

**Economic Impacts of Proposed
Wind Energy Developments
in the State of Idaho**

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University of Idaho
College of Agricultural and Life Sciences

**Economic Impacts of Proposed Wind Energy
Developments in the State of Idaho**

By

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TABLE OF CONTENTS

I.	Introduction and Summary	1
II.	Bannock County Wind Energy Development.....	3
	A. Construction Impacts on Local Economy	3
	B. Operation Impacts on Local Economy	4
	C. Impacts to Local Property Tax Revenues.....	4
III.	Bonneville and Bingham Counties Wind Energy Development	5
	A. Construction Impacts on Local Economy	5
	B. Operation Impacts on Local Economy	6
	C. Impacts to Local Property Tax Revenues.....	7
IV.	Cassia County Wind Energy Development	8
	A. Construction Impacts on Local Economy	8
	B. Operation Impacts on Local Economy	9
	C. Impacts to Local Property Tax Revenues.....	10
V.	Elmore County Wind Energy Development.....	10
	A. Construction Impacts on Local Economy	10
	B. Operation Impacts on Local Economy	11
	C. Impacts to Local Property Tax Revenues.....	12
VI.	Power County Wind Energy Development	12
	A. Construction Impacts on Local Economy	12
	B. Operation Impacts on Local Economy	13
	C. Impacts to Local Property Tax Revenues.....	14
VII.	Twin Falls County Wind Energy Development.....	14
	A. Construction Impacts on Local Economy	14
	B. Operation Impacts on Local Economy	15
	C. Impacts to Local Property Tax Revenues.....	16
	References	17
	Appendix A:	18
	Economic Impact Estimator for Idaho Wind Energy Projects	18
	Instruction Manual	18

I. Introduction and Summary

Six potential sites for wind energy development projects have been identified in Idaho. These projects range in size from a 100 megawatt facility in Bannock County to a 300 megawatt facility in Twin Falls County. These six projects, if developed, would involve the construction and operation of approximately 1,392 wind turbines with a potential generating capacity of 1,270 megawatts.

The Idaho Department of Water Resources, Energy Division hired the University of Idaho to evaluate the potential economic impacts of constructing and operating the wind plants. An input-output model was used to estimate local economic impacts based on construction and operations data provided by Idaho Department of Water Resources personnel. In input-output models, economic impacts are grouped into three different categories:

Direct impacts. Direct impacts of economic activity in an area are impacts associated with product demand (usually from outside the area) and the local product sales that meet that demand. Direct impacts can include output or product sales (measured in dollars), the jobs and the wages and salaries of the wage earners and proprietors employed by the firm(s) producing and selling the output, and other economic phenomena (value added, taxes) directly associated with demand for the product (or sales of output).

Indirect impacts. Indirect impacts of economic activity are the impacts associated with the in-area purchase of inputs that are needed to produce a product. Indirect impacts can include value of local inputs purchased, the jobs and the wages and salaries of the wage earners and proprietors employed by the firms producing and selling the inputs, and other economic phenomena (value added, taxes, etc.) directly associated with local input providers.

Induced impacts. Induced impacts of economic activity are impacts associated with consumption of local goods and services by proprietors and wage earners employed by –

- local firms generating direct impacts (by producing and selling products),
- local firms generating indirect impacts (by producing and selling inputs), and
- other local firms generating induced impacts.

For example, grocers and car dealers generate induced impacts when they sell groceries and cars to employees of firms selling products outside the area (exporting firms), to employees of firms selling inputs to the exporting firms, and to their own employees (and employees of other retail firms) whose jobs have resulted from sales to exporting and input firms.

For this analysis, input-output based total impacts (aggregations of direct, indirect and induced impacts) of potential wind energy production projects were estimated in terms of value of local output, local employment or number of local jobs, and value of wages and proprietor earnings associated with local jobs. In addition, potential county revenue impacts were estimated “outside” the input-output models. Tax revenues were estimated from the projected construction value of the individual projects and based on information from county tax assessors and the State Tax Commission.

The following are key findings from the analysis:

Construction of the wind plant will result in significant economic benefits in the short-term.

Project Location and Size	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Bannock County (100 MW)	\$ 6,201,552	61	\$ 1,580,254
Bonneville and Bingham Counties			
100 MW	\$ 6,014,265	54	\$ 1,621,559
150 MW	\$ 9,021,397	82	\$ 2,432,339
200 MW	\$ 12,028,530	109	\$ 3,243,119
Cassia County (220 MW)	\$ 11,211,261	114	\$ 2,842,665
Elmore County (300 MW)	\$ 15,037,003	134	\$ 3,752,726
Power County (200 MW)	\$ 9,445,687	92	\$ 2,337,245
Twin Falls County (300 MW)	\$ 17,357,599	180	\$ 4,617,973

Operation of the wind plant will result in significant annual economic benefits in the long-term.

Project Location and Size	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Bannock County (100 MW)	\$ 22,864,049	97	\$ 2,832,126
Bonneville and Bingham Counties			
100 MW	\$ 23,062,477	93	\$ 3,015,929
150 MW	\$ 34,593,716	139	\$ 4,523,893
200 MW	\$ 46,124,955	186	\$ 6,031,858
Cassia County (220 MW)	\$ 54,399,851	215	\$ 6,012,565
Elmore County (300 MW)	\$ 55,173,654	207	\$ 6,577,834
Power County (200 MW)	\$ 41,558,628	150	\$ 4,522,213
Twin Falls County (300 MW)	\$ 68,592,146	306	\$ 8,878,558

Property tax revenues collected within the county will be positively affected.

