compliance with comprehensive plan policies, applicable zoning, setbacks, fencing, screening, maximum building heights, lighting, and other applicable code requirements.

##### *11.3.1.2.4.2 Recommendations for Siting and Design*

- Site facilities near existing industrial, utility, transportation, or transmission infrastructure to reduce visual impacts.
- Minimize siting within or prominently visible from scenic byways, recreational routes, rural communities, and other visually sensitive areas.

- Use facility layout, setbacks, natural topography, existing vegetation, berms, and architectural screening to reduce the visibility of buildings and supporting infrastructure where practicable.
- Minimize visual contrast through building design, colors, materials, and finishes that are compatible with the surrounding landscape, where consistent with applicable safety and security requirements.
- Minimize the visibility of associated transmission, cooling, security, and other support infrastructure through siting and design where practicable.

*11.3.1.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Limit construction and decommissioning disturbance to the approved construction footprint and restore temporary work areas.
- Minimize vegetation removal, grading, material storage, and other construction activities that could increase visual disturbance.
- Use dust control measures and implement material storage practices.
- Use the minimum lighting needed for safety, security, and operations.
- Remove equipment that is not needed for future use. Stabilize, recontour, and revegetate disturbed areas.

*11.3.1.2.4.4 Other Mitigation for Potentially Significant Impacts*

If significant visual impacts remain after siting, design, and operational measures, additional mitigation may include increased setbacks, revised site layouts, lower-profile equipment, modified colors or finishes, or relocation of project components.

# 12 Historic and Cultural Resources

## 12.1 Overview

The Historic and Cultural Resources section reviews the existing conditions, alternatives impact analysis, and mitigation measures including regulatory frameworks, siting and design recommendations, impact minimization measures, and other potential measures, associated with historic and cultural features within Kittitas County.

Historical lands include properties listed on federal, state, or local historic registers, as well as locations recognized for their cultural, archaeological, or historical significance. These lands include:

- Historic properties
- Transportation corridors
- Archaeological sites
- Traditional cultural properties (TCP)
- Other resources that contribute to the county's heritage.

Historic properties are sites, buildings, structures, districts, and objects that are eligible for listing or listed in the National Register of Historic Places (NRHP). Historic building information is publicly available.

Archaeological, cultural, and sacred sites are not subject to public disclosure, and some may only be known to a Tribal cultural resources department or official.

Historic and cultural resources have a framework of federal and state laws addressing the identification, evaluation, and protection of significant resources and the treatment of archaeological sites, graves, and human remains. At the federal level, Section 106 of the National Historic Preservation Act (NHPA) establishes a process for considering effects on historic properties and consulting with Tribes and other consulting parties when applicable. Washington State also has protections for archaeological sites and resources, Indian graves and records, historic cemeteries, and human remains, and provisions for government-to-government relationships with federally recognized Tribes. Potentially applicable federal and state regulations, policies, and guidelines are identified in Appendix A.

At the local level, historic and cultural resources are preserved by:

- Kittitas County Comprehensive Plan Policies
- Kittitas County Countywide Planning Policies relating to historic preservation.
- Local historic preservation groups, including local registers and preservation offices.

Historic and cultural resources can impact Tribal rights and governance. As such, federal, state, and local laws often require notification and consultation with affected Tribes before, during, and after project review. Formal government-to-government consultation occurs between federal or state agencies and Tribal sovereign governments. Each Tribe is a sovereign nation and may have its own definition of what constitutes appropriate consultation.

At the local planning level, RCW 36.70A.040(8) provides the opportunity for federally recognized Tribes whose reservation or ceded lands are located within a county to voluntarily participate in the countywide planning process. The process includes the development of a mutually agreed-upon memorandum of agreement (MOA) that establishes procedures for collaboration and involvement in planning activities moving forward. At the time

of the CESP EIS, an MOA between Kittitas County and local Tribes does not exist. For more information on Tribal rights, see the **Tribal Rights, Interests, and Resources** section for further discussion.

The historic and cultural resources analyzed in this section include:

- Historic Properties
- County Settlement History
- Museums
- Archaeological Resources
- Traditional Cultural Properties
- Sacred Sites
- Human Remains and Cemeteries

The following elements of the environment could have impacts that overlap with impacts on cultural resources. The impacts identified in the respective sections may apply:

- **Geology**
- **Environmental Health and Safety**
- **Tribal Rights, Interests, and Resources**

Impacts of the alternatives would be considered significant if they result in:

- Damage, destroy, materially alter, or cause loss of integrity[178] to a historic property, archaeological site, traditional cultural property, sacred site, cemetery, or other significant cultural resource;
- Disturb human remains or burial sites;
- Permanently impair access to or use of a culturally significant place or resource;
- Substantially alter a landscape, viewshed, setting, or natural feature that contributes to the significance or continued cultural use of a resource;
- Cause an adverse effect that cannot be avoided or adequately mitigated through project design, consultation, documentation, treatment, or other feasible measures; or
- Result in an effect determined to be significant through consultation with an affected Tribe or applicable regulatory review.

Additionally, the significance of impacts to Tribal cultural resources can only be understood from within the context of each affected Tribe. As such, the determination of significance or non-significant impacts would need to be determined through engagement and consultation with Tribes for future projects.

## 12.2 Existing Conditions

Historic and cultural resources in Kittitas County reflect thousands of years of Indigenous governance and land stewardship, followed by transportation, agriculture, mining, forestry, and settlement activities that shaped the county's development. Throughout the county, lands, shorelines, and waterways are associated with both Tribal and settler communities. The county contains archaeological sites, historic properties, and other documented cultural resources associated with its settlement and development history.

The county includes portions of cultural landscapes associated with the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Colville Reservation, and the Snoqualmie Tribe of Indians. Each

[178] Integrity is "the ability of a property to convey its significance" (NPS 1997). There are seven aspects that comprise integrity: location, setting, materials, design, workmanship, feeling, and association (NPS 1997).

Tribe may possess a distinct record of their history, including important properties, sites, ancestors, and belongings, which may be publicly available or privately held.

This section reflects existing conditions at the time the CESP EIS was prepared through a western scientific approach and largely uses the current Washington State Department of Archaeology and Historic Preservation's (DAHP's) Washington Information System for Architectural and Archaeological Records Data (WISAARD). The database includes recorded historic, archaeological, and traditional cultural properties and is commonly used to locate recorded archaeological sites, historic resources, cemeteries, historic districts, TCPs, NRHP-listed properties, and cultural survey reports.

Some DAHP information is available to the public, but other information is restricted to support resource preservation and respect data sovereignty. The following table describes the information available under WISAARD.

*Table 20: WISAARD Data Availability*

| Data Type | Access | Description |
|---|---|---|
| Property | Public | Inventoried historic built environment resources/Historic Property Inventory forms. Not all forms are complete. The layer also contains information on the historic register status of the building (unevaluated, eligible, or not eligible). |
| Register public | Public | Properties listed in the NRHP, the Washington State Heritage Register, and the Heritage Barn Register. |
| Project/Area of Potential Effects | Public | Project areas shared with DAHP for consultation under the NHPA Section 106, GEO 21-02, the Washington SEPA, and Washington State Forest Practices rules. |
| Tribal | Public | Compiled from several different sources, the layer contains historical treaty boundaries, Tribal reservation boundaries, and Tribal areas of interest for consultation, human remains, and oil spills. |
| Government Land Office (GLO) Survey Plat Maps | Public | Digitized features based on the GLO survey plat map. |
| GLO Images | Public | Georeferenced layer of select GLO survey maps. |
| Environmental | Public | Compiled from several different sources, the layer contains drainages, waterways, surface geology, and soil data. |
| Predictive Model | Public | Statewide predictive model to predict the location of select archaeological sites. |
| Archeological | Restricted | Archaeological sites, isolates, and districts recorded with DAHP. |
| Register | Restricted | Properties listed in the NRHP (including archaeological sites and districts), the Washington State Heritage Register, and Heritage Barn Register. |
| Cemeteries and human remains | Restricted | Recorded cemeteries throughout the state and locations of human remains that were inadvertently discovered. |
| TCP | Restricted | TCPs recorded with DAHP are made available by the Tribe or community that shared the information. May only be available to DAHP staff. |

| Data Type | Access | Description |
|---|---|---|
| Cultural resource surveys | Restricted | Cultural survey reports shared with DAHP written after 1995. Selected older studies are available but lack geospatial references. |

*Source: Department of Ecology, PEIS for utility-scale solar, 2025*

## 12.2.1 County Settlement History

### 12.2.1.1 Transportation and Railroad Heritage

Historic transportation corridors shaped the development of Kittitas County. Railroad infrastructure, depots, bridges, and former rail corridors helped establish many of the county's communities and industries. Notable resources in the county include:

- Northern Pacific Railway Depot in Cle Elum
- Palouse to Cascades State Park Trail, formerly part of the Milwaukee Road railroad corridor
- Historic rail alignments through Snoqualmie Pass
- Railroad-related structures throughout Upper Kittitas County

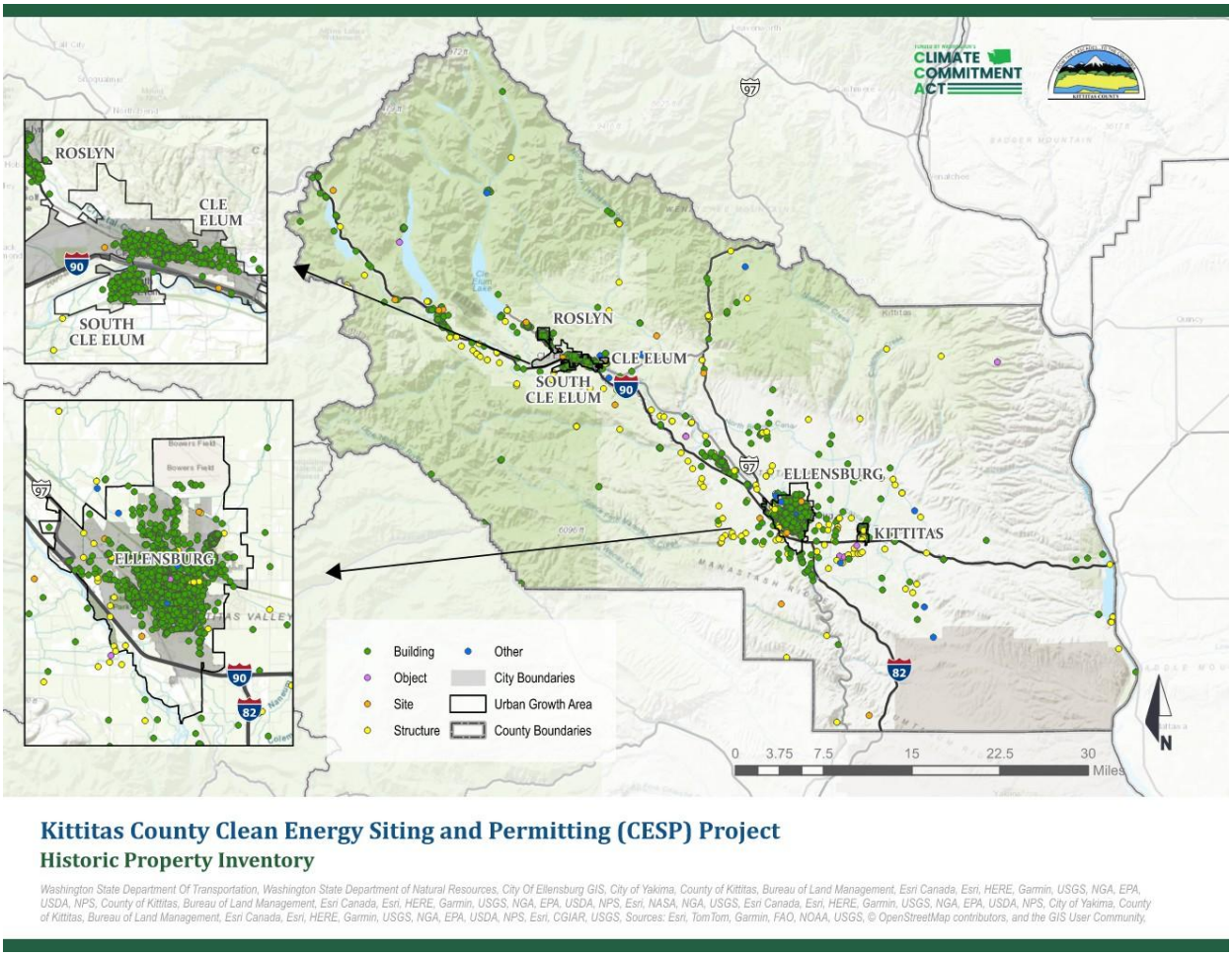
### 12.2.1.2 Agricultural Heritage

Agriculture has been a common land use in the Kittitas Valley since the late nineteenth century. Historic farms, ranches, irrigation systems, barns, and agricultural landscapes remain visible throughout the county and contribute to its rural character. Many working agricultural lands continue to operate today, preserving connections between historic land use patterns and contemporary agricultural production.

