3.13 SOCIOECONOMICS

This section describes existing socioeconomic resources within and surrounding the Project Area. It describes the affected environment, evaluates potential impacts to these resources that may occur with the Project, and identifies potential mitigation measures designed to limit or reduce those impacts if necessary.

3.13.1 Study Methodology

Information presented in this section is based on data collected from state and federal government websites, interviews with local officials and Applicant staff familiar with the Project, GIS analysis, and economic impact modeling. The Project's potential impacts on employment and income were modeled using the IMPLAN (IMpact Analysis for PLANning) software. IMPLAN is an input-output model that works by tracing how spending associated with a specific project circulates through the defined impact area. Effects were modeled for spending in the Seattle-Tacoma Combined Statistical Area (CSA). Model inputs for construction and operations expenditures came from planning-level Project cost information provided by the Applicant and reflect a degree of uncertainty commensurate with where the Project is in the design process. Potential impacts were described and characterized by comparing results to baseline conditions in the Project Area.

3.13.2 Study Area

The potential socioeconomic impacts of the Project will occur at several geographic scales, so multiple study areas are used in the socioeconomic analysis:

- The **regional study area** captures the economic impacts (e.g., employment and income) associated with construction and operation of the Project. The analysis area that will capture the majority of this economic activity is the CSA, which includes the counties where the Project is located and the counties to the north where the region's economic centers of Olympia, Tacoma, and Seattle are located.
- The **local study area** captures the impacts on population and housing, government revenue, and the use and value of property. This area is made up of Lewis and Thurston counties because these categories of impact are more localized.
- The **environmental justice study area** includes the Census block groups that intersect with a 1-mile radius surrounding the Project

3.13.3 Affected Environment

3.13.3.1 Population

The Project is located in a rural, sparsely populated area of western Washington, near the border between Thurston and Lewis Counties. Table 3.13-1 shows the populations of jurisdictions in the study area. Lewis County has a population of about 75,000, which represents about 1.6 percent of the population of the CSA. Thurston County, which includes the state capital, Olympia, has a larger population than Lewis County, representing about 5 percent of the CSA's population.

Table 3.13-1. Population and Population Change, 2010-2016

Geographic Area	2010	2016	Percent Change	Average Annual Growth Rate
State of Washington	6,724,540	7,073,146	5.2%	0.8%
Seattle-Tacoma-Bellevue, WA MSA[1]	3,439,809	3,671,095	6.7%	1.1%
Lewis County	75,455	75,724	0.4%	0.1%
Centralia	16,336	16,729	2.4%	0.4%
Thurston County	252,264	266,311	5.6%	0.9%
Rainier	1,794	2,138	19.2%	3.0%

Source: 2016 ACS 5-Year Estimates B1001, 2010 Census P1.
Note: [1] This analysis uses the Seattle-Tacoma-Bellevue Metropolitan Statistical Area instead of the Seattle-Tacoma CSA due to the geographic boundaries of the CSA changing between 2010 and 2016.

Centralia is the largest city in Lewis County, with a population of almost 17,000. The nearest incorporated city to the Project is Rainier, located in Thurston County, which has about 2,100 people (U.S. Census Bureau 2016). Tono (approximately 0.85 mile from the gen-tie line) and Vail (approximately 0.50 mile from the O&M Facility) are the closest named communities to the Project.

While the population of Thurston County and the Seattle-Tacoma CSA kept pace or exceeded statewide population growth between 2010 and 2016, the population of Lewis County and Centralia have not increased as much. The state of Washington projects that Lewis County will continue to grow more slowly than the state as a whole and compared to Thurston County over the next 20 years, with population increasing by 16 percent versus 30 to 40 percent (Washington State Office of Financial Management 2017a, 2017b). The Project itself is almost entirely located on and surrounded by working forest land, indicating that population will not increase directly within or adjacent to the Project site in the near future.

3.13.3.2 Housing

There are several types of temporary accommodations located within the local study area: rental housing, hotels and motels, and campgrounds. The supply of rental housing is shown in Table 3.13-2. Rainier's occupied housing is 24 percent renter-occupied, and Centralia's is 49 percent renter-occupied (U.S. Census Bureau 2016). According to the Census Bureau, there are 168 renter-occupied units in Rainier. Centralia has about 3,251 renter-occupied units. Due to data limitations, the exact number of vacant rental units was not calculated for this EIS. Vacancy rates for rental properties in Thurston and Lewis counties are higher than the Washington average, but rates for the nearby towns of Centralia and Rainier are lower than the state average (U.S. Census Bureau 2016). Of particular note, Rainier has a smaller share of its total units categorized as rental properties and a rental vacancy rate near zero.

Table 3.13-2. Housing Characteristics and Rental Housing Availability, 2016

Geographic Area	Total Units	Vacant Units	Percent Renter-Occupied	Rental Vacancy Rate
State of Washington	2,966,814	270,208	37.60%	4.1%
Seattle-Tacoma CSA	1,893,806	142,985	38.90%	3.9%
Lewis County	34,113	4,687	31.80%	4.8%
Centralia	7,350	698	48.90%	3.4%
Thurston County	111,716	8,248	36.20%	5.2%
Rainier	741	42	24%	0.0%

Source: U.S. Census Bureau 2016

To identify temporary lodging in the study area, the analysis focused on a 20-mile radius around the Project Area. Table 3.13-3 shows the hotels and motels within this area. Based on previous project work in the area, the hotels have an estimated 50 to 60 percent occupancy rate in the winter season and an 80 to 90 percent occupancy rate in the summer. Additional hotel/motel lodging options not captured in this analysis are located to the north in Olympia and its suburbs.

Table 3.13-3. Hotels/Motels in the Local Study Area

Hotel/Motel Name	Distance from Project Area (Miles)	Number of Rooms
Prairie Hotel	14	67
McMenamins Olympic Club	16	27
Centralia Square Grand Ballroom & Hotel	16	19
King Oscar Motel	17	94
Econo Lodge Chehalis Centralia	17	64
Peppermill Empress Inn	17	71
Quality Inn Centralia Chehalis	17	82
Motel 6 Centralia	17	122
Lakeview Inn Centralia	17	40
Relax Inn	17	29
Best Western Plus Park Place Inn & Suites	17	60
Holiday Inn Express & Suites Chehalis-Centralia	18	112
Total Rooms:		787

Source: Google Maps and Sources listed in Section 5.