Project Location and Size	Change Property Tax Revenues
Bannock County (100 MW)	\$ 1,409,338
Bonneville and Bingham Counties	
100 MW	\$ 1,378,705
150 MW	\$ 2,068,057
200 MW	\$ 2,757,409
Cassia County (220 MW)	\$ 2,526,072
Elmore County (300 MW)	\$ 3,248,727
Power County (200 MW)	\$ 0
Twin Falls County (300 MW)	\$ 3,496,061

Details of the analysis by project location are presented in the remainder of the report.

II. Bannock County Wind Energy Development

A 100 megawatt wind facility located in Bannock County, Idaho is currently under consideration. The project is located on state land. The wind resource has a 35 percent capacity factor and an average annual wind speed of 15 miles per hour. The selling price of electricity is assumed to be 4.5 cents per kilowatt hour (kWh) and landlord rent four percent of gross electricity sales.

A. Construction Impacts on Local Economy

The development of a 100 megawatt facility would require construction of 106 wind powered turbines. The wind project development will require significant employment and spending during the construction period, which is assumed to be one year for the purposes of this analysis. Based on size and project characteristics, input parameters were developed for the construction phase of the project and can be seen in Table 2.1.

Table 2.1. Input Parameters for Construction Phase Impacts in Bannock County

Parameter	100 MW Facility
<u>Labor Expenditures</u> (full and part time local construction jobs, management and supervisory jobs)	\$ 1,693,247
<u>Construction Materials</u> (local expenditures for materials)	\$ 8,347,250
<u>Equipment Costs</u> (wind turbines, blades, and towers)	\$ 84,740,000
<u>Other Expenditures</u> (including engineering, interconnection, site permitting, and legal services)	\$ 5,219,503

A Bannock County Economy input-output model was developed to estimate the impacts to the local economy during the construction phase of the project using the above parameters. Direct, indirect, and induced impacts have been combined for the purpose of reporting results.

Table 2.2 reports the estimated impacts resulting from the construction of the 100 megawatt wind facility by industry sector. An estimated 61 additional full and part time jobs in the local economy result from the direct employment of construction workers, managers, and supervisors; *and* the indirect and induced impacts of the construction of the wind facility. Total local employee earnings in the economy increase by an estimated \$1.6 million. Total output in the local economy also increases over the period of construction by \$6.2 million. As would be expected, most of the impacts are experienced in the Construction sector. Other sectors that experience significant impacts resulting from the construction of the wind energy facility are Services; Government; and Transportation, Communications and Public Utilities (TCPU).

Table 2.2. Construction Phase Impacts for Bannock County

Facility Size Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ -	0	\$ -
Mining	\$ -	0	\$ -
Construction	\$ 3,917,220	36	\$ 937,938
Manufacturing	\$ -	0	\$ -
TCPU	\$ 784,440	6	\$ 149,312
Trade	\$ -	0	\$ -
Fire	\$ -	0	\$ -
Services	\$ 749,257	9	\$ 207,522
Government	\$ 750,636	10	\$ 285,482
Households	\$ -	0	\$ -
Total	\$ 6,201,552	54	\$ 1,580,254

B. Operation Impacts on Local Economy

The operation of the wind facility in Bannock County will continue to impact the local economy, even after the construction phase has ended. The impacts resulting from operation were estimated using the increase in electricity sales as the input parameter. The expected revenue from electricity sales from the proposed 100 megawatt facility is \$13,797,000.

An input-output model, including a Wind Energy sector, was developed to estimate the impacts to the local economy of Bannock County from the operation of the wind facility. Direct, indirect, and induced impacts have been combined for the purpose of reporting results. The results of the analysis are reported in Table 2.3.

Table 2.3. Wind Facility Operation Impacts for Bannock County

Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ 36,102	1	\$ 18,474
Mining	\$ 76	0	\$ 31
Construction	\$ 979,636	9	\$ 287,895
Manufacturing	\$ 117,769	1	\$ 27,002
TCPU	\$ 623,938	4	\$ 110,616
Wind	\$13,797,000	22	\$ 994,898
Trade	\$ 769,045	19	\$ 332,038
Fire	\$ 966,688	6	\$ 146,646
Services	\$ 1,214,674	24	\$ 511,567
Government	\$ 488,240	12	\$ 402,959
Households	\$ 3,870,879	0	\$ -
Total	\$22,864,049	97	\$ 2,832,126

The operation of the wind facility will directly add \$13.8 million in additional revenue per year into the economy. These additional revenues generate, in turn, about \$9.1 million of additional output per year in the local economy because of the indirect and induced impacts of operating the wind plant. The operation of the wind plant will require an estimated 22 full and part time jobs. The additional revenue from sales of electricity and corresponding spending on the required jobs and plant equipment will cause an additional 75 jobs to be created in businesses and sectors that support the wind facility. Annual wages experience a corresponding increase of which about \$1 million is directly attributed to operation of the wind facility. An additional increase in the earnings in the local economy of \$1.8 million in supporting sectors is experienced as well.

