

## **TECHNICAL MEMORANDUM**

To: Henry Woltag, ConnectGen  
From: Teifion Rice-Evans and Luke Foelsch  
Subject: Fountain Wind Project Economic and Public Revenue Impact Study; EPS #201094  
Date: April 28, 2023

*The Economics of Land Use*



Fountain Wind, LLC (Applicant) is proposing to construct and operate the Fountain Wind Project (Project), a utility-scale wind turbine project with a generating capacity of up to 205 megawatts (MW). The Project is being developed near the existing Hatchet Ridge wind farm in northeastern Shasta County. The Project is designed to have a useful life of up to 35 years. CG Fountain Wind LLC (CG) has retained Economic & Planning Systems, Inc. (EPS) to estimate the potential economic and public impacts of the Fountain Wind Project in Shasta County.

The primary driver of the cost to construct the Project, and therefore the associated potential economic and public impacts, is the number of turbines that would be constructed. While the proposed Project may consist of up to 48 wind turbines, CG is in the process of assessing different turbine technologies with the largest being up to 7.2 MW each, and has not made a final turbine selection. Given the range of potential turbine sizes and the overall Project size of 205 MW, the Project could ultimately consist of between 29 and 48 wind turbines. For the purposes of this memorandum, a 45-turbine scenario was chosen.

This memorandum is divided into four parts, including a Summary of Key Findings, an Introduction, an explanation of the Economic Impact Analysis Methodology, Economic Impact Analysis and Results, and Public Revenue Impact Analysis and Results. There are two Appendices included at the end. Appendix A contains additional tables pertaining to the analysis. Appendix B contains direct responses to each socioeconomic data request provided by the California Energy Commission (CEC) in its Data Adequacy Worksheet for the Fountain Wind Project.

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## Summary of Key Findings

### 1. The Project is expected to generate substantial one-time construction and ongoing economic activity and associated jobs and worker compensation in Shasta County.

As shown in **Table 1**, in aggregate, Project construction is estimated to generate 450 job years,<sup>1</sup> about \$27 million in employee compensation, and about \$60 million in total economic output/ sales in Shasta County. Project operation will provide 42 ongoing jobs, about \$2.5 million in employee compensation, and just over \$6 million in economic output/ sales activity each year during its 35-year lifetime. Cumulatively over the 35-year period, Project Operations will provide 1,456 job years, \$90.4 million in employee compensation, and \$210.3 million in economic output/ sales activity in the County. The total economic impact values described here and displayed in **Table 1** include direct and multiplier (indirect and induced) effects, which are described in more detail in the body of the memorandum.

**Table 1. Total Employment, Employee Compensation, and Economic Output Impacts in Shasta County**

Project Phase	Employment	Employee Compensation	Economic Output (Rounded)
Construction	450 <sup>1</sup>	\$27,615,632	\$59,605,000
Operations (Annual)	42	\$2,581,811	\$6,009,000
Operations (Lifetime)	1,456 <sup>1</sup>	\$90,363,375	\$210,325,000

\*All values shown represent combined Direct, Indirect, and Induced effects.  
 [1] Job years.

Source: Economic & Planning Systems

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<sup>1</sup> A job-year is defined as one year of work for one person. For example, one person holding a job for 12 months equals one job-year, and two people each holding a job for six months would also equal one job-year.

**2. The Project is expected to generate substantial tax revenues, including one-time and ongoing tax revenues.**

The Project is estimated to generate almost \$65 million in new property tax and local sales tax revenues over the lifetime of the Project (2021-dollar terms). As shown in **Table 2**, the County is expected to receive about \$4 million in one-time County sales and use tax revenues from the construction phase. The Project also is expected to generate about \$60 million in property tax revenues over the life of the Project, an average of about \$1.7M annually.

**Table 2. Summary of Local Sales Tax Revenues**

County Revenues	One-Time <sup>1</sup>	Ongoing Revenues		Lifetime Total (Rounded)
		Annual Avg.	Over 35 Years	
General Property Tax <sup>2</sup>	\$0	\$1,719,240	\$60,173,387	\$60,173,387
Local Sales Taxes <sup>3</sup>	<u>\$3,900,761</u>	=	=	<u>\$3,900,761</u>
<b>Total Revenue</b>	<b>\$3,900,761</b>	<b>\$1,719,240</b>	<b>\$60,173,387</b>	<b>\$64,074,148</b>

[1] Revenues generated prior to and during the construction period.

[2] Represents total property tax revenues over the life of the project as shown in **Table A-2**. Annual value is average over project lifetime.

[3] Includes one-time sales tax on construction material & fixture purchases.

Source: Economic & Planning Systems

**3. \$60M in property tax revenue is estimated to be generated over the lifetime of the Project, accruing to Shasta County, Cities, Special Districts, Redevelopment Property Tax Agencies, the Educational Revenue Augmentation Fund, and Schools.**

The Project is expected to generate an average of about \$1.7 million in property taxes each year and a total of \$60.2 million in total over the 35-year period. Under current tax allocation factors, of this total, about \$7.5 million would accrue to the County, \$4 million to Cities, \$3.4M to Special Districts, \$8.3M to Redevelopment Property Tax, \$9M to the Educational Revenue Augmentation Fund, and \$28.1 million to Schools.

