
The Economic Impact of the Hyperion Energy Center on the South Dakota and Greater Siouxland Economies

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Executive Summary

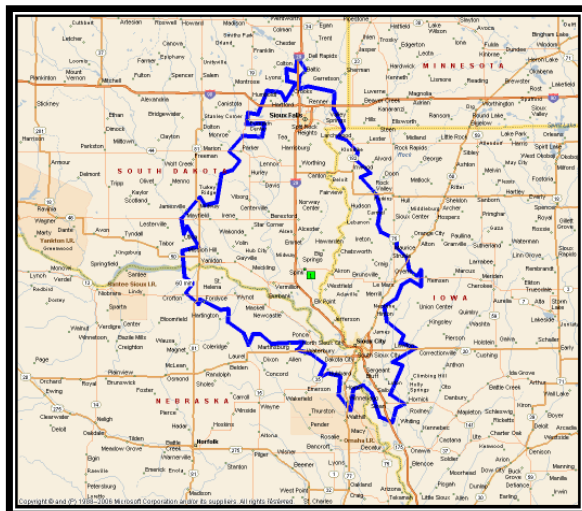
Hyperion Resources (Hyperion) is a Texas based privately held Limited Partnership proposing the construction and operation of an Energy Center in Union county, South Dakota. The Hyperion Energy Center (HEC) will be a crude oil refinery with an onsite petcoke fueled power plant. The electricity generated at the HEC facilities will be used onsite for HEC operations. Petcoke is a fuel co-product of the crude oil refining process.

The refinery and power generation facilities are estimated to cost approximately nine billion dollars to construct.¹ Of the 9 billion dollar total, approximately 3.6 billion will be invested in the on site construction of the refinery and the electric power plant. Additional amounts will be spent on costs associated with operating an onsite work camp (\$39.2m) and the startup (\$47.1m) of the facility. The selected location for the HEC property is Union county north of Elk Point, South Dakota. The HEC facilities will occupy 1,600 acres of an approximate six square mile total land area.

Construction: 2010 – 2014
Cost: Approximately \$9 billion
State Direct Costs: \$3.6 billion
Refinery: \$2.7 billion
Power Plant: \$0.9 billion

Construction of the HEC refinery is a first for South Dakota. There are no refinery facilities located in the state and it follows that there is no precedent in the state to assist in estimating economic and tax impacts. IMPLAN is used to model the economic impacts. IMPLAN was developed at the University of Minnesota over a period of years in conjunction with the U.S. Forest Service’s Land Management Planning Unit in Fort Collins. Governmental agencies and leading universities across the nation use this product for estimating economic impacts.

Economic impacts are estimated for: 1) refinery construction 2) electric power plant construction 3) operation of the refinery and power plant, and 4) the opportunity costs resulting from the change in agricultural land use. Each of these impacts will be estimated for two levels of geography: the state of South Dakota and the State of South Dakota plus selected Iowa and Nebraska counties. The Iowa counties included are Woodbury, Sioux and Plymouth. The Nebraska counties included in the analyses are Dixon, Dakota and Cedar.



¹ All money amounts are in 2007 dollars.

South Dakota Economic Impacts

Three multiplier effects are presented throughout the analysis: the *output*, *value-added*, and *employment* effects. Each of these items is made up of three components: the *direct* effect, the *indirect* effect, and the *induced* effect. These effects are described in detail in the full text of the analysis.

Economic Impact of Construction

The on site construction cost of the HEC project is estimated at 3.6 billion dollars. The total economic activity when direct, indirect and induced economic effects during construction are considered is estimated at 4.8 billion in 2007 dollars.

State Benefit during Project Construction¹

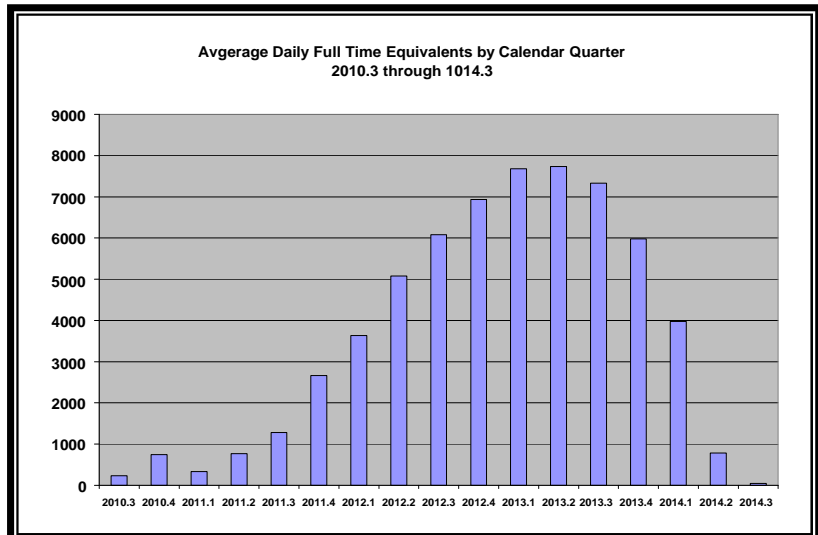
State Economic Impact: \$4.8 billion during construction

State Job Growth: 32,457 Full and part time jobs¹

Value Added or Income: \$2.4 billion¹

Payments to labor, proprietors' income, and distributed corporate profits are measures of added value. The new income to an area or value added is comprised of employee and proprietor income plus any profits realized by owners of corporations serving the construction enterprises. Value added is new wealth in the local economy. The value added by construction of the HEC project is estimated at 2.4 billion dollars over a five year period.

It is estimated that there will be 32,457 full and part-time jobs created throughout the state's economy as a result of construction. That number includes all refinery and power plant construction at the HEC site. These are full and part-time jobs with a duration of one year or less spread over a five year period beginning in 2010 and ending in 2014. Employment will peak in the third year of the construction project.



The HEC facility construction economic impact estimates include economic activity associated with the operation of a work camp of substantial size and costs associated with the testing and startup of the refinery and power plant facilities.

Economic Impact of HEC Facility Operations

The HEC facility's annual revenues are estimated to be 12.3 billion measured in 2007 dollars. The total economic activity resulting from the HEC facility operations is expected to total 13.7 billion annually. That amount is the result of 12.3 billion in initial

State Benefit from Operation of HEC Facility

South Dakota Economic Impact: \$13.7 billion annually

State Job Growth: 14,176 Full and part time jobs¹

Value Added or Income: \$1.2 billion

economic stimulus at the HEC facility, the indirect business activity supporting the facilities operations and the induced expenditures as households make purchases throughout the state's economy.

The number of personnel required to operate the facility upon its completion is estimated at 1,826 full time equivalents. That number in addition to full and part time jobs created throughout the economy is expected to total 14,176.

Payments for labor, to proprietors' income, or distributed corporate profits or new wealth to the local economy as a result of the HEC facility operating is estimated to be 1.2 billion dollars a year in 2007 dollars. This new wealth will be created annually.

Agricultural Economic Impact

There is economic loss that will result from removing all or part of the six sections of agricultural land from crop and livestock production. Given a set of assumptions, it is estimated that as much as 1.9 million dollars of agricultural products will not be delivered to market. The economic impact or loss of economic activity from not delivering 1.9 million dollars annually to final demand by Union

County farmers is estimated to be 3.0 million dollars given an estimated total output multiplier of 1.6. The new wealth lost to the state from not delivering 1.9 million dollars of agricultural products to final

State Agricultural Land Use Loss

South Dakota Economic Impact: \$1.9 million loss annually

State Job Growth: 27.5 Full and part time jobs¹

Value Added or Income: \$1.24 million

demand is estimated to be 1.24 million dollars. It is estimated that the loss of full and part-time jobs throughout the state's economy as a result of the Union county agricultural products "not" being delivered to final demand is 27.5 jobs.

South Dakota Tax Impacts

Contractor's Excise and Sales Taxes

The HEC project is expected to cost approximately 9.0 billion in 2007 dollars. The Contractor's Excise Tax retained by the state after refunds are paid is an estimated 19.6 million dollars of one time tax. There are also one time sales and use taxes due on materials and contractor services. The estimated sales and use tax amounts that will be retained by the state after refunds is an additional 30.3 million dollars. The Contractor's excise tax added to the sales tax after refunds are estimated to total 49.8 million in 2007 dollars.

That amount addresses direct and indirect sales tax revenues to the state but does not address the taxes from household expenditures by workers. Sales taxes paid by workers on South Dakota purchases or induced spending during construction is estimated to generate an additional 13.6 million dollars in state receipts. Local sales taxes in surrounding communities are estimated to increase by half that amount or approximately 6.8 million dollars.

Land Transfer Tax

A one time fee of 1 dollar per thousand dollars of land purchase costs are charged for the transfer of title. The Land Transfer Tax is expected to generate 28,000 dollars in revenue for Union county.

Ongoing Indirect Business Sales Tax Receipts

Year over year, the operation of the HEC facility will create the sale of goods and services that will generate sales tax revenues of more than 50 million dollars. Sioux City, Iowa will capture some percentage of the indirect business tax impacts due to that community's close proximity to the HEC project site and its full retail good and service offering.

Property Taxes from the School District Perspective

An estimated 2.0 billion dollars of new property valuation will be added to the Elk Point – Jefferson school district with the completion of the HEC project. Support for county, township and fire services could be increased by as much as 8.4 million dollars using levy rates from 2006 assessments with taxes payable in 2007. The school district revenue potential from the addition of 2.0 billion dollars of valuation is an additional 30.1 million dollars given the levy levels in that year.

The HEC facility could add more assessed valuation to the school district and county valuations than 2.0 billion dollars used in the estimates. The HEC facility will be assessed by the Union county assessor or a designee and a higher determination is possible.² If the valuation is smaller than 2.0 billion it isn't likely that it will be lower by more than 10% and if it is larger, it isn't likely that it will be more than 10% larger than 3.0 billion.³ A 3.0 billion dollar valuation by the assessor would result in revenues being 50 percent larger than the 8.4 and 30.1 million dollar amounts discussed in the analysis.

There is a tax limitation provision for county, township and fire districts. Current year revenues are limited to each entity's revenue in the preceding year plus inflation and the percentage growth in new property valuations. The inflation plus growth provision can only be exceeded if the voters elect to opt-out of the limitation and tax themselves some additional amount.

Levies for the support of education are the result of state requirements, voter choices and legal maximums. School general fund levies are set statewide for districts that wish to participate in the state aid program. Bonded indebtedness and the levy required to retire debt is the result of a local election. The levies for special education and capital outlays are limited statutorily. Neither the special education nor the capital outlay levies are currently at the maximum allowed leaving some tax potential untapped. There is a tax limitation provision in law for education expenditures but the new wealth in the area will make the provision irrelevant to the Elk Point – Jefferson school district.

A Four Scenario Comparison

Summary Table 1 on the following page shows four scenarios regarding property tax levies and revenues. The first scenario shows the property valuations in the Elk Point - Jefferson School District as they were assessed in 2006, the levies applied and the tax amounts that were payable in 2007. The second scenario in Summary Table 1 adds 2.0 billion dollars of valuation to the "Other Non-agricultural Real" property classification increasing that 2006 valuation from 32,988,225 to 2,032,988,225 dollars resulting in increases of 8.4 and 30.1 million dollars as previously referenced.

The third scenario in Summary Table 1 is a tax revenue neutral option with one exception. The exception is levies for the support of the school district's general fund. The state prescribes school district general fund levies for each property classification if a district wishes to qualify for state aid. The levies for bond redemption, retirement, special education, and capital outlays in the school district budget are reduced to match revenues requested. These levy reductions would occur unless the school board decides to spend more money in these areas.

² Danforth & Meierhenry, LLP have reviewed selected property valuations of similar property in South Dakota and estimate the HEC facility's value will fall within a range at 1.8 to 3.3 billion dollars.

³ South Dakota adjusts property tax valuations to 85 percent of full and true assessments using a combination of an assessment to sales ratio and a factor. A two billion dollar taxable valuation as presented in this analysis would require a full and true valuation for the HEC facilities of 2.35 billion dollars. This amount is below the midpoint of the 2.0 to 3.0 billion dollar range.

Satisfying the qualification levy for state aid and reducing the other levies to generate the same amount of funds increases revenues to the school district by 20.4 million dollars annually. However, the added valuation of the HEC facility will disqualify the school district from receiving 1.75 million dollars in state aid.