C. Impacts to Local Property Tax Revenues

Property tax revenues collected within Bannock County are also positively affected by the development of the wind plant. The average rural property tax rate for Bannock County in 2002 was 1.4308 percent. This includes the county general tax, as well as the average levies applied in the county for special districts (such as school and fire districts). Table 2.4 shows the estimated impacts of the wind energy facility on local property tax revenues, assuming that the average county tax rate is the applicable rate for the generating facility. The taxable value of the 100 megawatt facility is estimated to be \$98.5 million, resulting in an estimated increase of local property tax revenues equal to \$1,409,338. The county could choose to maintain their current level of spending and use the increased property tax base to reduce current property tax rates, in which case the benefit accrued would be less due to a decreased property tax rate applied to the taxable value.

Table 2.4. Estimated Impacts to Local Property Tax Revenues

Tax Rate		Taxable Value		Local Tax Revenue Impact	
1.4308 %	x	\$98.5 million	=	\$1,409,338	

III. Bonneville and Bingham Counties

A 100 to 200 megawatt wind facility located 15 miles southeast of Idaho Falls, Idaho is currently under consideration. The project is located on private land and the developer is Ridgeline Airtricity. The wind resource has a 35 percent capacity factor and an average annual wind speed of 15 miles per hour. The selling price of electricity is assumed to be 4.5 cents per kWh and landlord rent four percent of gross electricity sales. For the purposes of this analysis, the impacts are estimated for alternative facilities of 100 megawatts, 150 megawatts, and 200 megawatts.

A. Construction Impacts on Local Economy

The development of a 100 megawatt facility would require construction of 106 wind powered turbines. Similarly a 150 megawatt facility would require construction of 158 turbines, and a 200 megawatt facility would require 211 turbines. Each of these scenarios will involve significant employment and spending during the construction period, which is assumed to be one year for the purposes of this analysis. Based on size and project characteristics, input parameters were developed for the construction phase of the project and can be seen in Table 3.1. Direct, indirect, and induced impacts have been combined for the purpose of reporting results.

Table 3.1. Input Parameters for Construction Phase Impacts in Bonneville and Bingham Counties

Parameter	100 MW Facility	150 MW Facility	200 MW Facility
<u>Labor Expenditures</u> (full and part time local construction jobs, management and supervisory jobs)	\$ 1,693,247	\$ 2,539,871	\$ 3,386,494
<u>Construction Materials</u> (local expenditures for materials)	\$ 8,347,250	\$ 12,520,875	\$ 16,694,501
<u>Equipment Costs</u> (wind turbines, blades, and towers)	\$84,740,000	\$127,110,000	\$169,480,000
<u>Other Expenditures</u> (including engineering, interconnection, site permitting, and legal services)	\$ 5,219,503	\$ 7,829,254	\$ 10,439,005

Table 3.2 reports the estimated impacts that would result from construction of the wind facility, by industry sector, for each of the facility sizes identified within the 100 to 200 megawatt range. As reported in the table, the estimated change in local employment resulting from the direct employment of construction workers, managers, and supervisors, as well as the employment occurring as a result of the indirect and induced impacts of the construction of the wind facility ranges from 54 full and part time jobs resulting from construction of the 100 megawatt facility to 109 jobs resulting from construction of the 200 megawatt facility. Total local employee earnings in the economy experience an increase ranging from about \$1.6 million to just over \$3.2 million, depending on the size of the project. Total output in the local economy also increases over the period of construction and ranges from \$6 million for the 100 megawatt facility to \$12 million for the 200 megawatt facility. Most of the impacts are experienced in the Construction sector. Other sectors that experience significant impacts resulting from the construction of the wind energy facility are Services; Government; and TCPU.

Table 3.2. Construction Phase Impacts for Bonneville and Bingham Counties

Facility Size Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
100 MW Facility	\$ 6,014,265	54	\$ 1,621,559
Agriculture	\$ -	0	\$ -
Mining	\$ -	0	\$ -
Construction	\$ 3,751,512	32	\$ 932,658
Manufacturing	\$ -	0	\$ -
TCPU	\$ 793,698	6	\$ 181,105
Trade	\$ -	0	\$ -
Fire	\$ -	0	\$ -
Services	\$ 757,735	8	\$ 239,302
Government	\$ 711,320	9	\$ 268,494
Households	\$ -	0	\$ -
150 MW Facility	\$ 9,021,397	82	\$ 2,432,339
Agriculture	\$ -	0	\$ -
Mining	\$ -	0	\$ -
Construction	\$ 5,627,268	48	\$ 1,398,988
Manufacturing	\$ -	0	\$ -
TCPU	\$ 1,190,546	9	\$ 271,658
Trade	\$ -	0	\$ -
Fire	\$ -	0	\$ -
Services	\$ 1,136,603	12	\$ 358,953
Government	\$ 1,066,981	13	\$ 402,740
Households	\$ -	0	\$ -
200 MW Facility	\$12,028,530	109	\$ 3,243,119
Agriculture	\$ -	0	\$ -
Mining	\$ -	0	\$ -
Construction	\$ 7,503,023	64	\$ 1,865,317
Manufacturing	\$ -	0	\$ -
TCPU	\$ 1,587,395	12	\$ 362,210
Trade	\$ -	0	\$ -
Fire	\$ -	0	\$ -
Services	\$ 1,515,471	16	\$ 478,604
Government	\$ 1,422,641	17	\$ 536,987
Households	\$ -	0	\$ -

B. Operation Impacts on Local Economy

The operation of the wind facility in Bonneville and Bingham counties will continue to impact the local economy after the construction phase has ended. Impacts resulting from operation were estimated using the increase in electricity sales as the input parameter. The following estimates of the increase in electricity sales were based on the facility size.

