# Appendix I: Land Use Resource Report

## For Programmatic Environmental Impact Statement on Utility-Scale Onshore Wind Energy Facilities in Washington State

By

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For the

**Shorelands and Environmental Assistance Program**

Washington State Department of Ecology

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# Acronyms and Abbreviations List

| | |
|---|---|
| BESS | battery energy storage system |
| BLM | Bureau of Land Management |
| CESA | Compatible Energy Siting Assessment |
| CFR | *Code of Federal Regulations* |
| CRP | Conservation Reserve Program |
| DNR | Washington Department of Natural Resources |
| DoD | U.S. Department of Defense |
| Ecology | Washington State Department of Ecology |
| FAA | Federal Aviation Administration |
| FEMA | Federal Emergency Management Agency |
| GMA | Growth Management Act |
| LESA | land evaluation and site assessment |
| MW | megawatt |
| NEPA | National Environmental Policy Act |
| NFIP | National Flood Insurance Program |
| NRCS | Natural Resources Conservation Service |
| OFM | Washington State Office of Financial Management |
| PEIS | Programmatic Environmental Impact Statement |
| RCW | Revised Code of Washington |
| SED | shoreline environment designation |
| SEPA | State Environmental Policy Act |
| SMP | Shoreline Master Program |
| SSDP | Shoreline Substantial Development Permit |
| UGA | urban growth area |
| USC | *United States Code* |
| USDOE | U.S. Department of Energy |
| USFS | U.S. Forest Service |
| VSP | Voluntary Stewardship Program |
| WAC | Washington Administrative Code |
| WDFW | Washington Department of Fish and Wildlife |

# Executive Summary

As part of the Washington State Department of Ecology's State Environmental Impact Policy Act Programmatic Environmental Impact Statement evaluating the impacts of utility-scale onshore wind energy facilities, this resource report describes the land use conditions in the study area. It also describes the regulatory context, outlines methods for assessing impacts of potential alternatives, and assesses potential impacts and actions that could avoid or reduce impacts for the alternatives.

This resource report analyzes the following key features of land use in the discussions of the affected environment, potential impacts, and actions to avoid and reduce impacts:

- Population and housing
- Major types of land uses
- Land use planning designations
- Land use constraints
- Consistency with plans, policies, and regulations

Findings for land use impacts described in this resource report are summarized as follows:

- Through compliance with laws and permits and with implementation of actions that could avoid and reduce impacts, most construction, operation, and decommissioning activities would result in **less than significant impacts** on land use.
- Construction would have **potentially significant adverse impacts** if natural resource lands of long-term commercial significance are converted.
- Changes to rural character resulting from operation of a new utility-scale energy facility would have **potentially significant adverse impacts** depending on whether plans and development regulations are in place to protect rural character and how they consider utility-scale wind facilities.

Some utility-scale wind energy facilities may result in **potentially significant and unavoidable adverse impacts** on natural resource lands of long-term commercial significance or rural character. Determining if mitigation options would reduce or eliminate impacts below significance would be dependent on the specific project and site and local regulations and plans.

# Crosswalk with Land Use Resource Report for Utility-Scale Onshore Wind Energy

Two Programmatic Environmental Impact Statements (PEISs) are being released at the same time, one for utility-scale solar energy facilities and one for utility-scale onshore wind energy facilities. This crosswalk identifies the areas with substantial differences between the land use resource reports for each PEIS.

| Utility-Scale Solar Energy PEIS | Utility-Scale Onshore Wind Energy PEIS (this document) |
|---|---|
| • Additional agricultural information in affected environment from Least-Conflict Solar Siting Study for the Columbia Plateau<br>• Some differences in actions to avoid and reduce impacts | • Decommissioning considers potential impacts from repowering wind facilities<br>• Some differences in actions to avoid and reduce impacts |

# 1 Introduction

This resource report describes land uses within the study area and assesses probable impacts associated with types of facilities (alternatives), including a No Action Alternative. Chapter 2 of the State Environmental Policy Act (SEPA) Programmatic Environmental Impact Statement (PEIS) provides a description of the types of facilities evaluated (alternatives).

## 1.1 Resource description

Land use refers to how land is developed for various human uses or preserved for natural purposes. This section describes the current land use conditions in the utility-scale onshore wind area and the potential changes resulting from the facilities. It also generally evaluates the consistency of the facilities with applicable federal, state, and local regulations, plans, and policies. Mitigation measures that can be used to reduce impacts are also described.

## 1.2 Regulatory context

Table 1 summarizes the primary land use plans, policies, and regulations that apply to utility-scale onshore wind development in Washington.

Table 1. Primary applicable land use-related laws, plans, and policies

| Regulation, statute, guideline | Description |
|---|---|
| **Federal** | |
| Farmland Protection Policy Act (7 *United States Code* [USC] 73) | Requires a land evaluation and site assessment for projects that may irreversibly convert farmland (directly or indirectly) to non-agricultural use and that are completed by a federal agency or with assistance from a federal agency. |
| Federal Land Policy and Management Act (43 USC 35) | Requires public lands to be managed in a manner that protects scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values while providing for outdoor recreation and human occupancy and use. |
| Flood Control Act and National Flood Insurance Act (33 USC 15, 42 USC 50) | Allows property owners in participating communities to purchase flood insurance. Requires participating jurisdictions to implement floodplain management regulations that reduce future flood damage. |
| National Forest Management Act (16 USC 1604) | Directs the development, amendment, and revision of land management plans for each national forest to provide for the multiple use and sustained yield of products including outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness. |
| National Environmental Policy Act (43 USC 1638) | Requires environmental review for activities involving a federal permit, federal funding, or work on federally owned land. |

| Regulation, statute, guideline | Description |
|---|---|
| Obstruction to Navigation Federal Regulation, Finding of No Hazard to Air Navigation (49 *Code of Federal Regulations* [CFR] Part 77) | Describes requirements for project developers to notify the Federal Aviation Administration for activities either on or outside of airport property that meet specific criteria. |
| Renewable Energy Production on Federal Land (43 USC 48) | Set a goal to authorize production of at least 25 gigawatts of electricity from wind, solar, and geothermal energy projects by not later than 2025 on federal public lands. |
| Section 4(f) review (49 USC 303l and 23 CFR 774) | Applies to projects that receive funding from or require approval by an agency of the U.S. Department of Transportation. Projects must demonstrate that there is no prudent and feasible avoidance alternative to the use of and/or adverse impacts to publicly owned parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places. |
| U.S. Forest Service Northwest Forest Plan | Addresses activities on 24.5 million acres of federally managed lands in western Oregon, Washington, and northwestern California within the range of the northern spotted owl. Delineates land use categories and an aquatic conservation strategy, each with associated standards and guidelines for management activities. |
| **State** | |
| Coastal Zone Management Act (16 USC 1451 et seq.) | Applies to projects in the state's 15 coastal counties that are proposed by a federal agency, require certain federal permits or licenses, or include certain federal funding sources. The Washington State Department of Ecology provides consistency review in coordination with federal action agency. |
| Forest Practices Rules (Title 222 Washington Administrative Code [WAC]), Forest Practices Act (Chapter 76.09 Revised Code of Washington [RCW]), Stewardship of Non-industrial Forests and Woodlands (Chapter 76.13 RCW) | Establish standards for timber harvesting, pre-commercial thinning, road construction, fertilization, forest chemical application and other forest practices applications. |
| Floodplain Management (Chapter 173-158 WAC, Chapter 86.16 RCW) | Statewide floodplain management regulations. Establishes state requirements that equal the minimum federal requirements for the National Flood Insurance Program in addition to higher standards. Applies to the planning, construction, operation, and maintenance of any structures or improvements that might affect the flooding regimen of a waterbody. |
| Governor's Executive Order 21-02 | Requires that all projects receiving capital funding from agencies of the Executive Branch and Small Cabinet must consult with the Washington Department of Archaeology and Historic Preservation and affected Tribes on their project. |
| State Environmental Policy Act (Chapter 43.21 RCW) | Requires environmental review for activities proposed or permitted by state or local agency. |
| State land leasing and easement rules (Chapters 79.13 and 79.36 RCW; Chapter 332-22 WAC) | Establishes standards and procedures for state agencies to issue leases or easements on public lands. |

| Regulation, statute, guideline | Description |
|---|---|
| Washington State Department of Transportation: Utility Lines – Franchises and Permits (Chapter 468-34 WAC) | Requires a utility permit or franchise for facilities proposed within state highway rights-of-way. |
| Washington State Growth Management Act (Chapter 36.70A RCW) | Requires fast-growing cities and counties to develop a comprehensive plan to manage their population growth. Establishes a series of 13 goals that should act as the basis of all comprehensive plans. Requires all cities and counties to designate natural resource lands (forestry, agriculture, fisheries, and mining) and identify steps to preserve them. Requires all cities and counties to adopt critical areas regulations. |
| Washington State Legislature: 2020 greenhouse gas legislation, 2021 State Energy Strategy, 2019 Clean Energy Transformation Act | Commits Washington to an electrical supply free of greenhouse gas emissions by 2045, and to a goal of net zero emissions by 2050. Identifies policies and actions to achieve the state's greenhouse gas emissions and transition to 100% clean energy. |
| Washington State Shoreline Management Act (Chapter 90.58 RCW) and implementing guidelines (Chapter 173-26 WAC) | Requires all counties and most towns and cities with shorelines to develop and implement Shoreline Master Programs (SMPs). Establishes three policy areas: shoreline use, environmental protection, and public access. Requires SMPs to achieve "no net loss" of shoreline ecological functions. |
| Written notice to U.S. Department of Defense (DoD) for renewable energy projects (RCW 35.63.270, 35A.63.290, and 36.01.320; WAC 365-16-475) | Requires local governments to provide DoD with written notice for alternative-energy permit applications. |
| **Local** | |
| Critical areas and floodplain codes | Implements federal and state minimum standards in addition to higher standards, if adopted, through locally developed flood management ordinances. Requires through review of proposed activities, implementing flood safe construction standards, and issuance of permits. |
| Roadways or rights-of-way permits or franchises | Proposed use of right-of-way owned by local government requires a right-of-way permit. |
| Zoning | Implements local Comprehensive Plans by establishing zoning maps and implementing codes describing allowed uses and development standards in each zone. |

# 2 Methodology

## 2.1 Study area

The study area for land use includes the local jurisdiction political subdivisions (municipalities and counties) of the state that intersect the overall onshore wind PEIS geographic study area. The PEIS geographic scope of study includes a total of approximately 27,800 square miles covering portions of the following 37 counties in Washington (Figure 1):

