

**ATTACHMENT N: SOCIOECONOMIC REVIEW**

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# **Badger Mountain Solar Energy Project Socioeconomic Review**

**Prepared for:  
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**Prepared by:**



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## 1.0 Project Overview

Aurora Solar, LLC (Applicant), a wholly owned subsidiary of Avangrid Renewables, LLC, proposes to construct and operate the Badger Mountain Solar Energy Project (Project). The Project is a 200-megawatt (MW) solar photovoltaic (PV) generation facility with an optional 200-MW battery energy storage system (BESS) located in unincorporated Douglas County, Washington. The Project area encompasses approximately 2,390 acres, is generally located on a plateau south of Badger Mountain Road, and is approximately 3.5 miles east of the East Wenatchee city limits.

## 2.0 Summary of Results

This Socioeconomic Review addresses components of Washington Administrative Code (WAC) 463-60-535 for the Streamlined Solar Application for Site Certification (ASC). The document contains information about population and labor force impacts and housing. The document demonstrates that, at peak construction, the locally available workforce will be sufficient to meet demand for local direct workers, which are expected to account for about 10 to 20 percent of the total construction workforce. Local workers are those who normally reside within daily commuting distance of the Project site and would commute daily to the Project site from their homes. Non-local workers hired from outside the area are expected to temporarily relocate to the vicinity of the Project for the duration of their employment. There is sufficient capacity to house permanent and temporary workers.

## 3.0 Socioeconomic Study Area

The primary socioeconomic study area for this analysis is based on WAC 463-60-535 and incorporates areas that may be affected by employment within a one-hour commute of the Project area. The areas within one hour include incorporated communities in Douglas County, as well as incorporated communities in neighboring Chelan County. Together, Chelan and Douglas counties make up the Wenatchee Metropolitan Statistical Area (MSA). MSAs consist of integrated geographic regions typically made up of an urbanized economic core and economically related counties (Office of Management and Budget 2020). The city of Wenatchee is the core of the Wenatchee MSA. Chelan and Douglas counties are the economically related counties that share a high degree of economic integration with the urbanized core and one another. Although the Project site is located in Douglas County, data are provided below for both Douglas and Chelan counties, as well as the incorporated communities in each county that are within a one-hour commute of the Project area. These communities are East Wenatchee, Rock Island, and Waterville in Douglas County and Cashmere, Entiat, Leavenworth, and Wenatchee in Chelan County.

## 4.0 Population, Labor Force, and Housing

This section addresses components of WAC 463-60-535 related to population, labor force, and housing.

### 4.1 Population and Labor Force Impacts

#### (a) Population and growth rate data for the most current ten-year period for the county or counties and incorporated cities in the study area.

Chelan County had an estimated population of 81,600 in 2021 (Table 1). An estimated 58 percent of the population lived in one of five incorporated communities, with approximately 44 percent of the total living in the city of Wenatchee. Chelan County had an average population density of 27.9 persons per square mile in 2021 compared to a statewide average of 116.9 persons per square mile (Washington OFM 2021a).

Total county population increased by 8,400 people or 11.5 percent between 2012 and 2021, an increase below the state average of 13.9 percent (Table 1). Population growth results from either net in-migration or natural increase. Net in-migration occurs when more people move to an area than leave. Natural increase occurs when there are more births than deaths. Migration accounted for almost two-thirds (66 percent) of statewide population growth between 2011 and 2020, with natural increase accounting for the remaining 34 percent. Migration played a larger role in Chelan County, accounting for approximately 73 percent of population growth over this period, with natural increase accounting for the remaining 27 percent (Washington OFM 2020).

**Table 1. Population**

Geographic Area	Population Estimates		2012 to 2021		
	2012	2021	Net Change	Percent Change	Annual Growth Rate
<b>Chelan County</b>	<b>73,200</b>	<b>81,600</b>	<b>8,400</b>	<b>11.5</b>	<b>1.1</b>
Cashmere	3,075	3,195	120	3.9	0.4
Entiat	1,135	1,340	205	18.1	1.7
Leavenworth	1,970	2,235	265	13.5	1.3
Wenatchee	32,400	35,810	3,410	10.5	1.0
Other Incorporated <sup>1</sup>	3,940	4,625	685	17.4	1.6
Unincorporated	30,680	34,395	3,715	12.1	1.1
<b>Douglas County</b>	<b>38,900</b>	<b>44,600</b>	<b>5,700</b>	<b>14.7</b>	<b>1.4</b>
East Wenatchee	13,280	13,810	530	4.0	0.4
Rock Island	790	1,235	445	56.3	4.6
Waterville	1,145	1,205	60	5.2	0.5
Other Incorporated <sup>2</sup>	2,925	3,015	90	3.1	0.3