There are a number of campgrounds and RV parks within a 20-mile radius around the Project site at which workers could stay during Project construction. Table 3.13-4 shows a list of these facilities. Many of these facilities are open year-round. During summer months, many operate at capacity, especially during weekends and holidays. At the southern extent of the 20-mile range are additional campgrounds located around the Riffe Lake area, which is a popular recreation destination.

Table 3.13-4. Campgrounds in and near the Local Study Area

Campground/RV Park Name	Distance from Project Area (miles)	Number of Sites	Season Open
Chehalis RV & Camping Resort	11	315	Year-round
Harts Lake Resort & RV Park	13	11	Year-round
Paradise RV Campground	14	148	Spring-Fall
Harmony Lake RV Park	15	80	Year-round
Henley's Silver Lake Resort	16	32	Year-round
Peppertree West Motor Inn & RV Park	17	42	Year-round
Alder Lake Park (includes four campgrounds)	17	173	Year-round
Harrison RV/Mobile Home Park	18	35	Year-round
Millersylvania State Park	18	168	Year-round
East Creek Campground	20	25	Spring-Summer
Total Sites:		1029	

Source: Google Maps, and Sources listed in Section 5.

3.13.3.3 Employment and Income

In 2016, almost 3 million people age 16 years and older were employed either full-time or part-time in the regional study area (US Bureau of Economic Analysis 2016). Employment in Lewis County—about 35,000 in 2016—represents about 1 percent of the total employment in the regional study area. Table 3.13-5 shows the change in number of jobs in Thurston and Lewis counties and the Seattle-Tacoma-Bellevue MSA from 2010 to 2016. Employment opportunities have grown throughout the region since 2010, but employment in the MSA increased more than Lewis County, where the number of employed people increased by less than 1 percent per year.

Table 3.13-5. Total Employment, 2010-2016

Geographic Area	2010	2016	Percent Change	Average Annual Growth Rate
Seattle-Tacoma-Bellevue MSA	2,156,605	2,524,461	17.1%	2.7%
Lewis County	33,039	34,785	5.3%	0.9%
Thurston County	128,757	145,621	13.1%	2.1%

Source: Bureau of Economic Analysis CA25N
Note: This analysis uses the MSA instead of the Seattle-Tacoma CSA due to the geographic boundaries of the CSA changing between 2010 and 2016.

On average in 2017, Lewis County's unemployment rate was 6.5 percent, while Thurston County's was 4.9 percent (Washington State Employment Security Department 2017). These rates represent the lowest levels since the recession began in 2008. At the peak of the recession, unemployment rates ranged from around 13 percent in Lewis County to around 9 percent in Thurston County. Lewis County has had a higher unemployment rate than Thurston County since at least 2000, though the gap has decreased somewhat in recent years.

Employment in both Lewis and Thurston counties is concentrated in government, wholesale and retail trade, and education, health care and social assistance. Washington State's capital, Olympia, is located in

Thurston County, resulting in a large percent of employment from government. Both counties have about the same percent working in the service and entertainment sectors.

The GDP of the Seattle-Tacoma-Bellevue MSA exceeds $300 billion. Per capita incomes across Lewis and Thurston counties have increased on a real basis since 2010 (Table 3.13-6). Per capita income allows comparison of average income per person across geographies. In 2016, average income levels were considerably higher in the MSA as a whole than in either Lewis or Thurston County individually. Lewis County saw a larger increase in per capita personal income in terms of percent change than did Thurston County.

Table 3.13-6. Inflation-Adjusted Per Capita Income, 2010 to 2016

Geographic Region	2010	2016	Percent Change	Average Annual Growth Rate
Seattle-Tacoma-Bellevue MSA	$52,515	$64,553	22.9%	3.5%
Lewis County	$35,084	$38,586	10.0%	1.6%
Thurston County	$43,306	$45,932	6.1%	1.0%

Source: US Bureau of Economic Analysis, CA1, adjusted to 2016 levels

Total earnings by sector are distributed similarly to employment, with government, wholesale and retail trade, and education, health care and social assistance accounting for the highest percent of earnings. In Lewis County, manufacturing is tied for third place.

3.13.3.4 Government Revenues

State, county, and local governments rely on a variety of taxes and revenue sources to fund public services and programs. Table 3.13-7 and Table 3.13-8 show the fiscal budgets of Thurston and Lewis Counties.

Table 3.13-7. Lewis County Fiscal Budget, FY2016

	Revenue	% Total Revenue	Tax Rate
Total Revenue	$88,269,909	100%	
Total Tax Revenue	$38,715,823	44%	
Retail Sales and Use Tax Revenue	$5,403,917	6%	1.3%-1.7%
Property Tax Revenue	$23,153,925	26%	$11.31 per $1,000
Timber Excise Tax Revenue	$2,887,434	3%	4.0%

Source: Office of the Washington State Auditor 2018

Table 3.13-8. Thurston County Fiscal Budget, FY2016

	Revenue	% Total Revenue	Tax Rate
Total Revenue	$228,793,259	100%	
Total Tax Revenue	$110,585,002	48%	
Retail Sales and Use Tax Revenue	$14,216,620	6%	1.4%-2.4%
Property Tax Revenue	$69,708,621	30%	$12.77 per $1,000
Timber Excise Tax Revenue	$784,759	0%	4.0%

Source: Office of the Washington State Auditor 2018.

Washington's principal source of tax revenue is the retail sales and use tax, which yielded over $10 billion in fiscal year 2016. The sales tax is paid for goods and services purchased within Washington. The use tax is paid when goods and services are purchased outside of Washington, but used within the state. The statewide sales tax rate is 6.5 percent. Local jurisdictions can also assess a local retail sales and use tax. In Lewis County this ranges from a high of 1.7 percent in Centralia and Chehalis to a low of 1.3 percent in unincorporated Lewis County. Retails sales and use tax rates in Thurston County range from 1.4 percent in unincorporated Thurston County to 2.4 percent in Tumwater (Washington State Department of Revenue 2018a).