## 12.2.2 Historic Properties

Historic properties, including buildings, structures, sites, and objects, are found throughout Kittitas County. As of August 2026, DAHP's database currently documents close to 5,000 buildings, 165 structures, 26 sites, and eight objects within Kittitas County. This inventory includes properties located within city jurisdictions, which is where the largest concentrations of historic properties are located. **Figure 44** below shows the publicly available properties that may be historic within Kittitas County.

*Figure 44: Historic Properties in Kittitas County*




*Source: Kimley-Horn, 2026 using DAHP – Historic Property Inventory | Washington State Geospatial Open Data Portal*

Not all properties listed above are registered for historic preservation; the data includes properties that are unevaluated, eligible, or not eligible. This dataset is constantly being updated. DAHP's WISAARD contains an inventory of multiple registered properties, heritage barns, historic bridges, and registered districts throughout the county.

Historic districts in the county are found within the cities of Ellensburg and Roslyn; however these districts are outside of the geographic scope of study. Other communities, including Cle Elum, South Cle Elum, and Thorp, contain historic resources associated with railroads, agriculture, logging, and mining activities. Historic downtown districts, rail facilities, agricultural structures, and community landmarks remain important components of the county's cultural landscape.

### 12.2.3 Local Museums

Several museums and cultural facilities preserve and interpret the county's historic and cultural resources, including:

- Kittitas County Historical Museum (Ellensburg)
- Roslyn Museum
- Carpenter House Museum (Cle Elum)
- Telephone Museum (Cle Elum)
- CWU Museum of Culture and Environment
- Clymer Museum and Gallery
- Washington State Ski and Snowboard Museum (Snoqualmie Pass)

These facilities provide insight, knowledge, and access to known historic and cultural resources in Kittitas County as it relates to Indigenous Peoples stewardship since time immemorial and Kittitas County settlement, including mining, agriculture, transportation, recreation, and community development.

### 12.2.4 Archaeological Resources and Predictive Model

Archaeological sites are comprised of the physical evidence of an Indigenous and subsequent culture, including material remains of past human life, such as monuments, symbols, tools, facilities, and technological byproducts. DAHP has established that an archaeological site must contain at least two archaeological objects; a single archaeological object is known as an archaeological isolate.[179] (ECY)

Archaeological resources are typically identified through archaeological survey work and project-level environmental review for specific site areas. The majority of the County has not been archaeologically surveyed. It should be assumed that potential facility sites have not been intensively surveyed. Tribal knowledge of specific areas may also contain information regarding the locations of precontact archaeological sites.

For early planning and risk identification, DAHP hosts an archaeological predictive model that assesses the risk for finding archaeological resources across Washington State. This model is not a definitive assessment and, according to the Department of Ecology, is only around 85 percent correct. The model also does not account for cultural and sacred places.

The predictive model helps determine the likelihood of precontact-era archaeological sites being present based on environmental factors such as elevation, slope percent, aspect, distance to water, geology, soils, landforms, as well as archaeological data including archaeological site locations, archaeological surveys, and information depicted on Government Land Office (GLO) maps. (cite the PEIS)

Five categories are used in the prediction model; these categories are as follows:

- **Low Risk**: Survey Contingent Upon Project Parameters
- **Moderately Low Risk**: Survey Contingent Upon Project Parameters
- **Moderate Risk**: Survey Recommended
- **High Risk**: Survey Highly Advised

[179] Washington State Department of Ecology, Programmatic EIS for Utility-Scale Solar, 2025

- **Very High Risk**: Survey Highly Advised

As stated in the PEIS by the Department of Ecology, an understanding of geomorphology and past land use and development is necessary to correctly apply and interpret the model.[180] Understanding sediment transport, cultural significance of waterways and natural landmarks, history of settlement along waterbodies, early transportation routes including trails, and favorable resource conditions for settlement all factor into where archeological resources may occur across the county. In Kittitas County, archaeological resources occur throughout and are more commonly associated with:

- River corridors,
- Transportation routes,
- Upland hunting areas, and
- Historic settlement locations.

As shown in **Figure 45** below, areas along the Yakima River, Columbia River, Cle Elum River, Teanaway River, and Kittitas Valley have high potential for archaeological resources due to their long history of human occupation and use. Resources may include lithic scatters, campsites, rock shelters, historic-period archaeological sites, and other evidence of past human activities.

*Figure 45: Archaeological Risk Assessment Model*




*Source: DAHP, WISAARD Archaeological Risk Assessment Model, 2026*

[180] Department of Ecology, Programmatic EIS for utility-scale solar, 2025

The model is intended to be used as an early planning tool to assist in determining the level of effort that may be necessary to consider the archaeological resources that may be present. Project-level assessment may determine the level of effort that may be necessary to identify archaeological resources that may be present through background research into the environmental and cultural context of a given location.

A full assessment of a location's probability of containing archaeological resources by a professional archaeologist may be higher or lower than the initial assessment in the figure above. The model's results on the probability of encountering precontact-period archaeological resources are intended as an effective early-warning tool for understanding the baseline probability of encountering certain types of archaeological resources and assessing the general level of effort that may be needed for future project-level studies.

A complete assessment of the probability of encountering all types of cultural resources requires focused research into a wide range of archival resources and consultation with affected Tribes. Tribes often hold detailed information about an area's history, which helps assess the probability of finding cultural resources in a given location. These ethnographic data are not incorporated into the DAHP predictive model and often cannot be assessed by outside researchers without direct collaboration with Tribal knowledge holders. The Tribes contacted, and archival resources reviewed as part of a full probability assessment would be unique to any particular location. The model's baseline probability assessments are often considered in conjunction with archival research findings by researchers once a detailed archival effort has been conducted.

### 12.2.5 Traditional Cultural Properties

Traditional Cultural Properties (TCPs) are a property or a place that is inventoried or determined to be eligible for inclusion on the NRHP or the Washington Heritage Register because of its association with cultural practices and beliefs that are:

- Rooted in the community's history, and
- Important to maintaining the continuing cultural identity of the community's traditional beliefs and practices.[181]

DAHP maintains a database of TCPs, although few are publicly disclosed. TCPs may include culturally significant locations, landforms, or objects ranging in scale from a single feature to an entire landscape. Because TCPs are often associated with sensitive cultural or spiritual practices, they are typically documented only to the extent necessary to evaluate potential project impacts. The details and locations of these restricted resources are shared on an as-needed basis through the consultation process.[182]

### 12.2.6 Human Remains and Cemeteries

Skeletal remains represent the physical remains of once-living individuals and as such should be treated with the utmost care, dignity, and respect. DAHP holds jurisdiction over all non-forensic human skeletal remains found in Kittitas County on non-federal and non-tribal lands. It also has the primary responsibility for the notification of appropriate cemeteries and affected tribes when non-forensic skeletal remains are discovered. Cemeteries, Indian burial grounds, historic graves, and pioneer cemeteries are significant and irreplaceable

[181] DAHP, 2017. Traditional Cultural Properties (TCPs): DAHP Policy. Policy No. 12.1.2017. Effective and signed December 1, 2017. Available at: https://dahp.wa.gov/sites/default/files/2017_SIGNED_TCP.pdf

[182] Washington State Department of Ecology, Programmatic EIS for Utility-Scale Solar, 2025

cultural resources in Washington state. Because of their cultural importance, they are all strictly protected under state laws and their data is restricted.

## 12.3 Impact Analysis

### 12.3.1 Overview

This section evaluates how the alternatives could affect historic and cultural resources in Kittitas County. The analysis addresses large-scale solar, large-scale wind, battery energy storage systems (BESS), geothermal facilities, and small modular reactors (SMRs). It is organized by alternative, facility type, and project phase: construction, operation, and decommissioning.

Potential impacts include damage to or loss of archaeological resources, historic properties, traditional cultural properties, sacred sites, cemeteries, or human remains; changes to culturally significant landscapes, viewsheds, or resource settings; interference with access or cultural practices; and increased risk of inadvertent discovery, vandalism, or unauthorized collection. The magnitude of impacts would depend on:

- Facility location, size, layout, and design;
- Extent and depth of ground disturbance;
- Presence and significance of known or unidentified historic and cultural resources;
- Proximity to culturally important landscapes, viewsheds, access routes, and traditional-use areas;
- Extent of roads, transmission facilities, pipelines, water infrastructure, and other supporting improvements; and
- Effectiveness of avoidance, consultation, monitoring, and other mitigation measures.

Because much of Kittitas County has not been intensively surveyed and some cultural-resource information is confidential or not incorporated into publicly available databases, the absence of a recorded resource does not establish that historic or cultural resources are not present. Project-level review, surveys, and consultation with affected Tribes, the Washington State Department of Archaeology and Historic Preservation (DAHP), and other applicable agencies would remain necessary for future energy facilities.

*Table 21: Primary Historic and Cultural Resource Concerns*

| Facility Type | Primary Historic and Cultural Resource Concerns |
|---|---|
| Large-Scale Solar | Ground disturbance could affect archaeological and Tribal cultural resources; large facilities may alter cultural landscapes and culturally important views. |
| Large-Scale Wind | Turbine construction could affect archaeological resources; turbines may alter cultural landscapes, traditional use areas, and significant viewsheds. |
| BESS | Localized ground disturbance and associated utility infrastructure could affect nearby cultural resources. |
| Geothermal | Drilling and associated infrastructure could affect archaeological resources, traditional cultural properties, and undiscovered human remains and cemeteries. |
| SMRs | Site development and supporting infrastructure could affect archaeological resources, historic properties, and cultural landscapes. Radioactive materials and waste could adversely impact cultural resources. |

## 12.3.2 No Action - Alternative #1

Under the No Action Alternative, Kittitas County would not adopt new or revised siting and permitting provisions based on the programmatic EIS. Clean energy proposals could still be submitted and would continue to be reviewed individually under existing County code, SEPA, and other applicable local, state, federal, and Tribal requirements. Historic and cultural resource impacts would therefore depend on each future project's location, design, and water needs.

### 12.3.2.1 Impacts from Construction, Operation, and Decommissioning Under Current Processes

Construction and decommissioning could affect historic and cultural resources. These activities could damage previously unidentified archaeological resources, human remains, historic-period materials, or features contributing to a historic property or cultural landscape. Access to culturally significant sites may be temporarily limited, and cultural practices could also experience disruptions.

During operation, most ground disturbances would occur within established areas. Operational effects could alter the setting or continued use of nearby historic properties, traditional cultural properties, cultural landscapes, or other culturally important locations.

Impacts would generally be less than significant where resources are identified early, avoided, and protected through permit conditions and consultation. Potentially significant impacts could occur where important resources remain unidentified, cannot be avoided, or would experience effects that cannot be adequately mitigated.

### 12.3.2.2 Mitigation Measures

#### 12.3.2.2.1 Required Measures

- Comply with applicable federal, state, and local requirements for the identification, evaluation, and protection of historic and cultural resources.
- Complete project-level cultural-resource review, agency coordination, and Tribal consultation as required by the applicable permitting and environmental review processes.
- Complete review under Section 106 of the National Historic Preservation Act where a federal undertaking is involved.
- Prepare and implement inadvertent discovery procedures addressing archaeological materials and human remains.
- Stop work and complete required notifications if archaeological resources or human remains are discovered.
- Implement applicable permit conditions, treatment plans, monitoring requirements, agreements, and other mitigation commitments resulting from regulatory review or consultation.

