

ECONOMIC IMPACT HIGHLIGHTS OF BIG STONE II POWER PLANT CONSTRUCTION ¹

(Updated February 15, 2006)

General Model Inputs

Project Construction Period: April 2007 – April 2011

Total Project Cost: Approximately \$1 billion

Direct Construction Costs: Approximately \$531.7 million

Local Four County Benefit During Construction (2008 dollars)

Local Economic Impact: \$672.8 million during construction

Local Job Growth: 2,550 Full Time Equivalent positions during construction
1,844 Full and part time jobs in the communities
An average of 1,098 per year for four years

State Benefit During Construction (a broader perspective in 2008 dollars)

South Dakota Economic Impact: \$745.1 million during construction

State Job Growth: 2,550 Full Time Equivalent positions during construction
2,291 Full and part time jobs in the communities
An average of 1,210 per year for four years

Long-Term Local Benefit (2004 dollars)

Long term local job growth: 35 Full Time Equivalents employed in operations
29 Full and part-time positions in the communities

Long term local economic impact: \$3.6 million / year of new income to four county area
Not including on-going contractor support for plant activities

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¹ Summary on page 13



Addendum to Appendix C

Economic Impact of Constructing the Big Stone II Power Plant

February 15, 2006

Four-County Economic Impact

Table 1 shows the economic impact of power plant construction activity in the four-county geographic area identified as our area of interest. For every dollar spent on power plant construction at this location, 39.7 cents (0.3969) of income will be generated. The direct expenditure of one million dollars in the construction of the plant is estimated to directly result in 4.8 jobs and the creation of 396,900 dollars of income. The difference between the initial delivery of 1 million dollars of construction services and the 396,900 dollar increase ($1,000,000 \times .3969$) in income is that money spent on other non-labor construction costs.

The indirect output includes those services and goods purchased from other businesses in the four-county area to complete that one million dollars of construction. It is estimated that for every one million dollars of construction completed, 170,400 dollars of goods and services will be purchased from businesses in the four-county area and those expenditures will result in an additional 87,200 dollars of income for these businesses and result in 2.2 people being employed full or part time.

Induced output is the spending of households in the economy by people employed directly in the construction of the plant and the businesses benefited indirectly by purchases related to the construction of the power plant. People taking their paychecks from work directly and indirectly related to the construction of the power plant, result in 189,600 dollars of spending for each million dollars worth of construction.

The multipliers in Table 1 are used in the analysis with an adjustment to induced spending. It is assumed that not all workers will move to the four-county area for this work. Those workers having households to support located outside the four-county area will be spending some portion of their paychecks outside our area of interest. That economic impact is not taking place in these four counties and may not be taking place in South Dakota. It is assumed that 50 percent of the induced expenditures do not take place in our areas of interest and the induced multipliers in Tables 2 and 3 are reduced to 50 percent of the initial total measure in Table 1.

Table 1
Four County Economic Impact Multipliers for Power Plant Construction
Full and Partial Induced Impact

	Total Output	Value Added	Employment
Direct	1.0000	0.3969	4.8
Indirect	0.1704	0.0872	2.2
Induced	0.1896	0.1037	2.5
Total	1.3600	0.5878	9.5
Induced @ 50%	0.0948	0.0519	1.3
Total Assuming 50% of Induced Spending	1.2652	0.5360	8.3

Source: IMPLAN regional input-output economic impact estimator, 2001 data.

The multiplier in Table 1 states that every dollars worth of power plant construction, the estimated total impact of that dollar is one dollar and twenty-seven cents (\$1.265) in the economies of the four counties assuming 50% of expected induced spending in the four county area. That measure includes the economic activity resulting directly from construction, transactions of local businesses selling goods and services that support construction activities and the spending by the households of people employed at the construction site and the supporting businesses.

For every dollar spent on the construction of the power plant, the wealth in the four counties increases by nearly fifty-four cents (\$0.536). There will also be eight and three-tenths (8.3) jobs created in the four county area for each million dollars worth of construction activity.

The total impact of the construction activity is presented in Tables 4 and 5. Table 2 presents the impact in 2008 dollars with no consideration given to inflation or cost overruns. Table 3 presents the expected impact with the budgeted escalation money (46.5 million) added to the output and the value added estimates. The difference is a description of the project in 2008 and 2008 plus escalation dollars with the distinction being consideration given to increasing costs or inflation. The actual impact is expected to be within the range between real dollar amounts and that number where all budgeted escalation dollars are included. Job numbers remain the same for both estimates.