Geographic Area	Population Estimates		2012 to 2021		
	2012	2021	Net Change	Percent Change	Annual Growth Rate
Unincorporated	20,760	25,335	4,575	22.0	2.0
<b>Washington State</b>	<b>6,817,770</b>	<b>7,766,925</b>	<b>949,155</b>	<b>13.9</b>	<b>1.3</b>
Source: Washington OFM 2021b.					
1. The other incorporated city in Chelan County (Chelan) is more than an approximately one-hour commute from the Project.					
2. The other incorporated cities in Douglas County (Bridgeport, Coulee Dam [part], and Mansfield) are more than an approximately one-hour commute from the Project.					

Douglas County had an estimated population of 44,600 in 2021 (Table 1). More than half of the population (57 percent) lives in unincorporated areas. The remaining 43 percent of the population lives in one of six incorporated communities, the largest of which is East Wenatchee, which accounts for almost one-third (31 percent) of the total county population (Table 1). Douglas County had an average population density of 24.5 persons per square mile in 2021 compared to a statewide average of 116.9 persons per square mile (Washington OFM 2021a).

Total population in Douglas County increased by 5,700 people or 14.7 percent between 2012 and 2021, which was higher than the state average increase of 13.9 percent (Table 1). Natural increase accounted for almost two-thirds (63 percent) of county population growth between 2011 and 2020, with net in-migration making up the remaining 37 percent (Washington OFM 2020).

**(b) Published forecast population figures for the study area for both the construction and operation periods.**

The Washington OFM prepares county population projections for planning under Washington State's Growth Management Act (GMA). High-, medium- and low-growth expectations are prepared for each county, with the medium series considered the most likely because it is based on assumptions that have been validated with past and current information (Washington OFM 2018a). Current projections developed in support of the GMA extend through 2040, with supplemental projections developed from 2040 through 2050 to provide additional data for counties.

The Project is expected to have an operational life of 50 years, which would extend beyond the available population projections. However, projections are available through 2050 and provide useful insight into anticipated population growth over the operational life of the Project. Population is projected to continue grow from 2020 through 2050 in the study area counties, as well as statewide (Table 2).

From 2020 to 2025, population is projected to increase by 4 percent and 7 percent in Chelan and Douglas counties, respectively, compared to a statewide average increase of 6 percent. From 2020 to 2050 population is projected to increase by 21 percent (about 16,500 people) in Chelan County, by about one-third (33 percent, 14,500 people) in Douglas County, and by 29 percent (about 2.2 million people) statewide (Washington OFM 2018a).

**Table 2. Population Projections 2020 to 2050**

<b>Geographic Area</b>	<b>2020 (Estimate)<sup>1</sup></b>	<b>2020 (Projection)<sup>2</sup></b>	<b>2025</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>
Chelan County	79,660	78,868	82,335	85,359	90,509	95,414
Douglas County	43,750	43,883	46,807	49,362	54,449	58,364
Washington State	7,656,200	7,638,415	8,085,043	8,503,178	9,242,022	9,855,117

Sources: Washington OFM 2018b, 2021b.

- Population estimates are for April 1, 2020 and represent current estimates for that year. Estimates for 2021 are provided in Table 1.
- The population projections here, including the 2020 projection, are Medium series projections developed in 2017 in support of Washington State's GMA.

**(c) Numbers and percentages describing the race/ethnic composition of the cities and counties in the study area.**

According to the most recent Census estimates, more than two-thirds (68.5 percent) of the population of Washington State is White. Persons of Hispanic or Latino origin were identified as the single largest minority group, accounting for 12.7 percent of the total population (Table 3). A similar share of the total population in Chelan County was identified as White (68.0 percent), with persons of Hispanic or Latino origin accounting for a much larger share than the statewide average (27.9 percent compared to 12.7 percent) (Table 3). The majority of the populations in the incorporated communities in Chelan County were White, with White populations ranging from 59.8 percent (Wenatchee) to 85.2 percent (Leavenworth) (Table 3).

A majority of the population in Douglas County was identified as White (64.2 percent), with persons of Hispanic or Latino origin accounting for 31.6 percent of the population. In East Wenatchee, the closest city to the Project, an estimated 62.9 percent of the population was White, with persons of Hispanic or Latino origin making up 32.2 percent of the total (Table 3).