### 12.3.2.3 Significant Unavoidable Adverse Impacts

Existing project-level review could require avoidance and mitigation measures to preserve historic and cultural resources within the County including coordination with local Tribes. However, under no action, the County would not gain a coordinated, countywide framework identifying suitable locations, standardized information needs, or broadly applicable mitigation measures for historic and cultural resources. As a result, review may be less predictable and efficient, and opportunities to avoid sensitive resources early in siting, increase coordination with local Tribes, or consistently address cumulative impacts may be more limited.

## 12.3.3 Reassess Solar and Wind Overlays, Assess Potential BESS Siting and Permitting – Alternative #2

Alternative 2 would reassess the existing solar and wind overlays, evaluate a potential BESS standard, and establish or revise associated development standards. Overlays could direct facilities away from known historic and cultural resources, areas with high archaeological sensitivity, culturally significant landscapes, and locations identified through Tribal consultation. The overlays could also establish consistent project-level information, consultation, survey, monitoring, and inadvertent discovery requirements. Project-level review would remain necessary because countywide screening cannot identify all resources or determine their significance.

### 12.3.3.1 Large-Scale Solar

#### 12.3.3.1.1 Construction Impacts

Construction activities that could impact cultural resources include ground disturbance, degraded visual quality, noise, and interrupted landscape and habitat. Tribal spiritual practices could be interrupted by construction impacts on land areas and cultural or sacred sites, including degradation of visual quality, noise, and interruption of access.

Most construction activities for solar facilities may involve little or no ground disturbance. This may include drilling deep soil cores and building access roads, which could result in impacts on, or there may be inadvertent discoveries of, cultural resources. In steep or mountainous terrain, additional grading and clearing may be required. Ground disturbance is more likely to impact unrecorded archaeological resources, as recorded resources should be identified earlier in the project-level environmental process.

Altered topography, hydrologic patterns, removal or erosion of soils, runoff, and contaminant spills could degrade or destroy cultural resources if they occur on or near the site. Such events occur on site or near the project site depending on proximity and downward slope.

Human access and increased activity in previously inaccessible areas may impact cultural resources. Trampling, looting, vandalism, increased noise, and other human activities may damage resources, whether intentional or unintentional.

Visual changes from construction machinery and solar equipment can contrast with historic and cultural resources and surrounding vegetation and landscape, affecting the integrity of a site's significance.

Construction noises, resulting from equipment use and other activities, can cause temporary noise and vibration impacts. The severity of these impacts depends on factors like the type of activities, terrain, vegetation, and distance from historic and cultural resources. Sacred sites and TCPs are particularly vulnerable to noise disruptions due to the practices associated with them, which could be interrupted or interfered with.

#### 12.3.3.1.2 Operation Impacts

Operation and maintenance are expected to have little new ground disturbance. Activities would likely include vehicle traffic, vegetation management, and ongoing repairs and maintenance as needed, with related human activity.

Visual changes from solar equipment can create contrast with historic and cultural resources and surrounding vegetation and landscape, impacting the integrity of historic and cultural site significance.

Facility fencing and operations could impact access and travel paths significant for historic and cultural resources. Such barriers are more likely to impact TCPs, sacred sites, and cemeteries. The significance of this impact could increase with facility size and density, along with the perception that the area is no longer freely accessible.

#### 12.3.3.1.3 Decommissioning Impacts

Decommissioning large-scale solar facilities can cause temporary ground disturbance, traffic, noise, dust, erosion, and soil compaction during removal of photovoltaic panels, racking, foundations, fencing, roads, electrical infrastructure, and other project components.

Long-term effects will depend on the approved end land use and the success of site restoration efforts, which include soil restoration, drainage repair, and revegetation of the project area. Removing fencing and infrastructure could enhance access to historic and cultural resources. Restoration activities may improve conditions by successfully reestablishing native vegetation and controlling noxious weeds. However, recovering historic and cultural resources might require ongoing monitoring and may not completely restore them to predevelopment conditions.

#### 12.3.3.1.4 Mitigation Measures

##### *12.3.3.1.4.1 Required Measures*

- Complete applicable cultural-resource review, surveys, consultation, and agency and Tribal coordination before approving final facility locations and disturbance areas.
- Complete Section 106 review where a federal undertaking is involved.
- Obtain applicable DAHP permits before altering or excavating a protected archaeological site.
- Prepare and implement inadvertent discovery procedures addressing archaeological resources and human remains.
- Stop work and complete required notifications if archaeological materials or human remains are discovered.
- Implement applicable treatment plans, monitoring requirements, permit conditions, agreements, and other mitigation commitments resulting from regulatory review or consultation.

##### *12.3.3.1.4.2 Recommendations for Siting and Design*

- Avoid impacts on cultural and historic resources through DAHP's WISAARD (including the predictive model) and the development of site-specific environmental and cultural context and Tribal coordination.
- Contact potentially affected Tribes early in the siting process, ideally before land is acquired for a project or before permit applications are developed and offer information relevant to Tribal technical staff to help identify potential impacts on Tribes.
- Consider potential impacts on Tribal treaty-reserved rights, Tribal reservations, off-reservation rights, trust lands, other Tribal-owned land, and other areas of significance to Tribes during project design and in siting decisions.
- Conduct a site-specific cultural survey to evaluate potential impacts in accordance with DAHP and federal requirements and guidance. To expedite the review process, DAHP and the affected Tribes should be given the opportunity to review the cultural resource survey methodology.
- Consider requiring a Tribal monitor for survey crews to provide input on Traditional Cultural Properties, sacred sites, and culturally significant sites during site selection.
- Provide cultural resource survey results to potentially affected Tribes for early review.

- Use previously disturbed lands and lands determined by archaeological inventories to be devoid of historic properties.
- In areas where homesteading was a prevalent historic activity, contact the local assessor's office and historical museums to determine if the area includes known homestead sites.

*12.3.3.1.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Clearly mark avoidance areas and restrict construction access, staging, storage, and equipment movement within or near culturally sensitive areas.
- Train workers regarding cultural-resource protection and applicable inadvertent discovery procedures.
- Use archaeological or Tribal monitoring where established through consultation or project-level review.
- Restrict new or unauthorized access into culturally sensitive areas.
- Maintain coordination with affected Tribes and applicable agencies throughout construction, operation, and decommissioning.
- Monitor known resources where construction, drainage changes, erosion, public access, or facility operations could cause continuing effects.
- Design decommissioning activities to minimize renewed disturbance and avoid unnecessary removal of subsurface components where removal would cause greater cultural-resource impacts.
- Restore disturbed areas in a manner compatible with the affected resource, surrounding landscape, and agreed-upon treatment measures.

*12.3.3.1.4.4 Other Mitigation for Potentially Significant Impacts*

Where avoidance is not feasible, project-specific mitigation should be developed through consultation with affected Tribes, DAHP, federal agencies, and other consulting parties, as applicable. Measures may include redesign or relocation, data recovery, documentation, preservation, access agreements, interpretation, screening, landscape restoration, monitoring, or other culturally appropriate treatment. A location may be unsuitable for development where the significance, integrity, or cultural function of a resource cannot be adequately protected or restored.

#### 12.3.3.1.5 Significant Unavoidable Adverse Impacts

Ground mounted solar energy facilities could result in significant unavoidable adverse impacts on previously unidentified historic, archaeological, or cultural resources. Project-level review, consultation, surveys, and mitigation measures would help identify resources and reduce potential impacts; however, limitations in available information, site access, survey coverage, predictive modeling, and coordination efforts may result in some resources remaining unidentified until construction or operation occurs. As a result, the potential for adverse impacts to unidentified cultural resources cannot be eliminated.

### 12.3.3.2 Large-Scale Wind

#### 12.3.3.2.1 Construction and Decommissioning Impacts

Wind facilities generally have dispersed permanent footprints. However, construction of large-scale wind facilities could impact large stretches of land through turbine foundations, crane pads and paths, laydown areas, access roads, meteorological towers, collection lines, substations, and transmission corridors.

Construction activities may cause ground disturbance in localized areas. Such activities may impact cultural resources or lead to accidental discoveries of them. In steep or mountainous regions, extra grading and clearing might be necessary. Ground disturbance is more prone to affect unrecorded archaeological sites, since recorded sites are usually identified earlier in the environmental assessment process.

Degradation and potential destruction of cultural resources could come from the alteration of topography, hydrologic patterns, removal or erosion of soils, runoff, and contaminate spills if located on or near the site. This could occur on site or near the project site depending on proximity and downward slope.

Human access and rising activity in previously untouched areas can threaten cultural resources. Activities such as trampling, looting, vandalism, and increased noise may cause damage, whether intentional or accidental, by visitors.

The visual impact of construction machinery and wind turbines can contrast with historic and cultural resources, as well as surrounding vegetation and landscape, affecting the site's overall integrity.

Construction activities like equipment use may produce temporary noise and vibrations. The level of impact depends on factors such as the specific activity, terrain, vegetation, and distance to historic and cultural resources. Sacred sites and TCPs are likely more vulnerable to noise impacts due to the practices they host. These activities could also cause interruptions or disturbances.

Decommissioning would involve activities similar to those during construction. Site restoration might involve revegetating areas that were previously disturbed.

#### 12.3.3.2.2 Operation Impacts

During operation, visual features may contrast with the historic and cultural character of local properties, possibly impacting their integrity and significance. These visual effects could involve turbines, rotor blade movement, shadow flicker, blade glint, aviation safety lighting, lighting from control buildings and related facilities, access roads, vehicles, and maintenance activities.

Operational noise and vibration could affect the ability to experience historic properties or participate in cultural practices and activities associated with nearby historic and cultural resources.

Although wind facilities are generally dispersed across the landscape, operational features such as fencing and restricted access could limit access to areas used for cultural, ceremonial, or recreational purposes. Increased human activity, vehicle traffic, and maintenance operations in previously undeveloped or less disturbed areas could also affect the setting and use of historic and cultural resources.

#### 12.3.3.2.3 Mitigation Measures

##### *12.3.3.2.3.1 Required Measures*

- Mitigation may be developed through consultation with affected Tribes during the SEPA process or, where applicable, through Section 106 of the NHPA.
- Where applicable, projects would comply with federal Section 106 consultation requirements and state archaeological permitting requirements under Chapter 27.53 RCW, including measures to avoid, minimize, or mitigate impacts to cultural resources.
- An applicant must develop an Inadvertent Discovery Plan

##### *12.3.3.2.3.2 Recommendations for Siting and Design*

- Review proposed project siting and design to avoid and minimize potential impacts to cultural and historic resources. Use the DAHP predictive model as an initial screening tool, supplemented by site-specific environmental and cultural information and coordination with potentially affected Tribes.
- Encourage applicants to engage potentially affected Tribes early in project siting and design, preferably before major siting decisions are finalized or permit applications are submitted, and provide sufficient project information to support Tribal review.

- Evaluate potential effects on Tribal treaty-reserved rights, reservations, off-reservation resources and activities, trust lands, Tribal-owned lands, and other areas or resources identified by Tribes as significant.
- Require site-specific cultural resource surveys where warranted based on site conditions, available information, applicable requirements, or consultation with Tribes. Coordinate with DAHP and provide potentially affected Tribes opportunities to inform the scope and approach of cultural resource investigations.
- Consider whether Tribal monitoring is appropriate during cultural resource surveys or other ground-disturbing activities, based on consultation with potentially affected Tribes and site-specific conditions.
- Provide potentially affected Tribes an opportunity to review relevant cultural resource information, consistent with applicable confidentiality requirements, before permit decisions are finalized.
- Prioritize avoidance of identified historic properties and cultural resources when evaluating project siting and design. Previously disturbed areas or areas demonstrated through appropriate investigation to have lower potential for cultural resources may reduce potential conflicts.
- Where historic settlement or homesteading may be present, consider available County assessor records, historical records, museums, and other appropriate local sources to identify known or potential historic sites.

##### *12.3.3.2.3.3 Recommendations for Construction, Operation, and Decommissioning*

If unrecorded archaeological resources are identified during project construction or operation, work within 30 meters (100 feet) of the find must be halted and directed away from the discovery until it can be assessed in accordance with steps in the Inadvertent Discovery Plan.