In 2008 dollars, the value added by all labor (2,550 jobs) on the project over a four year period is 211.0 million dollars. The labor and proprietor's income in the four-county area for businesses selling goods and services to the project is 46.4 million dollars which will

employ 1,186 people.² Assuming 50% of estimated induced expenditures are local, 27.6 million dollars and 658 jobs will be the value added by people providing goods and services to the households of the workers on the construction site and in the local businesses identified as indirectly supporting the construction effort.

Table 2
Economic Impact of Construction in 2008 Dollars
Assumes 50% of Induced Impact and No Escalation Money

	Total Output	Value Added	Employment
Direct	531,714,728	211,043,692	2,550
Indirect	90,626,588	46,383,770	1,186
Induced @ 50%	50,412,113	27,564,140	658
Total Assuming 50% of Induced Spending	672,753,430	284,991,602	4,394

Source: IMPLAN regional input-output economic impact estimator, 2001 data.

The estimates in Table 3 are the base estimates of Table 2 with escalation dollars added. Escalation dollars are added to the base cost estimates to provide for inflation and cost under estimates. The actual economic impact of the construction activities associated with the Big Stone II power plant is expected to be within a range having the 2008 dollar amounts on the low end and these base estimates plus escalation amounts on the high end.

Table 3
Economic Impact of Construction Activity
Assumes 50% of Induced Impact and 46.5 Million in Escalation Money

	Total Output	Value Added	Employment
Direct	578,261,643	229,518,698	2,550
Indirect	98,560,144	50,444,258	1,186
Induced @ 50%	54,825,247	29,977,137	658
Total Assuming 50% of Induced Spending	731,647,034	309,940,092	4,394

Source: IMPLAN regional input-output economic impact estimator, 2001 data.

² All direct are full time equivalents paid 2000 of a standard 2080 hour work year . Indirect and Induced are full and part time jobs.

Other Considerations (no update)

There is an additional category of expenses in the description of the project identified as owner costs. This category consists largely of money for contingencies and internal transfers. There is a 15.7 million dollar provision for the purchase of engineering services from existing personnel. Task reassignment has no substantial economic impact to the area. The same can be said for the operations personnel budget and the money for startup and testing. Substantial economic impact to the area is not expected as a result of existing personnel being paid from a different source of money. Money required to purchase land for the new power plant is an internal transaction and is not expected to have a substantial impact on the economies of the four counties. The other significant amounts in the budget relate to owner escalation (4.2 million) and contingency (74.1 million). These amounts are in addition to the escalation and contingency amounts budgeted for the construction of the power plant. Whether this money will be necessary to the completion of the project or how it will be spent is not clear.

South Dakota Economic Impact

Multiplier analysis is an estimate of the business activity that takes place in a defined geography as a result of economic activity. One would expect more product offerings and business services in the larger geography of South Dakota than in the four-county area. Likewise, there will be more consumer products and services for the workers to purchase as well. These considerations suggest that the multipliers beyond the direct impact which cannot change will for the state be larger than for the four counties.

Table 4 shows the economic impact resulting from power plant construction activity for the state of South Dakota. The direct expenditure of one million dollars in the construction of the plant is estimated to directly result in 4.8 jobs and the creation of 400,100 dollars in income. The difference between the initial delivery of one million dollars of construction services and the 400,100 dollar increase in income is money spent on non-labor construction costs.

The indirect output includes those services and goods purchased from other businesses in the four-county area to conduct one million dollars of construction. It is estimated that for every one million dollars of construction, 238,600 dollars of goods and services will be purchased from businesses in the state and those expenditures will result in an additional 125,500 dollars of income for these businesses and their employees and result in 2.4 people being employed.

Induced output or household spending is estimated at 325,600 dollars of spending for each million dollars worth of construction. However, it is assumed that not all workers will be from South Dakota. Those workers having households to support located outside the state will continue to spend some portion of their paychecks in their home state. Conservatively and consistent with the county analysis, it is assumed that 50 percent of the induced expenditures do not take place in South Dakota and the induced multipliers in Tables 5 and 6 are reduced to 50 percent of the measure in Table 4.