## Introduction

The Fountain Wind Project is a proposed 205-megawatt wind farm in northeastern Shasta County, California, with an anticipated capital cost of about \$362.5 million. **Table 3** below shows the project parameters relevant to this analysis. For the purposes of this analysis, the project is split into two distinct phases, construction and ongoing operations. The construction phase is anticipated to last 24 months and employ almost 200 individuals on-site during peak construction months. Over the 2-year construction phase, the direct on-site employment averages out to 71 full-time equivalent (FTE) positions each year, resulting in 142 total “Job Years” over the 2-year construction phase. CG has signed a letter of commitment with the State Building Trades, resulting in the use of prevailing wage rates in this analysis. The operations phase, or total project lifetime, is expected to have a timeline of 35 years. For a 45-turbine project, CG would anticipate the direct employment of eight full-time employees throughout the project’s lifetime. The jobs noted here include only the direct, on-site jobs created; the additional Project-related jobs are described further below.

**Table 3. Fountain Wind Project Description**

Project Phase	Value	Unit	Source
<u>Construction</u>			
Timeline		24 Months	ConnectGen
Total Direct Job Years		142 Job Years	ConnectGen
Average Annual Compensation	\$83,200		CA DIR <sup>1</sup>
Turbines		45	ConnectGen
Nameplate Capacity		205 MW	ConnectGen
Estimated Project Assessed Value	\$362,490,282		ConnectGen <sup>2</sup>
<u>Operations</u>			
Timeline		35 Years	ConnectGen
Total Direct Job Years		280 Job Years	ConnectGen
Average Annual Compensation	\$128,000		ConnectGen

[1] Blended prevailing wage rate for related occupations per California Department of Industrial Relations 2020 Prevailing Wage Rates for Shasta County. Blend of wage rates includes Electricians (Comm. & Systems Installer, Comm & Systems Tech, Inside Wireman, and Cable Splicer) and Field Surveyors (Chief of Party, Instrumentman, and Chainman / Rodman).

[2] Value calculated utilizing Cost Approach.

Source: Economic & Planning Systems

**Table 4** presents the number of FTEs (by occupation and craft) anticipated to be required for each month of the two-year construction phase and demonstrates how the 142 direct job years figure is derived. For the operations phase, there will be no craft workers needed, but rather eight full-time workers employed as turbine technicians over the anticipated 35-year lifetime of operations.

**Table 4 Monthly FTEs by Trade during Construction Phase**

Trade	Craft Designation	FTE Projection by Month																								Annual FTEs over Project Lifetime <sup>1</sup>
		Year 1												Year 2												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Site Management & Supervision	N / A	3	3	3	3	4	7	8	8	11	10	8	2	2	2	2	12	14	14	11	10	10	10	9	4	14
Heavy Equipment Operator	Operators	6	6	6	6	6	25	35	35	49	39	4	0	0	0	0	23	27	27	13	13	13	9	7	0	29
Truck Driver	N / A	8	8	8	8	8	15	25	25	27	17	0	0	0	0	0	30	32	32	30	10	10	8	8	0	26
Crane Operator	Operators	0	0	0	0	0	0	2	2	2	0	2	0	0	0	0	12	11	12	12	11	10	0	0	0	6
Rigger	Laborers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	6	6	6	0	0	0	3
Ironworker	Ironworkers	0	0	0	0	0	0	3	6	6	0	0	0	0	0	0	30	30	34	30	30	30	15	0	0	18
WTG Technician	N / A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	6	6	6	16	10	5	6
Lineman	IBEW	0	0	0	0	0	0	0	0	4	4	8	0	0	0	0	20	28	20	8	8	8	0	0	0	9
Electrician	IBEW	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	12	12	0	4	4	2	0	0	4
Concreter	50% Laborers, 50% Carpenters	0	0	0	0	0	0	5	10	14	8	8	0	0	0	0	0	0	2	0	0	0	0	0	0	4
Labourer	Laborers	5	5	5	5	5	5	10	10	25	20	10	0	0	0	0	23	33	33	18	18	18	13	8	0	22
HVAC	N / A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	2	0	0	1
<b>Total FTEs</b>		<b>22</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>23</b>	<b>52</b>	<b>88</b>	<b>96</b>	<b>138</b>	<b>98</b>	<b>46</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>168</b>	<b>199</b>	<b>198</b>	<b>134</b>	<b>120</b>	<b>119</b>	<b>75</b>	<b>42</b>	<b>9</b>	<b>142</b>
<b>Total Craft FTEs</b>		<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>30</b>	<b>55</b>	<b>63</b>	<b>100</b>	<b>71</b>	<b>38</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>120</b>	<b>147</b>	<b>146</b>	<b>87</b>	<b>90</b>	<b>89</b>	<b>39</b>	<b>15</b>	<b>0</b>	<b>95</b>

[1] Divides sum of FTE Projection by Month values by 12 to derive annual FTE equivalents over the entire Project lifetime.