	<u>100 MW Facility</u>	<u>150 MW Facility</u>	<u>200 MW Facility</u>
Revenue from Electricity Sales:	\$13,797,000	\$20,695,500	\$27,594,000

An input-output model, including a Wind Energy sector, was developed to estimate the impacts to the local economy of Bonneville and Bingham Counties from the operation of the wind facility. Direct, indirect, and induced impacts have been combined for the purpose of reporting results. Results of the analysis are reported in Table 3.3.

The operation of the wind facility will directly add about \$13.8 million (100 megawatt facility) to about \$27.6 million (200 megawatt facility) in additional revenue per year into the economy. These additional revenues generate, in turn, about \$9.3 million to \$18.5 million of additional

output per year in the local economy because of the indirect and induced impacts of operating the wind plant. The operation of the wind plant will require 22 to 44 full and part time jobs depending on the size of the facility. Revenue from sales of electricity and corresponding spending on the required jobs and plant equipment will cause an additional 71 to 142 jobs to be created in businesses and sectors that support the wind facility. Annual wages will experience a corresponding increase of which \$1 million (100 megawatt facility) to \$2 million (200 megawatt facility) will be directly attributed to operation of the wind facility. An increase in the earnings in the local economy of \$2 million to \$4 million in supporting sectors is also expected.

Table 3.3. Wind Facility Operation Impacts for Bonneville and Bingham Counties

Facility Size Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
100 MW Facility	\$23,062,477	93	\$ 3,015,929
Agriculture	\$ 34,734	1	\$ 10,320
Mining	\$ 88	0	\$ 35
Construction	\$ 982,631	9	\$ 291,033
Manufacturing	\$ 183,882	1	\$ 33,865
TCPU	\$ 579,561	4	\$ 145,429
<i>Wind</i>	<i>\$13,797,000</i>	<i>22</i>	<i>\$ 994,898</i>
Trade	\$ 737,968	16	\$ 317,665
Fire	\$ 966,702	6	\$ 129,270
Services	\$ 1,354,445	22	\$ 711,283
Government	\$ 498,179	11	\$ 382,131
Households	\$ 3,927,288	0	\$ -
150 MW Facility	\$34,593,716	139	\$ 4,523,893
Agriculture	\$ 52,101	1	\$ 15,480
Mining	\$ 132	0	\$ 53
Construction	\$ 1,473,946	13	\$ 436,549
Manufacturing	\$ 275,823	2	\$ 50,798
TCPU	\$ 869,341	7	\$ 218,144
<i>Wind</i>	<i>\$20,695,500</i>	<i>33</i>	<i>\$ 1,492,347</i>
Trade	\$ 1,106,952	25	\$ 476,497
Fire	\$ 1,450,052	9	\$ 193,905
Services	\$ 2,031,667	34	\$ 1,066,925
Government	\$ 747,268	17	\$ 573,196
Households	\$ 5,890,932	0	\$ -
200 MW Facility	\$46,124,955	186	\$ 6,031,858
Agriculture	\$ 69,468	1	\$ 20,640
Mining	\$ 176	0	\$ 70
Construction	\$ 1,965,261	18	\$ 582,066
Manufacturing	\$ 367,764	2	\$ 67,730
TCPU	\$ 1,159,122	9	\$ 290,858
<i>Wind</i>	<i>\$27,594,000</i>	<i>44</i>	<i>\$ 1,989,796</i>
Trade	\$ 1,475,936	33	\$ 635,329
Fire	\$ 1,933,403	12	\$ 258,539
Services	\$ 2,708,890	45	\$ 1,422,566
Government	\$ 996,358	23	\$ 764,262
Households	\$ 7,854,576	0	\$ -

C. Impacts to Property Tax Revenues

Property tax revenues collected within Bonneville and Bingham counties are also positively affected by the development of the wind plant. The average rural property tax rate for Bonneville and Bingham counties in 2002 was 1.3997 percent. This includes the county general tax, as well as the average levies applied in the county for special districts (such as school and fire districts). Table 3.4 shows the estimated impacts of the wind energy facility on local

property tax revenues, assuming that the average county tax rate is the applicable rate for the generating facility. The taxable value of the 100 megawatt facility is estimated to be \$98.5 million, resulting in an estimated increase of local property tax revenues equal to \$1,409,338. The estimated increases in local property taxes for the 150 and 200 megawatt facilities are \$2,068,057 and \$2,757,409, correspondingly. The county could choose to maintain their current level of spending and use the increased property tax base to reduce current property tax rates, in which case the benefit accrued would be less due to a decreased property tax rate applied to the taxable value.

Table 3.4. Estimated Impacts to Local Property Tax Revenues

Project Size	Tax Rate	Taxable Value	Local Tax Revenue Impact
100 MW		\$ 98.5 million =	\$1,378,705
150 MW	1.3997 % x	\$147.75 million =	\$2,068,057
200 MW		\$197 million =	\$2,757,409

IV. Cassia County

A 220 megawatt wind facility located near the Cottoral area of Cassia County, Idaho is currently under consideration. The project is located on federal land. The wind resource has a 40 percent capacity factor and an average annual wind speed of 18 miles per hour. The selling price of electricity is assumed to be 4.5 cents per kWh and landlord rent four percent of gross electricity sales.

