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October 31, 2006

The Honorable Steve M. Mihalchick
Administrative Law Judge
Office of Administrative Hearings
100 Washington Square, Ste 1700
Minneapolis, MN 55401-2138

RE: In the Matter of a Petition by Excelsior Energy, Inc. for Approval of a Power Purchase
       Agreement Under Minnesota Stat. 216B.1694, Determination of Lease Cost Technology
       And Establishment of a Clean Energy Technology Minimum Under Minn. Stat. 216B.1693;
       OAH Docket No: 12-2500-17260-2
       MPUC Docket No: E6472/M-05-1993

Dear Judge Mihalchick:

       Enclosed for filing in the above referenced docket, please find the Public Surrebuttal Testimony and
Exhibits of Eilon Amit filed on behalf of the Minnesota Department of Commerce.

       The Department is also filing a copy of this document electronically. Also enclosed is an affidavit
of service.

Very truly yours,

/s/ Valerie M. Smith
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Enc.
c(w/enc.): All Parties of Record

BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
100 Washington Square, Suite 1700
Minneapolis MN 55401-2138

FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION
121 7th Place East, Suite 350
St Paul MN 55101-2147

LeRoy Koppendrayer	Chair
Marshall Johnson	Commissioner
Kenneth Nickolai	Commissioner
Phyllis Reha	Commissioner
Thomas Pugh	Commissioner

IN THE MATTER OF A PETITION BY   Docket No. E6472/M-05-1993
EXCELSIOR ENERGY, INC. FOR APPROVAL
OF A POWER PURCHASE AGREEMENT
UNDER MINN. STAT. §216b.1694,
DETERMINATION OF LEAST COST
TECHNOLOGY, AND ESTABLISHMENT OF
A CLEAN ENERGY TECHNOLOGY
MINIMUM UNDER MINN. STAT. §216b.1693

SURREBUTTAL TESTIMONY AND EXHIBITS OF EILON AMIT

ON BEHALF

OF THE MINNESOTA DEPARTMENT OF COMMERCE

PUBLIC DOCUMENT

OCTOBER 31, 2006

SURREBUTTAL TESTIMONY OF EILON AMIT
EXCELSIOR ENERGY, INC.

DOCKET NO. E6472/M-05-1993

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I.   BACKGROUND

Q.   Please state your name.

A.   My name is Dr. Eilon Amit.

Q.   Are you the same Dr. Eilon Amit who previously filed direct and Rebuttal testimonies in this proceeding?

A.   Yes, I am.

Q.   What is the purpose of your Surrebuttal Testimony?

A.   My purpose is to:

- Update my cost comparison, including transmission costs, sequestration costs and economic development benefits, and

- Respond to Excelsior Energy's (Excelsior or the Company) witnesses' rebuttal testimonies. Specifically, I respond to the rebuttal testimonies of Mr. James A. Skurla, Mr. Ronald H. Wolk, Mr. Edward C. Bodmer, Mr. Douglas H. Cortez, Ms. Margaret A. Meal, Mr. Roger W. Gale, Mr. Thomas L. Osteraas, and Professor Jim Chen.

1	**II.**	**UPDATED COST ANALYSES INCLUDING TRANSMISSION AND**
2		**SEQUESTRATION COSTS AND ECONOMIC DEVELOPMENT BENEFITS**
3	*A.*	*UPDATE OF MY COST COMPARISON*
4	**Q.**	**Please explain your updated cost analyses.**
5	A.	In my rebuttal analysis I treated transmission and sequestration costs as non-capital
6		expenses and simply expensed those costs over 25 years period. However, both
7		transmission and sequestration expenses are capital expenses and therefore, should
8		receive the same cost treatment as the cost treatment of rate-base items. In particular,
9		their annual costs consist of a return on the investment plus depreciation. My updated
10		analyses include these cost adjustments and an update of the Big Stone II costs, based on
11		the October 2, 2006 Big Stone updated filing (Docket No. E017/CN-05-619).
12		Additionally my update includes the addition of Allowance for funds Used During
13		Construction (AFUDC) costs for Sherco 4.
14		The analysis of the AFUDC costs for Sherco 4 is summarized in DOC Exhibit
15		No. ___ (SUREA-1), page 1 of 2, and my analysis of the transmission and AFUDC costs
16		together is summarized in DOC Exhibit No. ___ (SUREA-1), page 2 of 2. My Big Stone
17		II update, including transmission costs, is summarized in DOC Exhibit No. ___
18		(SUREA-2). The levelized transmission costs for the Excelsior West Site plan are
19		summarized in DOC Exhibit No. ___ (SUREA-3) and the sequestration costs for
20		Excelsior West Site plant are summarized in DOC Exhibit No. ___ (SUREA-4).
21		
22	**Q.**	**Dr. Amit, what are the costs of the Excelsior PPAs and the comparison alternatives**
23		**including transmission and sequestration costs?**

1   A.   Table 1 below summarizes the costs with transmission and externalities costs; Table 2

2   below summarizes the costs including transmission and sequestration costs.