- Adams County
- Asotin County
- Benton County
- Chelan County
- Clallam County
- Clark County
- Columbia County
- Cowlitz County
- Douglas County
- Ferry County
- Franklin County
- Garfield County
- Grant County
- Grays Harbor County
- Jefferson County
- King County
- Kitsap County
- Kittitas County
- Klickitat County
- Lewis County
- Lincoln County
- Mason County
- Okanogan County
- Pacific County
- Pend Oreille County
- Pierce County
- Skagit County
- Skamania County
- Snohomish County
- Spokane County
- Stevens County
- Thurston County
- Wahkiakum County
- Walla Walla County
- Whatcom County
- Whitman County
- Yakima County

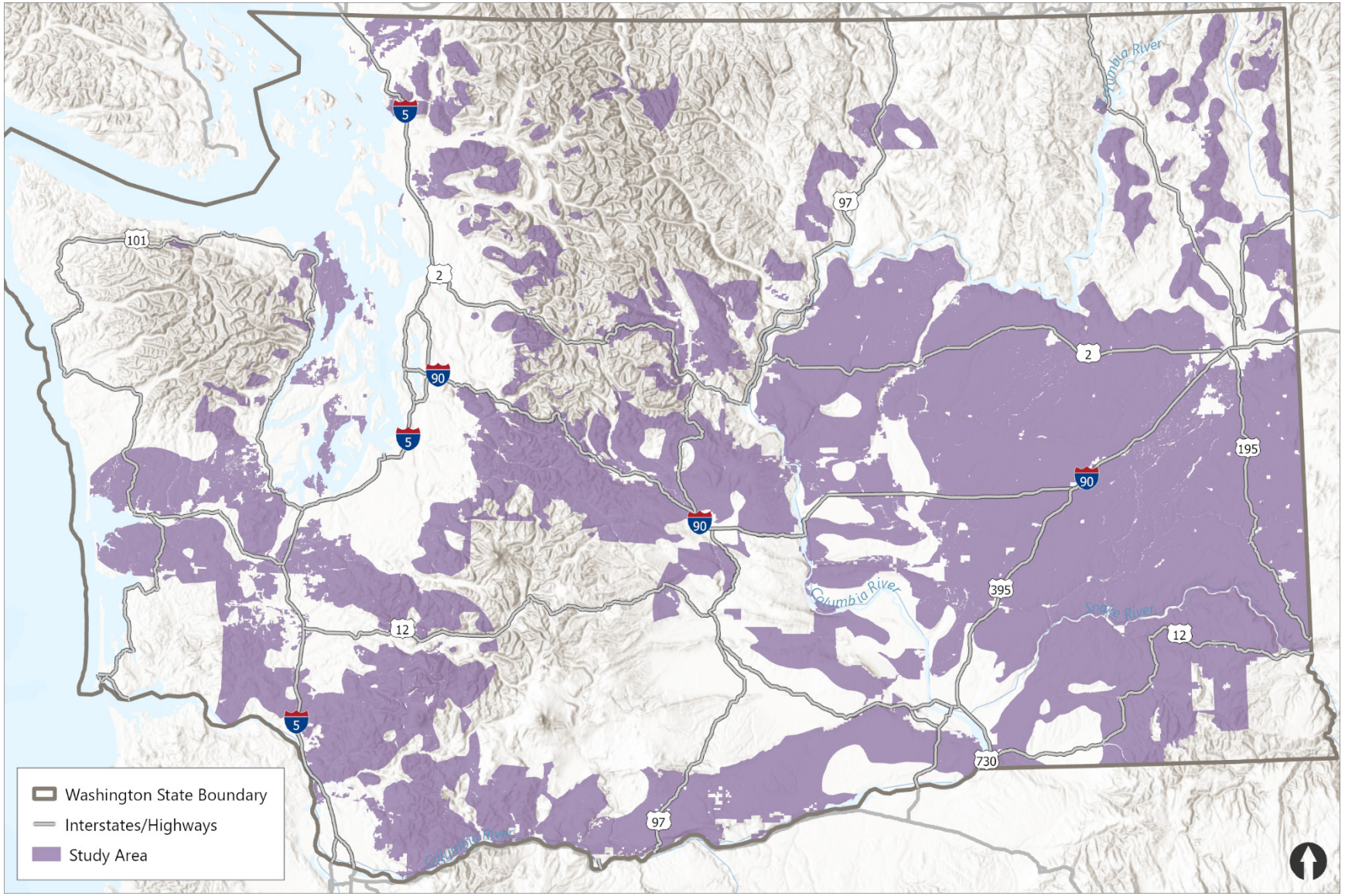


Figure 1. Onshore Wind Energy Facilities PEIS – geographic scope of study

## 2.2 Technical approach

The land use evaluation was based on a high-level review of regulations, plans, and policies (summarized in Table 1) as well as publicly available mapping, aerial photographs, agency plans and reports, and other technical and studies. The types of facilities and activities anticipated, as described in the PEIS Chapter 2, were reviewed and considered for how they would affect existing and future planned land uses, and the key regulatory triggers.

This land use evaluation did not include field surveys. In addition, a detailed review of each county's plans or regulatory requirements was beyond the scope of this programmatic review.

## 2.3 Impact assessment

For this resource report, potential impacts on land use are evaluated in the context of how new potential utility-scale onshore wind facilities would impact existing and planned land uses, the supply of land suitable for such uses, and the future viability of affected land uses. The analysis includes the potential impacts associated with site characterization, construction, operation, and decommissioning of new utility-scale onshore wind facilities as related to the following:

- Conversion of land from an existing low-intensity use (rural, agricultural, or other resource uses) to a new utility-scale onshore wind use, including the following:
    - Conversion of designated prime farmland or farmland of statewide importance to non-agricultural land uses and effects on the viability of resource uses in rural areas including agriculture, rangeland, and forestry uses
- Potential for land use conflicts with rural character
- Potential for co-location of other land uses with utility-scale onshore wind facilities
- Potential conflicts with aviation or military testing, operations, or training
- Effects on existing or future land uses
- Consistency with local, state, or federal land use plans, policies, or regulations

Significant impacts would occur if a facility would result in the following:

- Actions would cause permanent conversion or changes to existing low-intensity uses (rural, agricultural, or resource land uses) and result in land use conflicts
- Actions would be incompatible with or would preclude achievement of the stated goals/objectives for existing plans, policies, or regulations

# 3 Technical Analysis and Results

## 3.1 Overview

This section describes the affected environment (population, land ownership, and land uses); anticipated permit requirements (with consideration for allowed uses and land use constraints); impacts of the different types of facilities (site characterization, construction, operation, and decommissioning); measures that could be used to avoid or reduce impacts (siting and design considerations, permits, best management practices); and unavoidable significant adverse impacts.

## 3.2 Affected environment

This section provides an overview of population, land ownership, and land use types in the study area.

The Natural Resources Conservation Service (NRCS) classifies and maps farmland to identify the location and extent of prime farmland, farmland of unique importance, and farmland of statewide importance for Washington. Washington State has more than 1.4 million acres enrolled in the Conservation Reserve Program to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat.

The Washington State Growth Management Act (GMA) requires all counties and cities to designate agricultural resource lands. Criteria for designating agricultural resource lands include the following (Washington Administrative Code [WAC] 365-190-050):

- The land is not already characterized by urban growth.
- The land is used or capable of being used for agricultural production.
- The land has long-term commercial significance for agriculture.

Land use planning designations considered in the PEIS analysis include GMA comprehensive plans, subarea plans, zoning, and Shoreline Master Programs (SMPs). The analysis also considered GMA critical areas and resource lands designations, prime farmland, and farmland conservation reserves. In addition, it analyzed mapped flood hazard areas and state-designated areas for agriculture, commerce, conservation, tourism, clean energy development, opportunity zones, and rural character. Military training, testing, and operation areas as well as commercial and aircraft routes are also considered.

Under GMA, all cities and counties in Washington are required to adopt regulations for critical areas. Critical areas regulations include standards such as the types of activities allowed within each type of critical area as well as standard buffers and building setbacks. Critical areas include the following:

- Wetlands
- Critical aquifer recharge areas

- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Geologically hazardous areas

Also under the GMA, all cities and counties in Washington must designate and protect natural resource lands of long-term commercial significance. These include agricultural, forest, and mineral lands that have long-term significance for the commercial production of food, agricultural products, timber, or for the extraction of minerals.

### 3.2.1 Population

The estimated population of Washington State was approximately 7.95 million in 2023 (OFM 2023a). Population densities are generally highest on the west side of the Cascades (see Figure 2).

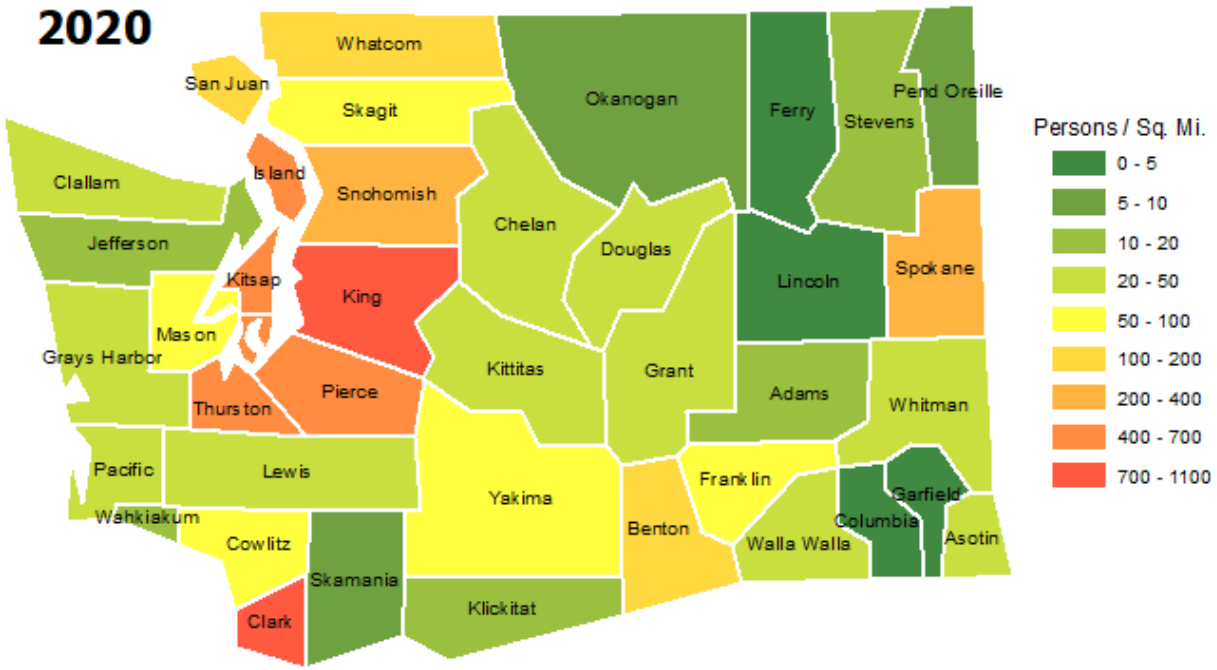


Figure 2. 2020 population density by county

Source: OFM 2020

The Washington State Office of Financial Management (OFM) tracks population changes across the state. Between 2020 and 2023, the state's population increased by 244,840 people, driven largely by people moving into the state (OFM 2023a). In 2023, population growth remained concentrated in more metropolitan areas, consistent with trends over the past few decades (see Figures 3 and 4).