**Table 3. Race and Ethnicity, 2019**

<b>Geographic Area</b>	<b>Total Population<sup>1</sup></b>	<b>Percent of Total</b>				
		<b>White<sup>2</sup></b>	<b>Hispanic or Latino</b>	<b>American Indian and Alaska Native<sup>2</sup></b>	<b>Some Other Race<sup>2,3</sup></b>	<b>Two or More Races<sup>2</sup></b>
<b>Chelan County</b>	<b>76,229</b>	<b>68.0</b>	<b>27.9</b>	<b>0.8</b>	<b>1.3</b>	<b>1.9</b>
Cashmere	3,140	76.9	20.1	0.6	0.1	2.3
Entiat	1,029	70.5	23.4	0.6	3.8	1.7
Leavenworth	2,375	85.2	8.5	0.3	5.6	0.3
Wenatchee	34,188	59.8	33.9	1.2	1.7	3.4
<b>Douglas County</b>	<b>42,023</b>	<b>64.2</b>	<b>31.6</b>	<b>0.6</b>	<b>1.5</b>	<b>2.1</b>
East Wenatchee	13,960	62.9	32.2	0.5	1.3	3.1



Geographic Area	Total Population <sup>1</sup>	Percent of Total				
		White <sup>2</sup>	Hispanic or Latino	American Indian and Alaska Native <sup>2</sup>	Some Other Race <sup>2,3</sup>	Two or More Races <sup>2</sup>
Rock Island	953	48.9	49.7	0.0	0.0	1.4
Waterville	1,513	83.7	11.4	0.0	0.5	4.5
<b>Washington State</b>	<b>7,404,107</b>	<b>68.5</b>	<b>12.7</b>	<b>1.1</b>	<b>12.9</b>	<b>4.8</b>
<b>United States</b>	<b>324,697,795</b>	<b>60.7</b>	<b>18.0</b>	<b>0.7</b>	<b>18.2</b>	<b>2.4</b>

Source: U.S. Census Bureau 2020a.

1. All estimates are annual totals developed as part of the 2015-2019 American Community Survey 5-Year Estimates.
2. Non-Hispanic only. The federal government considers race and Hispanic/Latino origin to be two separate and distinct concepts. People identifying as Hispanic or Latino origin may be of any race. The data summarized in this table present Hispanic/Latino as a separate category.
3. The "Other" category presented here includes census respondents identifying as Black or African American, Asian, Native Hawaiian and Other Pacific Islander, or Some Other Race.

**(d) Aggregate per capita and household incomes, including the number and percentages of the population below the poverty level for the cities and counties within the study area.**

Per capita and median household incomes were below the state average in both Chelan and Douglas counties. This was also the case for all seven of the incorporated communities within an approximately one-hour commute of the Project area (Table 4). The estimated share of the population below the poverty level in Washington State was 10.8 percent in 2019. The corresponding rates in Chelan and Douglas counties were higher than the state average: 11.7 percent and 11.6 percent, respectively. In Chelan County, the share of households below the poverty level in the four incorporated communities within 1-mile of the Project area ranged from 9.4 percent (Leavenworth) to 14.1 percent (Wenatchee). The corresponding rates in the incorporated communities in Douglas County ranged from 1.9 percent (Waterville) to 15.8 percent (East Wenatchee) (Table 4).

**Table 4. Income and Poverty by County and City**

Geographic Area	Per Capita Income		Median Household Income		Poverty	
	2019 Dollars	Percent of State Per Capita	2019 Dollars	Percent of State Median	Population below Poverty Level	Percent of Total Population
<b>Chelan County</b>	<b>30,870</b>	<b>79%</b>	<b>58,795</b>	<b>80%</b>	<b>8,811</b>	<b>11.7%</b>
Cashmere	24,602	63%	60,994	83%	298	9.8%
Entiat	27,705	71%	65,174	88%	125	12.2%
Leavenworth	32,429	83%	55,275	75%	220	9.4%
Wenatchee	28,630	74%	53,167	72%	4,727	14.1%
<b>Douglas County</b>	<b>30,544</b>	<b>78%</b>	<b>62,951</b>	<b>85%</b>	<b>4,849</b>	<b>11.6%</b>
East Wenatchee	24,878	64%	54,223	73%	2,199	15.8%
Rock Island	19,095	49%	48,611	66%	116	12.5%
Waterville	30,473	78%	59,830	81%	28	1.9%
<b>Washington State</b>	<b>38,915</b>	<b>100%</b>	<b>73,775</b>	<b>100%</b>	<b>785,244</b>	<b>10.8%</b>
Sources: U.S. Census Bureau 2020b, 2020c, 2020d.						
1. Estimates are annual totals developed as part of the 2015-2019 American Community Survey 5-Year Estimates.						