##### *12.3.3.2.3.4 Other mitigation for potentially significant impacts*

- Require a cultural resources survey of the entire project site.
- Use training/educational programs for workers to reduce occurrences of disturbances, vandalism, and harm to historic properties. Plans should incorporate adaptive management protocols for addressing changes over the life of the project, should they occur.
- Address impacts to historic and cultural resources that follow the best available guidance and strategies developed by federal, Tribal, and state governments, including but not limited to compensatory mitigation, formalized ongoing consultation between the state and Tribes to address new concerns and monitor long-term mitigation, and the development and maintenance of new technologies and geospatial analysis that help identify and avoid historic and cultural resources.
- Additional actions to avoid or minimize impacts would be determined after engagement and government-to-government consultation with Tribes.

#### 12.3.3.2.4 Significant Unavoidable Adverse Impacts

Wind energy facilities may cause unavoidable adverse effects on unidentified historic, archaeological, or cultural resources. While project review, consultation, surveys, and mitigation can help identify resources and lessen impacts, constraints such as limited information, access issues, survey coverage gaps, predictive model limitations, and coordination challenges might leave some resources unidentified until construction or operation begins. Consequently, it is impossible to completely eliminate the risk of adverse impacts on these unidentified cultural resources.

### 12.3.3.3 Battery Energy Storage Systems (BESS)

#### 12.3.3.3.1 Construction and Decommissioning Impacts

Construction may disturb small areas at the container level, but the specific impacts depend on the project size, location, and infrastructure requirements. Construction may involve vegetation removal, grading, excavation, foundation work, drainage upgrades, access roads, fencing, substations, and electrical connections. These activities could potentially harm or destroy historic properties, traditional cultural sites, or other cultural resources. The level of impact varies with the facility's size, the extent of site disturbance, previous land use, and proximity to known cultural sites.

Minimal subsurface disturbance would generally be anticipated, reducing the potential for impacts on archaeological resources. However, soil compaction and localized ground disturbance could still affect previously unidentified subsurface resources.

Construction activity, equipment operation, and increased worker presence could temporarily disrupt access to or use of areas important for cultural practices. The potential for impacts would generally be reduced where facilities are co-located with existing substations, industrial sites, or other previously disturbed areas.

Decommissioning impacts would likely be similar to construction. Activities would include removing battery units, electrical equipment, foundations, fencing, and related infrastructure. Removal activities could result in ground disturbance that may affect previously unidentified archaeological resources. Temporary noise, traffic, and construction activity could also disrupt access to or use of nearby cultural resources.

Following facility removal and site restoration, visual and access-related impacts would generally be reduced or eliminated. Restoration of disturbed areas could allow former land uses and cultural practices to resume where appropriate.

#### 12.3.3.3.2 Operation Impacts

Operational impacts on historic and cultural resources would mainly stem from the long-term presence of facility infrastructure rather than continuous disturbance. BESS facilities might include battery containers, transformers, switchgear, security fencing, lighting, and related support equipment, all of which could alter the visual landscape. These changes might impact the setting, character, or integrity of nearby historic or traditional cultural properties, especially when their cultural significance is linked to the wider landscape or viewshed.

Restricted access due to fencing, security protocols, and facility activities may limit entry to locations used for cultural, ceremonial, educational, or traditional practices. While routine operations generally involve minimal traffic and personnel, heightened human activity in previously undeveloped areas could impact the use and experience of cultural resources.

Impacts would generally be lower where facilities are sited within existing industrial, utility, or developed areas and higher where facilities are developed in culturally sensitive landscapes or areas containing known or unidentified historic and cultural resources.

#### 12.3.3.3.3 Mitigation Measures

##### *12.3.3.3.3.1 Required Measures*

- Comply with applicable federal, state, and local cultural resource protection requirements.
- Conduct project-level cultural resource review and consultation with affected Tribes, DAHP, and other consulting parties as required.
- Complete cultural resource surveys and archaeological investigations when warranted by site conditions and project design.
- Develop inadvertent discovery procedures for archaeological resources, human remains, and cultural materials.

##### *12.3.3.3.3.2 Recommendations for Siting and Design*

- Prioritize development within existing substations, industrial areas, energy facilities, and other previously disturbed sites.
- Avoid known archaeological sites, traditional cultural properties, historic properties, culturally sensitive landscapes, and areas identified through Tribal consultation.
- Locate facilities to minimize visual contrast with historic properties and culturally significant landscapes.
- Use setbacks, screening, landscaping, and facility design features to reduce visual impacts where appropriate.

##### *12.3.3.3.3.3 Recommendations for Construction, Operation, and Decommissioning*

- Minimize ground disturbance to the extent practicable.
- Clearly identify environmentally and culturally sensitive areas during construction.
- Limit construction access routes and staging areas to previously disturbed locations, where feasible.
- Maintain consultation with Tribes and regulatory agencies throughout project planning and implementation.
- Additional actions to avoid or minimize impacts would be determined after engagement and government-to-government consultation with Tribes.

#### 12.3.3.3.4 Significant Unavoidable Adverse Impacts

BESS facilities may cause unavoidable adverse effects on previously unknown archaeological, historic, or cultural resources. While project surveys, Tribal consultation, cultural resource reviews, and mitigation strategies can lessen the risk of impacts, constraints such as limited information, site access, survey techniques, and resource detection might leave some cultural resources undiscovered. Consequently, impacts on unidentified cultural resources cannot be fully prevented.

## 12.3.4 Assess Potential Geothermal and Small Modular Reactor Siting and Permitting – Alternative #3

Under Alternative 3, Kittitas County evaluates potentially significant environmental impacts for geothermal energy facilities and small modular reactor facilities.

### 12.3.4.1 Geothermal

#### 12.3.4.1.1 Construction and Decommissioning Impacts

Construction may cause significant ground disturbance due to site grading, exploration work, well drilling, well pads, pipelines, access roads, transmission lines, substations, and support infrastructure. Since geothermal

development often involves extensive subsurface exploration and drilling, the risk of affecting archaeological resources may be higher compared to other types of energy facilities.

Construction activities could also temporarily affect access to areas used for cultural practices and historic properties and traditional cultural properties. Increased vehicle traffic, construction noise, equipment operation, and worker presence may alter the use and experience of nearby historic properties and traditional cultural properties during construction.

When geothermal facilities are built in culturally significant areas, construction could change features that define the character, ambiance, connections, or integrity of specific sites and traditional cultural properties. These impacts are especially critical if cultural importance is linked to natural landforms, viewsheds, or sites identified through Tribal consultation.

The magnitude of impacts would vary depending on facility size, the extent of ground disturbance, proximity to known cultural resources, existing site conditions, and the effectiveness of project-level cultural resource review, Tribal consultation, avoidance measures, and construction monitoring.

Decommissioning may involve abandoning wells and removing equipment, pipelines, buildings, fencing, roads, and related infrastructure. Like construction, decommissioning might disturb the ground, potentially impacting previously unidentified archaeological resources through excavation, grading, or removal of subsurface structures.

Temporary increases in noise, traffic, equipment operation, and worker activity could disrupt access to or use of nearby cultural resources during decommissioning activities. Removing facilities could also temporarily alter the setting of nearby historic properties and cultural landscapes.

After decommissioning and site restoration, visual, access-related, and operational impacts would generally be reduced or eliminated. Restoration of disturbed areas may allow for the recovery of cultural landscape characteristics and the resumption of cultural practices where appropriate. However, some impacts may persist where archaeological resources were previously disturbed or where changes to the landscape cannot be fully restored.

#### 12.3.4.1.2 Operation Impacts

Operational impacts from geothermal energy facilities might result from the long-term presence of wellheads, pipelines, power stations, cooling systems, substations, transmission lines, access roads, and related support structures. These elements could create visual changes that affect the setting, character, ambiance, or associations of nearby historic sites and cultural properties. The impacts may be more significant when the value of a resource is connected to natural landscapes, geological features, viewsheds, or other cultural ties to the land.

Depending on the location, measures such as fencing, security measures, and restricted access could limit areas used for cultural practices. Noise generated from geothermal facility operations, related mechanical and cooling equipment, maintenance activities, and vehicle traffic could impact the ability to experience nearby historic properties or participate in traditional cultural activities.

#### 12.3.4.1.3 Mitigation Measures

##### *12.3.4.1.3.1 Required Measures*

- If a project requires federal permits or affects federal lands, mitigation measures would be developed in consultation with Tribes under Section 106 of the NHPA to avoid, reduce, or mitigate the potential for adverse impacts on significant cultural resources, if present. Section 106 consultations between the federal agencies, DAHP, affected federal treaty Tribes, and other consulting parties would be required.
- If any precontact archaeological site or NRHP-eligible historic-era archaeological site related to Tribal activities is impacted by a project, the applicant will obtain a DAHP excavation permit and perform necessary archaeological work to comply with Chapter 27.53 RCW.
- An applicant must develop an Inadvertent Discovery Plan.

##### *12.3.4.1.3.2 Recommendations for Siting and Design*

- Prioritize development within existing substations, industrial areas, energy facilities, and other previously disturbed sites.
- Avoid known archaeological sites, traditional cultural properties, historic properties, culturally sensitive landscapes, and areas identified through Tribal consultation.
- Locate facilities to minimize visual contrast with historic properties and culturally significant landscapes.
- Use setbacks, screening, landscaping, and facility design features to reduce visual impacts where appropriate.

##### *12.3.4.1.3.3 Recommendations for Construction, Operation, and Decommissioning*

- If unrecorded archaeological resources are identified during project construction or operation, work within 30 meters (100 feet) of the find must be halted and directed away from the discovery until it can be assessed in accordance with steps in the Inadvertent Discovery Plan.
- Maintain ongoing Tribal coordination throughout project development, operation, and decommissioning.

##### *12.3.4.1.3.4 Other Measures for Potentially Significant Impacts*

- Conduct a cultural resources survey of the entire project site.
- Use training/educational programs for workers to reduce occurrences of disturbances, vandalism, and harm to historic properties. Plans should incorporate adaptive management protocols for addressing changes over the life of the project, should they occur.
- Address impacts to historic and cultural resources that follow the best available guidance and strategies developed by federal, Tribal, and state governments, including but not limited to compensatory mitigation, formalized ongoing consultation between the state and Tribes to address new concerns and monitor long-term mitigation, and the development and maintenance of new technologies and geospatial analysis that help identify and avoid historic and cultural resources.
- Additional actions to avoid or minimize impacts would be determined after engagement and government-to-government consultation with Tribes.

### 12.3.4.2 Small Modular Reactors

During engagement efforts, concerns were voiced about the long-standing effects of nuclear development on Indigenous communities and cultural resources. This includes issues like radioactive contamination and the challenges of storing and disposing of radioactive waste over time. The Hanford Site was mentioned as an example that continues to raise concerns about nuclear technologies. Therefore, the importance of potential impacts to cultural resources may be shaped by the history of nuclear development and its enduring impact on Tribal communities and their cultural heritage.

#### 12.3.4.2.1 Construction Impacts

Construction of SMR facilities could result in substantial ground disturbance associated with site preparation, grading, excavation, foundations, reactor and support buildings, cooling systems, substations, transmission infrastructure, access roads, security features, water infrastructure, and other ancillary facilities. These activities could damage, alter, or destroy previously unidentified archaeological resources, historic properties, traditional cultural properties, and other cultural resources. Although small and modular, SMR facilities might need extensive areas of disturbance and deep underground excavation, depending on the nuclear reaction involved in the development.

Construction activities may disrupt access to sites used for cultural practices. Increased construction traffic, noise, lighting, worker presence, and extended timelines could change how nearby historic properties and cultural resources are used and experienced during construction.

When SMR facilities are located near sensitive areas identified through engagement and Tribal consultation, construction activities such as noise, lighting, and equipment use may affect the features that contribute to the historic or cultural properties' setting, feeling, association, or integrity. Such impacts could extend beyond the project's physical boundaries, particularly when a resource's importance relies on its surrounding landscape, visual appearance, or its link to a particular location.

The magnitude of impacts may vary depending on facility size, site selection, the extent of ground disturbance, proximity to known cultural resources, existing site conditions, and the effectiveness of project-level cultural resource review, Tribal consultation, avoidance measures, and construction monitoring. Development on previously disturbed industrial sites, including the potential redevelopment of existing energy facilities, would generally reduce the likelihood and severity of impacts compared to development on previously undeveloped lands.