Real and personal property are subject to property tax in Washington. Real property includes land and any improvements, such as buildings attached to the land. It also includes transmission line rights-of-way, if established by an easement because the property owner retains ownership of the land, and pays property tax on it. Personal property is not affixed to the land, and the Washington State Department of Revenue has determined that energy project infrastructure that can be removed from the land is considered to be personal property. In Washington, local governments administer the property tax. Property tax collections in 2015 in Thurston County were about $342 million and $76 million in Lewis County. Assessed value in Thurston County was about $26.8 billion, and assessed value in Lewis County was about $7 billion (Washington State Department of Revenue 2016).

In Washington, timberland owners pay a 5 percent excise tax on the stumpage value (the price paid for standing trees intended for harvest) when timber is harvested. The revenue is split, with 4 percent going to the county where the harvest occurs and 1 percent to the state general fund. Distributions of the timber excise tax in fiscal year 2016 produced about $785,000 for Thurston County and about $2,887,000 for Lewis County (Washington Department of Revenue 2018c).

The Business and Operations/Utility tax is assessed on the gross income derived from the operation of a business or utility (in this case, one that is engaged in the supply of energy). The Public Utility Tax is charged in lieu of the B&O tax. The tax rate on generation/distribution of electrical power is 3.872 percent (Washington Department of Revenue 2018f).

Other taxes potentially relevant to this project in Washington include fuel taxes, license taxes, and real estate excise taxes. Washington does not tax personal income (Washington State Department of Revenue 2017, 2018d and 2018e, Association of Washington Cities 2018).

3.13.3.5 Use of Property and Quality of Life

The character of the landscape and uses of property contribute to the economic and social conditions in the local and regional study areas. Section 3.8 details the different uses of land in the Project Area, and describes the recreational use of the land. The area immediately surrounding the Project and throughout much of Thurston and Lewis counties is rural. Much of it is dedicated to commercial timber production, or forest land within Gifford Pinchot National Forest and parks. Agricultural activities for both commercial and personal use occur in the lowlands. Several reservoirs near the Project Area support flatwater recreation, including boating. People recreate on private and public land throughout the Project Area (specific uses and activities are described in more detail in Section 3.8).

All of these economic and social uses of the land are planned for and protected through county plans and zoning codes. These plans and policies illuminate the economic importance of the landscape. Many people choose to live in the area because of its rural character and its aesthetic qualities. They derive economic value from the goods and services provided directly by the land and the ecosystems it supports. Many are supported financially through businesses that also depend on the goods and services the land and ecosystems support.

3.13.3.6 Environmental Justice

Table 3.13-9 and Table 3.13-10 show the Census Block Groups within the Environmental Justice Study Area, a 1-mile area around the Project site. The Project Area's population is about three-quarters white. The minority population does not comprise over 50 percent of the total population in any of the locations listed in Table 3.13-9. It also does not comprise over 50 percent in any of the block groups within the 1-mile radius. One geography listed in Table 3.13-10 has a poverty rate greater than 20 percent (Block Group B). This is the only environmental justice community in our analysis. It is important to note that the standard error for some of these small geographies is large relative to the population size, but the numbers are still significant.

Table 3.13-9. Race and Ethnicity by Block Groups, Study Area, Counties, and State

Geographic Area	Total Population	Percent of Total Population					
		Minority Population	White Alone	Black or African American Alone	Asian Alone	Other	Hispanic or Latino
Washington State	7,073,146	30%	70%	3%	8%	6%	12%
Seattle-Tacoma CSA	4,532,266	32%	68%	5%	11%	7%	10%
Lewis County	75,724	16%	84%	1%	1%	4%	10%
Block Group A	1,632	14%	86%	0%	0%	0%	14%
Block Group D	986	11%	89%	0%	0%	5%	7%
Block Group G	1,524	6%	94%	0%	0%	6%	0%
Block Group I	923	13%	87%	0%	0%	1%	12%
Thurston County	266,311	24%	76%	3%	6%	7%	8%
Block Group B	723	4%	96%	0%	0%	1%	3%
Block Group C	846	3%	97%	0%	0%	2%	0%
Block Group E	1,543	19%	81%	4%	4%	4%	7%
Block Group F	734	10%	90%	6%	0%	4%	0%
Block Group H	2,995	15%	85%	0%	3%	10%	2%

Source: U.S. Census Bureau 2016.

Table 3.13-10. Poverty Rate by Block Groups, Study Area, Counties, and State

Geographic Area	Population for Whom Poverty Status Is Determined	Percent of Individuals Below the Poverty Line
Washington State	6,939,622	12.7%
Seattle-Tacoma CSA	4,458,244	11.2%
Lewis County	74,618	16.3%
Block Group A	1,632	9.1%
Block Group D	963	11.8%
Block Group G	1,524	4.7%
Block Group I	923	10.7%
Thurston County	262,462	12.0%
Block Group B	723	38.0%
Block Group C	846	7.6%
Block Group E	1,543	5.0%
Block Group F	734	6.7%
Block Group H	2,995	8.2%

Source: US Census Bureau 2016.

3.13.4 Impacts of the Proposed Action

This section describes the impacts the Project will have on the socioeconomic resources described in the Affected Environment section above. The impact descriptions are divided between impacts arising from Project construction and Project operation.

3.13.4.1 Construction

Income

The current (2018) estimate to construct the Project is approximately $235 million.[1] This includes costs associated with site preparation, purchasing materials and equipment including the WTGs, system interconnection costs, and various other "soft costs" including planning, engineering, etc. It also includes estimated taxes associated with purchases. Of the total Project costs, only a portion will go to purchases of supplies and services within the regional study area—a significant amount of the total Project cost will directly be spent outside of the state of Washington because the specialized equipment is not available for purchase locally.

The estimated cost of these purchases is about $118 million (excluding taxes). The estimate of local spending (which is defined as spending that occurs within the regional study area, including Lewis and Thurston counties), including site preparation and construction, is around $60 million. Relative to the size of the economy in the regional study area ($330 billion GDP in 2016), this amount is very small.