A. Construction Impacts on Local Economy

The development of a 220 megawatt facility would require construction of 232 wind powered turbines. The wind project development will require significant employment and spending during the construction period, which is assumed to be one year for the purposes of this analysis. Based on size and project characteristics, input parameters were developed for the construction phase of the project and can be seen in Table 4.1.

Table 4.1. Input Parameters for Construction Phase Impacts in Cassia County

Parameter	220 MW Facility
Labor Expenditures (full and part time local construction jobs, management and supervisory jobs)	\$ 3,725,144
Construction Materials (local expenditures for materials)	\$ 18,363,951
Equipment Costs (wind turbines, blades, and towers)	\$ 186,428,000
Other Expenditures (including engineering, interconnection, site permitting, and legal services)	\$ 11,482,906

A Cassia County Economy input-output model was developed to estimate the impacts to the local economy during the construction phase of the project using the above parameters. Direct, indirect, and induced impacts have been combined for the purpose of reporting results.

Table 4.2 reports the estimated impacts that would result from the construction of the 220 megawatt wind facility, by industry sector. An estimated 114 additional full and part time jobs in the local economy would result from the direct employment of construction workers, managers, and supervisors; *and* the indirect and induced impacts of the construction of the wind facility. Total local employee earnings in the economy increase by an estimated \$2.8 million. Total output in the local economy would also increase over the period of construction and is estimated to be \$11 million. As would be expected, most of the impacts are experienced in the

Construction sector. Other sectors that experience significant impacts resulting from the construction of the wind energy facility are Services; Government; and TCPU.

Table 4.2. Construction Phase Impacts for Cassia County

Facility Size Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ -	0	\$ -
Mining	\$ -	0	\$ -
Construction	\$ 6,958,920	62	\$ 1,606,716
Manufacturing	\$ -	0	\$ -
TCPU	\$ 1,493,752	11	\$ 315,223
Trade	\$ -	0	\$ -
Fire	\$ -	0	\$ -
Services	\$ 1,352,357	21	\$ 383,141
Government	\$ 1,406,232	20	\$ 537,585
Households	\$ -	0	\$ -
Total	\$11,211,261	114	\$ 2,842,665

B. Operation Impacts on Local Economy

The operation of the wind facility in Cassia County will continue to impact the local economy after the construction phase has ended. Impacts resulting from operation were estimated using the increase in electricity sales as the input parameter. The expected revenue from electricity sales from the proposed 220 megawatt facility is \$34,689,600.

An input-output model, including a Wind Energy sector, was developed to estimate the impacts to the local economy of Cassia and Minidoka Counties from the operation of the wind facility. Direct, indirect, and induced impacts have been combined for the purpose of reporting results. Results of the analysis are reported in Table 4.3.

Table 4.3. Wind Facility Operation Impacts for Cassia County

Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ 137,282	1	\$ 25,884
Mining	\$ 999	0	\$ 362
Construction	\$ 2,455,615	23	\$ 696,816
Manufacturing	\$ 316,368	1	\$ 47,397
TCPU	\$ 1,444,868	11	\$ 358,854
<i>Wind</i>	\$34,689,600	48	\$ 2,188,776
Trade	\$ 1,477,103	34	\$ 642,925
Fire	\$ 1,914,042	12	\$ 198,953
Services	\$ 2,140,992	52	\$ 927,478
Government	\$ 1,206,315	33	\$ 925,121
Households	\$ 8,616,665	0	\$ -
Total	\$54,399,851	215	\$ 6,012,565

The operation of the wind facility will directly add about \$34.7 million in additional revenue per year into the economy. Those additional revenues generate, in turn, about \$19.7 million of additional output per year in the local economy because of the indirect and induced impacts of operating the wind plant. The operation of the wind plant will require an estimated 48 full and part time jobs. Revenue from sales of electricity and corresponding spending on the required jobs and plant equipment will cause about 167 additional jobs to be created in businesses and sectors that support the wind facility. Annual wages will experience a corresponding increase of which \$2.2 million will be directly attributed to operation of the wind facility. An additional

increase in the earnings in the local economy of \$3.8 million in supporting sectors is also expected.

C. Impacts to Property Tax Revenues

Property tax revenues collected within Cassia County are also positively affected by the development of the wind plant. The average rural property tax rate for Cassia County in 2002 was 1.1657 percent. This includes the county general tax, as well as the average levies applied in the county for special districts (such as school and fire districts). Table 4.4 shows the estimated impacts of the wind energy facility on local property tax revenues, assuming that the average county tax rate is the applicable rate for the generating facility. The taxable value of the 220 megawatt facility is estimated to be \$216.7 million, resulting in an estimated increase of local property tax revenues equal to \$2,526,072. The county could choose to maintain their current level of spending and use the increased property tax base to reduce current property tax rates, in which case the benefit accrued would be less due to a decreased property tax rate applied to the taxable value.