#### 12.3.4.2.2 Operation Impacts

Operational impacts from SMR facilities would primarily result from the long-term presence of reactor buildings, cooling infrastructure, substations, transmission facilities, security features, lighting, and other associated infrastructure. These facilities could significantly alter the surrounding landscape, potentially affecting the integrity of nearby historic properties and traditional cultural properties. Visual impacts may be greater where the significance of a resource is tied to viewsheds, natural landscapes, waterways, or other sensitive locations.

Security requirements associated with SMR facilities could include fencing, controlled access areas, surveillance infrastructure, and restricted-use zones. These features could limit access to areas used for cultural practices. Long-term changes in access may be of particular concern where facilities are located near areas identified as having cultural importance.

Routine operations may generate traffic associated with staffing, maintenance, inspections, and security activities. Ongoing human activity, lighting, facility operations, and maintenance activities could alter the integrity of nearby historic and cultural resources. Depending on facility location and design, operational noise could affect the ability to experience historic properties or traditional cultural properties.

Radioactive waste generated during operation would require long-term storage, transportation, treatment, and disposal in accordance with applicable federal and state requirements. Improper handling, storage, transportation, or disposal of radioactive materials could adversely impact historic or cultural resources, particularly protected landscapes, waterways, natural resources, or traditional cultural properties.

Operational impacts vary depending on factors such as the type of nuclear reaction, waste production, facility design, and regulatory standards. Nuclear fission SMRs tend to pose greater risks for adverse effects due to long-lived radioactive waste, the need for safe storage and disposal, and stricter safety and security measures. They also carry a higher likelihood of emergency scenarios requiring protective actions. Conversely, nuclear fusion is still in development, and its potential impacts and waste output will depend on the final technology, design, and regulations. Utilizing existing industrial or energy sites can help minimize impacts on historic and cultural resources compared to developing previously untouched lands.

#### 12.3.4.2.3 Decommissioning Impacts

Decommissioning SMR facilities typically involves removing or decontaminating reactor components, buildings, cooling systems, substations, transmission infrastructure, security features, and related upgrades. Like construction, this process can cause significant ground disturbance through demolition, excavation, utility removal, grading, and site restoration. Such activities may inadvertently harm unseen archaeological resources or other cultural artifacts located within the disturbed areas.

Temporary increases in noise, traffic, lighting, equipment use, and worker activity could affect access to and use of nearby historic properties and traditional cultural properties during decommissioning. Impacts may be prolonged due to the complexity and duration of facility decommissioning and restoration activities.

After facility removal and site restoration, visual impacts and operational access restrictions would generally be reduced or eliminated. Restoration activities may provide opportunities to reestablish landscape characteristics and improve access to culturally significant areas. However, some impacts may remain where archaeological resources were previously disturbed, landscapes were altered, or site conditions cannot be fully restored to their predevelopment condition.

#### 12.3.4.2.4 Mitigation Measures

##### *12.3.4.2.4.1 Required Measures*

- Comply with applicable federal, state, and local requirements for the identification, evaluation, and protection of archaeological, historic, and cultural resources.
- Obtain and comply with applicable federal and state permitting for nuclear fission and fusion facilities. Nuclear fission and fusion facilities would be subject to the regulatory requirements applicable to the specific technology and facility at the time of permitting.
- Where a federal undertaking triggers Section 106 of the NHPA, complete consultation with DAHP, affected Tribes, and other consulting parties to identify historic properties, assess adverse effects, and develop appropriate avoidance, minimization, or mitigation measures.
- If any precontact archaeological site or NRHP-eligible historic-era archaeological site related to Tribal activities is impacted by a project, the applicant will obtain a DAHP excavation permit and perform necessary archaeological work to comply with Chapter 27.53 RCW.
- An applicant must develop an Inadvertent Discovery Plan.

##### *12.3.4.2.4.2 Recommendations for Siting and Design*

- Prioritize development within existing substations, industrial areas, energy facilities, and other previously disturbed sites.
- Avoid siting facilities within or adjacent to known archaeological sites, traditional cultural properties, historic properties, culturally significant landscapes, and areas identified through Tribal consultation.
- Locate facilities to minimize visual contrast with historic properties and culturally significant landscapes.

- Design facilities to minimize visual impacts on culturally important landscapes, viewsheds, waterways, ridgelines, and other resources that contribute to the significance of historic and cultural properties.
- Minimize the extent of security infrastructure, lighting, and restricted-access areas where feasible while maintaining required safety standards.
- Use setbacks, screening, landscaping, and facility design features to reduce visual impacts where appropriate.

*12.3.4.2.4.3 Recommendations for Construction, Operation, and Decommissioning*

- Minimize ground disturbance through careful site planning and infrastructure placement.
- Restrict construction staging, access routes, and storage areas to previously disturbed locations where feasible.
- Utilize downward-directed and shielded lighting to reduce nighttime visual impacts.
- If unrecorded archaeological resources are identified during project construction or operation, work within 30 meters (100 feet) of the find must be halted and directed away from the discovery until it can be assessed in accordance with steps in the Inadvertent Discovery Plan.
- Maintain ongoing Tribal coordination throughout project development, operation, and decommissioning.

*12.3.4.2.4.4 Other Measures for Potentially Significant Impacts*

- Conduct a cultural resources survey of the entire project site.
- Use training/educational programs for workers to reduce occurrences of disturbances, vandalism, and harm to historic properties. Plans should incorporate adaptive management protocols for addressing changes over the life of the project, should they occur.
- Address impacts to historic and cultural resources that follow the best available guidance and strategies developed by federal, Tribal, and state governments, including but not limited to compensatory mitigation, formalized ongoing consultation between the state and Tribes to address new concerns and monitor long-term mitigation, and the development and maintenance of new technologies and geospatial analysis that help identify and avoid historic and cultural resources.
- Additional actions to avoid or minimize impacts would be determined after engagement and government-to-government consultation with Tribes.

# 13 Tribal Rights, Interests, and Resources

## 13.1 Overview

Kittitas County is located within the traditional lands and accustomed areas of the following federally recognized Tribes: Confederated Tribes of the Colville Reservation, Confederated Tribes and Bands of the Yakama Nation, and the Snoqualmie Tribe of Indians. As part of engagement efforts, the project team met with staff from each Tribe to share information on the CESP Project, discuss Tribal coordination, and hear initial staff feedback. The intent of these meetings was introductory in nature and held to develop a staff-to-staff relationship on the energy permitting subject matter. Meetings were held with the understanding that what was shared does not represent nor reflect formal Tribal government opinions, and that further government to government consultation is a pathway available to the County. This section includes portions of what was heard as part of the meeting discussions at a high-level as well as guidance from the Department of Ecology Programmatic EISs.

The Tribal rights, interests, and resources section provides an opportunity for the County to work with federally recognized Tribal governments to understand how potential energy facilities under the selected alternatives may affect Tribal rights and interests in Kittitas County.

As part of this section, Tribal rights, interests, and resources may include:

- Treaty rights, access to usual and accustomed areas, and protections reserved or established by federal treaty, statute, or executive order.
- Resources associated with Tribal lands, cultural landscapes, archaeological and sacred sites, fisheries, and other places where Tribes hold protected rights or interests.
- Associated resources such as plants, wildlife, and fish used for commercial, subsistence, or ceremonial purposes.

Although Tribal rights, interests, and resources may overlap between Tribes, it is understood that the specifics of each are distinct and should not be treated as interchangeable or grouped rights and interests.

Tribal rights, interests, and resources are governed by Indigenous laws and are respected and upheld through federal and state laws, including precedents established through case law. A descriptive list of federal and state regulations can be found in Appendix A.

## 13.2 Existing Conditions

Natural, cultural, and built resources within the study area relate to Tribal rights, interests, and traditional cultural practices. Resources of interest to Tribes may include plants, animals, water resources, natural settings, landforms, cultural landscapes, and other places important to Tribal history, traditions, and cultural identity. Resources may be used for food, medicine, recreation, subsistence, commercial activities, spiritual practices, ceremonies, or other traditional purposes.

The range of resources considered for the affected environment under Tribal rights, resources, and interests includes overlap with existing conditions and findings located in other sections of the CESP EIS such as biological resources, cultural and historic resources, environmental justice, water resources, recreation resources, environmental health and safety, noise and vibration, visual quality, transportation, air quality, and cumulative impacts. For further discussion on these sections and related findings, please visit the sections linked below:

- **Geology**
- **Water Resources**
- **Biological Resources**
- **Historic and Cultural Resources**
- **Socioeconomic**

### 13.2.1 Natural Environment

During a meeting with Tribal staff, it was expressed that the natural environment is not seen as a resource but as a relationship and culturally significant component to Tribal rights and interests.

Plants, animals, habitats, waterways, and natural settings may be tied to Tribal rights, interests, and resources. They can include landforms that have an important role in oral histories or the traditional use of a given landscape. Culturally significant plants may be used for medicine, food, clothing, basketry, structures, and/or ceremonial purposes. Plants and animals within the study area may provide subsistence, commercial, ceremonial, and medicinal resources.

Waterways can play an important role in Tribal histories, oral traditions, cultural practices, and treaty-reserved activities. As such, waterways, shorelines, fish and wildlife habitat, and other natural features may support commercial, subsistence, ceremonial, and recreational uses.

The shrubsteppe habitat was mentioned by staff from one Tribe as a natural environment of significant meaning; however, this may vary for other Tribes. The shrubsteppe environment is noted here to reflect what was heard during the engagement process.

### 13.2.2 Access and Use

Tribal rights can include access to traditional hunting, fishing, gathering, and recreation areas, as well as access to locations where cultural, ceremonial, or other traditional practices occur. Elements of the built environment, including transportation systems, noise conditions, visual quality, and policies may influence access to culturally significant places and the ability to exercise Tribal rights and traditional practices. Public access to, or disclosure of, the location of culturally sensitive places may increase the risk of disturbance and diminish the integrity of those resources.

### 13.2.3 Archaeological Sensitivity

The Washington State Department of Archaeology and Historic Preservation (DAHP) maintains a predictive model that classifies areas according to their relative likelihood of containing archaeological resources. The model is intended to assist in identifying areas where archaeological resources may be present; however, only a small portion of Washington State has been surveyed for cultural resources.

It should not be assumed that areas without recorded archaeological sites have been extensively surveyed or are free of cultural resources. Existing surveys may not identify all cultural resources that may be present in a particular location. Future projects may require site-specific cultural resource investigations to identify and evaluate archaeological resources that may occur within a project area.

Tribal staff expressed that ethnographic studies, archaeological studies, and environmental studies have the potential to help communicate and identify the potential for impacts as part of the review process. The methodologies for surveying and evaluation of resources for significance should be done with input and meaningful consultation of Tribal communities to reduce the risk of potential significant adverse impacts.

For more information on archeological resources, potential impacts, and mitigation measures, see the **Historic and Cultural Resources** section.

### 13.2.4 SEPA and Section 106 of the National Historic Preservation Act (NHPA) Review Processes

During engagement with Tribal staff across departments, participants noted that coordination and review of potentially significant impacts often occur through project-level SEPA review and Section 106 of the NHPA review processes. Concerns were raised regarding potential federal administrative changes affecting the Section 106 process, as well as the possibility of future SEPA exemptions for certain energy projects. It was also noted that cultural resource sections of SEPA are not always filled out adequately or provide inaccurate information. The methodologies for evaluating resources should be done with input Tribal communities to reduce the risk of potential adverse impacts.

Participants expressed interest in opportunities for earlier notification and ongoing coordination regarding proposed projects. An approach shared was government-to-government consultation between Tribal Council and County Commissioners to facilitate a process for information sharing and early engagement.

## 13.3 Potential Impacts

Unlike other affected environment sections, the Tribal rights, interests, and resources section does not evaluate the impacts of the selected alternatives directly. The natural, built, and socioeconomic environments are analyzed in other sections to determine whether energy facilities have the potential for significant impacts from a non-Tribal perspective and whether those impacts may be mitigated below a significant threshold. For impacts on Tribal rights, interests, and resources, any determinations of significance or non-significance would be done as part of engagement and in consultation with each potentially affected Tribe individually at the project level. This would be done on the project-level through the SEPA process or the federal National Historic Preservation Act Section 106 process.