Table 1: Cost (Price) Comparison Including Emission and Transmission Costs

Alternatives	Levelized Price With Emissions, No Transmission Cost $/MWh	Levelized Transmission $/MWh	Total Levelized Costs $/MWh
Excelsior Energy			
West Site (603 MW)	96.04	6.29	102.33
East Site (598 MW)	104.91	6.29[1]	111.20[1]
West Site (450 MW)	120.87	6.29[1]	127.16[1]
East Site (450 MW)	130.76	6.29[1]	137.05[1]
Big Stone II	73.02	2.74	75.76
Sherco 4	72.54	2.79	75.33[3]

[TRADE SECRET DATA HAS BEEN EXCISED]

Table 2: Cost (Price) Comparison Including Emission, Transmission and Sequestration Costs

Alternatives	Levelized Costs Including Transmission $/MWh	Levelized Costs of Sequestration $/MWh	Total Levelized Costs $/MWh
Excelsior Energy			
West Site (603 MW)	102.33	50.02	152.35
East Site (598 MW)	111.20[1]	50.02[2]	161.22[2]
West Site (450 MW)	127.16[1]	50.02[2]	177.18[2]
East Site (450 MW)	137.05[1]	50.02[2]	187.07[2]
Big Stone II	75.76[3]	-	75.76[3]
Sherco 4	75.33[4]	-	75.33[4]
Comanche 3	**[TRADE SECRET DATA HAS BEEN EXCISED]**		

---

[1] The actual levelized transmission costs for the East Site 598 MW and 450 MW and the West Site 450 MW are greater than the 6.29 because their expected annual production levels, over which the costs are spread, are smaller than the expected annual production of the 603 MW West Site plant. The same holds true for the levelized costs for these sites, including transmission.

[2] The actual sequestration costs per MWh for the East Site and the 450 MW West site are higher than $50.02. See footnote 1 for explanation.

[3] Big Stone II costs are updated per the October 2, 2006 filing in that proceeding.

[4] Sherco 4 total costs include $7.99/MWh of levelized AFUDC costs.

1	Q.	**Please summarize your cost comparisons.**
2	A.	After accounting for transmission costs, AFUDC costs and sequestration costs, the least
3		cost of Excelsior plants (West Site 603 MW) is significantly more expensive than any of
4		the alternative baseload plants.
5		
6	*B.*	*ECONOMIC DEVELOPMENT BENEFITS*
7	Q.	**Dr. Amit, have you reviewed Excelsior Witness James A. Skurla's testimony and**
8		**the previous economic development study submitted by the Labovitz School of**
9		**Business and Economics, University of Minnesota-Duluth?**
10	A.	Yes, I have.
11		
12	Q.	**Please discuss in general the issue of economic development benefits.**
13	A.	In considering the benefits of economic development, it is very important to distinguish
14		between economic benefits that simply represent income transfer among members of
15		society, or merely a redistribution of total wealth versus economic benefits that result in a
16		net increase of total wealth. From a purely economic perspective, only benefits
17		associated with a net increase in total wealth should be included in the total benefits of
18		the project.
19		
20	Q.	**Dr. Amit, please provide an example of economic development benefits which**
21		**represent a redistribution of income with no net economic benefit.**
22	A.	A simple example is a factory that decided to relocate from, for example, the Twin Cities
23		to the Iron Range because a regional development agency on the Iron Range provided it

1		with partial income tax exemption. The income and jobs associated with the factory
2		would not generate any net benefits for Minnesota; there would only be a transfer of
3		benefits from the Twin Cities to the Iron Range. The net tax benefits are zero to the
4		State.
5		
6	**Q.**	**Did Excelsior Energy provide an analysis of the economic development impacts of**
7		**its proposed IGCC project?**
8	A.	Yes, it did. The Labovitz School of Business and Economics, University of Minnesota-
9		Duluth, provided an analysis of the economic development impact of the IGCC project
10		on the Arrowhead Region and on Minnesota. This report is provided as Exhibit B,
11		Volume I, of Excelsior Energy's Report to the Commission (December 2005). Also, on
12		October 10, 2006 Mr. Skurla provided testimony updating the above mentioned study.
13		
14	**Q.**	**Dr. Amit, please discuss the Labovitz Report.**
15	A.	The Labovitz Report is based on an Input-Output model. Such a model measures the
16		incremental impact on the economy resulting from an initial increase in spending
17		(demand) for this economy. It takes into account the intermediate demands across all
18		relevant sectors of the economy and the interactions across all the relevant industries and
19		services.
20		The Report analyzes both the construction spending and the operational activity
21		impacts on the Arrowhead region and on the state of Minnesota.