Table 4.4. Estimated Impacts to Local Property Tax Revenues

Tax Rate		Taxable Value		Local Tax Revenue Impact	
1.1657 %	x	\$216.7 million	=	\$2,526,072	

V. Elmore County

A 300 megawatt wind facility located in Elmore County, Idaho is currently under consideration. The project is located on state land. The wind resource has a 30 percent capacity factor and an average annual wind speed of 12.8 miles per hour. The selling price of electricity is assumed to be 4.5 cents per kWh and landlord rent four percent of gross electricity sales.

A. Construction Impacts on Local Economy

The development of a 300 megawatt facility would require construction of 316 wind powered turbines. The wind project development will require significant employment and spending during the construction period, which is assumed to be one year for the purposes of this analysis. Based on size and project characteristics, input parameters were developed for the construction phase of the project and can be seen in Table 5.1.

Table 5.1. Input Parameters for Construction Phase Impacts in Elmore County

Parameter	300 MW Facility
<u>Labor Expenditures</u> (full and part time local construction jobs, management and supervisory jobs)	\$ 5,079,741
<u>Construction Materials</u> (local expenditures for materials)	\$ 25,041,751
<u>Equipment Costs</u> (wind turbines, blades, and towers)	\$ 254,220,000
<u>Other Expenditures</u> (including engineering, interconnection, site permitting, and legal services)	\$ 15,658,508

An Elmore County Economy input-output model was developed to estimate the impacts to the local economy during the construction phase of the project using the above parameters. Direct, indirect, and induced impacts have been combined for the purpose of reporting results.

Table 5.2 reports the estimated impacts that would result from the construction of the 300 megawatt wind facility, by industry sector. An estimated 134 additional full and part time jobs in the local economy result from the direct employment of construction workers, managers, and

supervisors; and the indirect and induced impacts of the construction of the wind facility. Total local employee earnings in the economy increase by an estimated \$3,752,726. Total output in the local economy would also increase over the period of construction by an estimated \$15 million. Most of the impacts would be experienced in the Construction sector. Other sectors that experience significant impacts resulting from the construction of the wind energy facility are Services; Government; and TCPU.

Table 5.2 Construction Phase Impacts for Elmore County

Facility Size Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ -	0	\$ -
Mining	\$ -	0	\$ -
Construction	\$ 9,648,140	81	\$ 2,309,129
Manufacturing	\$ -	0	\$ -
TCPU	\$ 1,971,900	12	\$ 413,549
Trade	\$ -	0	\$ -
Fire	\$ -	0	\$ -
Services	\$ 1,766,332	27	\$ 470,289
Government	\$ 1,650,631	14	\$ 559,758
Households	\$ -	0	\$ -
Total	\$15,037,003	134	\$ 3,752,726

B. Operation Impacts on Local Economy

The operation of the wind facility in Elmore County will continue to impact the local economy, even after the construction phase has ended. Impacts resulting from operation were estimated using the increase in electricity sales as the input parameter. The expected revenue from electricity sales from the proposed 300 megawatt facility is \$35,478,000.

An input-output model, including a Wind Energy sector, was developed to estimate impacts to the local economy of Elmore County from the operation of the wind facility. Direct, indirect, and induced impacts have been combined for the purpose of reporting results. The results of the analysis are reported in Table 5.3.

Table 5.3 Wind Facility Operation Impacts for Elmore County

Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ 81,267	1	\$ 32,960
Mining	\$ 3,411	0	\$ 483
Construction	\$ 2,478,536	22	\$ 765,468
Manufacturing	\$ 494,694	4	\$ 140,885
TCPU	\$ 1,143,976	7	\$ 276,941
Wind	\$35,478,000	66	\$ 2,984,694
Trade	\$ 1,260,405	34	\$ 546,780
Fire	\$ 1,939,450	7	\$ 139,635
Services	\$ 1,954,733	47	\$ 764,313
Government	\$ 1,557,888	19	\$ 925,675
Households	\$ 8,781,294	0	\$ -
Total	\$55,173,654	207	\$ 6,577,834

The operation of the wind facility will directly add about \$35.5 million in additional revenue from electricity sales per year into the economy. These additional revenues generate, in turn, about \$19.7 million of additional output per year in the local economy because of the indirect and induced impacts of operating the wind plant. The operation of the wind plant will require an estimated 66 full and part time jobs. Revenue from sales of electricity and corresponding

spending on the required jobs and plant equipment will cause about 141 additional jobs to be created in businesses and sectors that support the wind facility. Annual wages will experience a corresponding increase of which nearly \$3 million will be directly attributed to operation of the wind facility. An additional increase in the earnings in the local economy of \$3.6 million in supporting sectors is also expected.

C. Impacts to Property Tax Revenues

Property tax revenues collected within Elmore County are also positively affected by the development of the wind plant. The average rural property tax rate for Elmore County in 2002 was 1.0994 percent. This includes the county general tax, as well as the average levies applied in the county for special districts (such as school and fire districts). Table 5.4 shows the estimated impacts of the wind energy facility on local property tax revenues, assuming that the average county tax rate is the applicable rate for the generating facility. The taxable value of the 300 megawatt facility is estimated to be \$295.5 million, resulting in an estimated increase of local property tax revenues equal to \$3,248,727. The county could choose to maintain their current level of spending and use the increased property tax base to reduce current property tax rates, in which case the benefit accrued would be less due to a decreased property tax rate applied to the taxable value.