The impacts evaluation below discusses potentially affected environments from associated activities at a high-level from a non-Tribal perspective. These subject matters are identified to provide a base-level understanding of potential impacts and aid the County, the community, potential applicants, and local Tribes in future project-level communications after the CESP EIS.

### 13.3.1 Impacts from Construction and Decommissioning

Impacts from construction and decommissioning would vary depending on the type, location, and design of an energy facility and the resources present within future project areas.

Activities such as clearing, grading, excavation, infrastructure installation, and site restoration could affect Tribal resources through ground disturbance, restricted access, and changes to the visual character of the landscape. These activities could adversely affect archaeological sites, sacred sites, cultural properties, burial sites, and culturally significant landscapes. Construction-related noise, human activity, and land disturbance could also disrupt Tribal spiritual practices and other cultural uses associated with these areas. In some locations, the introduction of energy facilities or associated infrastructure could create land use compatibility conflicts where facility operations or site characteristics are not compatible with the cultural, spiritual, or traditional uses of an area.

Construction and decommissioning could affect Tribal access to traditional gathering, hunting, fishing, and food harvesting areas. Temporary access restrictions may occur during construction, while permanent changes to land use or habitat conditions could reduce the availability of areas used for cultural practices and the collection of medicinal plants, traditional foods, and other culturally important resources.

Impacts on habitats and species could result from vegetation removal, habitat fragmentation, soil compaction, changes in water chemistry, introduction of invasive species, and wildlife mortality associated with construction activities, vehicle traffic, and decommissioning efforts. These changes could alter migration patterns, reduce biodiversity, and affect plants and wildlife that are culturally important to Tribes, including species recognized as traditional first foods.

Additional effects could result from noise, dust generation, erosion, air quality degradation, and visual changes associated with land disturbance and construction activities. New infrastructure corridors and access routes could increase human presence in previously undisturbed areas, resulting in additional disturbance to cultural and natural resources. Disturbed ground and newly constructed facilities could create visual contrasts that persist until vegetation is reestablished. Following decommissioning, restoration of vegetation and visual conditions to pre-facility conditions could require an extended period of time depending on site conditions and the extent of disturbance.

### 13.3.2 Impacts from Operation

During operation, impacts to Tribal resources may be less extensive than during construction because activities would typically be limited to facility operation, maintenance, vegetation management, and use of established access roads and facility areas. However, ongoing maintenance activities, vehicle and equipment use, and vegetation management could result in erosion, soil compaction, trampling, or exposure of Tribal resources. In some cases, maintenance-related ground disturbance could reveal previously unidentified cultural resources, including archaeological sites. Soil compaction also has the potential to impact buried archaeological resources including ancestors (human remains).

Long-term operation could also affect habitats, species, and ecological communities through continued vegetation management, habitat alteration, barriers to wildlife movement, and other operational activities. These effects could degrade fisheries, alter migration patterns, reduce biodiversity, and affect plants and wildlife that are culturally important to Tribes, including traditional first foods and resources relied upon for cultural and subsistence practices.

Operational impacts may also result from ongoing noise, vehicle emissions, waste, spillage or contamination, dust generation, visual changes, lighting, and other facility features. Facility security measures, fencing, and restricted-access areas could limit access to locations used for hunting, fishing, gathering, and cultural or spiritual practices. These ongoing effects could reduce the use and availability of Tribal resources throughout the operational life of a facility.

### 13.3.3 Variation in Impacts by Facility Type

While many potential impacts on Tribal rights, interests, and resources are shared across energy facility types and project phases, the nature and extent of impacts may vary depending on facility type. The following summarizes themes identified during Tribal staff engagement regarding potential considerations associated with different energy technologies. These themes are not intended to represent a comprehensive list of potential impacts; rather, they provide an initial framework for understanding and discussing impacts related to future energy development projects for continued discussions with Tribal governments.

- **Solar Facilities:** Potential impacts may be associated with the siting of facilities and associated infrastructure within culturally sensitive areas, including areas containing cultural resources, traditional use areas, or sacred landscapes.
- **Wind Facilities:** Turbine structures may affect culturally significant viewsheds and landscapes due to their height, visibility, and potential to alter the visual character of areas important to Tribes.
- **BESS:** No facility-specific concerns related to BESS were explicitly identified during engagement. However, the absence of BESS-specific comments should not be interpreted as an indication that such facilities would not have the potential to affect Tribal rights, interests, or resources. Future BESS projects should engage with affected Tribes to identify and evaluate potential impacts based on project-specific characteristics, location, and Tribal concerns.
- **Geothermal Facilities:** Drilling activities and the use of groundwater resources may have the potential to affect archaeological resources, aquifers, groundwater systems, and other resources of importance to Tribes.
- **Small Modular Reactors (SMRs):** Participants identified concerns related to the historic harms to Tribal Nations associated with uranium mining and processing. Concerns extended beyond facility operations to include the nuclear fuel and waste lifecycles, including mining operations, waste disposal, and maintenance byproducts.

## 13.4 Mitigation Measures

Mitigation measures would be developed during future permitting and project-level reviews for new energy facilities. Early discussions and consultation with potentially affected federally recognized Tribes provide a starting point in understanding what mitigation measures may be warranted for individual sites and potentially significant impacts. Tribal staff recommended reaching out to as many relevant Tribal departments as possible including cultural, environmental, fisheries, hunting/gathering, and Tribal Councils.

Mitigation for specific energy projects may be developed with affected Tribes as part of the project-level SEPA process.

### 13.4.1 Recommended Measures for Siting and Design

- Site and design projects to avoid potential impacts to Tribal rights, interests, and resources, taking into consideration what Tribal rights, interests, and resources may include.
- Requests for sensitive site identification should be treated as a case-specific matter during individual project review processes and not be seen as a general overarching identification.
- Contact potentially affected Tribes, including Tribal staff, department heads, and Tribal council, early in the siting process, ideally before land is acquired for a project or before permit applications are developed, and offer information relevant to Tribal technical staff to help identify potential impacts to Tribes.
- Tribes may not immediately know their concerns for a project area. Elders may need to be interviewed, fieldwork may need to be conducted, and reports written. Any future interviews with Elders would be anticipated to occur under the direction of Tribes, Tribal leadership, and Tribal staff to ensure customs and appropriate protocols are respected and followed, unless otherwise determined through future Tribal consultation.

### 13.4.2 Required Measures

There are no specific permit requirements that pertain to Tribal rights, interests, and resources. Future projects would still be required to identify potential impacts to other resources during the project-level SEPA process, which provides an opportunity for identification of potential significant impacts to Tribal rights, interests, and resources.

Required mitigation measures for other resources such as cultural and historic resources, biological resources, water resources, and land use, have the potential to relate to mitigation for Tribal rights, interests, and resources, but should not be assumed and project-specific mitigation actions would be determined through engagement and consultation with Tribes.

### 13.4.3 Recommended Measures for Construction, Operation, and Decommissioning

Maintain Tribal access to culturally important sites and resources throughout all phases of project development. Consider the timing of construction, operation, maintenance, and decommissioning activities to avoid or minimize disruptions to Tribal access, traditional resource use, and cultural practices.

# 14 Cumulative Impacts

## 14.1 Overview

Cumulative impacts are impacts that result from the incremental effects of an action when added to the effects of past, present, and reasonably foreseeable future actions (RFFAs) affecting the same resource. These impacts may arise from individually minor actions that collectively and/or gradually become environmentally significant.

As part of the CESP EIS, potential cumulative impact considerations were identified to provide decision makers with a broader understanding of the environmental and planning context in which future energy development may occur. Stakeholder engagement and discussions with Tribal staff highlighted the importance of understanding how future projects could contribute to comprehensive, interconnected, long-term changes affecting environmental conditions, local communities, and Tribal rights and interests.

Due to the broad nature of the CESP EIS, this section does not evaluate cumulative impacts for specific developments. Specific locations, scales, timing, and designs of future energy facilities are to be identified at a project-level review. Instead, the CESP EIS identifies existing conditions, ongoing trends, and reasonably foreseeable future actions that may impact how the County may site and permit future energy projects under the studied alternatives.

The cumulative impact considerations identified in this section focus on:

- Reasonably foreseeable future actions identified by the Department of Ecology; and
- Local conditions, trends, and plans that may shape future environmental conditions within Kittitas County.

## 14.2 Past, Present, and Reasonably Foreseeable Future Actions

To inform consideration of future cumulative impact considerations, the Department of Ecology's PEISs for utility-scale solar and utility-scale wind identify RFFAs anticipated to occur between 2025 and 2075 for their respected study areas. Given that Kittitas County is largely encompassed by the PEIS study areas between both analyses, these RFFAs may contribute to future environmental conditions relevant to energy siting and development within the County.

*Table 22: Reasonably Foreseeable Future Actions*

| RFFA | Associated Activity | Trends Identified |
|---|---|---|
| **Energy Projects including Clean Energy Developments and Changes to Existing Energy Systems** | • Development of new energy generating facilities, including the solar energy facilities evaluated in this PEIS; transmission systems; and distribution networks<br>• Modification of existing energy generation, transmission, and distribution infrastructure including those for electricity, natural gas, and petroleum products (e.g., gasoline and oil)<br>• Decommissioning, decontamination, and demolition of former coal-fired power plants and associated facilities | • State committed to reducing GHG emission by 95% below 1990 levels by 2050<br>• Increased development of clean energy sources to meet state goals |
| **Urban, Commercial, and Industrial Activities and Development** | • Local residential developments<br>• Urban redevelopment projects<br>• Utility infrastructure (e.g., water/sewer, electrical distribution, and communications) rehabilitation and expansion<br>• Industrial development<br>• Industrial facility decommissioning | • 28% increase in population by 2050<br>• 1.04% to 1.27% increase in workforce growth for nonfarm occupations over the next 10 years<br>• Increased development to support population and workforce growth |
| **Rural and Agricultural Activities and Development** | • Changes in the types of crops farmed<br>• Conversion of non-designated agricultural land<br>• Irrigation system maintenance and upgrades<br>• Livestock grazing development and expansion | • Overall decline in agricultural land use from 1997 to 2022 (1.9 million acres of farm converted to other uses)<br>• Future conversion of higher valued agricultural land less likely due to Goal 8 of Growth Management Act<br>• Increased changes in farming practices and improvements to rural and agricultural-based infrastructure<br>• Changes in agricultural activities to adapt to climate change |
| **Federal, State, Tribal, and Local Wildlife and Habitat Projects** | • Growth management programs<br>• Stream and riparian habitat projects<br>• Watershed planning and implementation | • Ongoing long-term strategies and activities that improve habitat and ecosystem functions, habitat connectivity, and species-specific conservation projects<br>• Statewide 30-year program in place to restore and improve resiliency of shrubsteppe habitat |
| **Transportation Infrastructure** | • Highway and road expansion and maintenance | • Ongoing activities that maintain, expand, and improve state road and rail transportation systems and |

| RFFA | Associated Activity | Trends Identified |
|---|---|---|
| **Development and Modification** | • Rail transportation expansion and maintenance<br>• Port and navigation channel expansion and maintenance<br>• Airport and aviation support infrastructure expansion and maintenance<br>• Multimodal transportation projects | increase air and watercraft cargo shipping<br>• Increased development and enhancement of multimodal (e.g., road, rail, waterway, bicycle, pedestrian) connections and choices |
| **Timber and Forestry Management** | • Expansion/reduction in forest management areas<br>• Updates to the state's Forest Practices Rules<br>• Timber harvests<br>• Fire/fuel management projects<br>• Fire suppression/firefighting activities | • Ongoing programs and activities to reduce fire risk in timber and forestry areas considering the effects of climate change |
| **Contaminated Site Cleanup and Remediation** | • Initial and remedial site investigations<br>• Site cleanup activities<br>• Monitoring and maintenance activities | • Ongoing cleanup and remediation activities at known contaminated sites |
| **Mining Operations** | • Expansion of existing mining and processing facilities<br>• Development of new mines and processing facilities<br>• Changes in mining processes and procedures<br>• Performance of reclamation activities | • Ongoing development expansion, operation, and reclamation of existing and newly permitted mining sites |
| **Recreation Activities on Public Lands** | • Management plans to continue and/or increase access to and use of hiking, biking, and equestrian trail systems; winter recreation areas; camping and RV sites; and areas for hunting, fishing, and off-road motor vehicle use | • Increased recreational use of public lands<br>• Increased development and maintenance of public access points, trail systems, and other recreational use areas |
| **Military Use** | • Development or modification at military facilities<br>• Runway resurfacing, construction, rehabilitation, and maintenance projects, and expansion of exclusion areas<br>• Changes to surface and air training, operations, and testing | • Ongoing assessments of civilian-military compatibility needs to ensure military use and safety of military personnel |
| **Water Supply Development and Withdrawals for Municipal, Agricultural,** | • Development and use of reservoirs, well fields, water distribution systems, water treatment plants, and pump | • Increased risk of drought and subsequent water shortages considering the effects of climate change |

| RFFA | Associated Activity | Trends Identified |
|---|---|---|
| **Industrial, and Conservation Uses** | stations for municipal, agricultural, and industrial uses<br>• Implementation of projects designed to improve water conservation and encourage water storage and flood risk reduction<br>• Implementation of projects that support streamflow for aquatic species<br>• Changes in water rights policy and water availability<br>• Dam removals | • Ongoing activities related to the development, modification, and use of water supply systems to address future water supply issues |

*Source: Washington State Department of Ecology, Programmatic Environmental Impact Statement for Utility-Scale Solar, 2025*

## 14.3 Local County Considerations

In addition to RFFAs identified by the Department of Ecology, the following section identifies conditions, trends, and plans that may influence future environmental conditions and cumulative impacts. While some of these considerations are accounted for in **Table 22** above, the additional local context is provided to aid in the decision-making processes. These are factors over which Kittitas County may have direct or indirect influence through planning, policy decisions, infrastructure investments, and service provision.