To estimate the economic impacts of this Project-related spending, we used an economic model, known as an input-output model (in this case, IMPLAN). The impacts that the model estimates are grouped into three different categories:

- **Direct (Primary) Economic Impacts**. Businesses directly purchase goods and services in their local economies. An increase in spending, therefore, affects the economy directly through increased purchases.
- **Indirect (Secondary) Economic Impacts.** Businesses also indirectly affect local economies, as those firms that provide direct services to a project must also purchase materials and supplies themselves. For instance, a construction contractor working on this Project will lease some equipment or purchase supplies locally. Because they represent interactions among businesses, these indirect effects are often referred to as "supply-chain" impacts.
- **Induced (Secondary) Economic Impacts.** These impacts arise as the direct and indirect increases in employment and income increase the overall purchasing power in the economy, thereby inducing further consumption. For example, construction workers and contract workers will use their income to purchase groceries or recreate during off-hours. These induced effects are often referred to as "consumption-driven" impacts.

The analysis of the primary and secondary effects of this construction spending in the regional study area estimates that the direct, indirect, and induced labor income will be around $26 million. The total output

[1] As of the date of preparation, these conceptual estimates, subject to change as planning and design moves forward.

from the Project (direct spending plus indirect and induced effects) will be about $90 million. Table 3.13-11 summarizes these economic impacts of Project-related spending in the regional study area.

Table 3.13-11. Economic Impacts of Project-Related Construction Spending

Impact Type	Direct Effect	Indirect Effect	Induced Effect	Total Effect
Output	$61,484,462	$11,659,127	$16,691,689	$89,835,278
Value Added	$20,623,034	$6,879,341	$10,076,767	$37,579,142
Labor Income	$16,566,639	$4,532,287	$5,589,716	$26,688,642
Job-Years	300	67	105	472

Source: ECONorthwest, with data from RES-Americas, using the 2016 IMPLAN Model

Employment

The Project will employ approximately 300 full-time and part-time workers at some point during the construction period. About half of these workers will come from outside of the regional study area, because they have specialized skills in constructing wind projects and typically travel from project to project. The remaining 150 workers will be drawn from the labor force in the local or regional study areas. Approximately 300 workers represents about 0.01 percent of the total employment in the regional study area and about 0.8 percent of the employment in Lewis County. While the employment opportunities provided by the Project may be significant (though temporary) to any one worker that receives employment, the overall number of jobs associated with the Project represent a very small percentage of the overall employment levels in the local and regional study areas. Lewis County continues to have higher unemployment rate than the statewide rate (about 6 percent versus 4.5 percent in 2017), so new employment opportunities are relatively more valuable (or perceived to be more valuable) in the local study area than within the regional study area as a whole.

The Project will support additional job-years (i.e., one full or part-time job for one year) as Project-related spending during construction trickles through the economy of the regional study area. The secondary (indirect and induced) impacts will support approximately 170 additional job-years. Accounting for the direct jobs described above, the total Project-supported temporary employment (i.e., during construction) in the regional study area is likely between 400 and 500 job-years.

Population and Housing

The workers drawn from outside the regional study area will reside in the local study area temporarily for varying durations during the construction period. At the peak of construction, approximately 100 workers from outside the region may be employed at the same time. This will increase the population of the local study area by a very small amount: 100 workers represents 0.13 percent of the 2016 population of Lewis County, and much smaller percentage of the regional study area population. It is possible that some of the temporary workers will bring their families with them, though this is a relatively short assignment so few likely will actually do so. To the extent that family members do accompany workers, they will increase the additional population somewhat, but the increase will still be very small. In addition, some workers from within the regional study area may commute and stay in the local study area during the work week, further increasing the temporary population during the duration of construction. In total, the number of people residing temporarily in the local study area at some time during the Project construction represents a very small proportion of the permanent resident population.

The workers from outside the regional study area and those commuting to the Project Area during the work week will require temporary lodging accommodation in the local study area during their assignment. At peak construction, there will be approximately 100 out-of-region workers and 50 workers from within the regional study area who will commute to the Project Area during the week. Therefore, demand for temporary lodging will increase by a maximum of about 150 workers at the peak of construction on weekdays.

These workers typically seek lodging in motels, or bring a trailer or camper and park it at an RV Park or campground. Table 3.13-3 shows there are about 787 hotel rooms within a 20-mile commuting distance from the Project site, primarily in Centralia and Yelm. If occupancy rates are (at the high end) 60 percent in the winter and 90 percent in the summer, there will be anywhere from 78 to 314 hotel/motel rooms available. Thus, if all workers decided to stay in local hotel/motels (and none of them shared rooms, which is a common practice), they will exceed available supply during the summer and will consume about 50 percent of available supply during the winter. This represents an unlikely scenario, as some workers will share rooms, and other workers will elect to stay in RV parks and campgrounds. However, during the summer season, RV parks and campgrounds also operate at high occupancy rates especially on weekends and around holidays. Thus, it is possible that the additional demand for temporary lodging created by the Project will exceed available supply during the summer months, particularly on peak weekends and holidays.

If this occurs, two effects likely will happen: nightly rates will increase above typical levels for the season, and some customary users of local temporary lodging options may be displaced (i.e., they will go elsewhere for accommodations). Both of these effects likely will leave businesses in the area compensated at least as well as without the Project (they are likely indifferent to who is staying, as long as occupancy rates remain high and will receive additional revenue if they raise rates). However, these effects may impose additional costs and reduce the value other customers obtain from staying in the area, adversely impacting these customers. The degree of impact will vary by individual, depending on the characteristics of their preferences for lodging. These effects will be temporary, likely limited only to peak weekends and holidays during the construction period, assuming it overlaps with the summer travel season.

These effects are unlikely to occur during the shoulder (spring and fall) and winter seasons, as most of the RV parks and campgrounds operate year-round at low occupancy rates, and there is sufficient supply of available hotel/motel rooms.

Government Revenue

Retail Sales and Use Tax

The state and local jurisdictions would collect retail sales and use tax on project-related purchases and contracts for construction services, equipment, and materials. Purchases made within the state would be subject to the sales tax. Purchases made outside the state and installed within the project area would be subject to the use tax, and are taxed at the same rate as sales within the state. The state of Washington has enacted an exemption from the sales and use tax for purchases of machinery and equipment used in

generating electricity using wind[2] and for charges made for labor and services rendered to install such machinery and equipment. The exemption is equal to 75 percent of the state and local sales tax paid, and is provided to the purchaser via a remittance (or refund), which the purchaser must apply for through the Washington Department of Revenue. This exemption is set to expire January 1, 2020 (RCW 82.08.962 and 82.12.962, Washington State Department of Revenue 2013).