Summary Table 1
Revenues from Current School Levies and Estimated Levies
after HEC 2.0 Billion of New Property Valuation⁴

Elk Point - Jefferson School District 61-7

2006 Valuations - Payable 2007

Property Tax Levy Per Thousand of Valuation									
	County	Township	School	Fire	Total	Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
Agricultural	3.15	0.67	7.87	0.38	12.07	171,779,679	2,073,381	721,475	1,351,906
Non-Ag Ac	3.15	0.67	8.87	0.38	13.07	1,024,938	13,396	4,305	9,091
Owner-Occ	3.15	0.67	9.6	0.38	13.8	90,190,714	1,244,632	378,801	865,831
Manufactur	3.15	0.67	15.03	0.38	19.23	102,271	1,967	430	1,537
Manufactur	3.15	0.67	9.6	0.38	13.8	518,629	7,157	2,178	4,979
Other Non-	3.15	0.67	15.03	0.38	19.23	32,988,225	634,364	138,551	495,813
(No City)						296,604,456	3,974,896	1,245,739	2,729,157

Scenario 2

Plus 2 Billion in Valuation - Tax Receipts Increased - Requires Opt Outs

Property Tax Levy Per Thousand of Valuation									
	County	Township	School	Fire	Total	Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
Agricultural	3.15	0.67	7.87	0.38	12.07	171,779,679	2,073,381	721,475	1,351,906
Non-Ag Ac	3.15	0.67	8.87	0.38	13.07	1,024,938	13,396	4,305	9,091
Owner-Occ	3.15	0.67	9.6	0.38	13.8	90,190,714	1,244,632	378,801	865,831
Manufactur	3.15	0.67	15.03	0.38	19.23	102,271	1,967	430	1,537
Manufactur	3.15	0.67	9.6	0.38	13.8	518,629	7,157	2,178	4,979
Other Non-	3.15	0.67	15.03	0.38	19.23	2,032,988,225	39,094,364	8,538,551	30,555,813
(No City)						2,296,604,456	42,434,896	9,645,739	32,789,157
							Percentage Increase	674.3%	1101.4%
							Dollar Increase	8,400,000	30,060,000

Scenario 3

Plus 2 Billion in Valuation - Tax Receipts With The Exception of Education Are Held Constant

Property Tax Levy Per Thousand of Valuation									
	County	Township	School	Fire	Total	Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
Agricultural	1.14	0.09	3.66	0.05	4.20	171,779,679	721,593	93,724	627,869
Non-Ag Ac	1.14	0.09	4.66	0.05	5.20	1,024,938	5,330	559	4,771
Owner-Occ	1.14	0.09	5.39	0.05	5.93	90,190,714	534,893	49,209	485,684
Manufactur	1.14	0.09	10.82	0.05	11.36	102,271	1,162	56	1,106
Manufactur	1.14	0.09	5.39	0.05	5.93	518,629	3,076	283	2,793
Other Non-	1.14	0.09	10.82	0.05	11.36	2,032,988,225	23,096,146	1,109,212	21,986,934
(No City)						2,296,604,456	24,362,200	1,253,043	23,109,157
							Percentage Increase	0.6%	746.8%
							Dollar Increase	7,304	20,380,000

Scenario 4

Plus 2 Billion in Valuation - Tax Receipts Held Constant

Property Tax Levy Per Thousand of Valuation									
	County	Township	School	Fire	Total	Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
Agricultural	1.14	0.09	1.08	0.05	1.62	171,779,679	278,401	93,724	184,677
Non-Ag Ac	1.14	0.09	1.21	0.05	1.76	1,024,938	1,801	559	1,242
Owner-Occ	1.14	0.09	1.31	0.05	1.86	90,190,714	167,485	49,209	118,277
Manufactur	1.14	0.09	2.05	0.05	2.60	102,271	266	56	210
Manufactur	1.14	0.09	1.31	0.05	1.86	518,629	963	283	680
Other Non-	1.14	0.09	2.05	0.05	2.60	2,032,988,225	5,283,283	1,109,212	4,174,072
(No City)						2,296,604,456	5,732,200	1,253,043	4,479,157
							Percentage Increase	0.6%	64.1%
							Dollar Increase	7,304	1,750,000

The revenue gain of 20.4 million dollars under Scenario 3 will be offset by the loss of 1.75 million dollars in state aid for a net gain of approximately 18.6 million dollars. Increasing revenues by 18.6 million dollars would result in a reduction of property tax

⁴ The county property tax levy is applied to 35.2 percent of the 2.0 billion dollar increase in valuation. The remainder of the county benefits from the remaining 64.8 percent of the valuation.

levies in the district. See Scenario 3 in Summary Table 2. Property tax levies would decrease from 47 to 72 percent of what they were in 2006 payable in 2007.

The fourth scenario shows the property tax levies including the school levies at rates where all 2007 revenues are held neutral including the education revenues. The levies for education in scenario four are sufficient to replace a 1.75 million dollar loss in state aid making that scenario revenue neutral throughout. Scenario 4 revenue neutral tax levies are compared to 2006 levies in Summary Table 2. Property tax levies would be 14 percent of what they were in 2006 payable in 2007. The 1.75 million in state aid lost to the Elk Point – Jefferson school district would be available for distribution to the other school districts through the state aid formula.

Revenue neutrality across the board for the non-educational entities supported by property taxes is possible but is not very realistic. There will be physical impacts on the infrastructure surrounding the HEC property. Higher levels of maintenance and potentially new services will be required while construction activity is underway and after construction during the operation of the facility. There will be new demands on the school district as well making revenue neutrality for educational services unlikely.

Property tax reductions to 14 percent of existing levies will likely not happen. Actual levies upon completion of the HEC facility will fall somewhere between Scenario 1 and Scenario 4. The governmental budgets and resulting levies will be local decisions. Levies are controlled by local elected officials including the county commissioners and the local school board members when they make their budget requests. The local elected officials decide on a service level and what it will cost. It is then from each taxing entity's respective budget request that the auditor determines the necessary levies.

**Summary Table 2
Existing Education Levies and Potential Property Tax
Liability Reductions for Property in School District**

Scenario 1 2006 Levies Payable 2007	Scenario 3		Scenario 4	
	Minimum for State Aid	Percent of Existing	Revenue Neutral	Percent of Existing
7.87	3.66	47%	1.08	14%
8.87	4.66	53%	1.21	14%
9.6	5.39	56%	1.31	14%
15.03	10.82	72%	2.05	14%
9.6	5.39	56%	1.31	14%
15.03	10.82	72%	2.05	14%

Property Taxes from Union County Perspective

The greatest impact is at the school district level but Union county taxpayers' revenues and levies will be affected if 2.0 billion dollars in property valuation is added to their county. The school district analysis addresses the county property tax for people living

within the district's borders. The impact is not restricted to the school district. The county impact of 2.0 billion dollars of valuation on 2006 assessments with taxes payable in 2007.

The total 2006 taxable valuation in Union county for taxes payable in 2007 were 1.14 billion dollars. Had the HEC project been completed and valued for purposes of property taxation at 2.0 billion dollars, the total valuation of property in the county would have been 3.14 billion dollars. The increase in property tax revenues with the added valuation would have been 6.3 billion dollars given a static tax levy of 3.15 mills.

Summary Table 3
Union County Property Tax Revenue Impact
 Valuations Assessed 2006 Payable 2007

Union County Property Tax Impact (Valuations Assessed 2006 Payable 2007)	Within School District	County Levy	Revenues
Within School District 2006	296,604,456	3.15	934,304
Remainder of County 2006	843,722,821	3.15	2,657,727
Total	1,140,327,277		3,592,031
Add 2.0 Billion to Total	3,140,327,277	3.15	9,892,031
Estimated Increase in Revenues			6,300,000

The revenue neutral levy using this calculation methodology reduces the county property tax levy in the county to 1.14 or 36 percent of the initial value (3.15).

Summary Table 4
Union County Property Tax Revenue Neutral Levy
 Valuations Assessed 2006 Payable 2007

Union County Property Tax Impact (Valuations Assessed 2006 Payable 2007)	Within School District	County Levy	Revenues
Within School District 2006	296,604,456	3.15	934,304
Remainder of County 2006	843,722,821	3.15	2,657,727
Total	1,140,327,277		3,592,031
Add 2.0 Billion to Total	3,140,327,277	1.14	3,592,031
Estimated Increase in Revenues			0.00

Personal Property Taxes, Licenses and Fees

The workers at the HEC facility and those people throughout the economy with new jobs supported by the facility's economic activity will pay motor vehicle license fees, other fees and fines along with fishing and hunting licenses. The IMPLAN model estimates the contribution to public sector for public services will be approximately 4.6 million dollars.

The personal property tax impacts resulting from the new HEC personnel living in the area are difficult to estimate. Workers and business people benefiting financially from the

economic activity of the HEC facility are currently living in or are expected to locate in a number of communities. Additionally, some of the new residents will choose to own their homes while others will opt to rent. Only preliminary estimates of new property tax revenues from the workers and business people are possible but some perspective is gained nonetheless.

If the 1,826 workers employed by HEC live in housing on average valued at 100,000 dollars, the valuations throughout Southeast South Dakota and the greater Sioux Land would increase by 182.6 million dollars. Using the Elk Point - Jefferson school district levies shown in Summary Table 1 and adding the Elk Point city levy to roughly approximate the revenue potential of city dwellers, the result of an additional 182.6 million dollars of valuation is an estimated 4.0 million dollars of property taxes. If 100,000 dollars of valuation per worker yields an estimated 4.0 million dollars of property tax receipts, an estimated average valuation of 150,000 dollars would result in a property tax revenue improvement of 6.0 million dollars.

The estimates assume Elk Point levies in 2006. Not all people will live in Elk Point. More importantly, the HEC facility's property tax impact is expected to lower all property tax rates. If all new employees move to Union county the estimated revenues from the new workers will be much lower and their property tax contribution will be a fraction of those paid throughout the state.

The communities that will benefit from the revenue increases are expected to occur primarily in South Dakota for income tax advantage reasons but will not be exclusively in the state. South Dakota communities with potential for new residents will span from Sioux Falls to Dakota Dunes on the I-29 corridor and west to include other communities including Yankton. The closest communities to the HEC facility include Elk Point, Beresford and Vermillion.

Forward Looking Tax Estimates

The tax impact analyses presented in this report address budgetary possibilities from adding 2.0 billion dollars of taxable valuation to a historical number. The 2.0 billion in valuation is added to 2006 assessments with levies and taxes paid in 2007. The purpose of the analysis is to provide perspective on what 2.0 billion dollars of valuation would have meant in that year if that amount "just appeared". Using 2.0 billion as a single injection provides perspective on the property tax potential from a completed project but limited insight year over year as the project moves toward completion. It is the forward looking analysis over a five year period that will be required for budgetary planning purposes.

The forward looking analysis will include assumptions about taxing entity service levels and asset acquisitions. It will also address the expected number of children that will be entering the school district while and after the project is completed. It will be the forward looking analysis which is not yet completed that will assist governmental units with their budgetary planning.

General Model Inputs

Period of Interest for Construction: 2010 – 2014

Total Project Cost: Approximately \$9 billion

Estimated Direct Construction Costs: \$3.6 billion

Refinery: Approximately \$2.7 billion

Power Plant: Approximately \$0.9 billion

Work Camp Direct Costs: \$39.2 million (or \$0.039 billion)

Startup Direct Costs: \$47.1 million or \$0.047 billion

Estimated Annual Direct Operating Revenues: \$12.3 billion

Agricultural Production Loss: \$1.9 million or \$0.002 billion

South Dakota Benefit during Project Construction⁵

South Dakota Economic Impact:

\$4.8 billion during construction

State Job Growth:

32,457 Full and Part Time jobs⁶

Value Added or Income: \$2.4 billion⁷

South Dakota's Benefit from HEC Facility Operations

State Economic Impact:

\$13.7 billion annually

Jobs: 14,176 Full and Part Time jobs⁸

Value Added or Income: \$1.2 billion

State & Siouxland Benefit during Project Construction⁹

State & Siouxland Economic Impact:

\$5.0 billion during construction

State & Siouxland Job Growth:

34,725 Full and part time jobs¹⁰

Value Added or Income: \$2.5 billion¹¹

State & Siouxland Benefit from HEC Facility Operations

South Dakota Economic Impact:

\$14.0 billion annually

Jobs: 15,973 Full and part time jobs¹²

Value Added or Income: \$1.3 billion

⁵ Includes Work Camp, Startup and Ag Loss Impacts

⁶ Job estimates represent positions with duration of one year or less.