Source: ConnectGen; Economic & Planning Systems

## Study Area Socioeconomic Overview

The Fountain Wind Project’s proposed location is in unincorporated Shasta County and, as result, Shasta County was selected as the appropriate study area. This section provides an overview of the study area and its economic base and fiscal resources, as well as information on identified communities nearest to the project site.

### Economic Base

**Table 5** displays 2021 Shasta County employment and economic output by industry. The predominant employing industries in the county are Health Care and Social Assistance (accounting for 16.3 percent of total employment), Administrative Government (12.2 percent), and Retail Trade (11.5 percent). Economic output reflects the value of production by industry in a given year. As shown, the industries with the largest 2021 economic outputs in Shasta County are Real Estate & Rental (11.8 percent of 2021 countywide output), Health Care and Social Assistance (11.4 percent), and Manufacturing (10.6 percent).

**Table 5 Shasta County Employment and Economic Output by Industry**

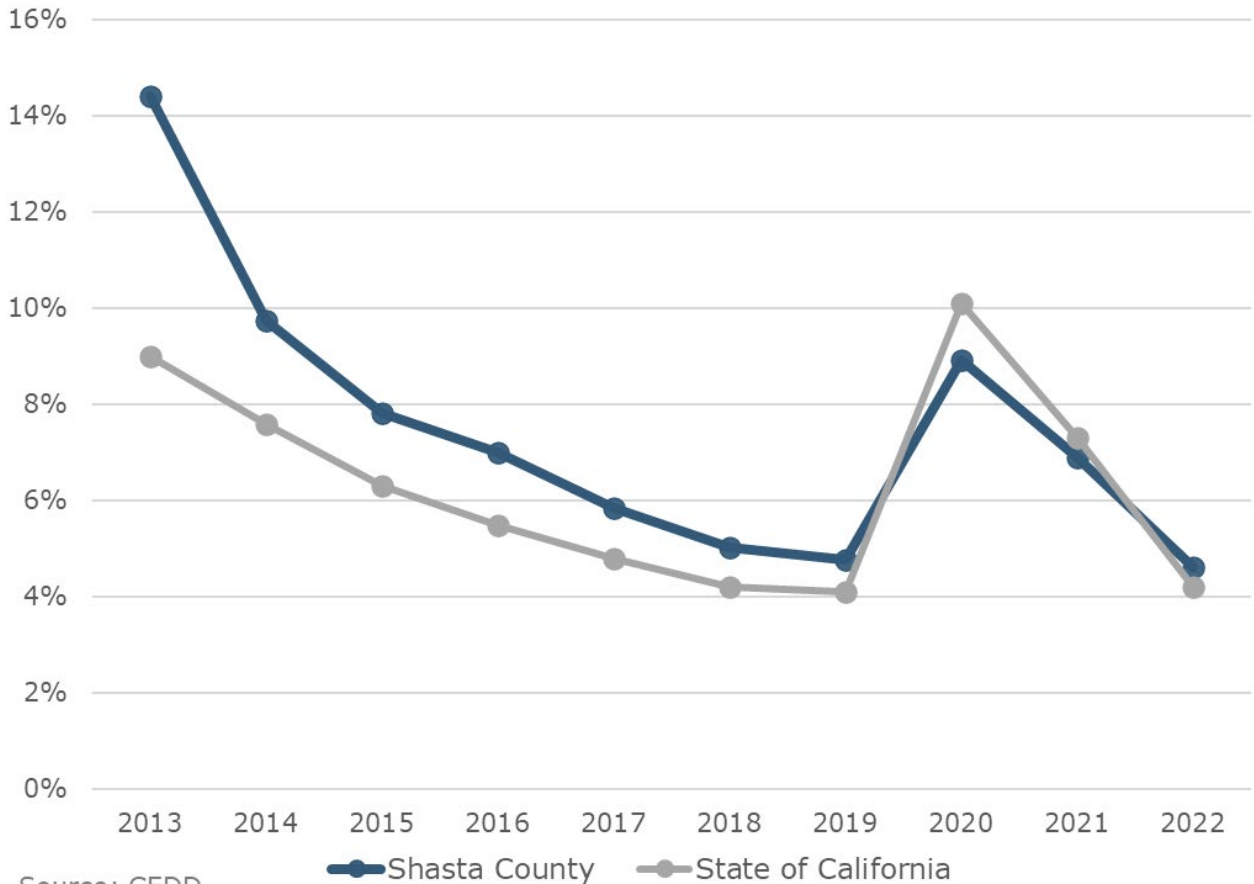
NAICS Industry	Total Employment		Economic Output	
	#	%	#	%
Ag., Forestry, Fishing & Hunting	2,610	3.0%	\$122,484,507	0.8%
Mining	188	0.2%	\$105,793,559	0.7%
Utilities	233	0.3%	\$350,486,738	2.4%
Construction	6,380	7.3%	\$1,085,743,261	7.3%
Manufacturing	3,447	3.9%	\$1,568,177,271	10.6%
Wholesale Trade	1,954	2.2%	\$1,050,566,374	7.1%
Retail Trade	10,116	11.5%	\$1,232,298,984	8.3%
Transportation & Warehousing	2,872	3.3%	\$386,437,898	2.6%
Information	710	0.8%	\$381,031,398	2.6%
Finance & Insurance	3,294	3.7%	\$918,951,590	6.2%
Real Estate & Rental	3,323	3.8%	\$1,760,567,731	11.8%
Professional-Scientific & Tech. Svcs.	4,552	5.2%	\$636,176,757	4.3%
Management of Companies	585	0.7%	\$151,967,114	1.0%
Admin. & Support and Waste Mgmt. and Rem. Svcs.	4,438	5.1%	\$456,676,039	3.1%
Educational Services	1,202	1.4%	\$69,901,309	0.5%
Health Care and Social Assistance	14,363	16.3%	\$1,700,131,096	11.4%
Arts, Entertainment & Recreation	1,583	1.8%	\$90,803,011	0.6%
Accommodation & Food Services	7,603	8.7%	\$683,521,767	4.6%
Other Services (except Public Administration)	6,466	7.4%	\$525,747,761	3.5%
Government Enterprises	1,198	1.4%	\$352,737,547	2.4%
Administrative Government	10,749	12.2%	\$1,227,666,389	8.3%
<b>Total</b>	<b>87,864</b>	<b>100%</b>	<b>\$14,857,868,102</b>	<b>100%</b>