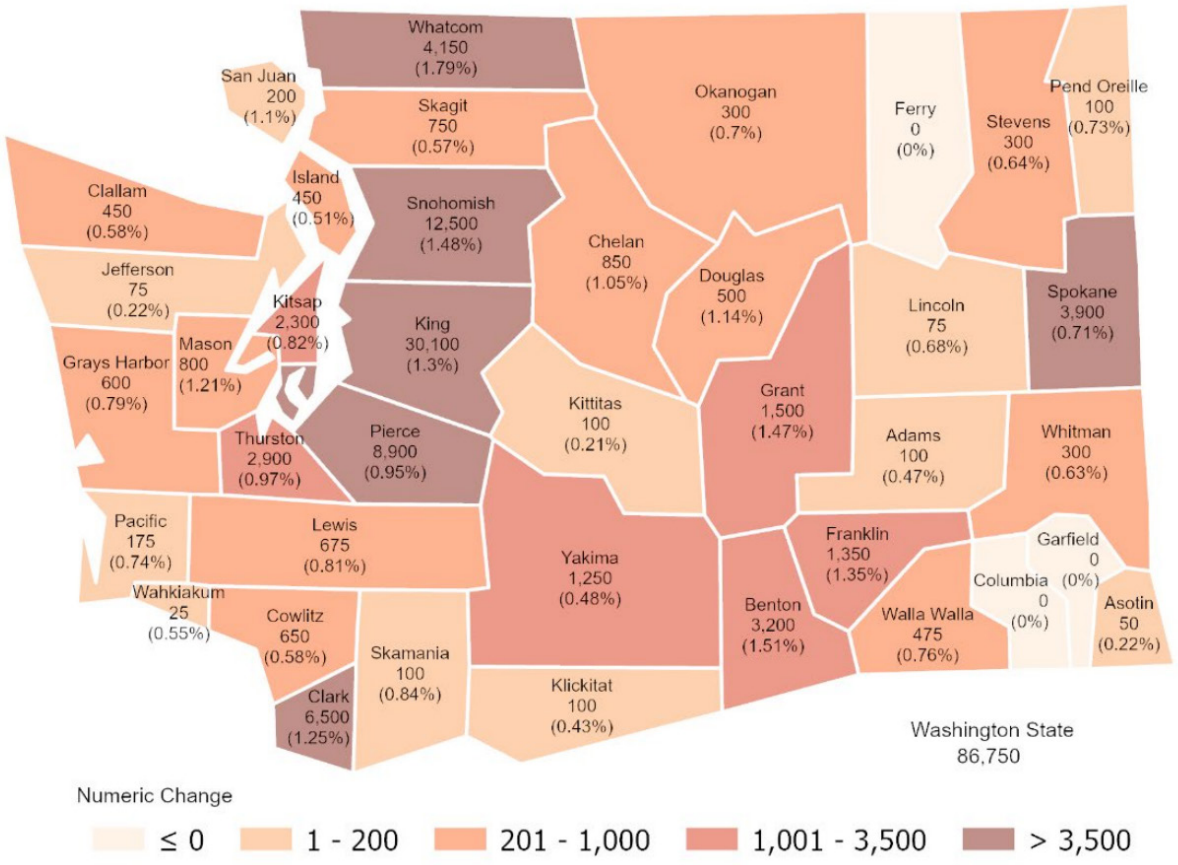


Figure 3. Population change by county in 2023

Source: OFM 2023a

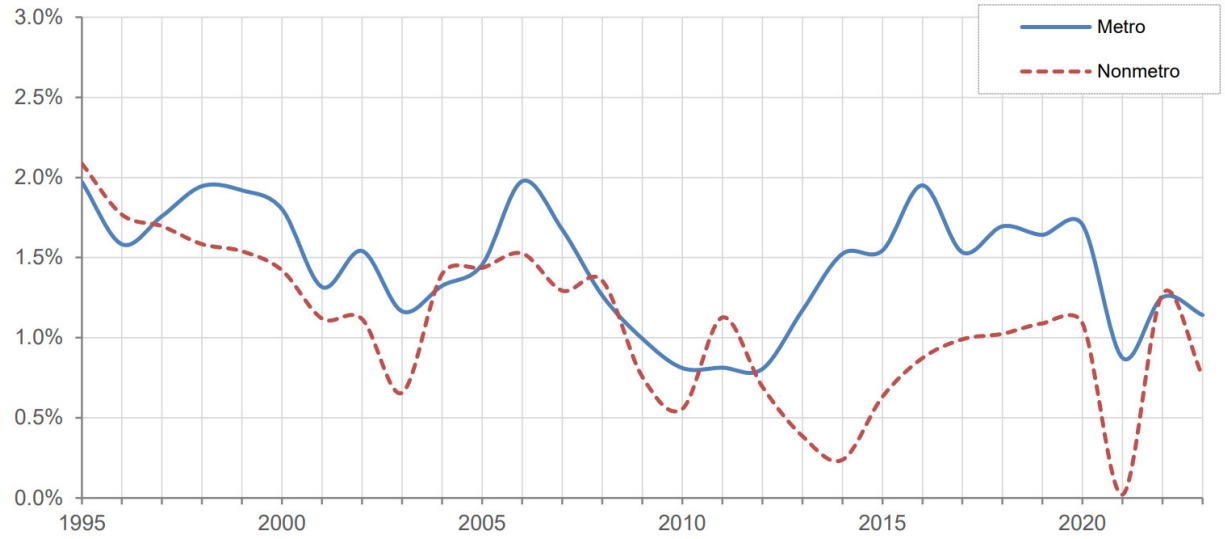


Figure 4. Population change in metropolitan and non-metropolitan areas, 1995 to 2020

Source: OFM 2023a

The OFM expects Washington's population to continue growing to almost 9.9 million in 2050 (a 28% increase compared to 2020 estimates), for an annual average growth rate of 0.8% (OFM 2023b). All counties in the state are predicted to grow in population by 2050 (OFM 2022).

### 3.2.2 Land ownership

The estimated total land area of Washington State is 45.7 million acres (including aquatic lands). In 2009, private ownership made up approximately 54% of the state's land area, with national forests covering approximately 21%. State, local, and other federal ownership made up the remainder (see Figure 5).

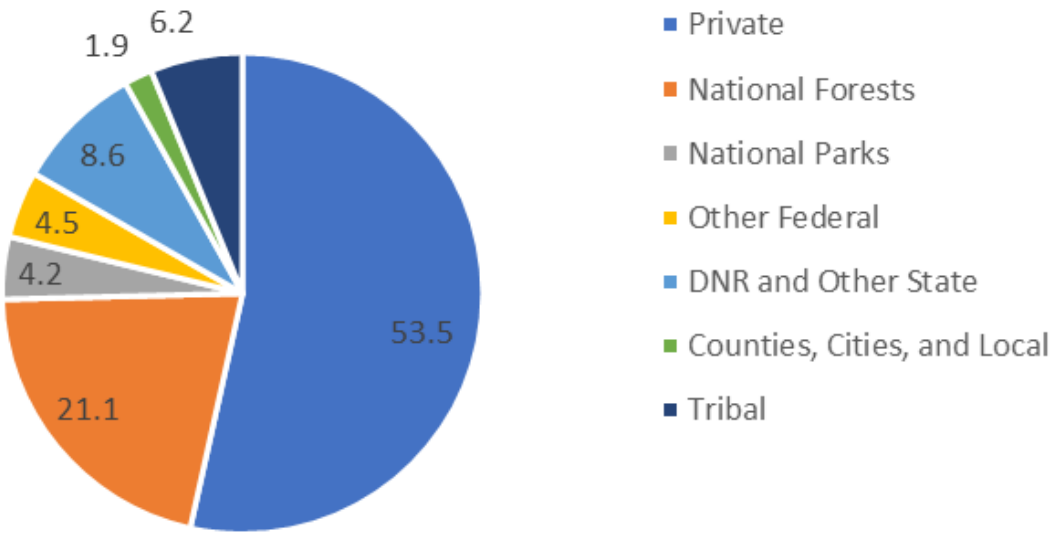


Figure 5. Land ownership percentages in Washington in 2009

Source: Adapted from DNR 2009

Two federal agencies own or manage large areas of land in Washington state, including large areas that overlap the study area:[1]

- In Washington the U.S. Forest Service (USFS) manages the Colville, Gifford Pinchot, Mt. Baker-Snoqualmie, Okanogan, Wenatchee, and Olympic National Forests, together covering approximately 8.7 million acres (USFS 1987, 1989, 1990a, 1990b, 1990c, 2019).
- The Bureau of Land Management (BLM) manages approximately 450,000 acres for grazing, forestry, mining, and recreational use in the state (BLM 2024a).

[1] Federally owned lands in the state that have been excluded from the study area include wilderness areas (managed by various agencies), national parks (managed by the National Park Service), and national wildlife refuges (managed by the U.S. Fish and Wildlife Service).

The Washington Department of Natural Resources (DNR) and Washington Department of Fish and Wildlife (WDFW) manage large areas of state lands, including areas that overlap the study area:[2]

- DNR manages approximately 5.6 million acres across the state. This includes 2.9 million acres of trust lands; 131,000 acres of natural areas; and 2.6 million acres of aquatic lands. DNR manages federally granted trust lands to provide revenue to beneficiaries (largely educational institutions). Revenue-producing activities undertaken on trust lands can include timber harvest and leases for agriculture, mining, energy production, and other uses. DNR also manages hundreds of thousands of acres of state forest lands that help fund services in many counties and contribute to the education funding earmarked in the state general fund (DNR 2024a, 2024b).
- WDFW manages 33 wildlife areas and more than 400 water access sites across the state. The agency holds title to approximately 670,000 acres; manages approximately 284,000 additional acres that are owned by others; and leases approximately 87,000 acres of DNR lands across 10 wildlife areas (WDFW 2021).

## 3.2.3 Land uses

Washington's cities and unincorporated urban growth area (UGAs) support much of the state's population and more intensive land uses, such as high-density residential, industrial, and concentrated commercial uses. Outside of cities and UGAs, which are excluded from the land use study area, land uses tend more toward agricultural, rural residential, forestry, wildlife conservation, and undeveloped recreation areas. This land use pattern reflects historic settlement of the state, resource extraction uses and associated transportation routes, and, since its enactment in 1990, the GMA. The GMA seeks to focus growth in areas that have adequate public services, protect natural resource lands and critical areas, and generally discourage urban spawl.