⁷ See Technical Note 3 on page 30.

⁸ Job estimates represent positions with duration of one year or less.

⁹ Includes Work Camp, Startup and Ag Loss Impacts

¹⁰ Job estimates represent positions with duration of one year or less.

¹¹ See Technical Note 3 on page 30.

¹² Job estimates represent positions with duration of one year or less.

The Economic Impact of Constructing and Operating the Hyperion Energy Center Refinery and Power Plant

The proposed Hyperion Energy Center (HEC) Project includes the construction and operation of both a 400,000 barrel a day crude oil refinery and a power plant fired using the petroleum coke or petcoke from the refinery process as an energy source. The refinery and power generation facilities are estimated to cost approximately nine billion dollars to construct.¹³ Of the 9 billion dollar total, approximately 6.64 billion will be invested in the refinery and 2.33 billion of the electric power plant.

Located between 11.5 and 14.5 miles north of Elk Point, South Dakota, the HEC will occupy 1,600 acres in a footprint of approximately six square miles of land. The northeast boundary of the site is located approximately two miles south and southwest of the community of Spink and the site extends south two miles and east three miles from that point.¹⁴ The facilities will be constructed and operated by Hyperion Resources (Hyperion), a privately held Limited Partnership that was organized in Dallas, Texas in 1990.

The South Dakota communities nearest the site include Beresford which is located approximately 20 miles to the north, Vermillion to the south and west, and Elk Point to the South. Both Beresford and Elk Point are located on Interstate 29. Vermillion is located seven miles west of I-29 on Highway 50.

Also on Highway 50 is Yankton, the state's eighth largest community. Yankton is approximately thirty-four miles from the Interstate. The city center of the largest community in South Dakota is less than an hour, approximately 54 miles, to the north of Spink. Sioux City, Iowa is the largest community and thirty-eight miles to the south of Spink. Interstate 29 passes through both communities.

Hyperion indicates that the HEC, the proposed crude oil refinery and power plant, will employ state-of-the-art Green Technologies. The crude oil to be refined will be imported from Canada via pipeline.¹⁵ It is assumed in this study that all electrical power generated by the utility island will be off-grid and consumed onsite by the refinery in its operations.

¹³ All money amounts are in 2007 dollars.

¹⁴ The mailing address for the facility will be Elk Point, South Dakota. The community of Spink, is located approximately fourteen and one-half miles north and west of Elk Point, South Dakota's city center and fourteen and one-half miles north and east from Vermillion, South Dakota's city center.

¹⁵ See Technical Note 2 on page 30.

Economic Impact

The multiplier estimation product used in the analysis is IMPLAN (IMpact Analysis for PLANning). IMPLAN was developed at the University of Minnesota over a period of years in conjunction with the U.S. Forest Service's Land Management Planning Unit in Fort Collins. Governmental agencies and leading universities across the nation use this product for estimating economic impacts.

IMPLAN is an input-output (I-O) estimation model. The versatility of this model enables specific analysis for each area of interest, including county, multi-county regions, a state or a group of states. Naturally, some estimation error will remain. The I-O technique describes an enterprise based on average ingredient and performance measures and therefore best predicts the impact of an average enterprise. While the I-O modeling technique has been designed and refined to minimize error, estimation error does occur because of our inability to distinguish the specific enterprise from the average.¹⁶

Three multiplier effects are presented: the *output*, *value-added*, and *employment* effects. Each of these in turn reflects three components: the *direct* effect, the *indirect* effect, and the *induced* effect. The output multiplier is the change in the economy required to deliver an additional dollar of construction services to demand. The initial response in final demand is the direct effect, always with a multiplier of 1. The construction contractors will in turn buy goods and services from other industries to produce the dollar's worth of construction, and these industries buy inputs themselves, creating a whole series of additional purchases that are captured by the indirect effect component. Finally, there will be additional purchases motivated by the income generated for households in these transactions; these are called induced effects. All three effects combine to create the output multiplier.

The output multiplier measures the economic activity that will occur as a result of the initial stimulus. It will rise as more inputs are purchased and more income is spent in the region in question. If most inputs are purchased and most income is spent outside the region, the output multiplier will be relatively small. Small counties, for example, will have smaller output multipliers than counties with large wholesale and retail operations, and county multipliers will be smaller than the state multipliers.

The output multiplier is appropriate for sizing up the total economic activity that will occur in an area as a result of a project. The value-added effect is a better measure of the income created for people and the government by the project. Payments for raw materials continue through the system, but payments for labor, or proprietors' income, or distributed corporate profits represent added wealth for people, and thus value-added. Payments for input materials are referred to as "leakages" from the stream of payments. Eventually a dollar spent on the final product ends up split among many income recipients, some of whom live outside the region under consideration. As a result, the

¹⁶ See Technical Note 1 on page 30 for further comments on refinery operation estimates..

value-added multiplier effect is expected to be below one. Like the output multiplier, the value-added effect will typically be larger for the state than for individual counties.

Value-added is decomposed into the same three parts as the output multiplier: direct effects, indirect effects, and induced effects. The direct component will be income generated over and above the cost of resources in the immediate enterprise. The indirect multiplier effect similarly measures net income created in the upstream industries that supply inputs for the final good. The induced component reflects the on-going effect of the income created directly and indirectly: income that is spent on goods and services creates demand for additional goods and services, thus creating a repeating cycle of expenditures. The sum of the three parts creates the value-added multiplier effect.

Finally, the analysis in this report provides an employment multiplier, showing the estimated number of jobs created by one million dollars of output. Again, the multiplier is comprised of three parts. The direct component shows the number of jobs created by the immediate enterprise of HEC. The indirect component refers to jobs created in supporting industries, and the induced component reflects jobs created by additional demand throughout the area's economy.

HEC Project Data Sources

The project data used in these analyses was provided to Stuefen Research, LLC by Environmental Resources Management (ERM). ERM is serving as the lead environmental consultant for the HEC project, and worked with the other members of the project team to develop the project data upon which the economic impact analysis is based.

Economic Impact Estimates

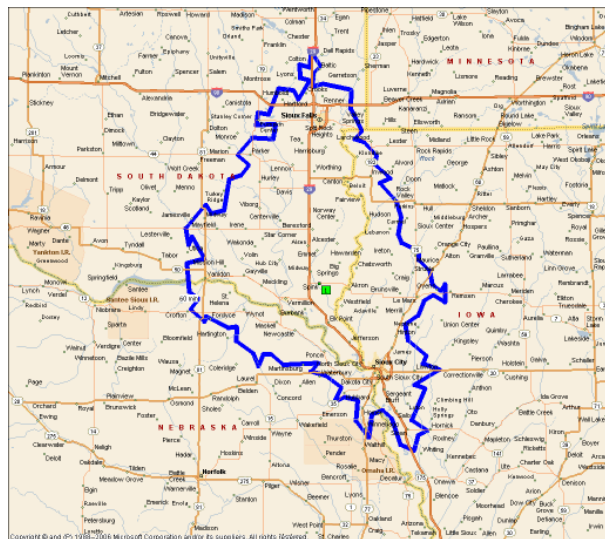
Economic impact analyses estimated for the HEC project are: 1) refinery construction 2) electric power plant construction 3) operation of the refinery and power plant, and 4) opportunity costs resulting from the change of agricultural land use. Each of these impacts will be estimated for two levels of geography: the state of South Dakota and the State of South Dakota plus selected Iowa and Nebraska counties. The Iowa counties included are Woodbury, Sioux and Plymouth. The Nebraska counties included in the analyses are Dixon, Dakota and Cedar.

Geography for Economic Impact Estimates

The location of the HEC in South Dakota demands that the first estimates address the economic impacts solely from the perspective of the state of South Dakota. By defining the geography of interest to be South Dakota, the IMPLAN model will treat all activity outside the state in adjacent counties as an import with no South Dakota associated impact.

The second set of impact estimates would include a larger geography including counties from Iowa and Nebraska. Most counties included in a one hour driving scope are suggested for inclusion. In Iowa, Sioux, Plymouth and Woodbury would be included. In Nebraska, Cedar and Dixon would be included. This greater “Siouxland” geography is a proximity that includes likely sources of labor to the project and service area.

One Hour Drive Time Boundary from Spink, South Dakota



Economic Impact on South Dakota

Refinery Materials Procurement

A portion of the procurement dollars are identified to provide information and perspective regarding the investment being made in the project but little economic impact benefiting any part of South Dakota is expected from these expenditures. Of the 2.587 billion dollars spent on the procurement of materials, 2.190 billion will be spent out-of-state on materials including pipe and steel purchases. Out-of-state procurement has no substantial direct or indirect benefit to the state's economy and these expenses are not given further consideration in the analysis. Local procurement of 0.398 billion dollars is money that will be spent in South Dakota. These expenditures will be made primarily on equipment and commodity materials during construction and the economic benefit of this investment is included in the refinery economic impact estimates.

Refinery Construction

From ERM provided data, it is estimated that labor and other construction costs including engineering costs for the refinery portion of the HEC Project will total 3.387 billion in 2007 dollars and South Dakota direct expenditures will be 2.253 billion dollars of that amount.¹⁷ With the refinery in-state procurement amount of 0.398 billion dollars included, the refinery in-state construction cost amount for the project is estimated at 2.651 billion dollars.

Economic Impact: Table 1 shows the estimated economic impact resulting from one million dollars of refinery construction activity in the state of South Dakota. The direct expenditure of one million dollars in the construction of the refinery is estimated to directly result in 5.3 jobs and the creation of 488,100 dollars of added value. The difference between the initial delivery of one million dollars of construction services and the 488,100 dollar increase in income is money spent on construction costs other than the value measures of worker income, proprietor's income and distributed corporate profits.

Full induced output from household spending is estimated at 380,255 dollars for each one million dollars worth of construction. However, the full amount of economic activity expected to result from household expenditures is not used in the full estimate. It is assumed that a majority of the workers on the HEC Project will not be from South Dakota and these workers have households in other states to support with the money they will have earned on the project. It is assumed that 25 percent of the induced expenditures

¹⁷ All money references are in 2007 dollars.

or 95,100 dollars will take place in South Dakota. The induced measures for output, value added and employment in Table 2 are reduced to 25 percent of the full measure presented in Table 1. The 25 percent assumption is an estimate relying upon the judgment of analysts at ERM and Stuefen Research, LLC. There is no South Dakota expenditure history for a construction project of this size and type.

Economic Activity: The multiplier for refinery construction in South Dakota is estimated to be 1.3. The expenditure of 2.651 billion dollars is estimated to have an overall impact of 3.5 billion dollars. That estimate includes 602.8 million dollars of purchases from other businesses and 251.8 million dollars of economic activity as the households benefiting from the construction of the refinery spend money in the state's economy.

Value Added or Income:¹⁸ Payments for labor, proprietors' income, or distributed corporate profits represent added wealth for people. It is the employee's or proprietor's income plus any profits realized by owners of corporations serving the entities that is new wealth to the local economy. It is a measure of the value-added directly or indirectly by all participants. The Value Added multiplier is 0.660 given a twenty-five percent induced spending assumption. The new wealth to the state by delivering 2.651 billion dollars of refinery construction to final demand in the state's economy is estimated to be 1.750 billion dollars. See Table 2.

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

	Total Output	Value Added	Employment
Direct	1.0000	0.4854	5.3
Indirect	0.2274	0.1204	2.4
Induced	0.3799	0.2171	4.1
Total	1.6073	0.8229	11.8
Total Assuming 25% of Induced Spending	1.3224	0.6600	8.8
Source: IMPLAN regional input-output economic impact estimator, 2004 data.			
<i>*Induced @ 25%</i>	<i>0.0950</i>	<i>0.0543</i>	<i>1.03</i>

Employment: It is estimated that there will be 23,211 full and part-time jobs created throughout the state's economy as a result of the HEC Project's refinery construction. These are full and part-time jobs with a duration of one year or less spread over a five year period beginning in 2010 and ending in 2014. Employment will peak in the third year of the construction project.

¹⁸ See Technical Note 3 on page 30.