Source: IMPLAN 2021 Data; Economic & Planning Systems

**Figure 1** shows annual unemployment rates in Shasta County and statewide from 2013-2022. Following the 2008-09 recession, statewide unemployment rates were still high in 2013 at nine percent, but particularly high in Shasta County, where over 14 percent of the labor force was unemployed. In the years since, the county recovered rapidly and by 2019 had reduced unemployment to about 5 percent, only slightly above the statewide rate at the time. The 2020 pandemic left many unemployed, and the statewide unemployment rate eclipsed that of Shasta County. In the last two years, unemployment rates have dropped to pre-pandemic levels, and in

2022 the unemployment rate in the county and state were both approximately five percent. According to the California Employment Development Department, the most recent data for Shasta County (March 2023) indicates the county unemployment rate is 5.9 percent.

**Figure 1 Ann. Avg. Unemployment Rates – Shasta County and the State of California**



### Fiscal Resources

The local agency with taxing authority is Shasta County. **Table 6** presents Shasta County's total change in net position for both governmental and business-type activities for Fiscal Years (FY) 2021 and 2022. In 2022, the County had almost \$420 million in revenue, a decrease of about one percent from \$425 million in 2021. However, the County's expenses decreased by six percent in 2022, \$358 million compared to \$381 in 2021. This resulted in the County having a positive \$62 million change in position in 2022, as compared to \$44 million in 2021.

**Table 6 Shasta County Change in Net Position – Total Activities (in thousands)**

Item	FY2021	FY2022
<b>Revenues</b>		
Charges for Services	\$38,772	\$42,498
Operating Grants/Contributions	\$320,265	\$334,333
Capital Grants/Contributions	\$5,406	\$4,112
Property Taxes	\$31,624	\$33,858
Sales and Use Taxes	\$5,148	\$5,849
Other Taxes	\$3,565	\$3,191
Interest and Investment Earnings	\$4,010	(\$9,882)
Miscellaneous	<u>\$15,727</u>	<u>\$5,186</u>
<b>Total Revenues</b>	<b>\$424,517</b>	<b>\$419,145</b>
<b>Expenses</b>		
General Government	\$17,865	\$19,423
Public Protections	\$108,227	\$92,419
Public Ways and Facilities	\$20,095	\$22,321
Health and Sanitation	\$96,199	\$86,393
Public Assistance	\$130,709	\$124,803
Education	\$1,784	\$1,743
Recreation	\$163	\$171
Interest on Debt	\$1,610	\$1,557
Fall River Mills Airport	\$354	\$319
West Central Landfill	(\$994)	\$2,478
Solid Waste Disposal	\$1,741	\$1,832
Shasta County Transit	\$701	\$734
County Service Areas (Water/Sewer)	<u>\$2,540</u>	<u>\$3,127</u>
<b>Total Expenses</b>	<b>\$380,994</b>	<b>\$357,320</b>
Change in Position	\$43,523	\$61,825

\*Values shown in thousands

Source: 2022 Shasta County Final Annual Comprehensive Financial Report

**Table 7** shows the County’s actual General Funds revenues in FY 2022 and the projected General Fund revenues in FY 2023. As shown, Intergovernmental Revenues are the largest source of revenue for Shasta County’s General Fund. Taxes are the second largest funding source, accounting for 22 percent of General Fund revenues in FY 2022. Total General Fund revenues are anticipated to decrease in FY 2023 from the previous year due primarily to a drop in Intergovernmental Revenues and the \$18 million residual equity transfer in FY 2022, which is an infrequent and non-recurring transfer.