### *3.2.3.1 Agriculture*

Approximately 11.2 million acres in Washington are used for agriculture. Agriculture is a dominant land use in eastern Washington, encompassing millions of acres in the study area. Pasture was the largest agricultural use by area across the state in 2022, followed by wheat (WSDA 2022).

A Washington State University study summarizes agricultural use on the Columbia Plateau in eastern Washington as follows (WSU 2023):

> Crop farmland on the plateau can be categorized by irrigated land and non-irrigated land. Irrigation introduced from the creation of the Grand Coulee dam has created the most productive agricultural lands in the state. The deep fertile soils of the Palouse region produce wheat and legumes through dryland farming.

[2] Washington State Parks lands are excluded from the study area.

The diversity of products grown in eastern Washington also includes a variety of fruits, vegetables, grains, wine grapes, and specialty crops, such as blueberries.

Livestock grazing on open lands such as shrub-steppe is important as it provides many benefits to producers, residents, wildlife, and vegetation. Grazing can manage habitats by controlling the height of invasive plants, spurring the production of nutritious new growth on earlier grazed areas, and encouraging shrub growth. Such grazed lands also have greater plant biodiversity and healthier soil, which in turn benefits wildlife. Grazing encourages conservation on large tracts of land while helping to maintain the unique characteristics of ranching communities. The USDA's Grassland Conservation Reserve Program (CRP) is an example of a unique working lands program which allows producers and landowners to continue grazing and haying practices while conserving grasslands.

**Prime farmland**

The NRCS classifies and maps farmland to identify the location and extent of the most suitable land for producing food, feed, fiber, forage, and oilseed crops. Figures 6a and 6b provide the NRCS mapping of prime farmland, farmland of unique importance, and farmland of statewide importance for Washington.

The NRCS defines prime farmland as having the following characteristics (NRCS undated):

- The best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses
- The combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods
- An adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, an acceptable level of acidity or alkalinity, an acceptable content of salt or sodium, and few or no rocks
- Soils are permeable to water and air
- Not excessively eroded or saturated with water for long periods of time
- Either does not flood frequently during the growing season or is protected from flooding
- Other considerations include land use, flooding frequency, irrigation, water table, and wind erodibility


Figure 6a. Western Washington farmland designations

Data source: WSDOT 2024; USDA 2024

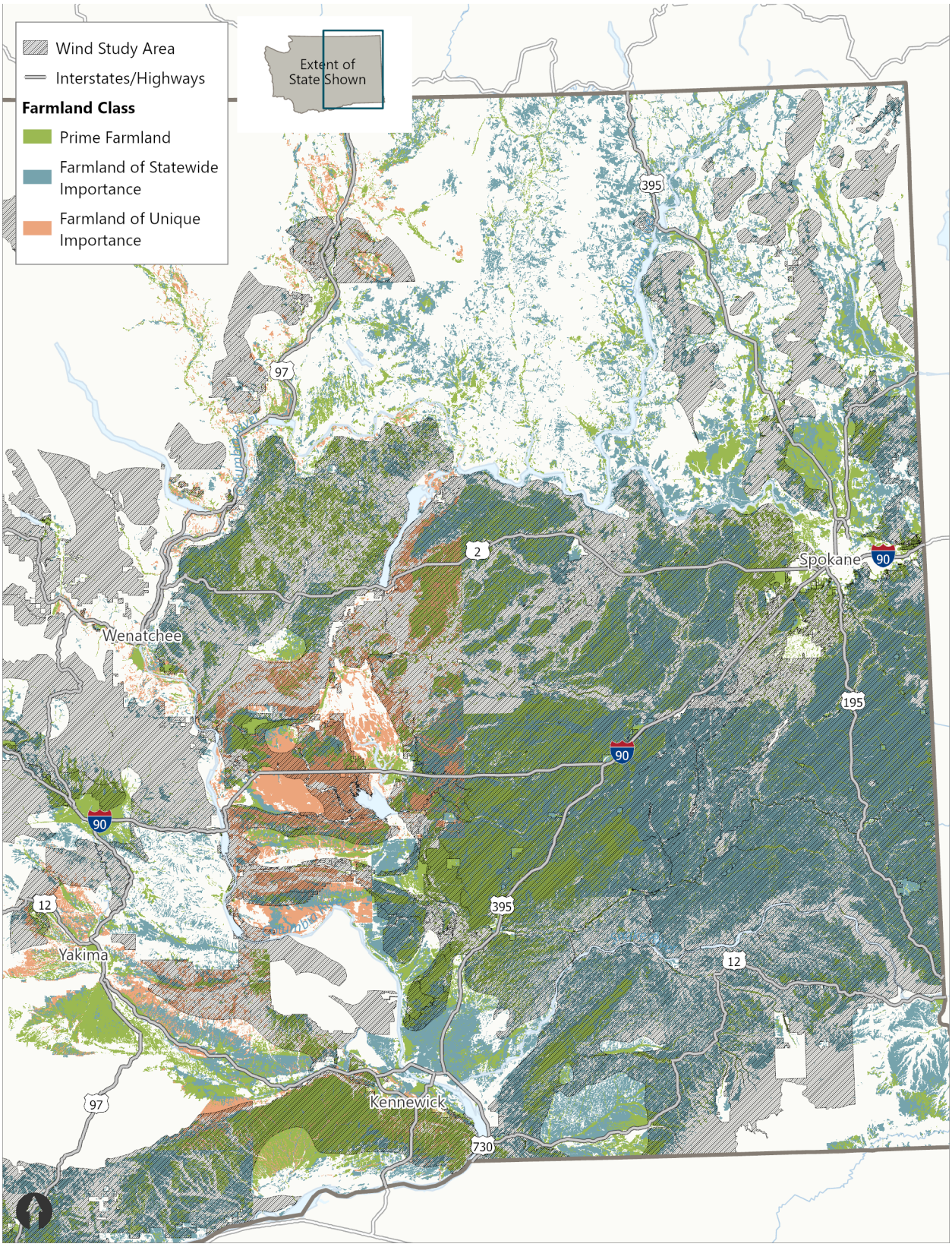


Figure 6b. Eastern Washington farmland designations

Data source: WSDOT 2024; USDA 2024

**Land leases**
Federal and state agencies lease their lands for agriculture and grazing. As of January 2022, BLM had 270 grazing permits or leases in force in Washington (BLM 2024b). In 2021, the USFS had 81 permittees for commercial livestock (USFS 2021). DNR leases approximately 1.1 million acres of state trust lands for agriculture and grazing (DNR 2024c). The permit/lease periods and requirements vary by agency.

**Conservation Reserve Program**
Washington State has more than 1.4 million acres enrolled in the Conservation Reserve Program (CRP). Created in 1985, CRP is a voluntary program whose long-term goal is to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat. Contracts for land enrolled in CRP are from 10 to 15 years in length. The federal Farm Service Agency administers the program, and NRCS assists with technical assistance through conservation planning. In exchange for a yearly rental payment, farmers enrolled in the program agree to remove environmentally sensitive land from agricultural production and plant species that will improve environmental health and quality. The CRP includes several different programs, such as the Conservation Reserve Enhancement Program, State Acres for Wildlife Enhancement, and Farmable Wetlands Program (NRCS 2024a; FSA 2024).

**Local agricultural resource lands designations**
The GMA requires all counties and cities to designate agricultural resource lands. Criteria for designating agricultural resource lands include the following (WAC 365-190-050):

- The land is not already characterized by urban growth.
- The land is used or capable of being used for agricultural production.
- The land has long-term commercial significance for agriculture.

WAC 365-190-050(3) provides specific information used to evaluate lands under each of these criteria. Jurisdictions required to undertake full planning under the GMA must also adopt development regulations to conserve these lands. Such regulations are often found in the local zoning code. Section 3.3.1.2 discusses the GMA in more detail.

### *3.2.3.2 Forestry*

Forestry is another significant land use in rural areas, covering approximately 22 million acres or half of the state. Approximately 4 million acres of forestland are privately owned; these lands produce three-quarters of the timber harvested in the state (WSDOC 2024a). Timber harvest also occurs through permits, sales, or leases on lands managed by the USFS, BLM, and DNR.

Under the GMA, local governments must designate forest resource lands in accordance with the following criteria (WAC 365-190-060):

- The land is not already characterized by urban growth.
- The land is used or capable of being used for forestry production.
- The land has long-term commercial significance.

WAC 365-190-060 provides specific information used to evaluate lands under each of these criteria. Jurisdictions required to undertake full planning under the GMA must also adopt development regulations to conserve these lands. Such regulations are often found in the local zoning code. Section 3.3.1.2 discusses the GMA in more detail.

#### *3.2.3.3 Mining*

The GMA requires that counties and cities identify and classify "mineral resource lands." Mineral resources include sand, gravel, and valuable metallic substances, as well as other minerals. Counties and cities must designate known mineral deposits so that access to mineral resources of long-term commercial significance is not knowingly precluded. In addition, priority land use for mineral extraction should be retained for all designated mineral resource lands (WAC 365-190-070).

There are dozens of active surface mines across Washington. DNR mapping indicates most of the active surface mine permits are for mining of sand, gravel, rock, and stone, which are important building materials (DNR 2024d.)

#### *3.2.3.4 Limited areas of more intensive development*

The GMA designates rural areas as lands outside of designated urban areas and not in long-term resource use. Counties may designate "limited areas of more intensive development" in rural areas to allow for existing commercial, industrial, residential, or mixed-use areas; small-scale recreation and tourist use areas; and intensification of development on lots containing nonresidential uses (MSRC 2024a). Washington has many small communities located in rural areas.

#### *3.2.3.5 Military areas*

Large areas of land, water, and air outside of military installations are used for military testing, operations, and training. The GMA prioritizes protecting lands around military installations from development that would reduce the ability of personnel to fulfill their mission requirements (Revised Code of Washington [RCW] 36.70A.530). Development that is incompatible with this priority poses risks to operational efficiency and the safety of military personnel and the public. Energy developers and reviewers should consult with the U.S. Department of Defense (DoD) early during project planning to address these issues. Use the Compatible Energy Siting Assessment (CESA) mapping tool to identify military-utilized airspace and if applicable, submit plans to the DoD.