Table 2
Economic Impact for the HEC Project Refinery Construction in 2007 Dollars
Assumes 25% of Induced Impact and No Cost Escalation Money

	Total Output	Value Added	Employment
Direct	2,650,996,053	1,286,682,142	14,131
Indirect	602,817,945	319,195,831	6,362
Induced @ 25%	251,779,013	143,888,113	2,717
Total Assuming 25% of Induced Spending	3,505,593,011	1,749,766,086	23,211

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Power Plant Construction

The economic impact multipliers estimated for the refinery construction presented in Table 1 above are also used to estimate the economic impacts resulting from one million dollars of power plant construction activity at the state level. Consistent with the refinery estimate, the direct expenditure of one million dollars in the construction of the refinery is estimated to directly result in 5.3 jobs and the creation of 481,100 dollars in worker income, proprietor's income and distributed corporate profits. The difference between the initial delivery of one million dollars of construction services and the 488,100 dollar increase in income is money spent on non-labor construction costs.

From ERM provided data, it is estimated that labor and other construction costs for the power plant portion of the HEC Project will total 0.930 billion or 929.7 million in 2007 dollars.

Economic Activity: The output economic impact multiplier for power plant construction in South Dakota is estimated to be 1.3. The expenditure of 929.7 million dollars will have an overall impact of 1.2 billion dollars. That estimate includes 211.4 million dollars of purchases from other businesses and 88.3 million dollars of economic activity as the households benefiting from the construction of the power plant spend money in the state.

Value Added or Income:¹⁹ Payments to labor, proprietors' income, or distributed corporate profits represents added wealth for people. It is the employee's or proprietor's income plus any profits realized by owners of corporations serving the entities that is new wealth to the local economy. It is a measure of the value-added directly or indirectly by

¹⁹ See Technical Note 3 on page 30.

all participants. The Value Added multiplier is 0.660 given a twenty-five percent induced in-state spending assumption. The new wealth to the state by delivering 929.7 million dollars of construction to final demand in the economy is estimated to be 613.7 million dollars.

Table 3
Economic Impact for the HEC Project Power Plant Construction in 2007 Dollars
Assumes 25% of Induced Impact and No Cost Escalation Money

	Total Output	Value Added	Employment
Direct	929,735,947	451,254,780	4,956
Indirect	211,415,446	111,945,786	2,231
Induced @ 25%	88,301,904	50,463,278	953
Total Assuming 25% of Induced Spending	1,229,453,297	613,663,844	8,140

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Employment: It is estimated that there will be 8,140 full and part-time jobs created throughout the South Dakota economy as a result of the power plant construction portion of the HEC Project. These are 8,140 full and part-time construction jobs with tenure of one year or less spread over a five year period beginning in 2010 and ending in 2014. Construction employment will peak in the third year of the HEC Project.

Work Camp Impact

The HEC Project will house a portion of the construction workers on-site in temporary quarters and lease property in neighboring communities. The investment in these temporary facilities and the support services for the work camp comprise the delivery of goods and services to final demand. ERM estimates that 89.6 million dollars will be spent on providing these facilities including support services for people living in these facilities. The division of funds between the lease payment for the facilities and the amount of money required to provide security, maintenance, trash disposal, laundry, and other related services is not yet determined. While specific data on the division of the money between lease amounts and funding for the support activities, it is known that the majority of these expenditures will be lease payments for facilities and will be out-of-state expenditures. The full funding amount for the support activities is expected to be local and impact the state's economy.

Of the 89.6 million dollars budgeted for the work camp. It is assumed that 75 percent will be spent on facility leases or purchases and that 25 percent of that amount will be spent on work camp support services. The expenditure of the 67.2 million dollars on facility leases for work camp housing is assumed to be one-fourth or 16.8 million dollars in South Dakota and three-fourths or 50.4 million dollars outside the state. Out-of-state expenditures will be to companies that provide mobile temporary facilities to be located at the worksite. In-state expenditures will be for new and existing housing in the area.

The South Dakota impact will be a combination of the 16.8 million dollars spent for housing space leased in South Dakota and 22.4 million dollars (25 percent of 89.6 million) which will be spent for on-site work camp support services. These expenditure amounts will impact the state's economy.

Economic Activity: The estimated state total output multiplier for leased housing and work camp support services is 1.4. The 39.2 million dollar estimated expenditure for in-state leased housing and work camp support services will have an overall economic impact in the state's economy of 54.6 million dollars. That estimate includes 11.5 million dollars of purchases from other businesses and 3.9 million dollars of economic activity as the households benefiting from the operation of the leased property and work camp support spend money in the state.

Value Added or Income: Given the induced spending assumption, the Value Added multiplier is 0.817. The new wealth to the state generated by delivering 39.2 million dollars of leased housing and work camp support services to final demand in the economy is estimated to be 29.8 million dollars. Prevailing wages as defined in the IMPLAN model are assumed in the calculation of this impact.

Table 4
Economic Impact Multipliers for Work Camp Support Services
Full and Partial Induced Impact

	Total Output	Value Added	Employment
Direct	1.0000	0.5424	17.0
Indirect	0.2941	0.1617	2.9
Induced	0.3948	0.2257	4.2
Total	1.6889	0.9297	24.1
Total Assuming 25% of Induced Spending	1.3928	0.8169	22.0
Source: IMPLAN regional input-output economic impact estimator, 2004 data.			
<i>*Induced @ 25%</i>	<i>0.0987</i>	<i>0.0564</i>	<i>1.1</i>

Employment: It is estimated that there will be 821 full and part-time jobs created throughout the economy as a result of the investment in work camp support. These full and part time jobs are of one year or less in tenure and spread over a five year period beginning in 2010 and ending in 2014.

Table 5
Economic Impact of Work Camp Support Service Expenditures in 2007 Dollars
Assumes 25% of Induced Impact and No Cost Escalation Money

	Total Output	Value Added	Employment
Direct	39,205,000	21,264,047	666.5
Indirect	11,531,210	6,338,233	113.7
Induced @ 25%	3,869,455	2,211,789	41.2
Total Assuming 25% of Induced Spending	54,605,665	29,814,070	821

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Start Up: Refinery & Power Plant

It is estimated by ERM that it that it will require 188.2 million dollars to put necessary supplies and equipment in place in South Dakota and test the refinery and power plant facility prior to beginning full operations. Money for acquisitions of chemicals/catalysts, spare parts, lab equipment, and vehicles would be included in this amount. Also in the 188.2 million dollars is training for the operation and maintenance of the refinery and power plant and security during the pre-operational phase of plant activities.

What has not yet been determined is the division of expenditures between activities. A portion of the money will be expended for inventory items with the remainder of the funds available for training personnel and testing of the facility. It is assumed in the analysis, with no data to substantiate the assumption, that 75 percent of the funding or 141.2 million dollars will be spent on inventory and 25 percent or 47.1 million will be spent on security, training and testing costs at startup.

The 141.2 million dollars spent on inventory will leak from the South Dakota economy with little local impact. The 47.1 million dollars spent on testing, training and security personnel are assumed to be salary and benefits having a direct local economic impact.²⁰

²⁰ See Technical Note 3 on page 30.

The approximate number of full time equivalent (FTE) employees required for the startup tasks is estimated to be in the range of 262 to 312. The economic impact of salary dollars paid to these workers is solely induced spending. The expenditure of their income in the local economy will result in a modest multiplier effect as the money makes its way through the economy. Assuming 20 percent local induced spending remaining local beyond the initial payment of 47.1 million dollars, the total value added is estimated to be 47.4 million dollars. That amount is the initial salary amount of 47.1 million plus the increase in state income resulting from household expenditures as measured by the value added multiplier.

Operations: Refinery & Power Plant

The economic activity multiplier for the operation of the refinery and the on-site power plant (referred to as a “Utility Island”) is estimated to be 1.12.²¹ The impact estimates are for the delivery of 12.3 billion dollars of refinery products.²² The contribution of the power plant to economic impacts is considered an internal purchase of electric power in the refinery process. For each one million dollars of economic activity delivered to final demand by the HEC Project, the estimated total economic activity including the purchase of goods and services from other businesses and the purchases of households is estimated at 1,116,700 dollars. The source or sources of the crude and delivery costs of transporting the crude oil to South Dakota are not considered in the estimates.

For each one million dollars of economic activity, it is estimated that wealth, the value added by workers, proprietors and distributed corporate profits will increase 98,200 dollars and that there will be a resulting employment impact of 1.2 full and part-time jobs created in the economy.

Economic Activity: The economic impact from delivering 12.3 billion dollars annually to final demand by HEC Project is estimated to be 13.7 billion dollars given the 1.12 output multiplier²³. That estimate includes 0.990 billion or 990 million dollars of good and service purchases from other businesses in South Dakota and 0.443 billion or 443.2 million dollars of economic activity as the households benefiting from the operation of the refinery and power plant spend money in the state.

²¹ No refineries currently exist in South Dakota. A national model is used in lieu of a state specific model.

²² See Technical Note 1 on page 30 for further comments on refinery operation estimates.

²³ All money in 2007 dollars.

Table 6
Economic Impact Multipliers for Refinery and Power Plant Operations

	Total Output	Value Added	Employment
Direct	1.0000	0.0346	0.1
Indirect	0.0806	0.0430	0.6
Induced	0.0361	0.0206	0.4
Total	1.1167	0.0982	1.2

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Value Added or Income: Payments for labor, to proprietors' income, or distributed corporate profits represent new wealth to the local economy. It is a measure of the value-added directly or indirectly by all participants in the state. The value added or new wealth created by the operation of the refinery and power plant is an estimated at 1.2 billion dollars a year.

Employment: It is estimated that there will be 14,176 full and part-time jobs created throughout the South Dakota economy as a result of refinery and power plant operations.

Table 7
Economic Impact from Refinery and Power Plant Operations in South Dakota in 2007 Dollars

	Total Output	Value Added	Employment
Direct	12,284,000,000	424,930,978	1,826
Indirect	990,040,490	528,149,683	7,573
Induced	443,228,070	253,248,455	4,777
Total	13,717,268,560	1,206,329,116	14,176

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Agricultural Economic Impact

The footprint for the HEC Project including a surrounding buffer area covers six square miles of agricultural land. At 640 acres in a square mile, that is a loss of 3,840 acres of farm land. FedStats²⁴ reports that there was a total of 276,588 acres of farm land in Union county in 2002. The 3,840 acres used for the project would be a farm land decrease of 1.39% in that county and a resulting loss of income from farm marketings.

The economic loss is a “potential loss” estimate which would only result if all land on the HEC site is removed from agricultural production. The “expected loss” is much less given that approximately 58 percent or 2,240 of the 3,840 acre HEC site will continue as a green buffer. The facility footprint for the HEC project is 1,600 acres of the total.

The five most recent years of farm cash receipts published by the Bureau of Economic Analysis, 2001 through 2005, is presented below. Note that the receipts from farm marketing are increasing with the highest value occurring in 2005. Also note that the majority of the receipts have varied between crops and livestock. The multiplier was estimated assuming one-half of the cash receipts coming from crops, one-fourth from cattle and one-fourth from livestock other than cattle production. Government payments are not considered in the economic impact estimates. Government payments to agricultural producers in Union county over the five year period ranged from 5.1 million (2002) to 18.6 million dollars (2005).

Table 8
From Farm Income and Expenses
Union County
(thousands of dollars)

	2001	2002	2003	2004	2005
Cash Receipts from Marketing (,000)	91,559	97,467	113,588	123,016	134,575
Cash Receipts from Livestock	48,148	44,838	54,349	62,924	70,236
Cash Receipts from Crops	43,411	52,629	59,239	60,092	64,339

The economic activity multiplier for delivering one million dollars of crops and livestock to final demand is estimated to be 1.6. For each one million dollars of farm products “not” delivered to final demand by Union county farmers²⁵, the estimated loss of economic activity is 1,610,800 dollars. That is the estimated economic activity to be lost from farm production in South Dakota under the HEC Project footprint. Farm income volatility does not allow for precise estimation. The largest potential loss year, 2005 data from Table 8, was used in this estimate.

²⁴ www.fedstats.gov FedStats provides access to Federal statistical information

²⁵ In 2005

Economic Activity: The economic impact from not delivering 1.9 million dollars annually to final demand by Union County farmers is estimated to be 3.0 million dollars given the 1.6 total output multiplier.