Project proponents estimate, based on current project design, that the state of Washington would collect an estimated $2.5 million in sales tax from taxes on the purchases of project-related wind generation equipment. This amount accounts for the 75 percent discount in the form of a refund provided by the Washington Renewable Energy Sales and Use Tax Exemption. This amount assumes that the entire purchase value of $118 million would be subject to a state and local sales and use tax rate of approximately 8.5 percent (this is close to the average combined sales and use tax rate for the state, as well as the average rate in Thurston County; the average rate in Lewis County is lower at 7.8 percent). Given the uncertainty in project cost estimates at this point in the planning process, the estimate is likely a reasonable—if not slightly high—estimate of the sales and use taxes that would be paid on the purchase of wind generation equipment in total in Washington.

In addition to sales and use tax collections on the purchase of wind generation equipment, project-related spending on construction would also produce sales and use tax revenues. Skookumchuck Wind Energy, LLC estimates that these construction expenditures would generate retail sales tax and use revenue of approximately $1.9 million in Washington. Construction cost estimates provided by Skookumchuck Wind Energy, LLC were not sufficiently detailed to independently quantify expected sales and use taxes from total expected expenditures on construction activities. For example, the construction estimate includes some purchases that would be taxable under the sales and use tax and some that would not, and some that may be eligible for the Washington Renewable Energy Sales and Use Tax Exemption. The $1.9 million estimate represents almost 3 percent of total estimated project construction expenditures of about $69 million.

Adding together sales and use taxes generated from purchases of wind-generation equipment and project spending on construction, the state of Washington and local jurisdictions combined could expect to collect about $4.4 million in sales and use tax revenue, after applying the refund associated with the Washington Renewable Energy Sales and Use Tax Exemption.

To estimate the amount of sales and use tax that the project may generate for Lewis County specifically, several additional assumptions are required:

- The project would involve $118 million in purchases of wind generation equipment and $69 million in construction expenditures, for a total of $187 million.
- To produce a conservative estimate, all of the purchases would be eligible for the 75 percent tax exemption.

[2] "Machinery and equipment" is "used" in generating electricity by wind energy if it provides any part of the process that captures the energy of the wind, converts that energy to electricity, and stores, transforms, or transmits that electricity into distribution systems. The code stipulates that "machinery and equipment" does not include a variety of categories, including buildings. See RCW 82.08.962 for a full list of non-qualifying items.

- Insufficient data are available to identify where project-related purchases of equipment and services would be made, and where taxes would be assessed. This analysis assumes 50 percent is purchased in Lewis County and assessed at a rate of 1.3 percent, the rate for unincorporated Lewis County.

Under these assumptions, out of the estimated $4.4 million in sales and use tax revenue the project would generate, Lewis County would collect about $300,000 in local sales and use tax revenues on construction-related expenditures. This represents about 5.5 percent of the combined city/county local sales and use tax distributions in Lewis County in FY 2016 (Washington State Department of Revenue 2018). The actual retail sales and use taxes collected on construction expenditures may be more or less than these estimates. This amount would be higher to the extent that the tax exemption does not apply to some purchases (meaning they would be taxed at the full value rather than at 25 percent of the value), greater than 50 percent of purchases are made in Lewis County, and/or some of the purchases are made in areas of Lewis County were a higher sales and tax use rate applies. It would be lower to the extent that fewer than 50 percent of purchases are made in Lewis County. Project-related spending in locations other than Lewis County would produce local sales and use taxes for those jurisdictions, subject to the parameters outlined here.

State and local jurisdictions would collect additional sales tax revenues during construction from purchases of fuel, lodging, and from indirect and induced purchases subject to the retail sales and use tax. There is insufficient data to estimate these tax collections, however they likely would be small relative to FY 2016 sales and use tax collections.

Property Tax

Construction of the Project would result in an increase in assessed value and property tax collections during the construction period, commensurate with the investment cost value at the time of assessment. This amount would be less than the assessed value and resulting property tax revenue collected once the project becomes operational. See discussion in Section 33.13.4.2.

Timber Excise Tax

Construction of the Project will involve clearing vegetation from within and adjacent to the WTG footprints, and within the gen-tie line right-of-way. Most of the area underlying the proposed WTG sites has been recently harvested and will not generate saleable timber subject to the timber excise tax. Standing timber covers much of the area underlying the proposed gen-tie line right-of-way and may be large enough to market. To the extent that the removed vegetation is saleable timber, the timber excise tax will apply to the stumpage value. Assuming this timber will not have been harvested during the same period without the Project, construction may generate a net increase in excise tax collections during the construction period. However, assuming the timber will have eventually been harvested without the Project, the Project may ultimately result in a net decrease in excise tax collections, because trees harvested before their normal harvest rotation of approximately 40 years will be less valuable and generate less tax revenue. (See discussion under 3.13.4.2, Operation for more information about impacts on timber excise tax collections during Project operation.)

3.13.4.2 Operation

Income

Operating the Project will require spending approximately $7.4 million per year, on average. This total includes operations and maintenance on the equipment, lease payments on the Project footprint, insurance, decommissioning, and other expenses. Some of this spending may immediately leave the regional study area, but for this analysis, we assume the average annual total has the potential to generate economic impacts in the area. As with construction costs, the economic impacts of operations costs were estimated using the IMPLAN model, and categorized into direct, indirect, and induced effects. These are summarized in Table 3.13-12. The average annual labor income impact is approximately $2.3 million, and total output is approximately $11.4 million.

Employment

Operating the Project will employ 4 to 6 permanent full-time employees. This represents a very small increase in employment, relative to total employment in either the local or regional study areas.

The average annual expenses to operate and maintain the Project will support additional job-years (i.e., one full or part-time job for one year). The secondary (indirect and induced) impacts will support approximately 22 additional job-years. Combined with an estimated direct employment effect of 12 jobs (including the estimated 4 to 6 permanent jobs described above and potential other contract employment), Project operations will directly and indirectly support around 34 jobs in the regional study area.