#### *3.2.3.6 Rural character*

The term "rural character" has different definitions. Several, but not all, of the counties in the study area plan under the GMA. The GMA identifies rural character as patterns of land use and development as follows:

- Allow open space, the natural landscape, and vegetation to predominate over the built environment

- Foster traditional rural lifestyles, rural-based economies, and opportunities to both live and work in rural areas
- Provide visual landscapes that are traditionally found in rural areas and communities
- Are compatible with the use of land by wildlife and for fish and wildlife habitat
- Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development
- Generally do not require the extension of urban governmental services
- Are consistent with protection of natural surface water flows and ground water and surface water recharge and discharge areas (WAC 365-196-425(2)(b))

Rural character therefore encompasses many considerations, such as vegetation, views, housing, employment, fish and wildlife habitat, government services, and water. The GMA acknowledges that "rural areas are diverse in visual character and in density, across the state and across a particular county" (WAC 365-196-425(2)(c)). Under the GMA, individual counties are responsible for adopting a locally appropriate definition of local character that guides the development of the rural element and its implementing development regulations.

Counties planning under the GMA must include a "rural element" in their comprehensive plans that addresses "lands that are not designated for urban growth, agriculture, forest, or mineral resources." Counties not planning under GMA are not required to have this element in their comprehensive plans. A key requirement of a rural element are measures to protect rural character.

## 3.3 Potentially required permits

An individual utility-scale onshore wind facility is likely to trigger a number of the requirements listed in Table 1. Exact requirements will depend on land ownership, the presence of regulated natural resources, local jurisdiction land use and zoning designations, the specific types of structures proposed, and other factors.

This resource report addresses requirements related to land ownership, land use types, and general regulatory agency requirements for proposed utility-scale onshore wind facilities. Regulations and plans specific to certain types of resources, such as wildlife, water, cultural resources, and others, are covered in other resource-specific reports and are not repeated here.

The following sections discuss permitting considerations related to allowed land uses, land use constraints, and additional regulatory requirements.

### 3.3.1 Allowed land uses

A primary consideration for siting a utility-scale onshore wind facility is the property ownership and whether the facility is an allowed use on the property.

#### 3.3.1.1 Federal and state agency lands

Federal and state agencies (USFS, BLM, DNR, U.S. Department of Energy [USDOE], and WDFW) must comply with their specific regulations and management plans when considering whether to approve projects on lands they own or manage**.** Uses proposed on state or federal lands require environmental review under SEPA and/or the National Environmental Policy Act (NEPA) and a lease, license, right-of-way, and/or other authorization.

Recent regulations require federal resource agencies to establish national goals for renewable energy production on federal land while continuing to manage public lands for multiple uses and sustained yield (43 *United States Code* [USC] 3004–3005). At the state level, DNR's climate resilience plan states that the agency will continue to seek opportunities for wind energy leasing on DNR-managed lands (DNR 2020).

**State and Federal Wind Energy Land Evaluations**

The DNR Clean Energy Program has screened thousands of state trust properties for potential clean energy leases using criteria such as onshore wind and solar electricity generation capability; environmental and cultural resources issues; and compatibility with existing uses. Additional information and a GIS-based Clean Energy Parcel Screening Tool are available at: https://www.dnr.wa.gov/programsservices/product-sales-and-leasing/energy (DNR 2024e).

A 2005 study by the USFS and the National Renewable Energy Laboratory (USFS and NREL 2005) identified the top 25 national forest system units with areas having the highest potential for wind projects. The results are intended to provide the USFS with information to include in its land and resource management decisions. Screening criteria for wind projects included wind strength, transmission line access and capacity, proximity to roads, slope, distance from urban areas, and presence of designated protected areas. Based on these criteria, the study identified potential for wind development within all of the national forests in the state of Washington.

BLM published a PEIS for wind development on BLM-administered lands in the western states (BLM 2005) and developed guidance on best management practices to address the impact of wind energy on birds, wildlife habitat, and other resources, as well as BLM's administration of wind energy authorizations. The West-Wide Wind Mapping Project, completed in 2016, evaluated wind energy development potential and constraints on BLM lands across 11 western states (BLM 2016). The project identified approximately 263,000 acres of BLM lands in Washington as having potentially developable wind resources. The BLM mapping and reports are available at: https://wwmp.anl.gov/

USDOE has designated a portion of the Hanford Site as eligible for carbon pollution-free electricity projects. This area consists of 14,000 contiguous acres in the southern industrial area.

### *3.3.1.2 Local planning and permitting*

**Washington State Growth Management Act**

The Washington State GMA (codified primarily in Chapter 36.70A RCW) requires fast-growing counties in the state to develop Comprehensive Plans to manage their population growth (Figure 7). The counties with lower population levels and/or growth that are not required to "fully plan" must still plan for critical areas and natural resource lands under the GMA (MSRC 2024b).

A county Comprehensive Plan designates and maps future land uses within the county. These future land uses are implemented through corresponding zoning designations. The county's zoning code specifies the types of uses allowed and design standards within each zone. If a proposed use or development does not meet all of the development standards and zoning requirements for that zoning district, and/or the use or development is only allowed in that zoning district subject to a discretionary conditional use review and approval process, then a zoning variance and/or conditional use permit would be required.

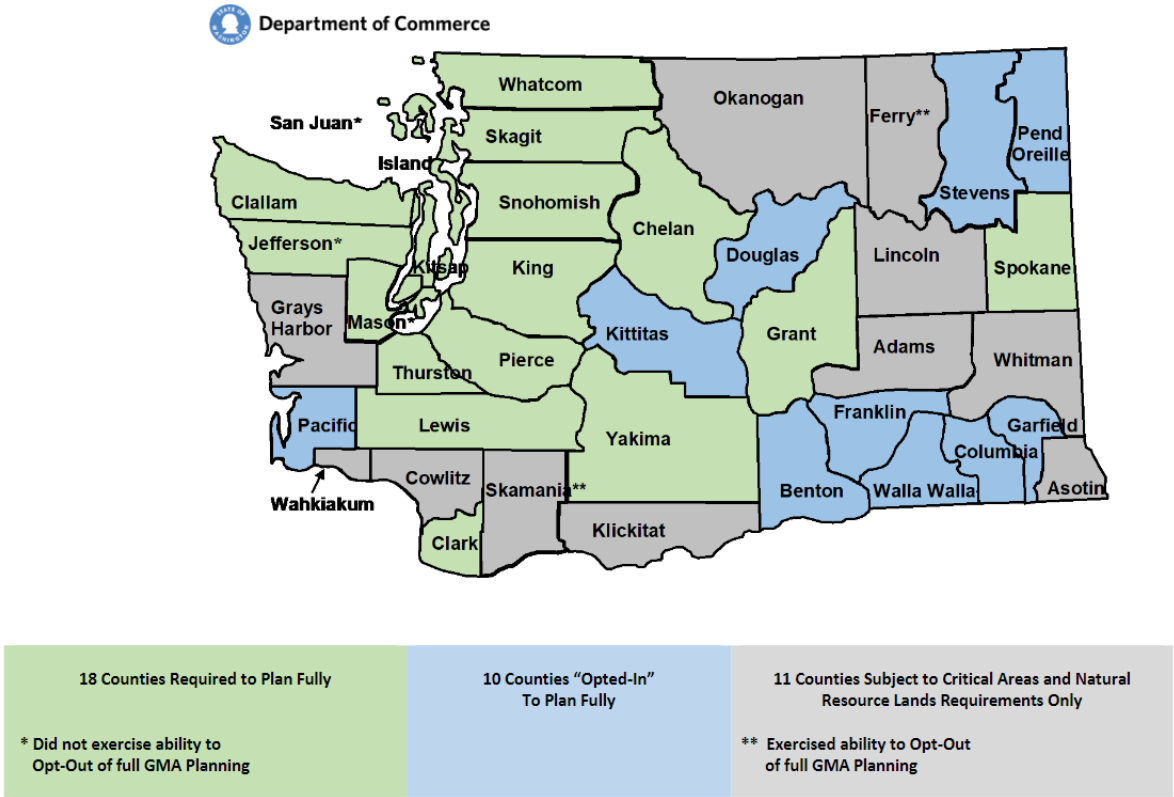


Figure 7. GMA county planning requirements as of 2018

Source: WSDOC 2017

**Washington State Shoreline Management Act**

Another state regulation implemented at the local level that dictates allowed land uses is the Washington State Shoreline Management Act (Chapter 90.58 RCW). Local governments develop SMPs based on the act and state guidance, and the state ensures local SMPs consider statewide public interests. The SMP applies to the following areas within each county (illustrated conceptually in Figure 8):

- Streams with flows greater than 20 cubic feet per second
- Lakes greater than 20 acres
- Upland areas within 200 feet of those streams and lakes
- Floodways and adjacent floodplain areas
- Associated wetlands

Each county designates different shoreline environment designations (SEDs) within its regulated shoreline areas. The SEDs are similar to different types of zoning and specify the types of activities allowed (the underlying zoning designation also applies). A Shoreline Substantial Development Permit (SSDP) is required from the applicable county for renewable energy facilities proposed within that county's SMP jurisdiction. If the facility does not comply with all of the standard requirements for the applicable SED, then a shoreline variance or shoreline conditional use permit is required, both of which also require review and approval by the Washington State Department of Ecology (Ecology). Shoreline regulations require projects to follow a stepwise "mitigation sequencing" process, which requires applicants to first avoid impacts to shorelines through design or other measures, then minimize impacts, then compensate for unavoidable impacts.