**Table 7 Shasta County General Fund Financing Sources**

Description	FY2021-22 Actual		FY2022-23 Adopted	
	#	%	#	%
<b>General Fund Revenues</b>				
Taxes	\$39,978,900	22%	\$36,148,774	23%
Licenses, Permits, Franchises	\$5,694,091	3%	\$5,500,125	3%
Fines, Forfeitures, Penalties	\$5,525,743	3%	\$3,357,950	2%
Revenue from Money & Property	(\$4,990,813)	-3%	\$1,993,453	1%
Intergovernmental Revenues	\$84,104,115	46%	\$78,959,213	50%
Charges for Services	\$17,355,208	9%	\$16,175,409	10%
Miscellaneous Revenues	\$3,234,268	2%	\$2,629,470	2%
Other Financing Sources	\$13,847,951	8%	\$13,903,011	9%
Residual Equity Transfers	\$18,000,000	10%	\$0	0%
<b>Total Revenues</b>	<b>\$182,749,463</b>	<b>100%</b>	<b>\$158,667,405</b>	<b>100%</b>

Source: Shasta County Adopted Budget Fiscal Year 2022-2023

## Demographics

**Table 8** displays 2021 Census data on population, poverty, and minority percentages for Shasta County, Burney Census-Designated Place (CDP), Johnson Park CDP, Round Mountain CDP, Montgomery Creek CDP, the Redding-Red Bluff Combined Statistical Area (CSA), and four nearby Tribal Areas. The Census Bureau makes poverty determinations based on pre-tax family income and varies the threshold by family size and composition. As shown, 14.2 percent of Shasta County's population is considered to be below the poverty threshold, and 16.7 percent are considered to be minorities.

**Table 8 Selected Demographics for Nearby Communities**

Geography	Total Population	Percent of Population below Poverty Level	Percent Minority Population
Shasta County	181,935	14.2%	16.7%
Redding-Red Bluff Combined Statistical Area	247,280	15.2%	17.4%
<u>CDPs:</u>			
Burney CDP	3,377	19.0%	14.1%
Johnson Park CDP	872	16.7%	0.8%
Round Mountain CDP	112	15.2%	34.8%
Montgomery Creek CDP	196	9.1%	38.3%
<u>Tribal Areas:</u>			
Big Bend Rancheria	6	100%	100%
Roaring Creek Rancheria	10	20%	80%
Pit River Trust Lands <sup>1</sup>	N / A	N / A	N / A
Montgomery Creek Rancheria	6	67%	100%

[1] Census data not available for this geography.

Source: ACS 2021 5-Year Estimates Tables DP05, S1701, and S0601; Economic & Planning Systems

## Economic Impact Analysis Methodology

Regional economic impact analysis and Input-Output (I/O) models in particular provide a means to estimate total effects stemming from a particular industry or activity, and yield estimates of the number and types of jobs created, the wages associated with those jobs, and the total economic output or “final sales” generated within various industries. I/O models rely on economic “multipliers” that mathematically represent the relationship between the initial change in one sector of the economy and the effect of that change on other interdependent industry sectors, corresponding changes in demand for inputs to *those* sectors, and so on. These effects are commonly described as “direct,” “indirect,” or “induced” and are generally defined as follows:

- The “direct” effect is the initial change in economic activity in a specific industry or sector. For example, economic activities (business revenues, jobs, employee earnings) occurring at the Fountain Wind Project site would represent the direct impact on the Shasta County economy.
- The “indirect” effect results from industry-to-industry transactions required to support the direct activity. This effect is a measure of the change in the output of suppliers linked to the industry that is being evaluated. For example, the construction of the new wind project will cause an increase in sales of construction materials, engineering services, and other goods from “business-to-business” suppliers in Shasta County and elsewhere. While the project will create indirect effects in the State overall, for this analysis only indirect effects within Shasta County are estimated. About 38 percent of statewide indirect effects are estimated to be realized within the County; accordingly, the Project will result in significant additional benefits statewide, even though those benefits are not analyzed here.
- The “induced” effect consists of impacts from employee spending in the regional economy. Specifically, the employees of directly and indirectly affected businesses generate this effect by purchasing goods and services in the regional economy (e.g., food, clothing, automobiles, health care, etc.). For this analysis, only induced effects within Shasta County are estimated. As with the indirect effects, there will be additional induced effects felt in the state above and beyond the countywide effects estimated in this analysis. About 42 percent of statewide induced effects are estimated to be realized within the County.

The total economic impact is the sum of the direct, indirect, and induced effects and measures the impact of an activity as it “ripples” through the economy.

### Initial JEDI Modeling

This economic impact analysis utilized the US Department of Energy’s Jobs and Economic Development Impact (JEDI) input-output (I/O) model.<sup>2</sup> Based on the model’s default inputs and project-specific inputs, the JEDI model estimates the number of jobs and economic impacts to a local area (state, region, or county) that could reasonably be supported by a power generation project.

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<sup>2</sup> NREL “Jobs and Economic Development Impact (JEDI) Model R: W9.14.19” downloaded in November 2020.

First developed by the U.S. Department of Energy, National Renewable Energy Laboratory's (NREL) Wind Powering America program to model wind energy jobs and impacts, the JEDI model has been expanded to biofuels, coal, natural gas and solar power plants. JEDI model defaults are based on interviews with industry experts and project developers. Economic multipliers contained within the model are derived from IMPLAN software and state data files.<sup>3</sup> Using model defaults, results are reported on a statewide scale for California. However, the JEDI model can be refined on a county, regional, or national basis by incorporating additional data (not included in the base model). Because Shasta County's economy may have different features than the national or state economy – such as suppliers of different types of Project inputs – and because the interest of this study is to understand the Project's local rather than statewide impacts, EPS has incorporated county-specific data for Shasta County from IMPLAN to modify statewide JEDI results in order to generate results applicable specifically to the County's economy. For this Fountain Wind Project analysis, the model has produced quantitative estimates of the magnitude of regional economic activity resulting from the development and operation of a wind farm in Shasta County, and has estimated those impacts within the County.