Table 3.13-12. Economic Impacts of Project-Related Operations Spending

Impact Type	Direct Effect	Indirect Effect	Induced Effect	Total Effect
Output	$7,410,909	$2,635,241	$1,321,555	$11,367,705
Value Added	$2,340,677	$1,474,287	$798,202	$4,613,166
Labor Income	$741,315	$943,905	$442,449	$2,127,669
Job-Years	12[1]	14	8	34

Source: ECONorthwest, with data from the Applicant, using the 2016 IMPLAN Model
Notes: [1] This is the IMPLAN-calculated direct employment effect and differs from the Applicant's construction employment estimate for various reasons.

Population and Housing

The Project operation will require 4 to 6 additional employees. These workers could be hired locally, or brought in from outside the region to fill the positions. If they come from outside the region, they will relocate their families to the local study area (assuming they have families). Even assuming each employee is hired from outside the region and brings three additional family members, the total increase in population in the study area will be very small relative to the current population of the local study area.

Assuming these workers come from outside the area, they will seek permanent housing within the local Project Area, likely within easy commuting distance to the O&M Facility in Thurston County, at the northern end of the Project Area. The community located closest to that area is Rainier, which currently has a relatively limited supply of housing and a rental vacancy rate near zero, based on the most recent

data available from 2016 (see Table 3.13-2). Although the increase in demand from—at most—seven new workers will not likely meaningfully impact the market for housing (i.e., increase demand sufficient to impact prices), these workers may face challenges securing housing. Outside of Rainier, within the local study area, overall housing vacancy rates range between 7 and 14 percent, and rental vacancy rates hover around 5 percent. These rates are consistent with the statewide averages, and likely will not present a challenge for relocating employees.

Government Revenue

Retail Sales and Use Tax

Project spending related to operating and maintaining the Project will generate sales and use tax revenue at the state and local levels. Data on Project O&M costs are insufficiently detailed to estimate the value of these tax collections on an average annual basis; however, they will result in a small increase in collections for Washington State and Lewis and Thurston counties.

Business and Operations or Utility Tax

Gross income earned from the project may be subject to taxation through the utility tax. Insufficient information is available to determine the annual gross income for the entity that would operate the project to calculate the amount of annual tax collections, but this project would likely increase utility tax collections for the state of Washington.

Property Tax

There are several ways that project operations could result in changes in the value of the property tax rolls, and impact property tax collections: by changing the assessed value of property directly associated with the project, and by changing the assessed value of real property adjacent to the project.

Changes in the Value of Property Directly Associated with the Project

The Washington State Department of Revenue (DOR) has determined that wind turbine facilities located entirely within a county should be assessed by the local county assessor (Washington State Department of Revenue 2005). Projects that cross county or state boundaries are centrally assessed by the DOR. Because the project footprint covers both Lewis and Thurston Counties, it is likely the state will assign assessment authority to DOR, though a final determination has not been made as of September 2018. (Personal communication with Dorey 2018 and Sampson 2018).

The process of assessing the value of the property differs whether it is centrally assessed or locally assessed. If it is centrally assessed, DOR would quantify the value for real and personal property associated with the project, or it may combine the assets and determine the value of the entire "unit" using commonly accepted appraisal methods to gauge fair market value. During construction, DOR likely would assess the value of the as-yet non-operational project based on the current investment cost. Once the project becomes operational, DOR likely would the assessed value on the project's income generation potential. Once DOR determines the assessed value, it uses a formula to equalize the value to account for differences across counties (so the owners of like property pay the same amount of tax regardless of which county the property is located). Then DOR uses the proportional investment value of the project in

each taxing district to apportion tax distributions to each relevant taxing district in Lewis and Thurston counties (Washington Department of Revenue 2018 and personal communication with Sampson 2018).

The distributions would occur each year for the 30-year life of the project, based on the assessed value derived from the income of the project's operator. Preliminary information from the applicant suggests that the project would generate gross income between about $17 million in the first year of operation and $25 million in the last year of operation, however, insufficient information is available to quantify potential tax revenue based on this income. Under an income-based method of assessment, depreciation of the project's assets are not taken into account, so tax revenue generated from the project remains relatively steady over time (personal communication with Sampson 2018).

If the project is locally assessed, the assessors in Lewis and Thurston counties would appraise the fair market value of the real and personal property associated with the project and levy taxes just as with any other property in the county (Personal communication with Lewis County Assessor). In guidance issued to county assessors, DOR has determined that the WTGs are considered personal property, and the underlying land is considered real property (Washington State Department of Revenue 2005). It is likely that the project would result in increases in the assessed value of both the personal and real property associated with the project:

- **Personal Property.** The WTGs and other project-related improvements would be valued at 100 percent of the true and fair market value, which is based on investment cost, typically including all hard and soft costs required to bring the project to operation (Washington Department of Revenue 2015). Purchase of equipment and construction of the project is currently estimated at approximately $187 million (including the WTGs and site infrastructure, gen-tie line, O&M building, road improvements, and engineering, planning, design, and construction labor costs).[3] This includes $185 million invested in facilities in Lewis County and $2 million invested in facilities in Thurston County.[4] Assuming this accurately represents the fair market value of the project, the associated property tax collections, based on the average levy rate in Lewis County ($11.30 per $1,000 across the county in 2016), would be approximately $2.1 million.[5] In Thurston County, the property tax collections would be about $25,500, based on the average levy rate ($12.77 per $1,000 across the county in 2016). The actual amount collected would be based on the assessed value apportioned to each special district the project is located within, and the combined levy assessment for those districts in each year.

  For total county and county-wide districts, tax collections are estimated in Table 13 below. In addition to these county-wide districts, in Lewis County, the project area also spans three fire/EMS districts (1, 6, and Regional Fire Authority 1), three school districts (Onalaska #300, Chehalis #302, and Centralia #401), and several other special districts. The project area in each of these districts, however, is an insufficient proxy for identifying actual project value in a given

[3] This value represents about 80 percent of total estimated project capital expenditures of $235 million. It excludes sales tax, financing costs, contingency, and other costs indirectly related to construction activities.