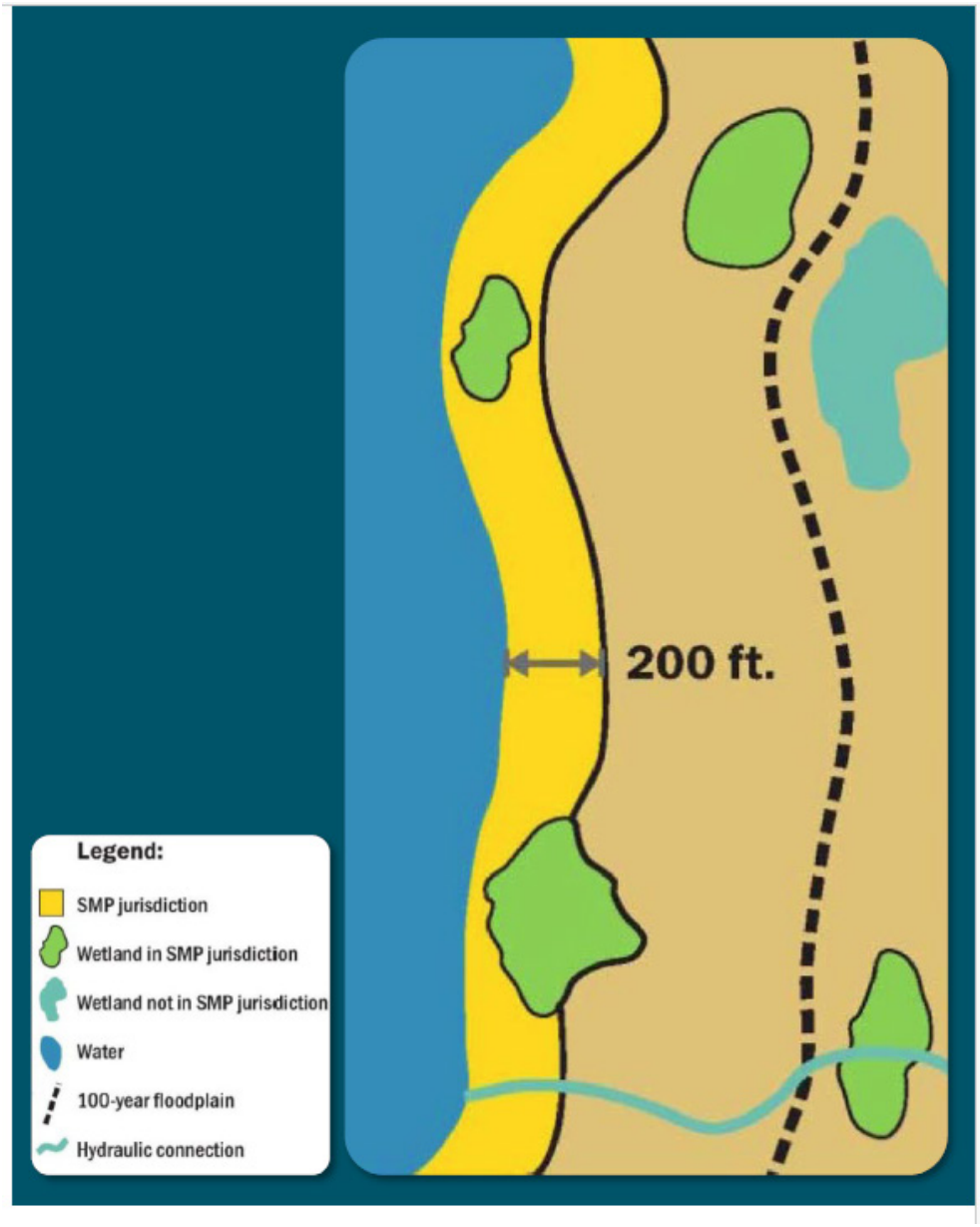


Figure 8. Conceptual diagram of Shoreline Management Act jurisdiction

**Floodplain development permits**

Local jurisdictions (cities, counties, and Tribal nations) that participate in the National Flood Insurance Program (NFIP) require permits for any development within the Special Flood Hazard Area. The NFIP defines development as "any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials." Communities that do not participate or have not received Federal Emergency Management Agency (FEMA)-developed Flood Insurance Rate Maps or Flood Insurance Studies are required to review applications for all proposed construction and development within flood-prone areas.

Floodplain development permit requirements are outlined in the local flood ordinance or other development ordinances.

## 3.3.2 Land use constraints

Several types of land constraints may be present on a specific parcel proposed for renewable energy development and may trigger associated review and permit requirements.

### *3.3.2.1 Critical areas*

Under GMA, all cities and counties in Washington are required to adopt regulations that address the following types of critical areas:

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

Local governments may have mapped these resources within their jurisdictions, or they may rely on state and federal agency resource mapping. These maps provide a preliminary idea of what types of critical areas are present on a property, but this information must be supplemented by field investigations and reporting by qualified professionals.

Critical areas regulations dictate the types of activities allowed within each type of critical area, as well as standard buffers and building setbacks from the edges of these areas. The regulations require mitigation sequencing for critical areas impacts similar to that discussed previously under the Shoreline Management Act. Proposed alterations to critical areas or their buffers for a renewable energy facility require local agency critical areas review and, in some jurisdictions, a critical areas permit.

Local codes also usually include a separate flood hazard management section. Ecology is the state coordinating agency for floodplain management to ensure compliance with federal and state regulations. Floodplain development permits are issued at the local level. Projects that would result in changed conditions affecting FEMA flood risk mapping may require a Conditional Letter of Map Revision/Letter of Map Revision from FEMA.

**Washington State Voluntary Stewardship Program**

Created in 2011, the state's Voluntary Stewardship Program (VSP) is a non-regulatory approach to meeting the goals of the GMA by protecting critical areas on agricultural lands. VSP provides opportunities for landowners to avoid future regulation by implementing voluntary, site-specific practices that help protect critical areas while promoting agricultural viability. VSP provides counties with an alternative to enforcing critical areas regulations on agricultural landowners. To date, 27 of Washington's 39 counties are using VSP (WSCC 2024).

#### *3.3.2.2 Natural resource lands*

The GMA requires local jurisdictions to designate important natural resource lands, including agricultural, forest, and mineral resource lands. The GMA defines agricultural, forest, and mineral resource lands as those that are primarily used for or have long-term commercial significance for agricultural, forestry, and mineral production. Counties that are required to fully plan under the GMA must also adopt development regulations to conserve these lands (RCW 36.70A.060), while partially planning jurisdictions are required, at a minimum, to designate natural resource lands.

Natural resource lands regulations describe the types of uses allowed on these lands as well as setbacks and other standards. These regulations may be included in the county's zoning code. They must also ensure that the use of lands *adjacent to* designated natural resource lands does not interfere with their continued use in the accustomed manner (RCW 36.70A.060). See Section 3.3.1.2 for discussion of local zoning requirements.

The federal Farmland Protection Policy Act (7 USC 73) applies to projects that may irreversibly convert farmland (directly or indirectly) to non-agricultural use and that are completed by a federal agency or with assistance from a federal agency (i.e., the federal agency assists in acquiring or disposing of land, providing financing or loans, managing property, or providing technical assistance). For Farmland Protection Policy Act purposes, "farmland" includes prime farmland, unique farmland, and land of statewide or local importance (see Figures 6a and 6b). Farmland subject to these requirements does not have to be currently used for crops; it can be forestland, pastureland, cropland, or other land, but not water or urban built-up land (NRCS 2024b).

Activities not subject to Farmland Protection Policy Act include federal permitting and licensing; projects planned and completed without the assistance of a federal agency; projects on land already in urban development or used for water storage; construction within an existing right-of-way purchased on or before August 4, 1984; and activities related to national defense, farm structures, and minor secondary structures (NRCS 2024b).

A project that has the potential to convert important farmland to non-farm use requires an NRCS land evaluation and site assessment (LESA) to establish a farmland conversion impact rating score. This score is used as an indicator for the project sponsor to consider alternative sites if the potential adverse impacts on the farmland exceed the recommended allowable level. The federal sponsoring agency consults with the local NRCS office or U.S. Department of Agriculture Service Center regarding the LESA (NRCS 2024b).

#### *3.3.2.3 Civil aviation corridors*

The Federal Aviation Administration (FAA) is an agency of the U.S. Department of Transportation that oversees the safety of civil aviation. A notification to FAA is required for structures meeting specific height and location criteria. Notifications allow FAA to evaluate the effect of the construction or alteration on operating procedures; determine potential hazards to air navigation; identify mitigating measures to enhance safety; and chart new objects.

Additional aviation resources are described in the *Transportation Resource Report* (ESA 2024a) and *Public Services and Utilities Resource Report* (ESA 2024b)

#### *3.3.2.4 Military areas*

Large areas of land, water, and air outside of military installations are used for military testing, operations, and training. The GMA prioritizes protecting lands around military installations from development that would reduce the ability of personnel to fulfill their mission requirements (RCW 36.70A.530). Development that is incompatible with this priority poses risks to operational efficiency and the safety of military personnel and the public. Energy developers and reviewers should consult with the DoD early during project planning to address these issues. Use the CESA mapping tool to identify military-utilized airspace and if applicable, submit plans to the DoD. For wind turbines, the DoD will consider potential impacts to radar line of sight. State law requires counties to provide the DoD with written notice for alternative-energy permit applications (RCW 35.63.270, 35A.63.290, and 36.01.320; WAC 365-16-475; WSDOC 2024b). Military airspace considerations are described in the *Transportation Resource Report.*

**Washington State Compatible Energy Siting Assessment**

In 2022, the Washington State Department of Commerce published a report about Washington's clean-energy trends, civilian-military coordination needs, and best practices to foster early and ongoing consultation in energy siting. It describes military bases in the state as well as military needs for land, air space, and offshore areas for logistics, training, and testing. The study also included development of a prototype, online mapping tool for renewable energy projects and military needs, which is available at: https://cesa-wacommerce.hub.arcgis.com/

### 3.3.3 Additional review and permitting requirements

In addition to the permits discussed previously, the following additional land use review and permitting requirements apply to renewable energy projects in Washington. It is important for facility developers to consult with each agency early in the facility planning process to determine requirements and timelines:

- Environmental review and opportunity for public comment under NEPA and SEPA (SEPA review may be tiered to the PEIS analysis)
- Section 4(f) review under federal Transportation Act (only for projects with involvement by an agency of the U.S. Department of Transportation)
- Coastal Zone Management Act review by Ecology (only for projects in Washington's 15 coastal counties that are proposed by a federal agency, require certain federal permits or licenses, or include certain federal funding sources)
- Forest practices permit (for projects involving timber removal and/or conversion of forestlands to non-forest use)

Additional resource-specific constraints and permitting requirements that may apply are addressed in the other resource reports.

### 3.3.4 Permit summary

Table 2 summarizes the key land use reviews, permits, and related approvals likely to be required by specific agencies for a utility-scale onshore wind facility in Washington. Facility developers should always consult with the applicable agencies early in the facility planning process to confirm exact requirements and avoid potential delays and added expense. The permit types listed in the table are generalized and may have different names depending on the agency involved.