Table 5.4. Estimated Impacts to Local Property Tax Revenues

Tax Rate		Taxable Value		Local Tax Revenue Impact	
1.0994%	x	\$295.5 million	=	\$3,248,727	

VI. Power County

A 200 megawatt wind facility located in Power County, Idaho is currently under consideration. The project is located on tribal lands and will be owned and operated by the tribe. The wind resource has a 35 percent capacity factor and an average annual wind speed of 15 miles per hour. The selling price of electricity is assumed to be 4.5 cents per kWh and landlord rent four percent of gross electricity sales.

A. Construction Impacts on Local Economy

The development of a 200 megawatt facility would require construction of 211 wind powered turbines. The wind project development will require significant employment and spending during the construction period, which is assumed to be one year for the purposes of this analysis. Based on size and project characteristics, input parameters were developed for the construction phase of the project and can be seen in Table 6.1.

Table 6.1. Input Parameters for Construction Phase Impacts in Power County

Parameter	200 MW Facility
Labor Expenditures (full and part time local construction jobs, management and supervisory jobs)	\$ 3,386,494
Construction Materials (local expenditures for materials)	\$ 16,694,501
Equipment Costs (wind turbines, blades, and towers)	\$ 169,480,000
Other Expenditures (including engineering, interconnection, site permitting, and legal services)	\$ 10,439,005

A Power County Economy input-output model was developed to estimate the impacts to the local economy during the construction phase of the project using the following parameters. Direct, indirect, and induced impacts have been combined for the purpose of reporting results.

Table 6.2 reports the estimated impacts that would result from the construction of the 200 megawatt wind facility, by industry sector. An estimated 92 additional full and part time jobs in the local economy would result from the direct employment of construction workers, managers, and supervisors; *and* the indirect and induced impacts of the construction of the wind facility. Total local employee earnings in the economy increase by an estimated \$2.3 million. Total output in the local economy also increases over the period of construction by an estimated \$9.4 million. Most of the impacts are experienced in the Construction sector. Other sectors that experience significant impacts resulting from the construction of the wind energy facility are Services; Government; and TCPU.

Table 6.2. Construction Phase Impacts for Power County

Facility Size Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ -	0	\$ -
Mining	\$ -	0	\$ -
Construction	\$ 5,924,699	46	\$ 1,299,877
Manufacturing	\$ -	0	\$ -
TCPU	\$ 1,259,704	10	\$ 261,313
Trade	\$ -	0	\$ -
Fire	\$ -	0	\$ -
Services	\$ 1,100,514	19	\$ 318,601
Government	\$ 1,160,769	18	\$ 457,453
Households	\$ -	0	\$ -
Total	\$ 9,445,687	92	\$ 2,337,245

B. Operation Impacts on Local Economy

The operation of the wind facility in Power County will continue to impact the local economy after the construction phase has ended. Impacts resulting from operation were estimated using the increase in electricity sales as the input parameter. The expected revenue from electricity sales from the proposed 200 megawatt facility is \$27,594,000.

An input-output model, including a Wind Energy sector, was developed to estimate the impacts to the local economy of Power County from the operation of the wind facility. Direct, indirect, and induced impacts have been combined for the purpose of reporting results. Results of the analysis are reported in Table 6.3.

Table 6.3. Wind Facility Operation Impacts for Power County

Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ 106,440	1	\$ 22,423
Mining	\$ 5,420	0	\$ 628
Construction	\$ 1,927,334	18	\$ 551,782
Manufacturing	\$ 837,410	3	\$ 152,225
TCPU	\$ 951,751	9	\$ 245,540
<i>Wind</i>	\$27,594,000	44	\$ 1,989,796
Trade	\$ 565,730	13	\$ 242,335
Fire	\$ 1,244,926	6	\$ 118,157
Services	\$ 1,047,939	30	\$ 476,786
Government	\$ 932,746	28	\$ 722,540
Households	\$ 6,344,932	0	\$ -
Total	\$41,558,628	149	\$ 4,522,213

The operation of the wind facility will directly add about \$27.6 million in additional revenue from electricity sales per year into the economy. These additional revenues generate, in turn, about \$14 million of additional output per year in the local economy because of the indirect and induced impacts of operating the wind plant. The operation of the wind plant will require an estimated 44 full and part time jobs. Revenue from sales of electricity and corresponding spending on the required jobs and plant equipment will cause about 106 additional jobs to be created in businesses and sectors that support the wind facility. Annual wages will experience a corresponding increase of which \$2 million will be directly attributed to operation of the wind facility. An additional increase in earnings in the local economy of \$2.5 million in supporting sectors is also expected.

C. Impacts to Property Tax Revenues

Because the wind farm will be located on tribal lands, as well as owned and operated by the tribe, it is not subject to property taxes. Therefore, any positive impacts to local property tax revenues will be a result of investment within the economy to support the increased local economic activity. Because estimates of the impact to local property tax revenues due to increased economic activity would be relatively small, problematic to generate, and subject to significant error, no increase in local property tax revenues is shown.

VII. Twin Falls County

A 300 megawatt wind facility located in Twin Falls County, Idaho is currently under consideration. The project is located on federal, state, and private land. The wind resource has a 35 percent capacity factor and an average annual wind speed of 16 miles per hour. The selling price of electricity is assumed to be 4.5 cents per kWh and landlord rent four percent of gross electricity sales.