[4] The majority of the project is located in Lewis County, including the WTGs and the Gen-Tie line. A portion of the road infrastructure and the O&M facility are located in Thurston County. This apportionment of costs is preliminary, based on planning-level costs, and will differ from the actual assessed value by county.

[5] The levy rate by TCA in the TCAs that intersect with the project area ranged from $9.19 to $12.62 in 2016. Levy rates vary each year, and have decreased in four of the districts and increased in three since 2016. The average levy rate across these TCAs increased from $10.84 to $11.87 between 2016 and 2018.

district: value is instead determined by actual infrastructure investment in a given location. Because of this, there is insufficient information at this time to calculate how the project value would be apportioned across the special districts that are not county-wide. Thus, the estimated tax collections shown in Table 13 should be considered a rough estimate for preliminary planning purpose only.

Because local assessment typically estimates fair market value based on an investment cost approach, depreciation of the project assets would reduce the fair market value over time (personal communication with Dorey and Sampson 2018). As the assessed value declines, property tax collections also decline. Table 13 shows the effect of depreciation on tax revenue collections over the 30-year life of the project. The data in this table only reflect the initial investment in the project, not ongoing reinvestment through regular maintenance and replacement required to keep the project operational. Each year, the assessor would factor this reinvestment would into the value of the project, and periodically adjust the assessed value, increasing the tax collections above what is shown in Table 13. Insufficient information is available at this time to estimate when this reinvestment would occur, and its magnitude in any given year. As the project depreciates, the project's assessed value would decrease relative to the assessed value of other property in the taxing district. As this occurs, to support tax collections at the increased level, tax rates would increase for other property owners, unless other economic development occurs that makes up for the diminishing assessed value of the project (Personal Communication with the Lewis County Assessor).

Table 13. Estimated Property Tax Collections Assuming Local Assessment and Depreciation over 30-year Project Life, County Totals and County-Wide Districts in Lewis County

Tax District	Investment Value	Year 5	Year 10	Year 15	Year 20	Year 25	Year 30
Lewis County[1]	$187 Million	$1,390,183	$986,716	$756,761	$505,901	$338,661	$313,575
- County Regular		$224,400	$155,738	$121,095	$82,082	$55,554	$46,815
- County Roads		$295,742	$205,251	$159,594	$108,178	$73,216	$61,699
- Library		$54,465	$37,800	$29,392	$19,923	$13,484	$11,363
- State		$304,637	$211,424	$164,394	$111,432	$75,418	$63,554
Thurston County[2]	$2 Million	$16,984	$12,055	$9,245	$6,181	$4,137	$3,831

Source: ECONorthwest, with data from Skookumchuck Wind Energy, LLC and DOR's depreciation schedule found at https://dor.wa.gov/sites/default/files/legacy/Docs/Pubs/Prop_Tax/64_0104_18.doc

Notes: [1] Reflects taxes based on an average county-wide levy rate in 2016 of $11.30 per $1,000.
[2] Reflects taxes based on an average county-wide levy rate in 2016 of $12.77 per $1,000.

- **Real Property.** In the case of this project, the land the project is located on is owned by Weyerhaeuser and leased to the project LLC. Weyerhaeuser will continue to pay property taxes on the leased land, but it likely will be reassessed because its use will change under project operation (i.e., it will no longer be used to produce timber). Currently, the land subject to the project lease is registered as Designated Forest Land, which applies preferential taxation for land used for growing, harvesting, and replanting commercial timber. Under project operation, the local assessor likely will remove the Designated Forest Land classification and it will be assessed based on its highest and best use using a commonly accepted appraisal approach (e.g., income method, cost method, or market valuation). This likely will result in an increase in the assessed value and an increase in taxes collected from this land during the life of the project. Adjacent land

(even within the same legal parcel) that remains in commercial timber production is likely to maintain the Designated Forest Land status, with no change in assessed value or tax collections related to the project (Personal Communication with the Lewis County Assessor).

Changes in the Value of Property Adjacent to the Project

The Project site is surrounded almost entirely by land zoned Long Term Forest Land in Thurston County and Forest in Lewis County. Section 3.8 documents in detail the zoning and uses of land within the Project Area, including along the gen-tie line and other Project features and concludes that the Project is consistent with county land use codes and plans, and its development will not change land uses in areas beyond the Project site. Thus, Project operation is unlikely to change the value of property adjacent to the Project by changing or constraining the uses of the property.

A common concern of wind projects is that they adversely impact the value of residential property. The Project is not located adjacent to any residential developments or land zoned for residential development, with the exception of the O&M Facility located at the northern edge of the Project site in Thurston County, where land is zoned Rural Residential Resource. However, the Project will be visible from several locations where residential development is present. Section 3.9 documents the visual impacts to residences in these areas:

- Residential viewers near Vail would be able to see WTGs at a distance of approximately 6.6 miles. At this distance, the report states, the project would "reduce the visual unity and intactness minimally when compared to the existing components in the landscape. The WTGs will be arrayed uniformly along the ridgeline and will create a moderate change in the setting's existing low to moderate visual quality." The report concludes that the visual impact would be low.
- Residential viewers near Lake Lawrence would not be impacted, with the nearest WTGs about 8 miles away. Because of topography, the WTGs and other project features would be obscured from view. The report concludes that the visual impact would be low.
- Residential viewers at Alpha would be able to see portions of the WTG string at a distance of about 6.4 miles away. The report states "At this distance, the contrast will have a relatively minor effect on the overall visual impact. Consequently, because the prominence of the WTGs in the view will be low, the WTGs will have a minor effect on the vividness, unity, and intactness from this viewpoint." The report concludes that the potential visual impact would be moderate.