Table 4
Economic Impact Multipliers for Power Plant Construction
Full and Partial Induced Impact

	Total Output	Value Added	Employment
Direct	1.0000	0.4001	4.8
Indirect	0.2386	0.1255	2.4
Induced	0.3256	0.1794	3.8
Total	1.5642	0.7050	11.0
Total Assuming 50% of Induced Spending	1.4014	0.6153	9.1

Source: IMPLAN regional input-output economic impact estimator, 2001 data.

The total impact of the construction activity is presented in Tables 5 and 6. Table 5 presents the impact in 2008 dollars with no consideration given to inflation or cost overruns. Table 6 presents the expected impact with money budgeted for escalation added to the output and the value added estimates. The difference between these tables is a description of the project in 2008 dollars and 2008 plus escalation dollars. The actual impact is expected to be within the range between the 2008 dollar amounts and that number where all budgeted escalation dollars are included. Job numbers remain the same for both estimates.

In 2008 dollars, the value added by all labor (2,550 jobs) on the project over a four year period is 212.7 million dollars. The proprietor and labor income for businesses in the four-county area selling goods and services to the project is 66.7 million dollars which will employ 1,290 people either full or part time. Assuming 50% of estimated induced expenditures are local, 47.7 million dollars and 1,001 jobs full and part time will be the value added by people providing goods and services to the households of the workers on the construction site and in the local businesses identified as indirectly supporting the construction effort.

Table 5
Economic Impact in 2008 Dollars
Assumes 50% of Induced Impact and No Escalation Money

	Total Output	Value Added	Employment
Direct	531,714,728	212,740,413	2,550
Indirect	126,860,144	66,749,671	1,290
Induced @ 50%	86,570,335	47,698,210	1,001
Total Assuming 50% of Induced Spending	745,145,207	327,188,295	4,841
Source: IMPLAN regional input-output economic impact estimator, 2001 data.			

The estimates in Table 6 are the base estimates of Table 5 with escalation dollars added. Escalation dollars are added to the base cost estimates to provide for inflation and cost under estimates. The actual economic impact of the construction activities associated with the Big Stone II power plant is expected to be within a range having the 2008 dollar amounts on the low end and these base estimates plus escalation amounts on the high end.

Table 6
Estimated Economic Impact including Escalation Funding
Assumes 50% of Induced Impact and 46.5 Million in Escalation Money

	Total Output	Value Added	Employment
Direct	578,261,643	231,363,952	2,550
Indirect	137,965,626	72,593,014	1,290
Induced @ 50%	94,148,801	51,873,766	1,001
Total Assuming 50% of Induced Spending	810,376,070	355,830,732	4,841
Source: IMPLAN regional input-output economic impact estimator, 2001 data.			

Four-County Generation Impact (no update)

The operation of the plant will begin in 2011. Ottertail Power Company estimates that the new plant will require an additional 35 employees at a cost in payroll including benefits of approximately 2.5 million dollars at 2004 wage levels. The estimated economic impact of employing these additional people on the four-county economy is presented in Table 7. The 35 new power plant jobs are estimated to create another 28.8 jobs. The associated 2.5 million dollar payroll is expected to result in a total economic activity increase of 3.1 million dollars as these new households purchase goods and services in the area and the money makes its way through the economy. The income generated in households outside those directly employed at the power plant is an additional 1.1 million dollars.

Table 7
Economic Impact in 2004 Dollars
Employing 35 People with Payroll of 2.5 Million

2004 Dollars	Total Output	Value Added	Employment
Induced Initial Impact	2,500,000	793527	35
Induced Subsequent Impacts	603,864	314460	9.1
Total	3,103,864	1,107,987	44.1

Source: IMPLAN regional input-output economic impact estimator, 2001 data.

In 2011, when the plant becomes operational, the number of people employed is assumed to be 35. The number of additional jobs in the economy will be that described in the table (28.8). The measure of total economic activity or output will increase by the percentage of inflation between 2004 and 20011 as will the value added to workers in local businesses as new income.

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Updated Summary

Four-County Multipliers

The estimated four-county³ economic output multiplier for the construction of the power plant is 1.27 assuming 50% of money earned by workers is spent in communities outside the four-county area. For each one million dollars of construction activity 4.8 full time positions will be created at the site, and 2.2 people will be employed indirectly full time or part time at businesses in the local communities. The one million dollars of economic activity and the employment of the workers (8.3) will result in the wealth of the area being increased by more than five hundred thousand dollars (0.5360 million).