Table 2. Summary of key land use-related permits and approvals for utility-scale onshore wind facilities

| Agency | Review/permit requirements |
|---|---|
| BLM | • Right-of-way authorization for facilities on BLM-administered lands (grant or competitive bid)<br>• NEPA review |
| USFS | • Special use authorization for facilities proposed on USFS-administered lands<br>• NEPA review |
| USDOE | • NEPA review for facilities on USDOE-administered lands |
| FAA | • Notification for objects affecting navigable civilian airspace |
| DoD | • Notification to DoD for all renewable energy projects |
| NRCS | • For projects subject to the Farmland Protection Policy Act: NRCS LESA |
| FEMA | • For projects that would result in changed conditions affecting FEMA flood risk mapping: Conditional Letter of Map Revision/Letter of Map Revision |
| U.S. Department of Transportation (specific agency depends on project) | • Section 4(f) review (only for certain project types) |
| Ecology | • Coastal Zone Management Act consistency review (for projects within 15 coastal counties that are proposed by a federal agency, require certain federal permits or licenses, or include certain federal funding sources)<br>• Water Quality Construction Stormwater Permits (if ground disturbance meets/exceeds criteria)<br>• Development in the floodplains on state lands must be reviewed/approved by Ecology, consistent with state and federal minimum requirements |
| DNR | • Lease, license, or other authorization for projects on DNR lands, depending on nature and length of occupancy<br>• Participates in SEPA review process<br>• For projects involving timber removal, conversion of forestland to non-forest use: Forest practices permit (some types of forest practices permits are issued by the local government) |

| Agency | Review/permit requirements |
|---|---|
| WDFW | • Lease, license, or other authorization for projects on WDFW lands, depending on nature and length of occupancy<br>• Participates in SEPA review process |
| Washington State Department of Transportation | • Utility permit or franchise (for facilities proposed within state highway rights-of-way) |
| Local government (typically led by a planning, community development, or public works department with input from others such as transportation and natural resources staff, fire marshal, etc.) | • SEPA review<br>• Zoning review; variance or conditional use permit if project does not meet standard requirements for the applicable zone<br>• For projects within shoreline jurisdiction: SSDP, shoreline variance, shoreline conditional use permit (latter two also require review by Ecology)<br>• For projects affecting critical areas or their buffers: Critical areas review/permit<br>• For projects affecting flood hazard areas: Floodplain review/development permit<br>• Right-of-way permit (for use of locally owned rights-of-way) |

## 3.4 Small to medium utility-scale facilities of 10 MW to 250 MW (Alternative 1)

### 3.4.1 Impacts from construction

The size of the parcels required for small to medium facilities would range from approximately 340 to 21,250 acres. The amount of land actually disturbed for construction of utility-scale onshore wind facilities would be less than this total because of the need to widely space the individual turbines. For small to medium facilities, a range of 7 to 167 wind turbines would be widely spaced across a facility site. The time needed to construct a facility, after environmental review and permitting is completed, will vary but is expected to be between 6 and 24 months. The area of land disturbance would depend on facility design. Site characterization would involve minimal to no land disturbance except when building potential access roads and constructing meteorological towers.

#### *3.4.1.1 Land use conflicts*

**Effects on existing adjacent land uses**

Construction of small to medium utility-scale facilities has the potential to result in proximity impacts such as increased dust, noise, traffic, and visual changes (refer to the *Transportation, Noise and Vibration*, *Aesthetic/Visual Quality*, and *Air Quality and Greenhouse Gases* resources reports [ESA 2024a, 2024c, 2024d, 2024e]), which could affect adjacent existing land uses on other properties in the facility vicinity.

Wind turbine towers would be transported to the site in sections and assembled on site. In addition to excavation and backfill for the wind turbine foundations, construction would include installing a transformer at each turbine, underground and aboveground collector lines,

overhead gen-tie lines, a substation, an operations and maintenance building, access and service roads, and fencing.

People most likely to notice these impacts are those living in nearby areas (if there are any nearby residential land uses) or those whose work requires them to be near the construction area for long periods (depending on specific adjacent land uses). Nearby agricultural land uses could be affected by increased dust settling on crops, or by construction noise disturbing livestock. Anyone regularly using roads near the facility site may experience temporary traffic delays or detours.

Potential site characterization and construction-related disturbance, and the resulting extent of effects on existing nearby land uses, would depend on the specific activities, site conditions, adjacent land uses, and proximity.

**Conversion of existing land use**
The siting and development of small to medium utility-scale onshore wind facilities would result in the long-term (and potentially permanent) conversion of existing or designated future land uses to utility-related uses for the life of the facilities. The impacts of converting property to a utility-scale wind facility would depend on the existing use of the site. The study area excludes existing cities and UGAs, so it is likely that facilities would be located on lands currently zoned and used for low-density residential or designated as natural resource lands (agriculture, forestry, or mining).

Section 3.2.3 discusses natural resource lands (agriculture, forestry, and mining). Changing the use of these lands to a renewable energy facility would make the land no longer available for these other uses for the life of the facility. Natural resource uses require certain site conditions, whether soil types, availability of irrigation, microclimate, slope, mineral resources, or other site-specific factors. Removing these lands, particularly those of high quality, from their resource uses would reduce the area available to continue producing agricultural, forestry, and mining products in the future.

**Summary of impacts related to existing land use conflicts**
Through compliance with laws and permits and with implementation of actions that could avoid and reduce impacts, construction activities would likely result in **less than significant impacts** on existing adjacent land uses.

Construction would have **potentially significant adverse impacts** if natural resource lands of long-term commercial significance are converted.

## 3.4.2 Impacts from operation

### *3.4.2.1 Land use conflicts*

**Effects on rural character**
Land use elements that make up the rural character are described in Section 3.2.5 and generally include open spaces and natural landscapes, fostering rural lifestyles and rural-based

economies, limitations on conversion of undeveloped lands, and compatibility with natural resources. A proposed utility-scale onshore wind facility would not in itself result in "sprawling, low-density development," which is noted as incompatible with the rural character under the GMA, but would likely affect vegetation, views, and habitat for species that are components of rural character. Depending on the facility, urban-type government services could be required for a wind facility (e.g., improved roads). An individual wind facility would be unlikely to significantly impact housing or employment, except potentially during construction when additional workers may be needed to install specialized equipment. Following construction, the facility would require minimal staff for operations, routine maintenance, and inspections.

Installing small to medium utility-scale onshore wind facilities would result in increased development intensity at facility sites and a change to the visual landscape on and adjacent to those sites that include a greater presence of built environment elements. The height of wind turbines (with blades) would range from 350 to 750 feet, potentially making the facility visible from long distances depending on topography and other factors. Operating wind turbines also generate noise. These changes could result in changes to and/or perceptions of the rural character of the surrounding area.

In evaluating the significance of impacts to rural character for a proposed utility-scale onshore wind facility, the relevant Comprehensive Plan (in particular its rural element) should be consulted. Whether a proposed facility is consistent with the goals and policies of the Comprehensive Plan will be an important aspect of evaluating the significance of impacts and measures that can be implemented to minimize those impacts. See Section 3.4.2.3 for additional discussion of consistency with adopted plans and policies.

In addition, the PEIS resource reports on transportation, noise and vibration, aesthetics/visual quality, and biological resources provide more details regarding impact significance for each of these resources (ESA 2024a, 2024c, 2024d; Anchor QEA 2024).

Changes to rural character resulting from operation of a new utility-scale energy facility would range from **less than significant impacts** to **potentially significant adverse impacts** depending on whether plans and development regulations are in place to protect rural character and how they consider utility-scale onshore wind facilities.

#### *3.4.2.2 Consistency with plans, policies, and regulations*

The consistency of a proposed utility-scale onshore wind facility with federal, state, and local regulations and planning documents would depend on a number of factors, such as the following:

- Whether the facility is considered an allowed use under the applicable state/federal agency management plan and guiding regulations if proposed on state or federal lands
- Whether the facility is within an area whose local Comprehensive Plan future land use designations, zoning, and SMP designations (if applicable) allow for this use
- Whether the facility would impact areas with specific use restrictions and standards (such as SMP-regulated shorelines, critical areas, designated natural resource lands, or

prime farmlands) and, if so, whether the facility can provide adequate mitigation to offset such impacts
- Whether the facility can be sited and designed to avoid interfering with civil air navigation and military testing, operations, and training

WAC 365-196-800 provides for development regulations to be established under the Act as a specific control on development and/or land uses by a city or county to implement the comprehensive plan adopted pursuant to the GMA. Specific to resource lands, WAC 365-196-815 provides requirements for local jurisdictions to adopt development regulations to ensure the conservation of natural resource lands, including agricultural, forest, and mineral lands of long-term commercial significance. These regulations do not directly limit or restrict specific development features such as building dimensions or impermeable surface areas, but rather, they establish that local land use regulations must be developed to prevent the conversion of resource lands to uses that remove them from resource production. To the extent that an onshore wind energy facility proposal is not consistent with the local jurisdiction comprehensive plan and development regulations, there are several potential avenues for achieving proposal consistency, including modification of the proposal by the facility developer to comply with local jurisdiction regulations, periodic amendment of the comprehensive plan and development regulations initiated by the local jurisdiction, or facility-specific/site-specific comprehensive plan and development regulation amendments initiated by the facility developer.

Depending on the extent of critical areas on the site proposed for a facility, impacts on critical areas can often be avoided through facility design. Unavoidable critical areas impacts must be addressed through compensatory mitigation. See the other PEIS resource reports for additional discussion of impacts to water, wildlife, and earth resources.

A utility-scale onshore wind facility could be proposed that is inconsistent with federal, state, and/or local plans and regulations. In some cases, plans and regulations may be changed (e.g., through a rezone or comprehensive plan amendment) to resolve inconsistencies and allow a facility to proceed with **less than significant impacts**.

#### *3.4.2.3 Military areas*

Conflicts with potential physical or visual obstructions from facility towers and activities could interfere with military activities; however, early consultation with FAA and DoD should allow facilities to be sited and designed to avoid these issues.

Through compliance with laws and permits and with implementation of actions that could avoid and reduce impacts, the operation of most facilities would likely result in **less than significant impacts** related to military areas.

### 3.4.3 Impacts from decommissioning

Land use impacts during facility decommissioning would be similar to those discussed in Section 3.4.1 for facility construction (i.e., short-term noise, dust, visual disturbance, and traffic

as equipment is removed and the site is restored). An onshore wind energy facility would be decommissioned following the end of its useful life, which is expected to be 25 to 30 years, although this could be longer if turbines are replaced over time. According to the U.S. Energy Administration, repowering older wind turbines—replacing aging turbines or components—is becoming more common. Fully repowering wind turbines involves decommissioning and removing existing turbines and replacing them with newer turbines at the same facility site.

Through compliance with laws and permits and with implementation of actions that could avoid and reduce impacts, decommissioning activities would likely result in **less than significant impacts** on existing adjacent land uses.

## 3.4.4 Actions to avoid and reduce impacts

The following general measures could be used to avoid and reduce impacts on land use. Site-specific mitigation actions will be developed during facility-specific reviews and permitting for each facility proposed in the future.

### *3.4.4.1 Siting and design considerations*

- If siting on DNR-managed lands, contact the Clean Energy Program aligned with DNR's Products Sales and Leasing Division.
- Coordination with federal, state, and county agencies; Tribes; property owners; and other interested parties should be accomplished as early as possible in the planning process to identify potentially significant land use conflicts and issues and state and local rules that govern onshore wind energy development.
- Contact FAA early in the process to determine if there might be any potential impacts on aviation and if any mitigation might be required to protect military or civilian aviation use. Submit plans for proposed construction of any facility that is 200 feet or taller that is located in proximity to airports to FAA to evaluate potential safety hazards.
- Contact the DoD early in the process on siting of a wind facility and transmission facilities near or within military training routes, military bases, or training areas in order to identify and mitigate potential impacts on military operations. Site design must consider military installations and military-utilized air space. In addition, consideration for radar line-of-sight impacts is critical.
- Utilize existing roads and utility corridors to the maximum extent feasible and to minimize the number and length of new roads and lay-down areas.
- For roads in agricultural areas, include appropriate fencing, cattle guards, and signs.
- Site and design the facility to avoid critical areas, SMP-regulated shorelines, and designated agricultural lands, forestlands, and rangelands to the maximum extent possible.
- Site and design facilities to minimize impacts on specially designated shrubsteppe areas (see the *Biological Resources Report* for details).
- Consider wildland fire risk mapping when siting and designing and incorporate appropriate design criteria to achieve wildland fire resistance. Wildfire is discussed in detail in the *Environmental Health and Safety Resource Report* (ESA 2024f).