	Q.	**Dr. Amit, please summarize the main conclusions of the Report.**
1		
2	A.	The Report analyzes the benefits to the Arrowhead region and to Minnesota of the
3		proposed Mesaba project. The appropriate measures of benefits are the net increase in
4		regional income or Gross Regional Product associated with the Excelsior Energy project.
5		These two measures are equivalent and should provide the same numbers.

6

7 Q. Please continue.

8 A. The updated report identifies two types of benefits: construction benefits and operational

9 benefits. Table 3 below summarizes these benefits.

10 **Table 3: Labovitz Report – Summary of Benefits**

	Benefits in Nominal Dollars	
	Construction	Typical Year-Operational
Arrowhead	$587,163,396	$370,182,128
Minnesota	$726,294,314	$390,775,856

16

17 Q. Do you have any comments about these numbers?

18 A. Yes. Both the original report and the updated report seem to use the appropriate

19 methodology. However, the updated report shows that the operational benefits for a

20 typical year in both Arrowhead and Minnesota are over $100 million higher than in the

21 original report. This revision represents an approximately 50 percent increase in the

22 operation benefits of a typical year. It is unclear why the updated report produced such

23 an increase in comparison to the original report.

24

25 Q. Dr. Amit, should these benefits be used to adjust the prices of the PPA downward to

26 reflect economic benefits of the proposed project?

| 1 | A. | No, they should not. |

2

| 3 | **Q.** | **Please explain.** |

4	A.	First, both the construction phase and the operation phase of the Excelsior facilities will
5		require a highly skilled labor force. As of October 2005, the average unemployment rate
6		in the Arrowhead region was 3.6 percent (Department of Employment and Economic
7		Development-Minnesota (DEED)) which is a low level of unemployment. Moreover,
8		according to DEED: "Tight labor force will pose a serious challenge to staffing,
9		succession planning and future business growth." [www.deed.state.mn.us]

10   Based on this information, since there is little unemployment in the Arrowhead

11   region, the additional labor required for both the construction and operational phases of

12   the Mesaba project will largely and necessarily represent a redistribution of labor, not a

13   significant net increase in jobs. Therefore, the benefits associated with additional jobs

14   will be insignificant.

15   Second, absent the Mesaba project, the future demand for electricity in Minnesota

16   would require the construction of an alternative baseload plant to meet the future

17   demand. Such an alternative project is likely to produce economic development benefits

18   similar to those likely to be generated by the Mesaba project. Therefore, the overall net

19   benefits from the Mesaba project versus an alternative generation project are likely to be

20   insignificant.

21   Third, as I explain later in these comments, Xcel does not need new baseload

22   capacity until the year 2015. Therefore, requiring Xcel to purchase power from Excelsior

23   would in effect result in substituting Excelsior's 603 MW of capacity and the associated

1		energy for much lower price existing capacity and energy. This substitution would
2		significantly increase Xcel's ratepayers' electricity costs. Such higher costs would also
3		produce secondary negative impacts on the Minnesota economy. Therefore, an
4		appropriate economic cost/benefit study should account for all of the impacts of higher
5		energy costs resulting from the Excelsior Project.
6		
7	Q.	**Dr. Amit, please summarize your analysis of the economic development benefits of**
8		**the Mesaba project.**
9	A.	As I have discussed earlier in this testimony, the economic development benefits of the
10		Mesaba project appear to largely represent redistribution of benefits rather than net
11		incremental benefits. Moreover, the study does not include the negative impacts of the
12		higher energy price. Therefore, there is no need to adjust the price of the Mesaba project
13		to reflect economic development benefits based on this study.
14	0	
15	III.	**RESPONSE TO THE REBUTTAL TESTIMONY OF EXCELSIOR WITNESS**
16		**RONALD H. WOLK**
17	*A.*	*SUMMARY OF MR. WOLK'S REBUTTAL TESTIMONY*
18	Q.	**Dr. Amit, please summarize Mr. Wolk's Rebuttal Testimony regarding your Direct**
19		**Testimony.**
20	A.	Mr. Wolk's main conclusion is that, after making what he considers to be some
21		appropriate adjustments to my calculations, the costs of Big Stone II and Sherco 4 are
22		similar to the cost of the Excelsior IGCC Plant.