A. Construction Impacts on Local Economy

The development of a 300 megawatt facility would require construction of 316 wind powered turbines. The wind project development will require significant employment and spending during the construction period, which is assumed to be one year for the purposes of this analysis. Based on size and project characteristics, input parameters were developed for the construction phase of the project and can be seen in Table 7.1.

Table 7.1. Input Parameters for Construction Phase Impacts in Twin Falls County

Parameter	300 MW Facility
<u>Labor Expenditures</u> (full and part time local construction jobs, management and supervisory jobs)	\$ 5,079,741
<u>Construction Materials</u> (local expenditures for materials)	\$ 25,041,751
<u>Equipment Costs</u> (wind turbines, blades, and towers)	\$ 254,220,000
<u>Other Expenditures</u> (including engineering, interconnection, site permitting, and legal services)	\$ 15,658,508

A Twin Falls County Economy input-output model was developed to estimate the impacts to the local economy during the construction phase of the project using the following parameters. Direct, indirect, and induced impacts have been combined for the purpose of reporting results.

Table 7.2 reports the estimated impacts that would result from construction of the 300 megawatt wind facility by industry sector. An estimated 180 additional full and part time jobs in the local economy result from the direct employment of construction workers, managers, and supervisors; *and* the indirect and induced impacts of the construction of the wind facility. Total local employee earnings in the economy increase by an estimated \$4.6 million. Total output in

the local economy also increases over the period of construction and is estimated to be \$17.4 million. Most of the impacts would be experienced in the Construction sector. Other sectors that experience significant impacts resulting from the construction of the wind energy facility are Services; Government; and TCPU.

Table 7.2. Construction Phase Impacts for Twin Falls County

Facility Size Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ -	0	\$ -
Mining	\$ -	0	\$ -
Construction	\$10,746,518	103	\$ 2,584,486
Manufacturing	\$ -	0	\$ -
TCPU	\$ 2,251,044	16	\$ 499,614
Trade	\$ -	0	\$ -
Fire	\$ -	0	\$ -
Services	\$ 2,194,240	32	\$ 694,917
Government	\$ 2,165,797	29	\$ 838,955
Households	\$ -	0	\$ -
Total	\$17,357,599	180	\$ 4,617,973

B. Operation Impacts on Local Economy

The operation of the wind facility in Twin Falls County will continue to impact the local economy after the construction phase has ended. The impacts resulting from operation were estimated using the increase in electricity sales as the input parameter. The expected revenue from electricity sales from the proposed 300 megawatt facility is \$41,391,000.

An input-output model, including a Wind Energy sector, was developed to estimate the impacts to the local economy of Twin Falls County from the operation of the wind facility. Direct, indirect, and induced impacts have been combined for the purpose of reporting results. The results of the analysis are reported in Table 7.3.

Table 7.3. Wind Facility Operation Impacts for Twin Falls County

Industry Sector	Change in Local Output	Change in Local Employment	Change in Local Employee Earnings
Agriculture	\$ 108,306	1	\$ 31,640
Mining	\$ 229	0	\$ 92
Construction	\$ 2,938,909	28	\$ 802,858
Manufacturing	\$ 353,306	2	\$ 49,135
TCPU	\$ 1,871,813	11	\$ 458,437
<i>Wind</i>	<i>\$41,391,000</i>	<i>66</i>	<i>\$ 2,984,694</i>
Trade	\$ 2,307,136	53	\$ 1,013,070
Fire	\$ 2,900,067	17	\$ 431,768
Services	\$ 3,644,022	90	\$ 1,918,763
Government	\$ 1,464,721	37	\$ 1,188,102
Households	\$11,612,636	0	\$ -
Total	\$68,592,146	306	\$ 8,878,558

The operation of the wind facility will directly add about \$41.4 million in additional revenue from electricity sales per year into the economy. These additional revenues generate, in turn, about \$27.2 million of additional output per year in the local economy because of the indirect and induced impacts of operating the wind plant. The operation of the wind plant will require an estimated 66 full and part time jobs. Revenue from sales of electricity and corresponding spending on the required jobs and plant equipment will cause about 240 jobs to be created in businesses and sectors that support the wind facility. Annual wages experience a

corresponding increase of which \$3 million will be directly attributed to operation of the wind facility. An additional increase in earnings in the local economy of \$5.9 million in supporting sectors is also expected.

C. Impacts to Property Tax Revenues

Property tax revenues collected within Twin Falls County are also positively affected by the development of the wind plant. The average rural property tax rate for Twin Falls County in 2002 was 1.1831 percent. This includes the county general tax, as well as the average levies applied in the county for special districts (such as school and fire districts). Table 7.4 shows the estimated impacts of the wind energy facility on local property tax revenues, assuming that the average county tax rate is the applicable rate for the generating facility. The taxable value of the 300 megawatt facility is estimated to be \$295.5 million, resulting in an estimated increase of local property tax revenues equal to \$3,496,061. The county could choose to maintain their current level of spending and use the increased property tax base to reduce current property tax rates, in which case the benefit accrued would be less due to a decreased property tax rate applied to the taxable value.

Table 7.4. Estimated Impacts to Local Property Tax Revenues

Tax Rate		Taxable Value		Local Tax Revenue Impact	
1.1831%	x	\$295.5 million	=	\$3,496,061	