- Consider existing uses, land ownership, and associated plans and regulations such as the following when siting and designing a facility:
    - Local Comprehensive Plans and zoning
    - Land leases (e.g., grazing, farmland, forestry)
    - Designated flood zones, shorelines, critical areas, natural resource lands, and other lands prioritized for resource protection
    - Military testing, training, and operation areas

#### *3.4.4.2 Permits, plans, and best management practices*

- If any part of a proposed energy facility would affect an area classified as a critical area or critical area buffer by a city or county, local jurisdiction critical areas review would be required. Some jurisdictions also require evaluation of critical areas and buffers within a specific distance of or on the same parcel as proposed development, even if that development would not result in impacts to those critical areas or buffers.
- Local jurisdiction land use approval is required for facilities proposed on lands whose zoning does not currently allow for utility-scale industrial facilities. Facilities that cannot meet existing zoning requirements may require a conditional use permit, variance, or amendment of the Comprehensive Plan and/or zoning code.
- If the facility is located within Shoreline Management Act shoreline jurisdiction, an SSDP, conditional use permit, variance permit, or written SSDP exemption would be required. Local SMPs typically place dimensional standards such as height limits on new structures within the shoreline zone (WAC 173-27-140).
- Any human activity in a floodplain requires a Floodplain Development Permit from the local jurisdiction or state (for state lands). The nature and extent of development may require hydraulic and hydrologic study to determine if the facility would change flood zones, flood elevations, impact downstream properties, etc. Facilities that would result in changed conditions affecting FEMA flood risk mapping may require a Conditional Letter of Map Revision/Letter of Map Revision from FEMA.

#### *3.4.4.3 Additional mitigation measures*

In addition to the previous listed measures, facilities could evaluate opportunities to co-locate agricultural uses with facilities, considering how wind facilities and agricultural activities may influence each other (refer to Section 3.7 for detailed discussion of co-located wind facilities, including siting and design considerations for this type of dual use).

### 3.4.5 Unavoidable significant adverse impacts

There may be **potentially significant and unavoidable adverse impacts** on rural character or from conversion of resource lands of long-term commercial significance depending on local plans and development regulations. Determining if mitigation options would reduce or eliminate impacts below significance would be dependent on the specific project and site and local regulations and plans.

## 3.5 Large utility-scale facilities of 251 MW to 1,500 MW (Alternative 2)

### 3.5.1 Impacts from construction

Compared to small to medium utility-scale facilities, large utility-scale facilities would be more likely to cause noticeable disturbances (noise, dust, traffic, visual changes) during construction because of the larger area of land that would be disturbed. Facility construction could take longer. Site characterization for large facilities may involve more land disturbance to build potential access roads and construct meteorological towers than it would for small to medium facilities; however, disturbance during site characterization is still anticipated to be minimal.

Conversion of existing land uses could be greater for large facilities because of the larger land area required.

Through compliance with laws and permits and with implementation of actions that could avoid and reduce impacts, construction activities would likely result in **less than significant impacts** on existing adjacent land uses.

Construction would have **potentially significant adverse impacts** if natural resource lands of long-term commercial significance are converted.

### 3.5.2 Impacts from operation

Larger facilities may be more difficult to site because they would require more land area and consequently have a greater potential to intersect with lands designated for natural resource use and protection.

Impacts on rural character may be considered more significant by local jurisdictions for large facilities because larger facilities would likely result in correspondingly larger changes in vegetation, views, habitat, and potentially government services and water needs.

Changes to rural character resulting from operation of a new utility-scale energy facility would range from **less than significant impacts** to **potentially significant adverse impacts** depending on whether plans and development regulations are in place to protect rural character and how they consider utility-scale wind facilities.

### 3.5.3 Impacts from decommissioning

Decommissioning large utility-scale facilities would have impacts similar to construction and similar to decommissioning activities for small to medium utility-scale facilities. Removing a large utility-scale facility could require a longer time for decommissioning and affect a larger area compared to small to medium facilities.

Through compliance with laws and permits and with implementation of actions that could avoid and reduce impacts, decommissioning activities would likely result in **less than significant impacts** on existing adjacent land uses.

### 3.5.4 Actions to avoid and reduce impacts

Available means of reducing land use-related impacts for large-scale facilities are the same as those identified for small- to medium-scale facilities (see Section 3.4.4).

### 3.5.5 Unavoidable significant adverse impacts

There may be **potentially significant and unavoidable adverse impacts** on rural character or from conversion of resource lands of long-term commercial significance depending on local plans and development regulations. Determining if mitigation options would reduce or eliminate impacts below significance would be dependent on the specific project and site and local regulations and plans.

## 3.6 Wind energy facility and co-located battery energy storage system (Alternative 3)

### 3.6.1 Impacts from construction

Construction and site characterization impacts for wind energy facilities with battery energy storage systems (BESSs) would be generally the same as for facilities without BESSs. The addition of battery storage could generate a small amount of additional traffic during construction.

Impacts on land use would be similar to findings for utility-scale onshore wind facilities above.

### 3.6.2 Impacts from operation

Operation impacts for wind facilities with BESSs would be generally the same as for facilities without BESSs. The addition of battery storage could be perceived as added industrial-type facility, resulting in potential increased impacts on attributes of rural character than for facilities without BESSs.

Impacts on land use would be similar to findings for utility-scale onshore wind facilities above.

### 3.6.3 Impacts from decommissioning

Impacts on land use would be similar to findings for utility-scale onshore wind facilities above.

### 3.6.4 Actions to avoid and reduce impacts

Available means of reducing land use-related impacts for wind facilities with BESSs are the same as those identified for facilities without BESSs (see Section 3.4.4).

### 3.6.5 Unavoidable significant adverse impacts

There may be **potentially significant and unavoidable adverse impacts** on rural character or from conversion of resource lands of long-term commercial significance depending on local plans and development regulations. Determining if mitigation options would reduce or

eliminate impacts below significance would be dependent on the specific project and site and local regulations and plans.

## 3.7 Onshore wind energy facility combined with agricultural land use (Alternative 4)

Most wind facilities share their land with agricultural users (Hall et al. 2022; Retik 2021). In the American west, 96% of new wind energy developments occur on existing agricultural land, mostly on rangeland. Nationwide, wind energy development on agricultural land correlates with a conversion to non-agricultural use in only 0.5% of cases (1 out of every 200 turbine installations; Maguire et al. 2024). The typical co-location of agriculture is facilitated by the very small fraction of the lease boundary that remains permanently disturbed after construction is complete (e.g., EFSEC 2023).

There may be a mild tendency for wind energy developments to correlate with a shift from rangeland to cropland—among 20,784 turbine installations surveyed nationwide, 53.9% were on land dedicated exclusively to crops, and 40.1% were on rangeland (Maguire et al. 2024). After installation, 56.1% of the sites were dedicated exclusively to crops, and 37.8% included rangeland. The changes are probably small enough to be statistically insignificant. However, because the American west exhibits a large share of rangeland among turbine installation sites, a tendency toward crop conversion could be meaningful. Hence, these facilities are evaluated with the assumption that onshore wind facilities are frequently installed in rangeland, and some may include conversion from rangeland to cropland.

### 3.7.1 Impacts from construction

Impacts during site characterization and construction of a wind facility with co-located agricultural use would be generally the same as for other wind facilities considered under the previous listed alternatives. Wind facilities with co-located agricultural use may include locating a wind facility on lands where there is already existing agricultural activity, with or without changing the type of agricultural activity, or a facility could add a new agricultural use to a site.

Impacts on land use would be similar to findings for utility-scale onshore wind facilities above.

### 3.7.2 Impacts from operation

Generally, utility-scale onshore wind energy facilities result in permanent disturbance of a small part of the land that the facility occupies; therefore, farming can happen simultaneously with energy production. In general, co-locating agriculture with a wind energy facility should consider the following types of operational impacts on crops and livestock:

- Changes in sun exposure (e.g., shading, flickering light)
- Changes in soil characteristics (e.g., moisture regime, soil fauna effects due to vibration [Velilla et al. 2021])
- Changes in microclimate (e.g., changes in air currents, temperatures)
- Potential for grazing livestock to be affected (e.g., noise, vibration, shade)

- Livestock damage to fences and/or equipment
- Potential for farming practices to reduce the efficiency of or damage equipment (e.g., through wind-blown dust or pesticides)

While it is possible to co-locate pollinator habitat with a wind facility, there is evidence that wind turbine blades kill large numbers of insects, potentially because insects are attracted to the turbines (e.g., Voigt 2021; Weschler 2023). The potential benefits to pollinator species would need to be weighed against the risks of attracting additional insects to the wind energy site.

Renewable energy facility development on agricultural lands has the potential to impact conservation projects that have been undertaken by the landowner under VSP.

Impacts on land use would be similar to findings for utility-scale onshore wind facilities above.

### 3.7.3 Impacts from decommissioning

Impacts from decommissioning a facility with co-located agricultural use would be similar to those for decommissioning wind energy facilities without agricultural land uses. However, by using part of the land for agriculture, a facility with co-located agricultural use could require less area to be restored following removal of wind facility equipment, and it should be easier to return the property to full agricultural use.

Impacts on land use would be similar to findings for utility-scale onshore wind facilities above.

### 3.7.4 Actions to avoid and reduce impacts

Actions that can be taken to avoid and reduce impacts would be the same as for facilities without co-located agricultural land uses (see Section 3.4.4), with the addition of the following measures (USDOE 2024):

- Design the facility to minimize areas of grading and soil compaction.
- Evaluate road access and equipment spacing to accommodate crop heights, agricultural equipment and worker access, and irrigation.
- Minimize use of artificial ground covers such as gravel that require application of herbicides (not compatible with crops or pollinator plants).
- Select crops that are successful in the area.
- Select pollinator plants that are native to the area.

### 3.7.5 Unavoidable significant adverse impacts

There may be **potentially significant and unavoidable adverse impacts** on rural character or from conversion of resource lands of long-term commercial significance depending on local plans and development regulations. Determining if mitigation options would reduce or eliminate impacts below significance would be dependent on the specific project and site and local regulations and plans.

## 3.8 No Action Alternative

The potential impacts from facilities developed under the No Action Alternative would be similar to the impacts for the types of facilities described above for construction, operations, and decommissioning, depending on facility size and design, and would range from **less than significant impacts** to **potentially significant adverse impacts**.

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