1	**Q.**	**Dr. Amit, please discuss Mr. Wolk's analysis and conclusions.**
2	A.	I first discuss his Big Stone II analysis and then continue with discussion of Sherco 4 and
3		Comanche 3.
4		
5		*1. Big Stone II Analysis*
6	**Q.**	**Please discuss Mr. Wolk's analysis of Big Stone II.**
7	A.	Mr. Wolk compares Fluor's economic analysis of a hypothetical 600 Megawatts (MW)
8		supercritical plant (SCPC) (Exhibit G, Volume I of Excelsior's December 2005 filing
9		before the Minnesota Public Utilities Commission (Commission)) with the updated Big
10		Stone II economic analysis (supplemental testimonies, Docket No. E017/CN-05-619,
11		October 2, 2006). In particular, Mr. Wolk uses updated exhibits for Big Stone II (33H,
12		47A and 40-B) to calculate the total construction costs, including Allowance for Funds
13		Used During Construction (AFDUC). His calculations are summarized in Table 2 of his
14		testimony. Mr. Wolk also calculates the levelized price of the Fluor hypothetical SCPC
15		Plant. His analysis shows that the levelized price of the SPSC plant is $98.72 per MWh
16		as compared to my estimated levelized price for Big Stone II of $74.48.
17		
18	**Q.**	**Dr. Amit, please summarize Mr. Wolk's conclusion regarding Big Stone II.**
19	A.	Based on his analysis of the updated schedules filed by Big Stone II in Docket E017/CN-
20		05-619 and the Fluor SCPC study, Mr. Wolk concludes that the construction costs for
21		Big Stone II and Fluor's hypothetical SCPC Plant are very similar. Therefore, he
22		concludes that the discrepancy in their levelized costs per MWh is not reasonable. Mr.
23		Wolk then speculates that the lower levelized price for Big Stone II may be due to the

1		exclusion of AFUDC and the exclusion of insurance and taxes from the Operation and
2		Maintenance (O&M) costs.
3		
4	Q.	**Please discuss Mr. Wolk's conclusions.**
5	A.	First, the issue in this proceeding is the cost of the Excelsior proposed plant versus the
6		cost of alternative plants, not the cost of one SCPC plant versus another SCPC plant.
7		Second, Mr. Wolk's conclusion that my estimated levelized price for Big Stone II
8		is too low, because of the exclusions of AFUDC, is wrong. The updated levelized price
9		for Big Stone II (Docket E017/CN-05-619, Exhibit 47-A, Figure 1, page 7) includes
10		insurance, taxes and AFUDC. It is true that the O&M costs do not include insurance and
11		taxes. However, these costs are included as separate items and therefore are included in
12		the total levelized cost per MWh. It is also important to note that my updated levelized
13		cost of $74.48 per MWh is simply based on a 25 percent adder to my original annual cost
14		per MWh. Based on Big Stone's II updated cost as filed on October 2, 2006, the
15		levelized cost per MWh are $69.62, not $74.48. In other words, my analysis uses a cost
16		for Big Stone II that is even higher than the amount being used by the Big Stone II
17		proposers.
18		
19	Q.	**Please summarize your conclusions regarding Mr. Wolk's Big Stone II analysis.**
20	A.	Mr. Wolk's conclusion that my estimated levelized price for Big Stone II is too low is
21		without merit because counter to his speculations my estimate includes insurance, taxes
22		and AFUDC.

1		*2. Sherco 4 Analysis*
2	**Q.**	**Dr. Amit, please discuss Mr. Wolk's analysis of Sherco 4.**
3	A.	Mr. Wolk's analysis of Sherco 4 is based on NSP's "Base Load Development Process
4		Study and Options" study submitted to the Minnesota Public Utilities Commission
5		(Commission) in November, 2004.
6		Based on this study, he concludes that the study's estimated construction cost of
7		$1,860 per kW are too low (again, comparing it to the Fluor 600 MW hypothetical SCPC
8		Plant) as well as the O&M costs used in the above mentioned study. He also assumes
9		that that construction costs per kW do not include AFUDC. Therefore, he concludes that
10		my estimated levelized costs per MWh for Sherco 4 are too low.
11		
12	**Q.**	**Please comment.**
13	A.	My estimated levelized costs are based on updated data, not the November 4, 2004
14		Report to the Commission. For example, the construction costs are **[TRADE SECRET**
15		**DATA HAS BEEN EXCISED]** per kW not the $1,800 per
16		kW quoted by Mr. Wolk. However, it is true that my levelized costs do not include
17		AFUDC.
18		
19	**Q.**	**Dr. Amit, how do you propose to account for the omission of the AFUDC cost in**
20		**your calculations?**
21	A.	Based on information provided by Xcel, I updated the levelized price for Sherco 4,
22		including AFUDC costs. Based on this updated cost, the levelized costs of AFUDC are