**(e) A description of whether or not any minority or low-income populations would be displaced by this project or disproportionately impacted.**

As described in Part 3, Section 15 of the ASC, the Project is not expected to displace existing or future housing, including housing for minority or low-income populations. No residences are located within the Project area and none will be displaced as a result of the Project. According to the designations in the Douglas County Comprehensive Plan, the Project is not within an urban growth area and is not in a land use designation intended for dense housing development other than minimal, rural residential lots (Douglas County 2019). Local land use planning documents, including the Douglas County Comprehensive Plan, do not otherwise identify the Project area as a site for future residential growth. Nonetheless, the Project will not limit the allowable, rural residential development on surrounding land outside of the Project area in the underlying Dryland Agricultural (A-D) and Rural Resource-20 (RR-20) zoning districts. For the reasons above, the Project will not disproportionately impact any minority or low-income populations.

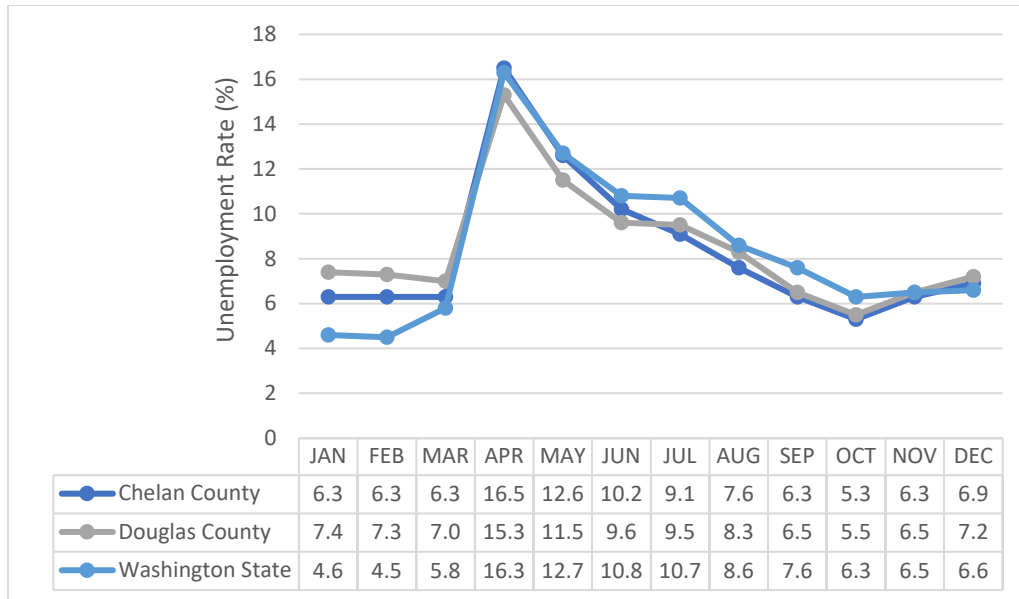
**(f) The average annual work force size, total number of employed workers, and the number and percentage of unemployed workers including the year that data are most recently available. Employment numbers and percentage of the total work force should be provided for the primary employment sectors.**

The average annual work force size, total number of employed workers, and the number and percentage of unemployed workers are presented for Chelan and Douglas counties and Washington State in Table 5. Average annual unemployment rates in 2020 were very similar to the state average in both Chelan and Douglas counties, 8.3 percent and 8.5 percent, respectively, compared to 8.4 percent state-wide (Table 5). These annual averages reflect the sharp COVID-19-related upturn in unemployment in April 2020 that occurred in all three areas (Figure 1). Current rates at the time of this analysis (July 2021) are 3.6 percent (Chelan County), 3.9 percent (Douglas County), and 5.0 percent (Washington State), substantially lower than one year earlier (Washington Employment Security Department 2021; Figure 1).

**Table 5. Average Annual Workforce, 2020**

Geographic Area	Civilian Labor Force	Employment	Unemployment	Unemployment Rate
Chelan County	44,228	40,535	3,693	8.3%
Douglas County	21,243	19,438	1,805	8.5%
<b>Washington State</b>	<b>3,914,869</b>	<b>3,585,782</b>	<b>329,087</b>	<b>8.4%</b>

Source: Washington Employment Security Department 2021.



Source: Washington Employment Security Department 2021

**Figure 1. Monthly Unemployment Rates, 2020**

An estimated 56,056 people were employed in Chelan County in 2019. Government and the health care and social assistance sector were the largest economic sectors based on employment, accounting for about 13 percent of total employment each (Table 6). In Douglas County, an estimated 17,220 people were employed in 2019. Agriculture and government were the largest sectors, each accounting for about 14 percent of total employment (Table 6).