### **Adjustments to JEDI Results**

The JEDI model includes a number of industry-standard assumptions that enable users to achieve a rough order-of-magnitude estimate when only a few project parameters are known. CG provided EPS with project-specific values pertaining to total development costs, the number of workers required, and worker compensation. Because EPS had access to project-specific values provided by CG, these JEDI-provided default values were overwritten with more accurate inputs to generate results more tailored to the specifics of the Project. For example, the initial results of the JEDI modeling underestimated the total number of workers during the construction phase and overestimated the total number of workers required for the ongoing operations phase of the Project. These values were adjusted in order to present a more accurate estimation of impacts.

### **Notes on Input-Output Modeling**

The input-output methodology assumes that demand for goods and services by industries or households directly relates to the increase in income and that an increase in demand results in a proportional increase in *local* supply and employment. This assumes fixed linear relationships between input (resource) use and output and between income and consumption. This assumption allows for economic modeling and best estimates of economic impacts, recognizing that, in reality, responses to final demand changes may not occur in direct linear proportions.

Second, I/O models assume that local suppliers have sufficient capacity to respond to changes in final demand by increasing their output and hiring additional workers without shifting any production resources (inputs) from other competing needs. This assumption may not hold in areas with tight labor or capital markets since suppliers may find it difficult to obtain these labor or material inputs or other resources necessary to expand production. However, with an

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<sup>3</sup> IMPLAN is an Input-Output modeling system (software and data) developed by the Minnesota IMPLAN Group, and is widely used in the U.S. for estimating economic impacts across a wide array of industries and economic settings. IMPLAN data from 2019 was used, as it was the most up-to-date data available.

unemployment rate of approximately six percent,<sup>4</sup> and a relatively large geographic area, Shasta County does not appear to be constrained by a tight labor market; as such the model’s assumption is not expected to affect the accuracy of the results at this time. Furthermore, it is important to note that I/O modeling does not delineate the origin of labor and whether or not the employees supported by projects would reside within the County or region of interest.

## Economic Impact Analysis and Results

EPS has estimated the economic impacts during the construction phase and operations phase of the Project as summarized in **Table 4**, **Table 5**, and the Appendix. All monetary estimates are in constant 2021 dollars. As shown, the construction phase results in a total economic output of \$59.6 million and the operations phase results in a total economic output of \$6 million annually, totaling \$210 million when considered over the Project’s 35-year lifetime.

**Table 9. Total Economic Impacts of Project Construction**

Type of Impact	Employment (Job Yrs.)	Employee Compensation	Value Added	Economic Output
<u>Construction Phase</u>				
Direct Impacts	142	\$11,814,400	\$10,751,823	\$12,225,676
Indirect Impacts	199	\$9,856,169	\$16,329,826	\$29,654,201
Induced Impacts	<u>109</u>	<u>\$5,945,062</u>	<u>\$10,829,043</u>	<u>\$17,725,195</u>
<b>Total Impacts</b>	<b>450</b>	<b>\$27,615,632</b>	<b>\$37,910,692</b>	<b>\$59,605,072</b>

Source: NREL Jobs and Economic Development Impact (JEDI) Model R: W9.14.18; IMPLAN; Economic & Planning Systems

<sup>4</sup> County unemployment rate in March 2023 per the California Employment Development Department.

**Table 10. Total Economic Impacts of Project Operations**

Type of Impact	Jobs	Employee Compensation	Value Added	Economic Output
<u>Operations Phase (Annual)</u>				
Direct Impacts	8	\$1,024,000	\$1,059,300	\$1,166,312
Indirect Impacts	25	\$1,093,815	\$2,216,629	\$3,490,763
Induced Impacts	9	\$463,996	\$816,014	\$1,352,200
<b>Total Impacts</b>	<b>42</b>	<b>\$2,581,811</b>	<b>\$4,091,943</b>	<b>\$6,009,276</b>
<u>Operations Phase (Lifetime)<sup>1</sup></u>				
Direct Impacts	280 <sup>2</sup>	\$35,840,000	\$37,075,496	\$40,820,928
Indirect Impacts	871 <sup>2</sup>	\$38,283,508	\$77,582,011	\$122,176,699
Induced Impacts	305 <sup>2</sup>	\$16,239,868	\$28,560,499	\$47,327,016
<b>Total Impacts</b>	<b>1,456</b>	<b>\$90,363,375</b>	<b>\$143,218,006</b>	<b>\$210,324,644</b>

[1] Multiplies annual impacts by the 35-year project lifetime.

[2] Values represent job-years.