1		$7.99 per MWh. I have included this amount in Tables 1 and 2 above. The updated
2		information is summarized in the DOC Exhibit No. ___ (SUREA-1).
3		
4	Q.	**Dr. Amit, please summarize your conclusions regarding Mr. Wolk's Sherco 4**
5		**analysis.**
6	A.	Mr. Wolk's two main arguments are:
7		• The costs are too low and, therefore, they are not reasonable; and
8		• The costs do not include allowance for AFUDC.
9		Regarding the first argument, his number of $1,860 per kW is based on old data that was
10		not used for my estimated levelized cost.
11		Regarding his second argument, the Sherco 4 estimated levelized costs, after
12		including the AFUDC costs, are still much lower than the levelized cost for Excelsior.
13		Based on the above analysis, I conclude that it is reasonable to revise my estimate
14		of levelized costs for Sherco 4 to include AFUDC costs, at an amount of $7.99 per MWh.
15		However, this change is relatively minor and does not alter the conclusions in my direct
16		or rebuttal testimonies.
17		
18		*3. Comanche 3 Analysis*
19	Q.	**Dr. Amit, please discuss Mr. Wolk's analysis of Comanche 3.**
20	A.	Mr. Wolk states that the Comanche 3 plant should not be used in comparison with
21		Excelsior because:
22		• It is a "brown field" plant (i.e., it is being built on a site with already existing
23		plants);

1   • It has earlier in-service dates which may result in much lower construction

2   costs; and

3   • It does not include costs associated with the necessary improvements for

4   Comanche Units 1 and 2.

5

6   **Q.   Dr. Amit, please comment on Mr. Wolk's claims.**

7   A.   First, the fact that Comanche 3 is built on a "brown field" does not in itself make the

8   Comanche 3 comparison inappropriate. To the degree that Xcel's energy and capacity

9   needs could be met by a "brown field" plant with lower cost than Excelsior, such an

10   action should be the preferred alternative.

11   Second, counter to the claim by Mr. Wolk, my estimated levelized price for

12   Comanche 3 includes the costs of the needed upgrades for Units 1 and 2. Finally, it is

13   true that due to the earlier "in service" date of Comanche 3, its construction cost could be

14   significantly lower than those of Excelsior.

15   However, in spite of the earlier construction date, the cost information regarding

16   Comanche 3 provides additional useful information that may assist the Commission in its

17   determination of the reasonableness of Excelsior's petition.

18

19   **Q.   Dr. Amit, please summarize your conclusions regarding Mr. Wolk's analysis of**

20   **your cost comparisons.**

21   A.   Mr. Wolk's main argument is that my estimated levelized prices for Big Stone II and

22   Sherco 4 are too low because they are significantly lower than Fluor's cost estimate for a

1		600 MW SCPC plant. He speculates that my estimated levelized prices do not include
2		certain components such as AFUDC costs.
3		As I explained earlier in this testimony, my updated cost figures include AFUDC
4		costs and all relevant costs for both Big Stone II and Sherco 4. There are no reasons to
5		assume that the financial models used by Xcel and Big Stone II are somehow inferior to
6		the one used by Fluor.
7		Therefore, I conclude that my updated estimated levelized prices for Excelsior,
8		Big Stone II and Sherco 4 are reasonable.
9		
10	**Q.**	**Do you have any additional comments regarding Mr. Wolk's Rebuttal Testimony?**
11	A.	Yes, I do.
12		
13	**Q.**	**Please continue.**
14	A.	Mr. Wolk claims that including externalities, the Excelsior Plant is the least-cost option.
15		
16	**Q.**	**Do you agree with Mr. Wolk's claim?**
17	A.	No, I do not. Mr. Wolk bases his conclusion on the study provided in Section III of
18		Excelsior's December 2005 filing before the Commission. However, based on my
19		analysis summarized in Tables 1 and 2 above, when using the Commission-approved
20		externalities values, both Big Stone II and Sherco 4 are significantly lower in costs than
21		Excelsior's proposed plant.
22		Therefore, I conclude that Mr. Wolk's statement is incorrect that including
23		externalities would make the IGCC plant the least-cost resource. As shown in Table 2

1		above, even including externalities and costs of sequestration (which internalizes CO_2
2		emissions), the IGCC plant is not a least-cost resource.
3		
4	**Q.**	**Does that complete your response to Mr. Wolk?**
5	A.	Yes.
6		
7	**IV.**	**RESPONSE TO THE REBUTTAL TESTIMONY OF THE COMPANY WITNESS**
8		**EDWARD C. BODMER**
9	*A.*	*INTRODUCTION*
10	**Q.**	**Dr. Amit, please summarize Mr. Bodmer's Rebuttal Testimony regarding your cost**
11		**comparisons.**
12	A.	The following statement by Mr. Bodmer summarizes his criticism of my analysis:

> The main problem with Dr. Amit's analysis is that the data
> he uses from Big Stone II and NSP contain different
> underlying analytical approaches to allocated costs in a site
> without an existing plant, inflation, environmental benefits,
> real options, first of kind cost, construction timing, and
> measurement of consumer risk than the prices in the
> Purchased Power Agreement ("PPA") used by Excelsior.
> Once the allocated costs, environmental benefits, recent
> increases in capital cost, options, first of kind costs, and
> risks are put on an equal footing, my analysis demonstrates
> that the Mesaba plant and its IGCC technology is currently
> a least cost resource for residents and business in the State
> of Minnesota.