Table 9
State Economic Impact Multipliers for Agricultural Production

	Total Output	Value Added	Employment
Direct	1.0000	0.3459	9.3
Indirect	0.3966	0.1939	3.0
Induced	0.2141	0.1224	2.4
Total	1.6108	0.6622	14.7

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Value Added or Income: Payments for labor, to proprietors' income, or distributed corporate profits represent added wealth for people. It is the employee's or proprietor's income plus any profits realized by owners of corporations serving the entities that is new wealth to the local economy. It is a measure of the value-added directly or indirectly by all participants. With the thirty percent induced expenditure assumption, the value added multiplier for the state is 662,200 dollars per million dollars of agricultural marketings. The new wealth to the state from delivering 1.86 million dollars of agricultural products to final demand is estimated to be 1.24 million dollars.

Employment: It is estimated that the loss of full and part-time jobs throughout the state's economy as a result of the Union county agricultural products "not" being delivered to final demand is 27.5 jobs.

Table 10
The Potential²⁶ State Economic Impact from Agricultural Loss
in 2005 Dollars

	Total Output	Value Added	Employment
Direct	1,870,593	646,976	17.4
Indirect	741,926	362,740	5.6
Induced	400,569	228,946	4.5
Total	3,013,087	1,238,661	27.5

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

²⁶ Potential loss is an estimate based upon 3,840 acres being removed from agricultural production. The actual loss may be substantially less given the HEC site covers 1,600 acres of that total.

South Dakota Tax Impacts

Contractor's Excise Tax

The construction phase of the HEC Project is expected to fall under the Contractor's Excise Tax provisions of Chapter 10-45B of the South Dakota Codified Law. The laws provide a formula for the refund of the Contractor's Tax on large projects including power plants and new business facilities. Title 10-45B-5.1 provides: "Calculation of refund for new business facility. The amount of the tax refund for a business facility shall be a percentage of the taxes paid, as follows:"

Provisions (1) through (6) are skipped. Number (7) is applicable for the HEC Project and provides as follows:

"(7) For project costs of six hundred million dollars and greater there shall be a refund of ninety percent of the taxes paid."

HEC project is expected to cost approximately 9.0 billion in 2007 dollars. The Contractor's Excise Tax retained by the state after refunds are paid is an estimated 19.6 million dollars of one time tax. There are also one time sales and use taxes due on materials and services. The estimated sales and use tax amounts that will be retained by the state after refunds is an additional 30.3 million dollars. The Contractor's excise tax added to the sales tax after refunds are estimated to total 49.8 million in 2007 dollars.

Sales taxes paid by workers on in state purchases or induced spending during construction is estimated to generate an additional 13.6 million dollars in state receipts. Local sales taxes in surrounding communities are estimated to increase by half that amount or approximately 6.8 million dollars.

Land Transfer Tax

A one time fee of 1 dollar per thousand dollars of land purchase costs are charged for the transfer of title. The Land Transfer Tax is expected to generate 28,000 dollars to Union county.

Ongoing Indirect Business Sales Tax Receipts

Year over year, the operation of the HEC facility will create the sales of goods and services that will generate sales tax revenues of more than 50 million dollars. Sioux City, Iowa will capture some percentage of the indirect business tax impacts due to that community's close proximity to the HEC project site and its full retail good and service offering.

Property Taxes on HEC Facilities

The HEC facility construction value is approximately 9 billion dollars but not all of the construction costs are considered in the valuation for property taxation. Property not permanently attached to the ground, that which can be moved in whole or dismantled and moved in parts, is considered “business personal property” (BPP). The valuation of the property for tax purposes is estimated by separating the value of business personal property from the civil site development (CSD). The CSD includes site preparation, underground concrete sewers, wells, water pipelines and other similar improvements. Tank farms are a special consideration for which there is precedent in the state. The tank farm’s valuation if done consistently with the tank farm located in Minnehaha county is valued at approximately 33 percent of the tanks cost less depreciation.²⁷

The HEC facility cost breakdown among the property thought to be business personal property, the tank farm and civil site development costs are presented in the table that follows. The estimated property tax valuation for the HEC facility is 2.1 billion in 2007 dollars.

Table 11
HEC Property Tax Valuation for Operational Facility²⁸

	HEC Construction	Valuation Percentage	Estimate of Tax Valuation
Process Unit	5,627,239,800	0%	-
Tank Farm	1,855,134,000	33%	612,194,220
Civil Site Development	1,479,626,200	100%	1,479,626,200
Total	8,962,000,000		2,091,820,420

The assessment to sales ratio in Union county on non-agricultural property for tax year 2006 was 87.5 percent. The assessment to sales ratio on non-agricultural property increased to 92.5 percent in 2007. The projects full value of 2.1 billion dollar in valuation will result in taxable valuations of 1.8 to 1.9 billion dollars if multiplied by the two percentages. Overall, a conservative estimate is expected in the range of 1.8 to 2.1 billion dollars. To make visualizing the change in Union county’s total property valuation easier, a 2.0 billion dollar amount is used throughout the analysis. It is possible that the valuation will be 3.0 billion dollars or more.

The full valuation will not occur with the start of construction on the project. The county assessor’s valuation of the property will occur in increments over the five year construction period. Property taxes will be paid as the project progresses with the full valuation coming upon the projects completion.

The first scenario in Table 12 shows 2006 levies and 2007 taxes payables by property type for the Elk Point – Jefferson school district. The scenario shows all classes of

²⁷ Danforth & Meierhenry, LLP, Sioux Falls, South Dakota and ERM

²⁸ Ibid.

property including “other non-agricultural real property” classification. The HEC facility will be assigned to this class of property. The school district, Union county, townships and the fire district are included in Table 12 because each will have taxing authority over the HEC facility.

The second scenario in Table 12 adds 2.0 billion dollars of valuation to the “Other Non-agricultural Real” property classification increasing that 2006 valuation from 32,988,225 to 2,032,988,225 dollars. That additional valuation would have resulted in increases of 8.4 and 30.1 million dollars as mentioned.

The third scenario in the table is a property tax revenue neutral option. This scenario is not realistic in that the new wealth in the district will result in a loss of 1.75 million dollars in state aid and it will have to be replaced if the school’s revenues are to be held neutral. School aid is discussed in greater detail beginning on page 31.

Table 12
HEC Property Valuation, Levis and Tax Revenues
for Completed Facility²⁹

Elk Point - Jefferson School District 61-7

2006 Valuations - Payable 2007

Property Tax Levy Per Thousand of Valuation									
	County	Township	School	Fire	Total	Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
Agricultural	3.15	0.67	7.87	0.38	12.07	171,779,679	2,073,381	721,475	1,351,906
Non-Ag Ag	3.15	0.67	8.87	0.38	13.07	1,024,938	13,396	4,305	9,091
Owner-Occ	3.15	0.67	9.6	0.38	13.8	90,190,714	1,244,632	378,801	865,831
Manufactur	3.15	0.67	15.03	0.38	19.23	102,271	1,967	430	1,537
Manufactur	3.15	0.67	9.6	0.38	13.8	518,629	7,157	2,178	4,979
Other Non-	3.15	0.67	15.03	0.38	19.23	32,988,225	634,364	138,551	495,813
(No City)						296,604,456	3,974,896	1,245,739	2,729,157

Plus 2 Billion in Valuation - Tax Receipts Increased - Requires Opt Outs

Property Tax Levy Per Thousand of Valuation									
	County	Township	School	Fire	Total	Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
Agricultural	3.15	0.67	7.87	0.38	12.07	171,779,679	2,073,381	721,475	1,351,906
Non-Ag Ag	3.15	0.67	8.87	0.38	13.07	1,024,938	13,396	4,305	9,091
Owner-Occ	3.15	0.67	9.6	0.38	13.8	90,190,714	1,244,632	378,801	865,831
Manufactur	3.15	0.67	15.03	0.38	19.23	102,271	1,967	430	1,537
Manufactur	3.15	0.67	9.6	0.38	13.8	518,629	7,157	2,178	4,979
Other Non-	3.15	0.67	15.03	0.38	19.23	2,032,988,225	39,094,364	8,538,551	30,555,813
(No City)						2,296,604,456	42,434,896	9,645,739	32,789,157
							Percentage Increase	774.3%	1201.4%
							Dollar Increase	8,400,000	30,060,000

Plus 2 Billion in Valuation - Tax Receipts Held Constant

Property Tax Levy Per Thousand of Valuation									
	County	Township	School	Fire	Total	Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
Agricultural	1.14	0.09	0.66	0.05	1.20	171,779,679	205,702	93,178	112,524
Non-Ag Ag	1.14	0.09	0.74	0.05	1.28	1,024,938	1,313	556	757
Owner-Occ	1.14	0.09	0.80	0.05	1.34	90,190,714	120,988	48,922	72,066
Manufactur	1.14	0.09	1.25	0.05	1.79	102,271	183	55	128
Manufactur	1.14	0.09	0.80	0.05	1.34	518,629	696	281	414
Other Non-	1.14	0.09	1.25	0.05	1.79	2,032,988,225	3,646,014	1,102,746	2,543,268
(No City)			(Not Possible)			2,296,604,456	3,974,896	1,245,739	2,729,157

²⁹ South Dakota adjusts property tax valuations to 85 percent of full and true assessments using a combination of an assessment to sales ratio and a factor. A two billion dollar taxable valuation as presented in this analysis would require a full and true valuation for the HEC facilities of 2.35 billion dollars. This amount is below the midpoint of the 2.0 to 3.0 billion dollar range.

County, Townships, Fire Protection

The first of the three scenarios in Table 12 are the actual valuations, levies and tax receipts assessed in 2006 for taxes payable in 2007. The second scenario adds two billion dollars in valuation and the tax levies are held constant. Only the tax revenues are allowed to change. The revenue increase results solely from the addition of 2.0 billion dollars of HEC facility valuation. Under scenario two, tax receipts for county, township and fire services would increase by 8.4 million dollars. The increase is shown as a single increase but the full change will not take place in a single year. The HEC valuation will increase in iterations over the five year period while construction is completed. The 8.4 million dollars is an estimate for a completed project in 2007 dollars.

There is a tax limitation provision in state law for non-educational entities. The tax limitation provision is best described as inflation plus growth. The county, townships and fire district are each permitted to request property tax revenue increases that are equal to but do not exceed 103 percent of the previous years budget plus growth resulting from the taxation of new property valuation. New property valuation is the assessed value of new property in the district and does not include old property revalued. Assuming the taxing entities in the school district previously addressed inflation, the 8.4 million dollar growth in revenues could be accomplished by the respective taxing entities in their normal annual revenue request. The HEC facility would be new property valuation growth and yield approximately 8.4 million dollars in revenue potential to these entities. The third series in the table estimates a no growth revenue scenario for the county, townships and fire district. In this scenario property tax revenues remain constant and the levies are adjusted downward to meet the request. The addition of 2.0 billion dollars of valuation with revenues held constant would result in the levies decreasing substantially. The 3.15 dollars per thousand dollar levy by the county on agricultural real property would be reduced to 0.41 cents per thousand dollars of value. Table 12 shows similar decreases in all levies by the tax entities excluding the education levies. This scenario provides for the same tax revenues to all three entities. Current taxpayers will benefit from the addition of the HEC facility by lowered tax liabilities on their property.

Levy rates by the county, township and the fire district will be decreased but will probably not fall to revenue neutral levels. Clearly there will be additional revenues needed to handle the impacts of HEC construction and operation activities on existing infrastructure. Tax revenues will be needed for infrastructure maintenance and improvements at and surrounding the HEC facility.

Note that the reduced levies for the support of the school district shown in Table 12 are not a realistic option. The replacement of state aid will be necessary for the option to be revenue neutral.

Property Taxes from the School District Perspective

The tax limitation for schools is one of defined statewide levies rather than the revenue inflation plus growth formula limiting tax revenue growth for counties, townships and the

fire district. The state prescribes statewide school district “general fund” levies for six property classifications. These general fund levies must be used to qualify a school district for state aid. The state general fund levies applied to 2006 property tax assessments with taxes payable in 2007 are presented in Table 13.

There are opt-out provisions for higher rates but increasing the rates above those prescribed requires an election. The electorate in the Elk Point – Jefferson district has not opted out of the state’s tax limitation for schools – the state prescribed general fund levies.

The addition of 2.0 billion dollars of property valuation in the district will because of this new wealth eliminate the Elk Point – Jefferson district from receiving state aid. The elimination from state aid consideration frees the district to lower levies below those prescribed by the state. The approved budget of the school district will determine the levy rates required to generate adequate funding.