Source: NREL Jobs and Economic Development Impact (JEDI) Model R: W9.14.18; IMPLAN; Economic & Planning Systems

## Direct Economic Impacts

### *Direct Economic Impacts during the Construction Phase*

**Table 4** summarizes the Project’s estimated direct impacts on employment, employee compensation, and economic output in the County. Onsite construction activities will support employment for a total of about 142 FTEs over the 24-month construction period. These jobs will include electricians, ironmen, and other skilled laborers in addition to general laborers.

### *Direct Economic Impacts during the Operations Phase*

**Table 5** displays the estimated direct impacts of during the Project’s operation phase. Project operations will involve monitoring system status, performance, diagnostics, and planning, as well as preventive maintenance activities and periodic corrective maintenance activities. The developer anticipates that eight full-time employees will be required to manage the Project’s ongoing operations, each earning \$128,000 in annual compensation including benefits, resulting in an annual employee compensation of over \$1 million and a total economic output of \$1.2 million.

## Economic Impacts from Multiplier Effects

Based on the Project’s direct spending on labor as well as required materials and services, additional rounds of spending will occur in the County as well as the State. This analysis focuses on effects specific to Shasta County. It does not review the significant additional effects that will be felt in the State above and beyond those felt in the County. Businesses in the supply chain (providing materials, equipment, and services) will respond to meet the Project’s demand and constitute the Project’s “indirect” effects. Employees’ spending on goods and services for their households —groceries, housing, healthcare, education, etc.—are also expected in the County and constitute the Project’s “induced” effects. In both cases, additional rounds of spending are captured in the impact estimates, such as, for example, the spending of an equipment rental

company owner on maintenance services for her equipment and on groceries for her family. Together, the indirect and induced effects are known as multiplier effects.

### **Indirect Economic Impact**

The Project's indirect impacts were estimated using the JEDI model based on turbine and supply chain impacts during the construction phase and local revenue and supply chain impacts during the operations phase. These initial JEDI outputs were refined using Shasta-specific IMPLAN data and Project-specific data provided by CG.

For both the construction and operations phases, estimated local spending is based on cost estimates for goods and services that are anticipated to be sourced from vendors locally via Shasta-specific industry multiplier effects obtained from IMPLAN modeling. Exemplary purchases would include industrial supplies, business and professional services, labor and materials for periodic improvements (e.g., access road maintenance and weed abatement), and similar costs of doing business, and providers of these goods and services are expected to be available in the County and most convenient and cost-effective to serve the Project. As shown in **Table 4**, the modeling estimates an additional \$29.7 million in indirect "supply chain" output during the construction phase and almost 200 "job years" generated. **Table 5** indicates an estimated \$3.5 million in indirect economic output to occur annually during the operations phase, totaling over \$122 million over the Project's lifetime.

### **Induced Economic Impact**

Induced impacts are based on the conversion of estimated labor incomes into household spending, or the "third round" of economic activity created by the direct impacts and subsequent indirect impacts. Employees of the Project and employees at local businesses indirectly affected by the Project will spend their wages on a variety of goods and services. For example, if an employee at the Project spends her wages on food for her family, part of that spending goes to the retail worker who sells the food, part goes to the trucker who delivers the food, part goes to the farmer who grows the food, and part goes to various intermediaries (processors, wholesalers, transportation companies, etc.). Thus, in aggregate, the spending associated with direct and indirect employees' purchases creates demand for other businesses and helps to support other jobs in the County economy. Using Shasta-specific IMPLAN ratios to tailor the JEDI model ratios of induced jobs and spending, EPS estimated the additional economic impacts that would be generated through the Project's induced effects in the rest of the County.

**Table 4** and **Table 5** show these induced impacts on employment, employee compensation, and economic output during the construction and operation of the Project respectively. To summarize, the induced effects from the construction phase are estimated at 109 "job years" and over \$17 million in economic output. The operations phase is estimated to generate induced impacts of nine jobs and \$1.4 million in economic output annually, totaling \$47.3 million over the Project's lifetime.

## **Public Revenue Impact Analysis and Results**

In addition to the broader economic impacts described in the preceding sections, the Project will also benefit the County by generating new tax revenues summarized in **Table 2**. EPS estimates that the Project will generate approximately \$3.9 million in local sales and use tax from Project construction and over \$60 million in property tax revenues over the Project's lifetime. Based on input from Price Waterhouse Cooper (PWC), the construction sales and use tax estimate assumes the Project will "localize" (i.e., capture) the maximum sales and use taxes on all purchases by establishing a "job site" address for all materials and equipment purchases.

## Local Sales and Use Tax

The total estimated taxable sales generated as a result of Project development is calculated in **Table A-1**. Direct taxable sales are based on the Project's projected taxable purchases, which include materials and fixtures but exclude costs for labor and overhead. The developer can ask Project suppliers and contractors to establish a billing and delivery address at the jobsite in unincorporated Shasta County for sales tax payment on all purchases of equipment and materials for the Project's construction. Without such a "job site" address for the jobsite, only those purchases made at locations in Unincorporated Shasta County would generate sales and use taxes for the County. Per direction from the developer and PWC, EPS has assumed that all such purchases will have the necessary billing and delivery address established and as such the sales tax revenue estimate reflects a situation wherein Shasta County accrues the entirety of sales and use tax revenues applicable to Project construction costs.