27	**Q.**	**Please discuss Mr. Bodmer's criticism of your analysis.**
28	A.	Mr. Bodmer's main argument is that once the same assumptions are used to analyze
29		Excelsior, Big Stone II and Sherco 4, then Excelsior's PPA is a least-cost alternative. He

1		also concludes that the analysis of Comanche 3 produces financially unreasonable
2		results.
3		
4	B.	*DETAILED ANALYSIS OF MR. BODMER'S CRITICISM*
5		Comanche 3
6	**Q.**	**Please discuss Comanche 3.**
7	A.	Mr. Bodmer uses his own financial model to estimate emission costs, property tax and
8		insurance costs, variable and fixed O&M costs, and fuel costs for Comanche 3. He then
9		concludes that the first year price for Comanche 3 is not sufficient to cover NSP's capital
10		cost and income taxes.
11		
12	**Q.**	**Please comment on Mr. Bodmer's conclusion.**
13	A.	First, Mr. Bodmer uses Comanche 3's first year price of **[TRADE SECRET DATA**
14		**HAS BEEN EXCISED]** per MWh rather than the average
15		price of **[TRADE SECRET DATA HAS BEEN EXCISED]**
16		per MWh which would be the more appropriate price to use for financial
17		comparison.
18		Second, Mr. Bodmer's conclusion is based on the assumption that his financial
19		model is more appropriate than the financial model used by Xcel. Yet, he provides no
20		detailed comparative analysis of the two financial models in order to support his
21		conclusion. Therefore, Mr. Bodmer's conclusion regarding the analysis of Comanche 3
22		is without adequate foundation and appears to use a PPA price that is too low.

1	Q.	**Please discuss Mr. Bodmer's repeating argument that your analysis compares**
2		**apples with oranges.**
3	A.	On page 12 of his testimony, Mr. Bodmer provides a table which, according to him,
4		demonstrates my so-called apples-to-oranges comparison. Many of the entries in this
5		table reflect different risk allocations associated with Excelsior versus a utility-owned
6		plant. Since the costs of such risks are reflected in costs and pricing of these two
7		alternatives, such differences are not an "apples-to-oranges" comparison.
8		Moreover, it appears that Mr. Bodmer believes that a higher price for Excelsior is
9		justified because Excelsior's PPA transfers some risk away from the ratepayers to
10		Excelsior. The risk allocation issue is a separate issue that must be analyzed elsewhere in
11		these proceedings.
12		
13	Q.	**Dr. Amit, please comment on the specific items in Mr. Bodmer's table.**
14	A.	Below is a discussion of some of the items in Mr. Bodmer's table.
15		• **Construction Cost Risk**
16		"Higher risk for NSP, yet lower construction costs for NSP."
17		Regarding the proposed PPA, since construction costs are allocated to Fluor and
18		Excelsior after financial closing, the contract for engineering, procurement and
19		construction of the facility (EPC) must reflect such risk allocation and therefore either
20		requires Xcel's ratepayers to pay for the risk allocation or understates the cost of the PPA
21		if it is not included. Therefore, there is no reason to expect higher construction costs for
22		NSP. Moreover, the capital cost of Excelsior are significantly higher than the capital cost
23		of Xcel (NSP).

1	Regarding a utility self-build, such options are commonly subject to prudence
2	reviews, or downward adjustments to the utility's rate of return for cost over-runs.
3	Therefore, the utility's shareholders shoulder part of the construction risk.
4	• **Internalization of Operating and Capital Costs**
5	"Many of these costs are allocated to the Company, not directly to Big Stone II
6	or Sherco 4. Therefore, these costs do not show up in cost/MWh."
7	Since some of these costs are common costs for the utilities, it is appropriate to only
8	allocate portions of these costs to the plants. This cost allocation simply reflects an
9	inherent efficiency advantage for utilities and ratepayers versus independent power
10	producers, not an inappropriate apples-to-oranges comparison.
11	• **First Kind of Costs; First and Second Unit Comparison**
12	"Higher costs are justified because it is a new technology that may benefit
13	Minnesota's economy and the national energy policy."
14	Unless Minnesota is appropriately compensated for the risks, there is no reason for
15	Minnesota ratepayers to be the testing ground for new technology or subsidize the
16	national energy policy. Minnesota's economy will benefit from any new plant, and there
17	are no advantages for having Excelsior rather than a conventional coal plant. Building a
18	first unit is more expensive. However, to the degree that a new plant can be built on an
19	existing power plant site, it is a cost saving alternative that should be considered. There
20	is no apples-to-oranges comparison involved in this case.