Table 13
State Aid Required Property Tax Levies for School General Funds

<u>Property Classification</u>	<u>School General Fund Levies</u>
Agricultural Real	3.03
Non-Ag Acreages	4.03
Owner-Occupied (OO)	4.76
Manufactured Homes Other	10.19
Manufactured Homes OO	4.76
Other Non-Ag Real / Utility	10.19

In addition to the general fund levy, there are levies for bond redemption, retirement, special education and capital outlays. The levies in the first series in Table 14 show the current levy amounts for each of these uses.

The second series shows the minimum general fund levy from Table 13 and revenue neutral levies for the other revenue uses resulting from the 2.0 billion dollar addition of new valuation in the district. As was the case for counties, townships and the fire district, these levies are reduced substantially.

Table 14
Current School Levies and Estimated Levies after HEC 2.0 Billion
of New Property Valuation

Elk Point - Jefferson School District 61-7

2006 Valuations - Payable 2007						
Total School Levy	Bond			Special Education	Capital Outlay	
	General	Redemption	Retirement			
Agricultural Real	7.87	3.03	2.39	0.30	1.20	0.95
Non-Ag Acreages	8.87	4.03	2.39	0.30	1.20	0.95
Owner-Occupied (OO)	9.6	4.76	2.39	0.30	1.20	0.95
Manufactured Homes Other	15.03	10.19	2.39	0.30	1.20	0.95
Manufactured Homes OO	9.6	4.76	2.39	0.30	1.20	0.95
Other Non-Ag Real / Utility	15.03	10.19	2.39	0.30	1.20	0.95
<hr/>						
Total School Levy	General	Bond Redemption	Retirement	Special Education	Capital Outlay	
Agricultural Real	3.66	3.03	0.31	0.04	0.15	0.12
Non-Ag Acreages	4.66	4.03	0.31	0.04	0.15	0.12
Owner-Occupied (OO)	5.39	4.76	0.31	0.04	0.15	0.12
Manufactured Homes Other	10.82	10.19	0.31	0.04	0.15	0.12
Manufactured Homes OO	5.39	4.76	0.31	0.04	0.15	0.12
Other Non-Ag Real / Utility	10.82	10.19	0.31	0.04	0.15	0.12

The Elk Point – Jefferson school district voters approved 2.39 dollars per thousand dollars of valuation to retire bonded indebtedness. The levy upon completion of the HEC facility necessary to retire that debt would be 31 cents per thousand dollars of valuation.

The levy for the retirement fund is currently at the maximum. If no new demand is place on the retirement fund, the decrease shown in the table would be the result. The same could be said of special education and capital outlay. Without additional expenditures from these funds, the decrease shown would be expected.

The levy for special education could by law be increased from the current amount of 1.20 per thousand dollars of valuation to 1.40 which is the maximum allowed. The capital outlay levy is currently 0.95 cents per thousand dollars of valuation and the allowable maximum levy is 3.00 dollars per thousand. Revenue increases would occur if the special education and capital outlay levies were increased to their respective maximums without the HEC facility valuation and would increase substantially more with the added 2.0 billion dollars in valuation.

A Four Scenario Comparison

Table 15 shows four scenarios regarding property tax levies and revenues. The first scenario shows the property valuations in the Elk Point Jefferson School District as they were assess in 2006 with the levies applied and the amounts that were payable in 2007. The second scenario in Summary Table 1 adds 2.0 billion dollars of valuation to the “Other Non-agricultural Real” property classification increasing that 2006 valuation from 32,988,225 to 2,032,988,225 dollars. That additional valuation would have resulted in increases of 8.4 and 30.1 million dollars as mentioned.

The third scenario in Summary 15 is a tax revenue neutral option with one exception. The exception is revenue for the support of the school district's general fund. The state prescribes school district general fund levies for each property classification if a district wishes to qualify for state aid. The levies for bond redemption, retirement, special education, and capital outlays in the school district budget can be reduced to meet need and the levies for these purposes will be reduced matching revenues to requested funding. These reductions would occur unless there is a decision to spend more money in these areas or the 2.0 billion dollar valuation assumption is not accurate.

If the levies that qualify a district for state aid are applied and the levies that result in a revenue neutral position for other purposes are calculated, the school district's property tax revenues increase 20.4 million dollars annually with the addition of the 2.0 billion dollars of valuation. However with the valuation of the HEC facilities, the school district will no longer qualify for state aid regardless of the levy levels approved. The district will be too wealthy. The net impact after losing 1.75 million in state aid would be 18.6 million dollars. Scenario 3 answers the question of what would happen if this district was taxed at a level similar to that of other districts in the state. The school district's expenditures will determine the levy levels for Elk Point – Jefferson if the HEC facility is built.

The revenue gain of 20.4 million dollars under Scenario 3 will be offset by the loss of 1.75 million dollars in state aid for a net gain of approximately 18.6 million dollars. The result would be an increase of 18.6 million dollars in revenues and a reduction in the levies as shown in Scenario 3 of Table 15a.

The fourth scenario in Table 15 shows the property tax levies including the school levies at rates where revenues including education are held neutral. The reduced levies for education are under this scenario sufficient to offset the district's loss of state aid. The levies in scenario four generate the existing district tax revenues and replace the 1.75 million dollar state aid loss making Scenario 4 revenue neutral for all tax entities. The 1.75 million in state aid lost to the local district would be available for distribution to the other school districts in the state through the state aid formula.

Revenue neutral tax levies with the added 2.0 billion dollars of valuation and the percentage of 2006 levies required to maintain funding are presented for Scenario 4 in Table 15a. Tax levies could be reduced to 14 percent of those existing in 2006 payable in 2007.

While property tax levies could fall to fourteen percent of what existed in 2006 under a revenue neutral scenario, the levies will likely fall at a level somewhere between Scenario 1 and Scenario 4. The actual levy amounts are determined indirectly by local elected officials including the county commissioners and the local school board when they make their budget requests. These local elected officials will determine a balance between tax reductions and revenue increases with their approved budgets.

There will be new demands on the school district making revenue neutrality for educational services unlikely. Revenue neutrality across the board for the non-educational entities supported by property taxes isn't a very realistic scenario. There will

be physical impacts on the infrastructure surrounding the HEC property. Higher levels of maintenance and potentially new services will be required while construction activity is underway and afterwards during the operation of the facility.

Forward Looking Tax Estimates

The tax impact analyses presented in this report address budgetary possibilities from adding 2.0 billion dollars of taxable valuation to a historical number. The 2.0 billion in valuation is added to 2006 assessments with levies and taxes paid in 2007. The purpose of the analysis is to provide perspective on what 2.0 billion dollars of valuation would have meant in that year if that amount “just appeared”. Using 2.0 billion as a single injection provides perspective on the property tax potential from a completed project but limited insight year over year as the project moves toward completion. It is the forward looking analysis over a five year period that will be required for budgetary planning purposes.

The forward looking analysis will include assumptions about taxing entity service levels and asset acquisitions. It will also address the expected number of children that will be entering the school district while and after the project is completed. It will be the forward looking analysis which is not yet completed that will assist governmental units with their budgetary planning.

Table 15
Revenues from Current School Levies and Estimated Levies
after HEC 2.0 Billion of New Property Valuation³⁰

Elk Point - Jefferson School District 61-7

2006 Valuations - Payable 2007

	Property Tax Levy Per Thousand of Valuation					Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
	County	Township	School	Fire	Total				
Agricultural	3.15	0.67	7.87	0.38	12.07	171,779,679	2,073,381	721,475	1,351,906
Non-Ag Acr	3.15	0.67	8.87	0.38	13.07	1,024,938	13,396	4,305	9,091
Owner-Occ	3.15	0.67	9.6	0.38	13.8	90,190,714	1,244,632	378,801	865,831
Manufactur	3.15	0.67	15.03	0.38	19.23	102,271	1,967	430	1,537
Manufactur	3.15	0.67	9.6	0.38	13.8	518,629	7,157	2,178	4,979
Other Non-	3.15	0.67	15.03	0.38	19.23	32,988,225	634,364	138,551	495,813
(No City)						296,604,456	3,974,896	1,245,739	2,729,157

Scenario 2

Plus 2 Billion in Valuation - Tax Receipts Increased - Requires Opt Outs

	Property Tax Levy Per Thousand of Valuation					Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
	County	Township	School	Fire	Total				
Agricultural	3.15	0.67	7.87	0.38	12.07	171,779,679	2,073,381	721,475	1,351,906
Non-Ag Acr	3.15	0.67	8.87	0.38	13.07	1,024,938	13,396	4,305	9,091
Owner-Occ	3.15	0.67	9.6	0.38	13.8	90,190,714	1,244,632	378,801	865,831
Manufactur	3.15	0.67	15.03	0.38	19.23	102,271	1,967	430	1,537
Manufactur	3.15	0.67	9.6	0.38	13.8	518,629	7,157	2,178	4,979
Other Non-	3.15	0.67	15.03	0.38	19.23	2,032,988,225	39,094,364	8,538,551	30,555,813
(No City)						2,296,604,456	42,434,896	9,645,739	32,789,157
							Percentage Increase	674.3%	1101.4%
							Dollar Increase	8,400,000	30,060,000

Scenario 3

Plus 2 Billion in Valuation - Tax Receipts With The Exception of Education Are Held Constant

	Property Tax Levy Per Thousand of Valuation					Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
	County	Township	School	Fire	Total				
Agricultural	1.14	0.09	3.66	0.05	4.20	171,779,679	721,593	93,724	627,869
Non-Ag Acr	1.14	0.09	4.66	0.05	5.20	1,024,938	5,330	559	4,771
Owner-Occ	1.14	0.09	5.39	0.05	5.93	90,190,714	534,893	49,209	485,684
Manufactur	1.14	0.09	10.82	0.05	11.36	102,271	1,162	56	1,106
Manufactur	1.14	0.09	5.39	0.05	5.93	518,629	3,076	283	2,793
Other Non-	1.14	0.09	10.82	0.05	11.36	2,032,988,225	23,096,146	1,109,212	21,986,934
(No City)						2,296,604,456	24,362,200	1,253,043	23,109,157
							Percentage Increase	0.6%	746.8%
							Dollar Increase	7,304	20,380,000

Scenario 4

Plus 2 Billion in Valuation - Tax Receipts Held Constant

	Property Tax Levy Per Thousand of Valuation					Valuation	Amount of Tax	County&Twp-Fire	School Tax Only
	County	Township	School	Fire	Total				
Agricultural	1.14	0.09	1.08	0.05	1.62	171,779,679	278,401	93,724	184,677
Non-Ag Acr	1.14	0.09	1.21	0.05	1.76	1,024,938	1,801	559	1,242
Owner-Occ	1.14	0.09	1.31	0.05	1.86	90,190,714	167,485	49,209	118,277
Manufactur	1.14	0.09	2.05	0.05	2.60	102,271	266	56	210
Manufactur	1.14	0.09	1.31	0.05	1.86	518,629	963	283	680
Other Non-	1.14	0.09	2.05	0.05	2.60	2,032,988,225	5,283,283	1,109,212	4,174,072
(No City)						2,296,604,456	5,732,200	1,253,043	4,479,157
							Percentage Increase	0.6%	64.1%
							Dollar Increase	7,304	1,750,000

Table 15a
Existing Education Levies and Potential Property Tax
Liability Reductions

Scenario 1 2006 Levies Payable 2007	Scenario 3		Scenario 4	
	Minimum for State Aid	Percent of Existing	Revenue Neutral	Percent of Existing
7.87	3.66	47%	1.08	14%
8.87	4.66	53%	1.21	14%
9.6	5.39	56%	1.31	14%
15.03	10.82	72%	2.05	14%
9.6	5.39	56%	1.31	14%
15.03	10.82	72%	2.05	14%

³⁰ The county property tax levy is applied to 35.2 percent of the 2.0 billion dollar increase in valuation. The remainder of the county benefits from the remaining 64.8 percent of the valuation.

Property Taxes from Union County Perspective

The greatest impact is at the school district level but Union county taxpayers' revenues and levies will be affected if 2.0 billion dollars in property valuation is added to their county. The school district analysis addresses the county property tax for people living within the district's borders. The impact is not restricted to the school district. The county impact of 2.0 billion dollars of valuation on 2006 assessments with taxes payable in 2007.