Induced spending is reduced to 50% recognizing that a substantial number of workers on the project will have residences outside the four-county area and a substantial portion of their earnings will be used to support their distant households. The same is true when looking at the induced spending associated with the state estimated impacts.

Summary Table 1
Four-County Construction Economic Impact Multipliers

	Total Output	Value Added	Employment
Direct	1.0000	0.3969	4.8
Indirect	0.1704	0.0872	2.2
Induced @ 100%	0.1896	0.1037	2.5
Total	1.3600	0.5878	9.5
Induced @ 50%	0.0948	0.0519	1.3
Total Assuming 50% of Induced Spending	1.2652	0.5360	8.3

Source: IMPLAN regional input-output economic impact estimator, 2001 data.

State of South Dakota Multipliers

The estimated South Dakota economic output multiplier for the construction of the power plant is more inclusive than the four-county estimate. More businesses are expected to sell goods and services to the project and more workers are expected to be from South Dakota than from the four-county area. The state economic output multiplier is 1.40

³ Four counties include Grant and Codington in South Dakota; Big Stone and Lac Qui Parle in Minnesota.

assuming that 50% of money earned by workers is spent outside the state of South Dakota. For each one million dollars of construction activity, 9.1 people will be employed directly, indirectly or as a result of induced spending in the state. The direct employment is in full time equivalents assuming a full working year per position. Employment associated with indirect and induced impacts include both full and part-time positions. The result of a million dollars of economic activity and the employment of the workers (9.1) is an estimated increase wealth or income of over six hundred thousand dollars (0.615 million).

Summary Table 2
South Dakota Construction Economic Impact Multipliers

	Total Output	Value Added	Employment
Direct	1.0000	0.4001	4.8
Indirect	0.2386	0.1255	2.4
Induced	0.3256	0.1794	3.8
Total	1.5642	0.7050	11.0
Total Assuming 50% of Induced Spending	1.4014	0.6153	9.1

Source: IMPLAN regional input-output economic impact estimator, 2001 data.

Four-County Economic Impact

The construction economic impacts in 2008 dollars and with escalation money included are presented for the four-county area in Summary Table 3. The size of the construction project is defined by Burns and McDonnell as costing 531.7 million in 2008 dollars and requiring 2,550 worker years or jobs over the life of the project. The construction activity and worker spending will create an additional 1,844 full and part time jobs in the communities throughout the four-county area.

Summary Table 3
Total Four-County Construction Economic Impact
Assuming 50% Induced Spending

Direct Expenditures	Total Output	Value Added	Employment
<i>In 2008 Dollars</i>			
531,714,728	672,753,430	284,991,602	4,394
<i>With Budget Escalation</i>			
578,261,643	731,647,034	309,940,092	4,394

State of South Dakota Economic Impact

The construction economic impacts in 2008 dollars and with escalation money included are presented for the state of South Dakota in Summary Table 4. The size of the construction project is defined by Burns and McDonnell as employing 2,550 full time jobs over the life of the project and costing 531.7 million 2008 dollars. The construction activity and worker spending will create an additional 2,291 full and part time jobs in the communities throughout the state for a total of 4,841 jobs.

Summary Table 4
Total South Dakota Construction Economic Impact
Assuming 50% Induced Spending

Direct Expenditures	Total Output	Value Added	Employment
<i>In 2008 Dollars</i>			
531,714,728	745,145,207	327,188,295	4,841
<i>With Budget Escalation</i>			
578,261,643	810,376,070	355,830,732	4,841

Operation of Power Plant (no update)

The operation of the plant will begin in 2011. Ottertail Power Company estimates that the new plant will require an additional 35 employees at a cost in payroll including benefits of approximately 2.5 million dollars at 2004 wage levels. The estimated economic impact of employing these additional people on the four-county economy is presented in Summary Table 5. The 35 new power plant jobs are estimated to create another 28.8 jobs throughout the economy. The associated 2.5 million dollar payroll is expected to result in

a total economic activity increase of 3.1 million dollars as these new households purchase goods and services in the area and the money makes its way through the economy. The income generated in households outside those directly employed at the power plant is an additional 1.1 million dollars.

**Summary Table 5
Economic Impact in 2004 Dollars
Employing 35 People with Payroll of 2.5 Million**

2004 Dollars	Total Output	Value Added	Employment
Induced Initial Impact	2,500,000	793527	19.7
Induced Subsequent Impact:	603,864	314460	9.1
Total	3,103,864	1,107,987	28.8

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