**Table 6. Employment by Economic Sector, 2019**

Economic Sector	Chelan County	Douglas County	Washington State
<b>Total Employment<sup>1</sup></b>	<b>56,056</b>	<b>17,220</b>	<b>4,647,252</b>
<b>Percent of Total<sup>2</sup></b>			
Agriculture	8.5	14.4	1.8
Forestry, fishing, and hunting	(D)	4.2	1.0
Mining	(D)	0.2	0.1
Utilities	0.1	0.0	0.1
Construction	5.5	6.5	6.0
Manufacturing	4.1	3.8	6.7
Wholesale trade	4.3	3.8	3.2
Retail trade	9.6	13.0	10.1
Transportation & warehousing	1.4	2.4	4.2
Information	0.9	1.3	3.4
Finance and insurance	2.9	2.5	3.9
Real estate, rental and leasing	4.9	4.6	4.8
Professional, scientific, and technical services	4.0	(D)	7.5
Management of companies and enterprises	0.2	(D)	1.1
Administrative and waste management services	3.3	3.5	4.9
Educational services	1.1	0.8	1.8
Healthcare and social assistance	12.7	6.2	10.7
Arts, entertainment, and recreation	2.0	2.8	2.5
Accommodation and food services	9.9	6.6	6.9
Other services (except public administration)	4.3	5.4	5.1
Government	13.3	14.2	14.3

Source: U.S. Bureau of Economic Analysis 2020.

(D) Not shown to avoid disclosure of confidential information; estimates for this item are, however, included in the totals.

1. Employment estimates include self-employed individuals. Employment data are by place of work, not place of residence, and, therefore, include people who work in the area but do not live there. Employment is measured as the average annual number of jobs, both full- and part-time, with each job counted at full weight.
2. Percentages for the two counties do not sum to 100 because employment counts are not provided for some sectors to avoid disclosing confidential information (identified by [D] in the table).

**(g) An estimate by month of the average size of the project construction, operational work force by trade, and work force peak periods.**

The proposed schedule and workforce are summarized in Table 7. Construction is expected to begin January 2023 and will require approximately 18 months to complete. During the first 60 days there would be clearing and grubbing activities and grading of access roads. Construction personnel would likely involve approximately 20 workers during this period. Once Project construction begins, the number of workers employed on-site will increase and peak at approximately 400 workers. On average 300 to 350 workers will be employed on-site over the 18-month construction period (Table 7). During the final 30-day period, the electrical work will be completed and the on-site workforce will drop back to approximately 30 workers.

**Table 7. Proposed Schedule and Workforce**

Phase	Proposed Timing	Duration	Employee Numbers on Site and Frequency
Site preparation	2023	60 days	Approximately 20 workers
Construction	2023 to 2024	18 months	On average 300 to 350; but with a peak construction workforce of 400
Operation/use	2024	50 years	2 to 4
Closure/reclamation	2074	6 months	On average 180 to 210; with a peak construction workforce of 240.

**(h) An analysis of whether or not the locally available work force would be sufficient to meet the anticipated demand for direct workers and an estimate of the number of construction and operation workers that would be hired from outside of the study area if the locally available work force would not meet the demand.**

The Applicant anticipates that a majority of the on-site construction workforce would be hired locally to the extent workers are available, with an estimated 10 to 20 percent of the workforce expected to already reside in Chelan and Douglas counties within a one-hour commute of the Project area. Based on this estimate, the local workforce employed on-site would average 30 to 70 workers over the 18-month construction period, with a peak of about 40 to 80 workers. An annual average of approximately 5,500 workers were unemployed in the Wenatchee MSA in 2020 (Table 5). However, as discussed in Section (f) above, this annual average includes the effects of COVID-19, which resulted in a sharp upturn in unemployment in April 2020 (Figure 1). More recent monthly estimates (July 2021) indicated that approximately 2,750 workers are currently unemployed in the Wenatchee MSA (Washington Employment Security Department 2021). This estimate includes all people aged 16 years and older who had no employment and made specific efforts to find employment during this period.

Review of occupational data for the Wenatchee MSA indicates that the area has a large construction workforce pool. Representative occupational employment estimates for the disciplines required to

construct the Project are presented for the Wenatchee MSA in Table 8. In addition to total employment, Table 8 also provides location quotient information, as well as mean hourly and annual wage data. The location quotients, which are a measure of relative economic specialization, indicate that the local share of employment in the representative occupations identified in Table 8 exceeds the corresponding national averages in three of the six identified occupations.