The taxable base of the Project's construction cost (materials and fixtures only) is estimated at just over \$312 million. Again, regardless of whether the component materials are purchased in-County, in-State but out of County, or internationally, PWC indicates that these sales should be taxed at the point of use (i.e., at the project site in unincorporated Shasta County) and therefore the total 1.25 percent sales and use tax rate is estimated to accrue to the County, resulting in the \$3.9 million revenue figure shown in **Table A-1**.

## Property Tax Impacts

The California State Board of Equalization publishes guidelines for the assessment of wind energy properties to aid assessors in determining taxable value.<sup>5</sup> The three potential valuation methodologies are the sales comparison approach, the cost approach, and the income approach. As the sales comparison approach is only reliable when comparable sales data exist along with details regarding those sales, this method is not considered for the Fountain Wind project. The cost approach arrives at a value by summing the cost of the land and the construction cost of the improvements, less depreciation, and the income approach arrives at a value through capitalization of the projected income stream of the property. Since it is unclear which method the Shasta County Assessor's Office will utilize for the Fountain Wind project, this analysis uses the cost approach as it requires the fewest additional assumptions.

**Table A-2** estimates the assessed value of the project over the 35 years of its anticipated lifetime and the additional property tax revenues that will be generated by the Project. CG provided an initial total Project taxable valuation of \$362 million based on Project cost estimates and adjusted the Project's taxable value through time due to depreciation. The analysis utilizes a straight-line depreciation method, assuming a 25-year economic life of the Project with a residual value of 20 percent.

This depreciated assessed value will be taxed at the County's general property tax rate of 1 percent, resulting in \$3.5 million in total property tax collected in the first year of operations, gradually falling to \$725,000 by Year 25 and beyond. Cumulatively, this results in aggregate estimated property tax payments of \$60.2M over the Project's lifetime (2021 constant dollars). This full amount is allocated to a range of different taxing entities.

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<sup>5</sup> *Guidelines for the Assessment of Wind Energy Properties*; CA State Board of Equalization, Property Tax Department; June 27, 2017

Based on current tax allocation factors from the Shasta County Auditor-Controller Office: 12.5 percent of the aggregate property tax revenues will flow to the County for a total of \$7.5M over the life of the Project. Six and a half percent is allocated to Cities (\$3.9M over the life of the project), 5.6 percent to Special Districts (\$3.4M lifetime), 13.3 percent to "Redevelopment Property Tax" (\$8.0M lifetime), 15.1 percent to the Educational Revenue Augmentation Fund (\$9.1M lifetime), and the remaining 47 percent is allocated to Schools (\$28.3M lifetime).

### **Retail Sales Impacts**

As discussed above, the "induced" impacts of the Project are generated as employees of the Project (during construction and operations) and employees of the affected supply chain vendors spend their wages in the local economy. These employees will purchase many things for their households, including typical retail expenditures (clothing, groceries, etc.) as well as housing, healthcare, education, and other goods and services. The distribution of household spending by category tends to vary by income level, so **Table A-3** estimates the average wage of the Project's direct, indirect, and induced employees during the construction and operations periods in order to determine the correct spending distribution to apply. Note that these figures differ from the direct compensation values in **Table 3** because they include only the value of actual wages that generate discretionary income and therefore exclude employee benefits, and they are also a weighted average of direct, indirect, and induced wages. **Table A-4** applies typical consumer expenditure pattern data from the United States Bureau of Labor Statistics and illustrates the likely expenditures associated with employees supported directly or indirectly by the Project. As shown, the construction period is estimated to generate \$9.9 million in retail sales and the operations period may generate another \$860,000 in annual retail sales. These additional direct, indirect, and induced potential employee household retail sales tax revenues are not included in the summary sales tax estimate in **Table 2** and are included here for illustrative purposes. Note that not all of these expenditures would be expected to occur within Unincorporated Shasta County.

### **School Impact Fees**

The O&M Building (proposed for parcels 027160047000 and 027140028000) is the only building that is anticipated to be constructed as a part of this project and as such would be subject to applicable school impact fees. The building's proposed location is within the Shasta Union High School District and the Mountain Union Elementary School District. Per the Shasta County Office of Education website, and confirmed via conversation with the Shasta County Office of Education Developer Fee Office, the applicable developer fee would be \$0.78 per square foot for a commercial/industrial building. The High School District is allocated \$0.31 of this, with \$0.47 going to the Elementary School District. The O&M Building would qualify as a commercial/industrial building and at 7,000 square feet, would be subject to a total school impact fee of \$5,460 (\$2,170 going to the High School District and \$3,290 for the Elementary School District).



## About Economic & Planning Systems



**The Firm** Economic & Planning Systems, Inc. (EPS) is a land economics consulting firm experienced in the full spectrum of services related to real estate development, the financing of public infrastructure and government services, land use and conservation planning, and government organization.

**Guiding Principle** EPS was founded on the principle that real estate development and land use-related public policy should be built on realistic assessment of market forces and economic trends, feasible implementation measures, and recognition of public policy objectives, including provisions for required public facilities and services.

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## APPENDIX TABLES