### 14.3.1 Population Growth

- Kittitas County is projected to add approximately 13,393 residents by 2050, increasing the county's population to approximately 62,643.[183]
- Future population growth is expected to increase demand for housing, transportation facilities, utility infrastructure, public services, recreation opportunities, and employment centers throughout the county.
- Kittitas County plans for 20-year growth projections under its county comprehensive plan and countywide planning policies.

### 14.3.2 Residential, Commercial, and Industrial Development

- Planned and future residential, commercial, and industrial development is likely to increase demands on land, infrastructure, public services, and natural resources.
- New development could contribute to the conversion of agricultural, forest, and undeveloped lands and increase demands on transportation, utility, and stormwater systems.
- Development associated with population growth may occur concurrently with future energy facility development, potentially affecting the same environmental resources.
- Kittitas County plans for future growth and development through its comprehensive plan land use designations and implementing development code; however, development patterns are also influenced by market conditions, economic trends, demographic changes, and other external factors.

[183] Kittitas County, Comprehensive Plan, 2026

### 14.3.3 Energy Demand and Energy Transition

- State decarbonization goals and clean energy policies may influence future energy production, transmission, and storage demands within Kittitas County.
- Population growth, economic activity, transportation electrification, and increased use of electric technologies in homes, businesses, and industry may increase local electricity demand.
- Energy technology, regulations, and market demands continue to improve energy efficiency, which may reduce energy consumption in some sectors and alter consumption patterns.
- Utilities and energy providers may expand or upgrade generation, transmission, distribution, and supporting grid infrastructure to meet changing energy demands and maintain system resilience both in and outside of the County.
- Emerging high-energy demand uses, such as data centers and other large-scale computing facilities, may increase demand for energy generation, transmission capacity, and supporting infrastructure. No projects have been proposed in Kittitas County at the time of the preparation of the Draft EIS.

### 14.3.4 Local Transportation Systems

- Local transportation improvements identified in the County's Six-Year Transportation Improvement Program may result in roadway, bridge, intersection, and multimodal transportation projects throughout the county.
- Future transportation investments may occur concurrently with growth and development, contributing to changes in land use patterns, travel demand, and infrastructure needs.

### 14.3.5 Local Capital Facilities

- Capital projects identified through the County's Capital Facilities Plan and Capital Improvement Program may result in the construction, expansion, or replacement of public facilities and infrastructure.
- Future investments in utilities, public buildings, parks, public safety facilities, water systems, wastewater systems, and other community infrastructure may affect the same resources considered during project-level environmental review.

### 14.3.6 Climate Change and Related Environmental Conditions

The Kittitas County Comprehensive Plan identifies several climate-related hazards that may influence future environmental conditions and project-level impacts, including:

- Extreme heat;
- Extreme precipitation;
- Flooding;
- Wildfire;
- Drought; and
- Reduced snowpack.

These existing and projected hazards may influence future environmental conditions and contribute to cumulative impacts associated with future energy siting and permitting within Kittitas County. They may also affect the extent and severity of impacts associated with future energy facility development.

For example:

- Drought events could increase dust generation during construction, operation, or decommissioning depending on the energy facility;

- Wildfires may pose risks to energy infrastructure sited in areas prone to wildfires; and
- Reduced snowpack could affect water availability for local communities and water-intensive energy uses.

The degree to which the studied energy facilities may be exposed or vulnerable to such hazards would depend on project-specific factors such as location, scale, design, operation characteristics, and implemented risk-reduction measures.

Long-term planning for such hazards and vulnerable assets occurs in the Kittitas County Comprehensive Plan Climate Element, which continues to identify climate hazards and vulnerable assets and establishes goals, policies, and implementation measures intended to reduce risk and vulnerability to improve community resilience. Additional planning efforts for the above climate hazards include the Kittitas County Hazard Mitigation Plan and the 2018 Community Wildfire Protection Plan.

## 14.4 Cumulative Impacts Analysis

### 14.4.1 Earth Resources

All RFFAs in **Table 22** above could contribute to cumulative impacts on earth resources over time. Impacts on earth resources due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- Disturbance to soils and geologic resources due to ground-disturbing activities associated with multiple energy facilities in the same area, including soil compaction, vegetation removal, or the alteration of natural landforms.
- Loss of soil stability due to incremental increases in impervious surfaces, altered drainage patterns, and earth moving activities like grading.
- An increase in risk of geologic hazards, such as landslides, particularly in areas with erosion-prone soils, steep slopes, or areas of existing seismic hazard.
- Cumulative erosion and sediment transport could result from site grading, trenching, road construction, utility installation, foundation installation associated with multiple projects.
- Geothermal and SMR facilities may require more grading, excavation, foundation, impervious surfaces, etc. than the other facility types and thus may contribute to a greater cumulative alteration of earth resources.
- Overlapping construction schedules for multiple projects in the same area could increase the magnitude of cumulative soil disturbance.
- The incremental contamination of soils, particularly in areas with multiple energy facilities, due to spills or leaks.
- Subsidence related to tapping or withdrawal of groundwater reserves.
- An increase in demand for aggregate or other natural materials needed for the development of energy facilities and other developments, particularly if sited in the same geographic area, which may limit the availability of these materials for concurrent development.
- A potential increase in the damage to infrastructure or energy facilities resulting from geologic hazards such as landslides, flooding, or earthquakes if facilities are co-located with other utility or industrial uses or sited in the same geographic area.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- The potential for improved identification and avoidance of geologically sensitive areas through project-level geotechnical investigations and environmental review necessary for energy development siting.
- A reduction in soil loss and erosion through implementation of erosion and sediment control measures, stabilization practices, and revegetation undertaken during the construction of energy facilities
- Improved soil stability due to site restoration or revegetation undertaken during decommissioning activities of energy facilities.
- The potential restoration of disturbed soils and vegetative cover through reclamation and habitat restoration measures implemented as a part of future energy development projects, especially those sited in the same geographic area.

### 14.4.2 Air Quality and Greenhouse Gas Emissions

Most RFFAs in **Table 22** above could contribute to cumulative impacts on air resources over time. Impacts on air quality due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- Temporary increase of localized dust concentrations (PM10 and PM2.5), diesel exhaust, and greenhouse gas emissions due to simultaneous construction of multiple projects in the same area.
- Long-term increases in energy consumption and air pollutant emissions due to population growth and associated development in the county.
- An increase in greenhouse gas and other air pollutant emissions due to new development spurred by population growth.
- An increase in particulate matter emissions due to a potential increase in the frequency and intensity of wildfires.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- Supporting the state transition away from fossil fuel sources and uses, contributing to long-term greenhouse gas emission reductions.
- Improving grid reliability throughout the region with increased renewable energy generation and storage capacity.
- Contributing to the retirement and replacement of fossil fuel facilities, which could limit countywide emissions.
- The decrease of greenhouse gas emissions over time due to Washington regulatory requirements like CETA, the Climate Commitment Act, and the Clean Fuels Standard, the potential development of new clean energy sources, the retirement of coal power plants, an increase in the use of electric cars, and an increase in public transportation use.

### 14.4.3 Water Resources

All RFFAs in **Table 22** above could contribute to cumulative impacts on water resources over time. The incremental effects of energy development could combine with population growth, drought, climate change related to snowpack and runoff timing, new water demands, and other construction in the same watershed or

aquifer. Impacts on water resources due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- Increased demand for legally and physically available water,
- Additional stream and wetland crossings,
- Incremental loss of wetland function,
- Pollutant loading,
- An increase in alterations to surface water flow and quality and groundwater recharge capabilities due to greater demand for water availability or water rights,
- Potential encroachments on wetland boundaries and functions from the placement or removal of material to support energy development infrastructure, especially where energy developments are located in the same geographic area,
- A potential reduction in water quality of surface waters resulting from stormwater discharges, accidental spills, or construction-related pollutants,
- Potential alteration of groundwater recharge patterns associated with land cover changes and site grading activities necessitated by energy facility development,
- Incremental degradation of aquatic habitats and water-dependent ecological functions in areas where energy facilities have been co-located with other utility or industrial sites, or where multiple energy facilities are sited in the same geographic area, and
- Potential degradation of water quality in wetlands and other surface waters due to increases in impervious surfaces and stormwater runoff, particularly if multiple energy developments are sited in the same geographic area.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- The potential for improved protection of wetlands, streams, or riparian areas through project-level environmental review and permitting,
- Improved stormwater management due to the implementation of water quality treatment measures necessary for energy facility development,
- Enhanced watershed conditions due to the restoration of disturbed areas, revegetation, and habitat enhancement measures, particularly during decommissioning activities of energy facility developments, and
- The potential for reduced greenhouse gas emissions and improved climate resilience due to the development of renewable, non-fossil fuel energy sources that can support long-term protection of water resources and aquatic ecosystems.

The likelihood and magnitude of cumulative effects would depend on the location, timing, and water demand of future development and on whether such development shares the same watershed, aquifer, drainage network, or affected water right system. Project-level review should define the geographic and temporal study area and account for other past, present, and reasonably foreseeable actions affecting the same watershed, aquifer, drainage network, or water right system.

### 14.4.4 Land Use

Most RFFAs in **Table 22** above could contribute to cumulative impacts on land use over time. Impacts on land uses due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- The conversion of undeveloped rural lands or change of land use patterns that may result from the incremental development of multiple energy facilities, in tandem with industrial, utility, transportation, or residential development.
- A change in agricultural viability or rural character due to the incremental conversion of undeveloped, rural, agricultural, or open space lands.
- Perceived incompatibility and industrialization that the development of multiple facilities may contribute to, particularly when adjacent to agricultural lands, rural areas, open space lands, or recreational resources.
- An increase in traffic, dust, noise, or visual disturbances due to construction, operation, and decommissioning of energy developments, which may be particularly noticeable from agricultural or recreation lands.
- The incremental change in scenic quality and viewsheds due to multiple energy developments that may impact outdoor activities occurring in designated recreation areas.
- The fragmentation of open space areas used for formal or informal recreation due to the development of multiple energy facilities.
- The perceived or actual alteration of the rural character in the county due to the establishment of multiple energy facilities.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- Support of the broader state clean energy goals due to the development of the energy facility types analyzed in the CESP EIS,
- A potential reduction in development pressure on informal or formal recreation lands due to the concentration or co-location of energy developments in or near existing infrastructure corridors or industrial areas, and
- An improvement in land use opportunities due to decommissioning activities undertaken for energy facilities, including habitat restoration, vegetation establishment, and other mitigation measures.