**Table 8. Existing Construction Workforce in the Wenatchee MSA by Occupation**

SOC Code <sup>1</sup>	Labor Discipline	Total Employment	Location Quotient <sup>2</sup>	Mean Hourly Wage <sup>3</sup>	Mean Annual Wage <sup>3</sup>
11-9021	Construction Managers	40	0.41	40.27	83,770
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	140	0.70	35.13	73,070
47-2061	Construction Laborers	620	1.97	22.69	47,200
47-2073	Operating Engineers and Other Construction Equipment Operators	180	1.40	30.66	63,770
47-2111	Electricians	240	1.12	32.86	68,350
53-3032	Heavy and Tractor-Trailer Truck Drivers	520	0.89	21.90	45,550

Source: U.S. Bureau of Labor Statistics 2021.

SOC = standard occupational classification.

1. Data are for May 2020, the most current data available.
2. Location quotients estimated here by the U.S. Bureau of Labor Statistics show an occupation's share of an area's employment relative to the national average. A location quotient above 1.0 indicates that an occupation accounts for a larger share of employment in an area than it does nationally, and a location quotient below 1.0 indicates the area's share of employment in the occupation is lower than the national share.
3. These wage estimates represent wages and salaries only, and do not include employee bonuses or nonwage costs to the employer, such as health insurance or employer contributions to retirement plans.

**(i) A list of the required trades for the proposed project construction.**

Trades required during the construction phase of the Project include:

- Construction managers and supervisors
- Construction laborers
- Equipment operators
- Electricians
- Truck drivers

The corresponding occupational categories are identified above in Table 8.

**(j) An estimate of how many direct or indirect operation and maintenance workers (including family members and/or dependents) would temporarily relocate.**

Operation and maintenance of the Project is anticipated to employ two to four workers (Table 7). These workers and their families are likely to reside in the Wenatchee MSA and will either already reside in the area or permanently relocate. Up to four workers and their family members could potentially relocate. The average U.S. family household consisted of 3.15 people per family in 2020 (U.S. Census Bureau 2020e). Applying this average family household size results in up to 13 people permanently relocating to the Wenatchee MSA during Project operation.

**(k) An estimate of how many workers would potentially commute on a daily basis and where they would originate.**

Workers hired locally (i.e., within Chelan and Douglas counties) would commute daily between the Project and their normal place of residence. During construction an estimated average of 30 to 70 local workers would commute daily to the Project site, with an estimated 40 to 80 local workers on-site during peak construction (see Section (h) above). Based on the existing distribution of population in the two counties, the majority of these workers would likely normally reside in Wenatchee and East Wenatchee (see Table 1).

The remainder of the estimated construction workforce (an average of 240 to 315 workers, with a peak of 320 to 360) would be non-local and would temporarily relocate to the vicinity of the Project for the duration of their employment. The majority of these workers would likely seek temporary accommodation in Wenatchee and East Wenatchee, where much of this type of accommodation is located. Workers may also stay in Leavenworth which also includes a relatively large share of temporary housing resources (see Housing Impacts, Section (a), below). These workers would commute daily between the Project and their temporary place of residence.

During operations, an estimated two to four workers would commute daily to and from the Project.

## 4.2 Housing Impacts

**(a) Housing data from the most recent ten-year period that data are available, including the total number of housing units in the study area, number of units occupied, number and percentage of units vacant, median home value, and median gross rent. A description of the available hotels, motels, bed and breakfasts, campgrounds or other recreational facilities.**

Housing resources are summarized by city, county, and state in Table 9. The data presented in this table are annual estimates for 2019 prepared by the U.S. Census Bureau using 5 years of data (2015 to 2019) (U.S. Census Bureau 2020f). The U.S. Census Bureau defines a housing unit as a house, apartment, mobile home or trailer, group of rooms, or single room occupied or intended to be occupied as separate living quarters. There were an estimated 37,693 housing units in Chelan

County in 2019, with the city of Wenatchee accounting for 37 percent (13,810 units) of the total (Table 9). An estimated total of 9,309 units were identified vacant in Chelan County in 2019, approximately 25 percent of the total. This high vacancy rate is primarily due to the large number of homes identified by the Census as for seasonal, recreational, or occasional use (i.e., vacation homes), which are considered vacant by the Census. Vacation homes accounted for almost two-thirds (64 percent) of vacant housing units in Chelan County in 2019. Median values for owner-occupied homes were below the state median in Cashmere, Entiat, and Wenatchee and slightly above the state median in Leavenworth. Median rent for renter-occupied units ranged from \$826 (Cashmere) to more than \$1,200 (Entiat) (Table 9).