1	Q.	**Are there more items in Mr. Bodmer's table?**
2	A.	There are 12 items altogether in Mr. Bodmer's table. However, for reasons similar to
3		those discussed above, none of them represents an apples-to-oranges comparison. In
4		other words, the analysis I provide is a fair comparison of the incremental costs that
5		ratepayers would pay for these different kinds of projects.
6		
7	Q.	**Please discuss Mr. Bodmer's specific analysis of the Big Stone II costs.**
8	A.	First, on page 32 of his Testimony, Mr. Bodmer provides a graph of the prices of the
9		Mesaba PPA (Excelsior), Big Stone II and the Fluor Regulatory Model, after his own
10		adjustments to the data provided by Big Stone II and Xcel. His graph shows that under
11		the Fluor regulatory model, prices decline between 2019 to 2030. Based on Excelsior's
12		response to the Department's Information Request No. 113, the prices (revenue
13		requirements) for the Fluor regulatory model increase in every year from 2015 to 2036.
14		Therefore, Mr. Bodmer's data is inconsistent with the data provided by Excelsior, on
15		whose behalf he testifies.
16		
17	Q.	**Please continue.**
18	A.	Mr. Bodmer argues that the comparison I performed between Big Stone II and Excelsior
19		is inappropriate because:
20		1. In the first four years, the Excelsior plant does not operate in full capacity,
21		while the same assumption is not made for Big Stone II.
22		2. Assumptions about the income tax rate, coal inflation rate and base coal
23		price are not the same between the two projects.

| 1 | | | 3. | Certain costs are not internalized by Big Stone II. |

1   3.   Certain costs are not internalized by Big Stone II.

2   4.   The Excelsior unit is a newly built unit on a new site, while Big Stone II is

3   an expansion unit.

4   5.   Some operational risks are lower for Excelsior than for Big Stone II.

5

6   **Q.**   **Please comment on Mr. Bodmer's arguments.**

7   A.   For the following reasons, I disagree with Mr. Bodmer's arguments.

8   1.   The Excelsior plant represents a new technology; Big Stone II does not.

9   Therefore, my assumptions regarding the operations in the first four years of

10   the two plants is reasonable.

11   2.   Both projects assume the same general inflation rate. Big Stone II assumes

12   higher coal prices of $1.71 MMBtu versus $1.38 per MMBtu for Excelsior.

13   Also, Big Stone II assumes fuel inflation of 2.9 percent versus 2.5 percent

14   for Excelsior. Finally, there is nothing to indicate that the income tax rates

15   are significantly different. So based on these numbers my cost estimate for

16   Big Stone II should be lower, not higher.

17   3.   As I explained earlier, Big Stone II may have common costs that are

18   reasonably shared by other utility operations. It is appropriate to allocate

19   such costs across all the users causing these costs. It is also appropriate, in

20   comparing costs, to recognize efficiencies from using infrastructure that is

21   already in place and for which ratepayers are paying An alternative to

22   Excelsior that represents a site with existing plants is an acceptable and

1		legitimate alternative that utilities can pursue to meet their customers' needs,
2		so it is appropriate to compare such options.
3		4.	As explained in 3, building an alternative plant on an already developed site
4			is an appropriate alternative.
5		5.	The risk allocation is a separate issue that depends to a large degree on the
6			PPA. As I concluded in my Direct Testimony, the proposed Excelsior PPA
7			inappropriately shifts risks away from Excelsior to Xcel and Xcel's
8			ratepayers.
9		
10	**Q.**	**On page 49 of his Testimony, Mr. Bodmer provides a table that summarizes his**
11		**changes to the cost of Big Stone II using his own financial model and his changed**
12		**financial and economic assumptions. Do you agree with these numbers?**
13	A.	No, I do not. Mr. Bodmer uses his own financial model in combination with assumptions
14		taken from the Fluor financial model and numbers from the Burns and McDonnell study
15		(Docket No. E017/CN-05-619) and a PA consulting study prepared for Montana-Dakota
16		Utilities Company, in combination with the 5 factors I previously discussed (please see
17		the previous two questions), to arrive at the numbers in the table on page 49 of his
18		testimony.
19		First, his numbers are inconsistent with the data provided by Excelsior and Big
20		Stone II. For example, Big Stone II provided an updated fuel escalation rate of 2.9
21		percent, not the 2 percent used by Mr. Bodmer. Also, the updated interest rate used by
22		Big Stone II is 7.5 percent, not the 7 percent used by Mr. Bodmer.