The total 2006 taxable valuation in Union county for taxes payable in 2007 were 1.14 billion dollars. Had the HEC project been completed and valued for purposes of property taxation at 2.0 billion dollars, the total valuation of property in the county would have been 3.14 billion dollars. The increase in property tax revenues with the added valuation would have been 6.3 billion dollars given a static tax levy of 3.15 mills.

Summary Table 3
Union County Property Tax Revenue Impact
 Valuations Assessed 2006 Payable 2007

Union County Property Tax Impact			
(Valuations Assessed 2006 Payable 2007)	Within School District	County Levy	Revenues
Within School District 2006	296,604,456	3.15	934,304
Remainder of County 2006	843,722,821	3.15	2,657,727
Total	1,140,327,277		3,592,031
Add 2.0 Billion to Total	3,140,327,277	3.15	9,892,031
Estimated Increase in Revenues			6,300,000

The revenue neutral levy using this calculation methodology reduces the county property tax levy in the county to 1.14 or 36 percent of the initial value (3.15).

Summary Table 4
Union County Property Tax Revenue Neutral Levy
 Valuations Assessed 2006 Payable 2007

Union County Property Tax Impact			
(Valuations Assessed 2006 Payable 2007)	Within School District	County Levy	Revenues
Within School District 2006	296,604,456	3.15	934,304
Remainder of County 2006	843,722,821	3.15	2,657,727
Total	1,140,327,277		3,592,031
Add 2.0 Billion to Total	3,140,327,277	1.14	3,592,031
Estimated Increase in Revenues			0.00

Personal Property Taxes, Licenses and Fees

The workers at the HEC facility and those people throughout the economy with new jobs supported by the facility's economic activity will pay motor vehicle license fees, other fees and fines along with fishing and hunting licenses. The IMPLAN model estimates the contribution to public sector for public services will be approximately 4.6 million dollars.

The personal property tax impacts resulting from the new HEC personnel living in the area are difficult to estimate. Workers and business people benefiting financially from the economic activity of the HEC facility are currently living in or are expected to locate in a number of communities. Additionally, some of the new residents will choose to own their homes while others will opt to rent. Only preliminary estimates of new property tax revenues from the workers and business people are possible but some perspective is gained nonetheless.

If the 1,826 workers employed by HEC live in housing on average valued at 100,000 dollars, the valuations throughout Southeast South Dakota and the greater Sioux Land would increase by 182.6 million dollars. Using the Elk Point - Jefferson school district levies shown in Summary Table 1 and adding the Elk Point city levy to roughly approximate the revenue potential of city dwellers, the result of an additional 182.6 million dollars of valuation is an estimated 4.0 million dollars of property taxes. If 100,000 dollars of valuation per worker yields an estimated 4.0 million dollars of property tax receipts, an estimated average valuation of 150,000 dollars would result in a property tax revenue improvement of 6.0 million dollars.

The estimates assume Elk Point levies in 2006. Not all people will live in Elk Point. More importantly, the HEC facility's property tax impact is expected to lower all property tax rates. If all new employees move to Union county the estimated revenues from the new workers will be much lower and their property tax contribution will be a fraction of those paid throughout the state.

The communities that will benefit from the revenue increases are expected to occur primarily in South Dakota for income tax advantage reasons but will not be exclusively in the state. South Dakota communities with potential for new residents will span from Sioux Falls to Dakota Dunes on the I-29 corridor and west to include other communities including Yankton. The closest communities to the HEC facility include Elk Point, Beresford and Vermillion.

Economic Impact on State and Greater Siouxland

Refinery Material Procurement

As explained in the state analysis, a portion of the procurement dollars are identified to provide information and perspective regarding the investment being made in the project but little economic benefit to South Dakota or the area defined as the Greater Siouxland is expected from these expenditures. Of the 2.587 billion dollars spent on the procurement of materials, 2.190 billion will be spent out-of-state on materials including pipe and steel. Out-of-state procurement has no substantial direct or indirect benefit to the state's economy and these expenses are not given further consideration in the analysis. Local procurement of 0.398 billion dollars is money that will be spent in South Dakota with economic benefits going to that state and the Greater Siouxland. The economic benefit of this investment is tallied in the refinery economic impact estimates.

Refinery Construction

From ERM provided data, it is estimated that labor and other construction costs for the refinery portion of the HEC Project will total 3.387 billion in 2007 dollars and South Dakota direct expenditures will be 2.253 billion dollars of that amount.³¹ Adding the refinery in-state procurement amount of 0.398 billion dollars, the refinery in-state construction cost amount for the project is estimated at 2.651 billion dollars.

Economic Impact: Table 10 shows the estimated economic impact resulting from one million dollars of refinery construction activity in the state of South Dakota benefiting the state and the Greater Siouxland. The direct expenditures and impacts mirror Table 1. Direct expenditures are on-site expenditures in South Dakota. The direct expenditure of one million dollars in the construction of the refinery is estimated to directly result in 5.3 jobs and the creation of 485,400 dollars in worker income, proprietor's income and distributed corporate profits. The difference between the initial delivery of one million dollars of construction services and the 485,400 dollar increase in income is money spent on non-labor construction costs.

Induced spending differs from the state estimate for two reasons: labor from the greater Siouxland area is considered in the model and greater induced spending by workers and their families is expected by including the Sioux City trade center in the impact estimate. Induced output from household spending in South Dakota and the Greater Siouxland Area is estimated at 421,800 dollars for each million dollars worth of construction. As in

³¹ All money references are in 2007 dollars.

the state model, there is an assumption that a large percentage of the workers will not be from South Dakota or the Greater Siouxland Area. Those workers having households to support located outside this area will continue to support households and spend a substantial portion of their paychecks in their home state. The percentage of induced expenditures, value added and jobs created in South Dakota and the Greater Siouxland is assumed to be 30 percent. That is 5 percentage points higher than the assumption in the South Dakota only model. The thirty percent assumption is arbitrary. There is no spending history to rely upon in South Dakota or in the Greater Siouxland for a construction project of this type and size.

Economic Activity: The construction multiplier for refinery construction in South Dakota and the Greater Siouxland is estimated to be 1.4. The expenditure of 2.651 billion dollars will create overall economic activity of 3.7 billion dollars throughout the economy of the defined area. That estimate includes 666.5 million dollars of purchases from other businesses and 335.4 million dollars (421.8 x 30%) of economic activity as the households benefiting from the construction of the refinery spend money in the economy of South Dakota and the defined Greater Siouxland area.

Table 16
South Dakota and Greater Siouxland
Economic Impact Multipliers for Refinery Construction
Full and Partial Induced Impact

	Total Output	Value Added	Employment
Direct	1.0000	0.4854	5.3
Indirect	0.2514	0.1326	2.7
Induced @ 100%	0.4218	0.2391	4.5
Total	1.6732	0.8570	12.5
Total Assuming 30% of			
Induced Spending	1.3779	0.6896	9.4
Source: IMPLAN regional input-output economic impact estimator, 2004 data.			
<i>*Induced @ 30%</i>	<i>0.1265</i>	<i>0.0717</i>	<i>1.4</i>

Value Added or Income:³² Payments for labor, to proprietors' income, or distributed corporate profits represent added wealth for people. It is the employee's or proprietor's income plus any profits realized by owners of corporations serving the entities that is new wealth to the local economy. The Value Added multiplier with the thirty percent induced spending assumption is 0.690 for each one million dollars of economic activity. See Table 11. The new wealth to the state and area by delivering 2.651 billion dollars of construction to final demand is estimated to be 1.8 billion dollars. See Table 12, below.

³² See Technical Note 3 on page 30.

Table 17
South Dakota and Greater Siouxland
Economic Impact of Refinery Construction in 2007 Dollars
Assumes 30% of Induced Impact and No Cost Escalation Money

	Total Output	Value Added	Employment
Direct	2,650,996,053	1,286,682,142	14,131
Indirect	666,471,012	351,442,547	7,158
Induced @ 30%	335,453,859	190,132,883	3,579
Total Assuming 30% of Induced Spending	3,652,920,924	1,828,257,572	24,868

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Employment: It is estimated that there will be 24,868 full and part-time jobs created in the South Dakota and Greater Siouxland economies as a result of the HEC Project’s refinery construction. These are full and part-time jobs of one year or less in tenure spread over a five year period beginning in 2010 and ending in 2014. Employment will peak in the third year of the construction project.

Power Plant Construction

The economic impact multipliers for the refinery construction presented in Table 11 are used to estimate the economic impact resulting from one million dollars of power plant construction activity in South Dakota and the Greater Siouxland area. Consistent with the refinery economic impact estimate, the direct expenditure of one million dollars in the construction of the refinery is estimated to directly result in 5.3 jobs and the creation of 485,400 dollars in worker income, proprietor’s income and distributed corporate profits. The difference between the initial delivery of one million dollars of construction services and the 485,400 dollar increase in income is money spent on non-labor construction costs.

From data provided by ERM, it is estimated that labor and other construction costs for the power plant portion of the HEC Project will total 0.930 billion or 929.7 million in 2007 dollars.

Economic Activity: The total output multiplier for power plant construction in South Dakota and the Greater Siouxland area is estimated to be 1.4. The expenditure of 929.7 million dollars will have a total output economic activity impact of 1.3 billion dollars. That estimate includes 233.7 million dollars of indirect purchases from other businesses

and 117.6 million dollars of induced economic activity as the households benefiting from the construction of the power plant spend money in the state and Greater Siouxland area.

Table 18
South Dakota and Greater Siouxland
Economic Impact from Power Plant Construction in 2007 Dollars
Assumes 30% of Induced Impact and No Cost Escalation Money

	Total Output	Value Added	Employment
Direct	929,735,947	451,254,780	4,956
Indirect	233,739,336	123,255,094	2,510
Induced @ 30%	117,647,671	66,681,871	1,255
Total Assuming 30% of Induced Spending	1,281,122,954	641,191,745	8,721

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Value Added or Income:³³ Value added is employee's and proprietor's income plus any profits realized by owners of corporations. It is new wealth added to the local economy. With the thirty percent induced expenditure assumption, the value added multiplier for the state and Greater Siouxland area is 0.690 or 689,600 dollars per million dollars of construction. The new wealth brought to the state and Greater Siouxland area from delivering 929.7 million dollars of construction to final demand is estimated to be 641.2 million dollars.

Employment: It is estimated that there will be 8,721 full and part-time jobs created throughout the economy as a result of the power plant construction activity. These are 8,721 full and part-time construction jobs of one year or less in tenure spread over a five year period beginning in 2010 and ending in 2014. Employment will peak in the third year of the construction project.

³³ See Technical Note 3 on page 30.

Work Camp Impact

The HEC Project will house a portion of the construction workers on-site in temporary quarters and it is assumed that the remaining workers will lease property in neighboring communities. The investment in these temporary facilities and the support services for the work camp comprise the delivery of goods and services to final demand. ERM estimates that 89.6 million dollars will be spent on providing these facilities including support services for people living in these facilities. The division of funds between the lease payment for the facilities and the amount of money required to provide security, maintenance, trash disposal, laundry, and other related services is not yet firm. A portion of the lease amounts for facilities will be local expenditures. The full funding amount for the support activities is expected to be local.

Of the 89.6 million dollars budgeted for the work camp, it is assumed that 75 percent will be spent on facility leases or purchases and that 25 percent of that amount will be spent on work camp support services. The expenditure of the 67.2 million dollars on facility leases for work camp housing is assumed to be one-fourth or 16.8 million dollars in South Dakota and three-fourths or 50.4 million dollars outside the state. Out-of-state expenditures will be to companies that provide mobile temporary facilities to be located at the worksite. In-state expenditures will be for new and existing housing in the area.

The South Dakota and Greater Siouxland impact will be a combination of the 16.8 million dollars spent for housing space leased in South Dakota and 22.4 million dollars (25 percent of 89.6 million) which will be spent for on-site work camp support services. These expenditure amounts or subsequent spending resulting from this stimulus will have impact on the state and Greater Siouxland economies.

Economic Activity: The estimated state and Greater Siouxland total output multiplier for leased housing and work camp support services is 1.5. The 39.2 million dollar expenditure for leased housing and work camp support services will have an overall economic impact in the state and Greater Siouxland's economy in the amount of 57.0 million dollars. That estimate includes 12.8 million dollars of purchases from other businesses and 5.1 million dollars of economic activity as the households benefiting from the operation of the leased property and work camp support spend money in the state. Induced measures are assumed to be 30 percent of the full IMPLAN estimates.