Douglas County had an estimated total of 17,002 housing units in 2019, with the city of East Wenatchee accounting for almost one-third (30 percent, 5,218 units) of the total (Table 9). An estimated 1,739 units were vacant in Douglas County in 2019, approximately 10 percent of the total. Median values for owner-occupied homes were lower than in adjacent Chelan County and the statewide average, with a county-wide median of \$271,500. Median rent for renter-occupied units in Douglas County in 2019 was \$909, the same as in Chelan County (Table 9).

**Table 9. Housing Characteristics**

Geographic Area	Total Housing Units	Occupied Housing Units	Vacant Housing Units		Median Home Value (dollars)	Median Gross Rent (dollars)
			Number	Percent of Total		
<b>Chelan County</b>	<b>37,693</b>	<b>28,384</b>	<b>9,309</b>	<b>24.7%</b>	<b>292,900</b>	<b>909</b>
Cashmere	1,230	1,053	177	14.4%	243,400	826
Entiat	508	411	97	19.1%	212,200	1,220
Leavenworth	1,422	1,051	371	26.1%	355,600	876
Wenatchee	13,810	12,744	1,066	7.7%	253,600	934
<b>Douglas County</b>	<b>17,002</b>	<b>15,263</b>	<b>1,739</b>	<b>10.2%</b>	<b>271,500</b>	<b>909</b>
East Wenatchee	5,218	4,971	247	4.7%	274,800	938
Rock Island	349	342	7	2.0%	156,500	618
Waterville	678	607	71	10.5%	174,000	743
<b>Washington</b>	<b>3,106,528</b>	<b>2,848,396</b>	<b>258,132</b>	<b>8.3%</b>	<b>339,000</b>	<b>1,258</b>

Source: U.S. Census Bureau 2020f.

1. Estimates are annual totals developed as part of the 2015-2019 American Community Survey 5-Year Estimates.

The number of housing units has increased statewide and in Chelan and Douglas counties since 2010, with net gains of about 4,500 units (13 percent) and 2,000 units (13 percent) in Chelan and Douglas counties, respectively (Table 10). Viewed by community, the largest absolute increase over this period was in Wenatchee (1,500 units), which reflects the larger size of the community.



**Table 10. Number of Housing Units, 2010 to 2021**

Geographic Area	2010	2021	2010 to 2021	
			Net Change	Percent Change
<b>Chelan County</b>	<b>35,465</b>	<b>39,980</b>	<b>4,515</b>	<b>12.7%</b>
Cashmere	1,179	1,219	40	3.4%
Entiat	495	612	117	23.6%
Leavenworth	1,241	1,435	194	15.6%
Wenatchee	13,175	14,710	1,535	11.7%
<b>Douglas County</b>	<b>16,004</b>	<b>18,037</b>	<b>2,033</b>	<b>12.7%</b>
East Wenatchee	5,275	5,485	210	4.0%
Rock Island	277	431	154	55.6%
Waterville	482	509	27	5.6%
<b>Washington</b>	<b>2,885,677</b>	<b>3,266,997</b>	<b>381,320</b>	<b>13.2%</b>

Source: Washington OFM 2021c.

Rental housing resources are summarized in Table 11. Viewed by county, these estimates suggest that rental housing is available in both counties, with an estimated 843 units available for rent in Chelan County and 102 units available in Douglas County. Viewed by community, Wenatchee and Leavenworth accounted for the majority of units for rent in Chelan County, 171 units and 97 units, respectively. In Douglas County, East Wenatchee accounted for about half of the total units available for rent (Table 11). Additional units classified for seasonal, recreational, or occasional use may also be available in both counties (Table 11).

Rental housing options may also include other special living situations, such as Airbnb units and spare bedrooms in homes that residents would be willing to rent to construction workers. These types of potential housing opportunities are not included in the data presented in Table 11.

**Table 11. Rental Housing, 2019**

Geographic Area	Total Vacant Housing Units <sup>1</sup>	Rental Vacancy Rate <sup>1</sup>	Units Available for Rent <sup>1</sup>	Seasonal, Recreational, or Occasional Use <sup>1,2</sup>
<b>Chelan County</b>	<b>9,309</b>	<b>7.5</b>	<b>843</b>	<b>5,986</b>
Cashmere	177	6.1	30	23
Entiat	97	6.1	9	49
Leavenworth	371	16.1	97	209
Wenatchee	1,066	2.9	171	218
<b>Douglas County</b>	<b>1,739</b>	<b>2.1</b>	<b>102</b>	<b>911</b>
East Wenatchee	247	2.6	52	40
Rock Island	7	0	0	0

Geographic Area	Total Vacant Housing Units <sup>1</sup>	Rental Vacancy Rate <sup>1</sup>	Units Available for Rent <sup>1</sup>	Seasonal, Recreational, or Occasional Use <sup>1,2</sup>
Waterville	71	0	0	25
<b>Washington</b>	<b>258,132</b>	<b>3.6</b>	<b>40,176</b>	<b>94,397</b>

Sources: U.S. Census Bureau 2020f, 2020g.