### 14.4.5 Energy and Natural Resources

Most RFFAs in **Table 22** above could contribute to cumulative impacts on energy resources over time. Impacts on energy and natural resources due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- An increase in available electricity resources, renewable energy generation capacity, and long-term regional energy supplies due to the development of multiple energy facilities.
- An increase in demand for aggregate, water, or other natural materials needed for the development of energy facilities and other developments, particularly if sited in the same geographic area, which may limit the availability of these materials for concurrent development.
- An increase in demand for transmission infrastructure, substations, interconnection facilities, or grid modernization projects to support the continued development of energy facilities.
- A potential increase in the ability of the existing electrical grid to store energy or respond to fluctuations in countywide and regional energy demand.
- The diversification of county and state energy resources due to an increase in the availability of alternative energy sources.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- Improved resource efficiency and a reduction in the need for energy development in rural or undeveloped areas due to the co-location of energy facilities with existing infrastructure or existing or other existing or planned developments, and
- An overall reduction in greenhouse gas emissions due to the availability of other energy sources in the county.

### 14.4.6 Environmental Health and Safety

All RFFAs in **Table 22** above could contribute to cumulative impacts on environmental health and safety over time. Impacts during the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- An increased demand on emergency response providers due to potential construction or operational incidents at energy facilities or other developments in the same area.
- A potential in worker exposure to construction- and operation-related hazards, including hazardous material exposure, electrical hazards, noise, or vibration.
- A potential increase in traffic accidents or material spills along transportation corridors in the county, particularly due to an increase in development in the same geographic area.
- An increase in the storage, handling, and transportation of hazardous materials, though facilities would remain subject to applicable federal, state, and local safety regulations.
- A potential incremental increase in fire risk, particularly in areas where industrial development is already ongoing or existing.
- Adverse impacts on health of workers and developments adjacent to energy facilities if solid waste generated from decommissioned facilities is not disposed of appropriately.
- A potential increase in public concern if energy facilities are sited in the same geographic area, or are sited in areas with existing residential uses, agricultural uses, or other sensitive uses.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- The potential for an increase in public safety and resilience due to improvements in energy reliability and an increase in local power generation during emergencies that may impact countywide or regional energy supplies.

### 14.4.7 Historic and Cultural Resources

All RFFAs in **Table 22** above could contribute to cumulative impacts on historic and cultural resources over time. Impacts on resources due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- The potential for disturbance of historic and cultural resources resulting from ground disturbance, landscape modification, or changes to historic settings due to construction efforts for energy developments,
- An increase in the likelihood of disturbance to previously unidentified archaeological resources, cultural materials, or human remains, particularly in areas that haven't been subject to archaeological investigation,

- The gradual loss or fragmentation of cultural landscapes due to the development of multiple energy facilities,
- The cumulative alteration of historic settings and viewsheds, especially when combined with other energy facility or industrial development in the same geographic area,
- The alteration of the integrity and character of historic properties or heritage landscapes, particularly in rural or agricultural areas,
- The degradation of or reduction in cultural resources, traditional use areas, or culturally significant areas, especially where development encroaches on or is adjacent to locations of known cultural importance.

### 14.4.8 Socioeconomic

All RFFAs in **Table 22** above could contribute to cumulative impacts on socioeconomic conditions over time. Impacts due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- An increase in dust, noise, traffic, or other impacts associated with construction, operation, or decommissioning activities that could disproportionately impact nearby overburdened communities, particularly for communities located near energy developments that are co-located with existing industrial or utility infrastructure,
- The potential increase in concerns regarding environmental quality, community character, and quality of life for residents,
- An increase in impacts in areas where residents already experience barriers related to income, housing, transportation, or other determinants of health that may affect a community's ability to respond to environmental changes,
- The degradation of community cohesion, sense of place, or local perceptions regarding future development patterns due to multiple energy facilities being sited in the same geographic area in or adjacent to overburdened communities.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- The creation of jobs, workforce development opportunities, and economic investment due to energy facilities sited in the county,
- An increase in long-term community resilience due to increased energy generation and storage capacity, particularly for populations that are more vulnerable to energy disruptions and extreme weather events,
- An incremental increase in countywide air quality and climate benefits from a transition away from fossil fuel energy and uses.

### 14.4.9 Tribal Rights, Resources, and Interests

All RFFAs in **Table 22** above could contribute to cumulative impacts on Tribal rights, resources, and interests over time. Impacts due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- Incremental impacts to landscapes, natural resources, and areas that are culturally important to Tribes, including areas that support Tribal traditions, cultural practices, and land with Tribal significance,

- Increased cumulative risk of disturbance to previously unidentified archaeological resources, cultural materials, and areas of Tribal significance resulting from ground-disturbing activities associated with multiple development projects,
- Cumulative impacts on fish and wildlife habitat, water resources, vegetation, and other ecological systems that support Tribal treaty rights, traditional gathering practices, and subsistence activities due to incremental environmental changes from multiple energy and non-energy developments,
- Cumulative changes to viewsheds and landscape character that contribute to impacts on Tribal cultural landscapes, culturally significant places, and visual resources important to Tribal communities.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- The identification, avoidance, minimization, and mitigation of impacts to culturally significant resources through increased coordination and consultation processes, project-level siting reviews, and environmental reviews,
- Localized ecological benefits that support Tribal resources through habitat restoration, native vegetation establishment, wetland enhancement, and implementation of other mitigation measures associated with future projects,
- An increase in climate resilience and long-term protection of natural systems and resources that are important to Tribal communities through expansion of renewable energy resources.

### 14.4.10 Visual Quality

Most RFFAs in **Table 22** above could contribute to cumulative impacts on visual quality over time. Impacts on views due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- Temporary increases in noise, dust, and visual impacts affecting nearby recreation areas, residential areas, and other sensitive receptors resulting from construction of multiple energy facilities over time,
- Alteration of historic settings and viewsheds resulting from energy facility and infrastructure development in combination with other development throughout the county,
- Increased visual presence of buildings, structures, and supporting infrastructure within rural, agricultural, and open space landscapes due to multiple energy developments within the same area,
- Temporary visual impacts associated with vegetation clearing, grading, construction equipment, stockpiled materials, and other construction activities resulting from multiple development projects occurring within the same area,
- Increased nighttime visual effects and light pollution resulting from security lighting, operational lighting, and vehicle activity associated with energy facilities, particularly in rural areas,
- Increased visual contrast between energy facilities and surrounding land uses, particularly for facilities that may include large buildings, structures, or industrial features,
- Impacts to transportation corridors, shared viewsheds, community identity, and scenic quality where multiple energy facilities are developed within the same visual landscape.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- Reduced visual impacts to sensitive scenic resources, recreational areas, residential areas, and prominent viewsheds through strategic siting of future clean energy development,

- Reduced encroachment of industrial features into undeveloped portions of the county through co-location with existing infrastructure corridors and industrial areas,
- Improved landscape compatibility and visual integration through vegetative screening, habitat restoration, landscaping, and other mitigation measures.

### 14.4.11 Biological Resources

All RFFAs in **Table 22** above could contribute to cumulative impacts on biological resources over time. Impacts due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- Loss, degradation, and fragmentation of habitat within shared landscapes and ecological systems due to multiple energy facilities and other development activities,
- Reduced habitat availability and connectivity for wildlife species resulting from vegetation removal associated with site clearing, maintenance activities, and other project-related disturbances, particularly in areas near habitat corridors, wildlife movement pathways, and conservation lands,
- Impacts to wildlife movement patterns, breeding areas, and foraging habitats within shared watersheds and migration corridors,
- Increased disturbance to wildlife species from noise, lighting, human activity, and traffic associated with construction and operation of energy facilities,
- Impacts to wetlands, streams, riparian habitats, and other environmentally sensitive areas resulting from ground disturbance associated with infrastructure development and other construction activities,
- Increased impacts to special-status species where multiple development projects affect the same habitat types or populations.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- Improved identification and avoidance of impacts to environmentally sensitive areas through project-level environmental review and biological resource assessments,
- Reduced development pressure on high-value habitats through concentration of development within already industrialized areas and along existing infrastructure corridors in areas with lower ecological sensitivity,
- Supplemental habitat benefits through incorporation of pollinator-friendly vegetation, native groundcover establishment, and other habitat-enhancing design features,
- Improved long-term environmental conditions for biological resources and ecosystems through reductions in greenhouse gas emissions and increased climate resilience associated with clean energy development.

### 14.4.12 Transportation

Most RFFAs in **Table 22** above could contribute to cumulative impacts on transportation systems over time. Impacts on transportation due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- Increased construction worker trips, heavy truck traffic, oversized equipment deliveries, and material transport along local and regional transportation corridors

- Temporary traffic impacts associated with overlapping site preparation, equipment deliveries, construction traffic, and other concurrent construction activities along shared transportation corridors,
- Increased demands on transportation infrastructure associated with transport of large equipment and materials,
- Increased wear and deterioration of local roadways and transportation infrastructure in areas with multiple development projects,
- Increased safety concerns for motorists, cyclists, pedestrians, agricultural equipment operators, and other roadway users due to higher traffic volumes associated with concurrent construction projects.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- Reduced transportation-related impacts and the need for new roadway construction in undeveloped areas by concentrating energy facilities near existing transportation corridors.
- Localized transportation benefits through roadway improvements associated with future energy projects.
- Improved roadway access, intersection operations, and overall transportation network performance through transportation infrastructure upgrades associated with future development.

### 14.4.13 Public Services and Utilities

Some RFFAs in **Table 22** above could contribute to cumulative impacts on public services and utilities over time. Impacts due to the construction, operation, and decommissioning of multiple energy facility developments discussed in the CESP EIS could include the following:

- Increased demand for emergency medical services and fire protection resulting from energy facility development in combination with other industrial, transportation, residential, and commercial development,
- Increased demand for emergency preparedness planning, specialized responder training, and coordination among fire districts, emergency medical providers, and law enforcement agencies
- Increased demand for electrical transmission infrastructure, substations, distribution systems, and other utility infrastructure,
- Increased demand for electrical, telecommunications, and other utility service providers, particularly for multiple energy facilities and concurrent development sited in the same geographic area,
- Increased demand for solid waste management and material recycling systems resulting from construction and decommissioning debris,
- Increased demand for fire protection, emergency response, and public safety services, particularly where specialized training or equipment may be required,
- Increased demand for water supply and wastewater service infrastructure, depending on facility type, scale, and location.

Cumulative benefits resulting from development of multiple energy facilities of the types discussed in the CESP EIS could include the following:

- A potential increase in long-term energy supply and generation capacity to support growing county and regional electricity demand,
- Enhanced utility infrastructure and system performance through project-related utility upgrades and investments,

- Improved energy system resilience and reliability through local energy generation resources.
- Increased community resilience during severe weather events, natural hazards, and other service disruptions through distributed and locally available energy resources

## 14.5 Mitigation Measures for Cumulative Impacts

The mitigation measures identified throughout the CESP EIS provide a framework for avoiding, minimizing, rectifying, and compensating for a project's contribution to cumulative impacts. The need for additional measures would depend on site-specific conditions, other existing or reasonably foreseeable development affecting the same resources, and the extent to which impacts could overlap geographically or temporally.

The following measures could be considered during future planning, siting, permitting, and environmental review to reduce cumulative impacts:

- Consider existing and proposed development known to the County at the time of project review when evaluating potential cumulative impacts.
- Use siting standards, overlays, setbacks, buffers, or other development standards to reduce the potential for concentration of impacts in environmentally sensitive or otherwise constrained areas.
- Consider proximity to existing energy facilities and other major development when determining appropriate setbacks, buffers, access, or other project conditions.
- Coordinate construction timing or access, where practicable, for projects under concurrent review to reduce overlapping traffic, noise, dust, or other construction impacts.
- Encourage shared use of existing access roads, utility corridors, transmission infrastructure, or other infrastructure where feasible and where doing so would reduce overall disturbance.
- Evaluate available infrastructure and public-service capacity during project review and require project-specific improvements where additional demand would exceed or adversely affect available capacity.
- Require additional avoidance, minimization, restoration, or compensatory mitigation where project-level review identifies impacts that would add to existing degradation or resource loss.
- Coordinate with affected agencies, Tribes, service providers, and neighboring jurisdictions, as applicable, when impacts may extend beyond the project site or County jurisdiction.
- Require monitoring or adaptive management for resources where project-level review identifies uncertainty regarding the effectiveness of mitigation or changing environmental conditions.

# References

## 1.Biological Resources

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