Value Added or Income: Given the induced spending assumption, the Value Added multiplier is 0.840. The new wealth to the state and Siouxland area generated by delivering 39.2 million dollars of leased housing and work camp support services to final demand in the economy is estimated to be 31.0 million dollars. Prevailing wages as defined in the IMPLAN model are assumed in the calculation of this impact.

Table 19
South Dakota and Greater Siouxland
Economic Impact Multipliers for Work Camp Support Services
Full and Partial Induced Impact

	Total Output	Value Added	Employment
Direct	1.0000	0.5407	17.0
Indirect	0.3257	0.1773	3.3
Induced	0.4299	0.2437	4.6
Total	1.7555	0.9616	24.9
Total Assuming 30% of			
Induced Spending	1.4546	0.8398	22.6
Source: IMPLAN regional input-output economic impact estimator, 2004 data.			
<i>*Induced @ 30%</i>	<i>0.1290</i>	<i>0.0731</i>	<i>1.4</i>

Employment: It is estimated that there will be 850 full and part-time jobs created throughout the state and Siouxland economy as a result of the leased housing and work camp support opportunities. These are 850 full and part-time jobs of one year or less in tenure spread over a five year period beginning in 2010 and ending in 2014.

Table 20
South Dakota and Greater Siouxland
Economic Impact of Work Camp Support Service Expenditures in 2007 Dollars
Assumes 25% of Induced Impact and No Cost Escalation Money

	Total Output	Value Added	Employment
Direct	39,205,000	21,199,006	666.5
Indirect	12,767,343	6,949,243	129.4
Induced @ 30%	5,056,104	2,865,725	54.1
Total Assuming 30% of			
Induced Spending	57,028,448	31,013,974	850
Source: IMPLAN regional input-output economic impact estimator, 2004 data.			

Start Up: Refinery & Power Plant

ERM estimates that it that it will require 188.2 million dollars to put necessary supplies and equipment in place in South Dakota and test the refinery and power plant facilities prior to beginning full operations. Money for acquisitions of chemicals/catalysts, spare parts, lab equipment, and vehicles would be included in this amount. Also in the 188.2 million dollars is training for the operation and maintenance of the refinery and power plant and security during the pre-operational phase of plant activities.

What has not yet been clearly defined is the division of expenditures between the activities. It is not yet clear how much of the funding will be expended for inventory items and how much of the funding will be spent on training and testing. It is assumed in the analysis with out substantiation that 75 percent of the funding or 141.2 million dollars will be spent on inventory and 25 percent or 47.1 million will be spent on security, training and testing costs at startup.

The 141.2 million dollars will leak from the South Dakota economy with little local impact. The 47.1 million dollars spent on testing, training and security personnel are assumed to be salary and benefits having a local economic impact.³⁴

The approximate number of full time equivalent (FTE) employees required for the startup tasks on and off site is estimated to be in the range of 290 to 340. The economic impact of salary dollars paid to these workers is solely induced spending. The expenditure of their income in the local economy will result is a modest multiplier effect as the money makes its way through the economy. Assuming 20 percent of induced spending remaining local in the measure beyond the initial payment of 47.1 million dollars, the total value added is estimated to be 48.7 million dollars. That amount is the initial salary amount of 47.1 million plus the increase in state income resulting from household expenditures as measured by the value added multiplier. The full amount of the 47.1 million dollars of new wealth is direct value added because pay checks will be written in South Dakota. Given the 20 percent assumption, the full and part time jobs in addition to the on-site number is estimated to be 6.6. The in-state percentage is an assumption based upon project analyst assessment.

Operations: Refinery & Power Plant

The total output multiplier for the operation of the refinery and the on-site power plant is estimated to be 1.14.³⁵ The contribution of the power plant to economic impacts is considered an internal purchase of electric power in the refinery process. For each one million dollars of economic activity delivered to final demand by the HEC Project, the

³⁴ See Technical Note 3 on page 30.

³⁵ See Technical Note1 on page 30 for comments on refinery operation estimates.

estimated economic activity including the purchase of goods and services from other businesses and the purchases of households, it is estimated that 1,135,900 dollars of total economic activity will occur in South Dakota and the Greater Siouxland.

For each one million dollars of economic activity, it is estimated that wealth, the value added by workers, proprietors and distributed corporate profits will increase 106,600 dollars and that there will be a resulting employment impact of 1.3 full and part-time jobs created in the economy.

Table 21
South Dakota and Greater Siouxland
Economic Impact Multipliers for Refinery and Power Plant Operations

	Total Output	Value Added	Employment
Direct	1.0000	0.0346	0.1
Indirect	0.0943	0.0484	0.7
Induced	0.0416	0.0236	0.5
Total	1.1359	0.1066	1.3

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Economic Activity: The economic impact from delivering 12.3 billion dollars annually to final demand by HEC Project is estimated to be 14.0 billion dollars given the 1.14 total output multiplier³⁶. That estimate includes a 1.16 billion dollar indirect impact from purchases of goods and services from businesses in South Dakota and the Greater Siouxland. Also, 0.512 billion or 512 million dollars of induced economic activity will be created as the households benefiting from the operation of the refinery and power plant spend money in the state and the area defined as the Greater Siouxland.

Value Added or Income: Value added is new wealth in the form of employee income, proprietor income and any distributed profits realized by owners of corporations. It is a measure of the value-added directly or indirectly by all participants. The Value Added in the state and Greater Siouxland as a result of delivering 12.3 billion dollars of goods and services to final demand is 1.3 billion dollars a year.

³⁶ All money in 2007 dollars.

Employment: It is estimated that there will be 15,973 full and part-time jobs created throughout the South Dakota and Greater Siouxland economy as a result of refinery and power plant operations.

Table 22
South Dakota and Greater Siouxland
Economic Impact from Refinery and Power Plant Operations
in 2007 Dollars

	Total Output	Value Added	Employment
Direct	12,284,000,000	424,930,978	1,826
Indirect	1,158,091,666	594,055,198	8,617
Induced	511,529,603	290,168,005	5,530
Total	13,953,621,269	1,309,154,181	15,973

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

Agricultural Economic Impact

The footprint for the HEC Project including a surrounding buffer area covers six square miles of agricultural land. At 640 acres in a square mile, that is a loss of 3,840 acres of farm land. FedStats³⁷ reports that there was a total of 276,588 acres of farm land in Union county in 2002. The 3,840 acres used for the project would be a farm land decrease of 1.39% in that county and a resulting loss of income from farm marketings.

The economic loss is a “potential loss” estimate which would only result if all land on the HEC site is removed from agricultural production. The “expected loss” is much less given that approximately 58 percent or 2,240 of the 3,840 acre HEC site will continue as a green buffer. The facility footprint for the HEC project is 1,600 acres of the total.

The five most recent years of farm cash receipts published by the Bureau of Economic Analysis, 2001 through 2005, is presented below. Note that the receipts from farm marketing are increasing with the highest value occurring in 2005. Also note that the majority of the receipts have varied between crops and livestock. The multiplier was estimated assuming one-half of the cash receipts coming from crops, one-fourth from cattle and one-fourth from livestock other than cattle production. Government payments are not considered in the economic impact estimates. Government payments to agricultural producers in Union county over the five year period ranged from 5.1 million (2002) to 18.6 million dollars (2005).

³⁷ www.fedstats.gov FedStats provides access to Federal statistical information

The full direct loss of farm production will take place in South Dakota. The impacts on South Dakota and Greater Siouxland reflect indirect and induced economic activity.

Table 23
From Farm Income and Expenses
Union County
(thousands of dollars)

	2001	2002	2003	2004	2005
Cash Receipts from Marketing (,000)	91,559	97,467	113,588	123,016	134,575
Cash Receipts from Livestock	48,148	44,838	54,349	62,924	70,236
Cash Receipts from Crops	43,411	52,629	59,239	60,092	64,339

The economic activity multiplier for delivering 1.9 million dollars of crops and livestock to final demand is estimated to be 1.6. For each one million dollars of farm products “not” delivered to final demand by Union county farmers³⁸, the estimated loss of economic activity is 1,658,100 dollars. That is the estimated economic activity to be lost from farm production in South Dakota at the state level and Greater Siouxland. Farm income volatility does not allow for precise estimation. The largest potential loss year, 2005 from Table 8, is used in this estimate.

Economic Activity: The economic impact from not delivering 1.9 million dollars annually to final demand by Union County farmers is estimated to be 3.1 million dollars given the 1.7 total output multiplier

Table 24
South Dakota and Greater Siouxland
Economic Impact Multipliers for Agricultural Production

	Total Output	Value Added	Employment
Direct	1.0000	0.3435	8.3
Indirect	0.4206	0.2006	3.1
Induced	0.2375	0.1346	2.7
Total	1.6581	0.6787	14.1

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

³⁸ In 2005

Value Added or Income: Payments for labor, to proprietors' income, or distributed corporate profits represent added wealth for people. It is the employee's or proprietor's income plus any profits realized by owners of corporations serving the entities that is new wealth to the local economy. It is a measure of the value-added directly or indirectly by all participants. With the thirty percent induced expenditure assumption, the value added multiplier for the state is 678,700 dollars per million dollars of agricultural marketings. The new wealth to the state and Siouxland area from delivering 1.87 million dollars of agricultural products to final demand is estimated to be 1.24 million dollars.

Employment: It is estimated that the loss of full and part-time jobs throughout the state's economy as a result of the Union county agricultural products "not" being delivered to final demand is 26.4 jobs.

Table 25
The Potential³⁹ South Dakota and Greater Siouxland
Economic Impact from Agricultural Loss
in 2005 Dollars

	Total Output	Value Added	Employment
Direct	1,870,593	642,507	15.5
Indirect	786,678	375,276	5.8
Induced	444,333	251,845	5.1
Total	3,101,603	1,269,629	26.4

Source: IMPLAN regional input-output economic impact estimator, 2004 data.

³⁹ Potential loss is an estimate based upon 3,840 acres being removed from agricultural production. The actual loss may be substantially less given the HEC site covers 1,600 acres of that total.

Technical Notes:

Refinery Operations:

1) There is currently no refinery in South Dakota upon which to model the impact of the facility operations. The national model which is the average of all states with refinery capacity was used for the estimate with one substantial modification. The national model shows refineries as an industry that purchases substantial goods and services from other businesses in the same sector. The HEC Project is the first entry from this sector into the state or defined Siouxland area. The sector purchases by the HEC Project are considered imports in the economic impact estimates for South Dakota and the Greater Siouxland. The accuracy of estimates for South Dakota and the Greater Siouxland will be affected by how well a local refinery mirrors the nation's average refinery.

The HEC Project includes a power plant onsite as part of the facility. A separate impact for the power plant was not performed. To estimate the impact of a refinery and a power plant without netting out the impact of the power plant would result in double counting. The economic impact of the power plant is included in that for the refinery's operations.

Delivery of Crude Oil:

2) The source of crude oil to the refinery is not addressed in this study. The delivery of oil to the facility is not taken into consideration in the economic impact estimates. However, the pipeline component does remain in the model for another reason. The pipeline expense in the IMPLAN model was maintained in the estimate to account for delivery of natural gas to the power plant located at the HEC site.

Construction:

3) It is technically appropriate that the "direct" value added amounts in the economic impact estimates for construction and startup are attributed to the South Dakota economy. The value added impact is assigned to the geography where the activity is delivered. That is where the jobs and income to proprietors and corporations is located. That is not to say that the full measure of new wealth described will remain in that geography. A large percentage of the new wealth described in the construction and startup activities is expected to leak from the state's economy with the out-of-state and region businesses and their employees. Many of the skills required for the construction of a refinery, its startup and testing are skill sets not available from professionals and laborers in South Dakota or the Greater Siouxland. The job estimates reflect expectations as modeled. The value added or new wealth to South Dakota from "direct impacts" plus "indirect impacts" that will be kept in South Dakota is assumed to be twenty-five percent and is the basis for the partial "induced" impact estimates in the construction and startup tables. The indirect

impacts are assumed to be purchases in South Dakota or the Greater Siouxland area, respectively.

IMPLAN

There are numerous assumptions in the IMPLAN model methodology and in its use. The relationship of inputs to output is one.

4) IMPLAN is a fixed input model that assumes relative prices of inputs do not affect the firm's purchase of inputs and that the technology represented in the model will not change. The model assumes output will increase in proportion to inputs given a fixed technology.