- All data are annual estimates from the American Community Survey 5-year estimates for 2015-2019.
- Housing units for seasonal, recreational, or occasional use are generally considered to be vacation homes. They are not included in the estimated number of housing units shown here as available for rent.

Temporary housing is also available in the form of hotel and motel rooms. Data compiled by STR Inc., a travel research firm, identified 42 hotels in the nearby communities in August 2018, with a total of almost 2,300 guestrooms (City of Wenatchee 2018). The majority of the hotels were either located in Wenatchee or Leavenworth, with two located in East Wenatchee and one in Cashmere. STR, Inc. compiles data for commercial lodging establishments with at least 15 rooms. They do not count single-room occupancy hotels, most bed and breakfast inns, or short-term rentals like Airbnb. Three new hotels with a combined total of 307 rooms are under construction in Wenatchee and scheduled to open in 2021 (Johnson 2021).

Hotels in Chelan County, which include all but 2 of the 42 nearby hotels identified by STR, Inc., had an occupancy rate of approximately 78 percent in August 2018, with an average year-to-date occupancy from January to August 2018 of 63 percent (City of Wenatchee 2018).

Temporary accommodation in the study area also includes recreational vehicle (RV) parks and campsites. Facilities in Chelan and Douglas counties include 18 RV parks and campgrounds, with a total of 1,300 RV spaces. More than half (10) of the identified RV parks are located in Leavenworth and the total also includes 5 national forest campgrounds and one state park.<sup>1</sup>

**(b) How and where the direct construction and indirect work force would likely be housed. A description of the potential impacts on area hotels, motels, bed and breakfasts, campgrounds and recreational facilities.**

Project construction is expected to begin in January 2023 and require approximately 18 months to complete. On average 300 to 350 workers will be employed on-site with an estimated peak of 400 workers on-site at one time. The non-local share of the workforce is estimated to be approximately 80 to 90 percent, with non-local workers expected to temporarily relocate to the vicinity of the Project for the duration of their employment. As a result an estimated average of 240 to 315 workers are expected to seek temporary accommodation in the Wenatchee MSA, with an estimated peak of 320 to 360.

<sup>1</sup> Data on RV parks and campsites were compiled from a number of online sources, including visitwenatchee.org, goodsam.com, and campgroundreviews.com, as well as individual campground web sites.

Non-local workers are expected to seek a range of temporary accommodations, including rental housing (houses, apartments, mobile homes), hotel/motel rooms, and RV parks/campgrounds, as well as other special living situations such as Airbnb units and spare bedrooms. The review of temporary housing resources presented above indicates that temporary housing resources in the study area include approximately 360 housing units that are vacant and available for rent, with additional units classified for seasonal, recreational, or occasional use that may also be available (Table 11). Temporary housing is also available in the form of hotel and motel rooms. Recent estimates indicate that there are about 2,300 hotel and motel rooms in the vicinity of the Project. Assuming a peak occupancy of 78 percent suggests that approximately 500 rooms are normally empty and available for rent.

This review indicates that existing temporary housing resources in the study area that are normally vacant and available for rent exceed estimated Project construction-related demand. Viewed as a share of the supply of housing units available for rent (360 units) and the normally available supply of hotel and motel rooms (500 rooms), peak demand (320 to 360 workers) would be equivalent to about 37 to 42 percent of the normally available supply. Note that this likely overestimates the number of units that would be required (up to 360 during peak construction) because it assumes that the estimated demand will be single occupancy. In practice, workers are likely to share rental accommodations and also consider sharing hotel/motel rooms to reduce costs.

In addition, temporary accommodation in the study area includes 18 RV parks and campgrounds, with a total of 1,300 RV spaces (see the preceding section). There are also a number of homes for seasonal, recreational, or occasional use in the Project vicinity and workers may seek alternative living situations including Airbnb units and spare bedrooms in homes that residents would be willing to rent to construction workers.

**(c) Whether or not meeting the direct construction and indirect work force’s housing needs might constrain the housing market for existing residents and whether or not increased demand could lead to increased median housing values or median gross rents and/or new housing construction. Describe mitigation plans, if needed, to meet shortfalls in housing needs for these direct and indirect work forces.**

As discussed in the preceding section, the estimated normally available supply of temporary housing resources exceeds estimated construction-related demand and meeting the construction workforce’s housing needs is not expected to constrain the housing market for existing residents or lead to changes in housing values, rents, or new housing construction.

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