The question of whether wind projects adversely impact residential properties has been studied in detail for over two decades (ECONorthwest 2002, Appraisal Group One 2009, Hoen et al. 2013, Sunak and Madlener 2016). The mechanisms by which projects may affect property value include reducing the quality of views and introducing other adverse impacts to the aesthetic experience of property, including noise and light. Studies have reached differing conclusions on the question, and there is no universally applicable answer for all projects because much depends on context. Researchers at the Lawrence Berkley National Laboratory found, after conducting a detailed statistical analysis involving 50,000 home sales within 10 miles of wind facilities that no statistical evidence that home values near WTGs were affected (Hoen et al. 2013). A series of interviews and statistical analyses of property sales near several wind projects conducted by Appraisal Group One found a negative impact on value of between 12 and 40 percent, with less impact on properties further away (Appraisal Group One 2009). Studies that have found adverse impacts note that impacts are most significant when WTGs are very near residential properties

(i.e., highly visible and creating the potential for other aesthetic or perceived heath impacts) and when a property's value depends on the viewshed (Kielisch 2011). A recent study seems to confirm this conclusion, based on a statistical analysis of property sales in Germany. The study found that the value for properties whose view was strongly affected by a wind farm decreased by 9 to 14 percent. Properties with a minor or marginal view of the WTGs experienced no devaluation (Sunak and Madlener 2016).

Based on the research to date, the characteristics of the residential properties that will experience changes in view, and the Project's expected impact on the quality of the views, any adverse impacts on property values probably will be very minor if they occur at all. Ultimately, sales transactions that result in decreases in market value must be reflected in assessed value for property tax revenue collections to decrease. Again, this is unlikely to occur given the reasons described above.

Timber Excise Tax

Project operation may impact timber excise tax collections, relative to the no action alternative to the extent that it reduces the flow of commercially harvested timber from the Project Area. Timber production will continue over most of the Project Area but will not occur within the easements around the WTGs and within the gen-tie line right-of-way for the life of the Project. Based on a 300-foot radius around each WTG, the easement area that must be kept clear of vegetation amounts to approximately 250 acres. A 200-foot area around the gen-tie line, where it crosses land currently classified as Designated Forest Land, amounts to approximately 520 acres. Assuming forest production continues in all other areas, the Project will remove approximately 770 acres from commercial timber production during the operation of the Project. All of these acres are in Lewis County. Assuming the Project lifespan is 30 years, and an average harvest rotation is 40 years, the Project will impact these areas for approximately one harvest cycle, at which point the land could be returned to timber production. In 2014, Lewis County had about 700,000 acres classified as Designated Forest Land (Washington State Department of Revenue 2018b), so 770 acres represents about 0.1 percent of land being used for forest production and contributing revenues through the timber excise tax. Removal of these lands from production will produce a very small impact in revenue streams from timber excise tax over the life of the Project.

3.13.4.3 Use of Property and Quality of Life

The Thurston County Resource Stewardship Department received comments about the potential effects the Project could have on existing quality of life and other values. Residents have the following concerns about certain aspects of the Project operation:

- WTGs killing birds and bats
- Increased risk of forest fires and the infrastructure available to mitigate them
- Visibility from public areas, residences, and transportation routes
- Impact on future development and property values
- Noise pollution during construction and operation
- Collision hazard for military and civilian aircraft
- Increased traffic around Project Area.

Many of these concerns are addressed in the analyses of other resource areas. Others, including the impact on future development and property values, are addressed here. From a socioeconomic perspective, the Project's impact on existing economically important uses of land and the goods and services that flow from the land and ecosystems will be minor, if they occur at all. They are also temporary, as once the Project is decommissioned, the land underlying the Project could revert to its current use in timber production.

3.13.4.4 Environmental Justice

Evaluating whether a proposed action could have disproportionately high and adverse impacts on minority or low-income populations involves: 1) identifying any potential high and adverse environmental or human health impacts, 2) identifying any minority or low-income communities within the potential high and adverse impact areas, and 3) examining the spatial distribution of any minority or low-income communities to determine if they will be disproportionately affected by these impacts.

Constructing and operating the Project will not generate environmental justice concerns for the following reasons:

- The analysis did not reveal any high adverse impacts resulting from the Project.
- As depicted in Table 3.13-10, there is only one block group that meets the criteria for an environmental justice area (Block Group B). Thirty-eight percent of the population in this block group is below the poverty line. This is higher than the Thurston County level of 12 percent. The location of this block group in the northwest corner of the 1-mile area around the Project Area indicates any impacts from the Project will have to reach well beyond the Project Area itself to affect this population.

Absent the occurrence of high adverse impacts and absent a population that will likely experience any impacts of the Project beyond potential minor changes in views, it is not anticipated that the Project will produce any impacts that disproportionately impact sensitive populations.

3.13.5 Decommissioning

Activities resulting from Project decommissioning are described in Section 2.8. During the decommissioning process, similar impacts to those experienced during construction will occur but to a lesser extent because less construction material will be removed than was delivered to the WTG sites. Socioeconomic impacts resulting from decommissioning will also be similar to those described for construction: activities may generate temporary employment opportunities, and may create additional demand for temporary lodging. These impacts are likely to be smaller in scale than those described for construction, and likely would be even smaller relative to the size of the economy assuming current trends continue until decommissioning occurs.

3.13.6 Impacts of the No Action Alternative

Under the No Action Alternative, the Project would not be constructed or operated. The land underlying the Project would likely continue to be used for commercial timber production, which would generate timber for local mills and revenue to counties and the state via the timber excise tax.

3.13.7 Mitigation Measures

Impacts of the Project will be primarily positive, resulting from increases in income for local businesses and increased employment opportunities primarily during Project construction (though minor positive impacts may also occur during operation), and increased tax collections during construction and operation. Potential adverse impacts on socioeconomic resources may occur if peak construction overlaps with the peak recreation season, resulting in a shortage of temporary lodging in the local study area. The primary adverse impact will be on customary users of hotels/motels and campgrounds in the area, who may have to pay more for lodging, or travel further than they otherwise would have. Mitigation options include directing workers who require temporary lodging during these peak times to stay further away from the Project site where temporary lodging supply is not limited, or providing private accommodations in close proximity to the Project Area (e.g., RV parking areas that are not open to the public).

3.13.8 Connected Actions

Construction of the interconnection will involve delivery and installation of a step up transformer in the Tono Substation yard, and conductoring to interconnect the gen-tie line to the step-up transformer, and the transformer to the remainder of the substation. All construction activity will occur within the existing Tono Substation yard which already contains numerous electrical and transmission-related equipment and maintenance buildings. These activities would not produce adverse socioeconomic impacts.

3.13.9 Unavoidable Adverse Impacts

The Project will not produce unavoidable adverse impacts. The potential adverse impacts related to housing described above are potentially mitigatable if they occur, and will be temporary in nature.

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