1		Second, without a careful analysis and comparison of all assumptions and factors
2		that were used in the three financial models [Fluor, Mr. Bodmer's and Big Stone II
3		(Burns & McDonnell Study)], it is impossible to determine whether Mr. Bodmer's
4		financial model and his set of assumptions are reasonable.
5		
6	**Q.**	**Please comment on Mr. Bodmer's discussion of Comanche 3 and Sherco 4.**
7	A.	I first discuss Comanche 3, followed by a discussion of Sherco 4.
8		
9		Comanche 3
10	**Q.**	**Please discuss Comanche 3.**
11	A.	Mr. Bodmer states that, based on $1,800/kW which is the cost provided by Xcel in 2004,
12		and using his financial model, the estimated cost for Comanche 3 will not provide any
13		reasonable return to investors.
14		
15	**Q.**	**Please comment.**
16	A.	First, it is not all clear that the construction cost for Comanche 3 is $1,800/kW. This
17		number is based on a 2004 Xcel news release and should not be relayed upon in
18		determining the cost per MWh.
19		Unless Mr. Bodmer points to specific deficiencies in the data used or the financial
20		model used to provide the estimated cost per MWh for Comanche 3, his criticism may
21		not be reasonable.

1	Q.	**Please discuss Sherco 4.**
2		<u>Sherco 4</u>
3	A.	Mr. Bodmer deferred more in-depth analysis of Sherco 4 because of lack of specific data
4		which is required for his analysis. However, he concludes that, based on Xcel's data
5		from its 2004 resource plan, the construction cost/kW used by Xcel is too low.
6		
7	Q.	**Please comment.**
8	A.	As I have discussed earlier in my rebuttal of Excelsior's witness, Mr. Wolk, the cost/kW
9		for Sherco 4 was updated and my estimated cost/MWh for Sherco 4 is based on the
10		updated data, not the 2004 data. Therefore, Mr. Bodmer's conclusion based on Xcel's
11		data from its 2004 resource plan is not relevant to this issue.
12		
13	Q.	**Are there any other issues raised by Mr. Bodmer?**
14	A.	Yes. Mr. Bodmer discusses PPA risk allocation issues.
15		
16	*C.*	*PPA'S RISK ALLOCATION ISSUES*
17	Q.	**Please discuss the risk issues raised by Mr. Bodmer.**
18	A.	Mr. Bodmer raises two concerns about changes in the risk allocation that is in the
19		proposed PPA:
20		• requiring Excelsior to pay for replacement power if the plant is delayed or
21		cancelled; and
22		• requiring Excelsior to provide some financial instruments to protect
23		ratepayers in the event of seller's dissolution or liquidation.

1		Mr. Bodmer explains that, in the first case, the requirement that Excelsior guarantee
2		replacement power would significantly raise the PPA rate, and would cost ratepayers
3		more than the benefits it would provide. Under the second scenario, Mr. Bodmer claims
4		that ratepayers are better off than under a rate base treatment, because under dissolution
5		or liquidation ratepayers pay nothing for the PPA, but under rate base treatment they may
6		have to pay for the non-performing plant.
7		
8	**Q.**	**Dr. Amit, please respond to Mr. Bodmer's claims.**
9	A.	The risk of delay or cancellation is a real risk, especially for an emerging technology
10		such as proposed by Excelsior. Conceptually, the overall cost of such events should be
11		the same if the ratepayers must pay for the replacement power or Excelsior must provide
12		guarantees for replacement power. Since the PPA requires Excelsior to provide
13		contractual amounts of capacity and energy, the risk of failing to do so must be allocated
14		to Excelsior, not to the ratepayers as proposed by Mr. Bodmer. Since the risk of delay or
15		cancellation is a real risk that must be borne by the PPA, then the cost of the PPA is
16		understated if the intent is for ratepayers to pick up the cost of the replacement power.
17		Regarding the event of dissolution or liquidation of the plant, the appropriate
18		comparison is not between a utility-owned plant and the Excelsior plant. Rather, the
19		appropriate comparison is between liquidation of the Excelsior plant versus liquidation of
20		Xcel. The risk of Xcel being liquidated is very minimal in comparison to the risk of
21		Excelsior's financial failure. Therefore, Mr. Bodmer's claim that it is unfair to require
22		financial warranties from Excelsior but not from Xcel's ratepayers is without merit.
23		Again, the risk of liquidation of Excelsior is a real risk which should be borne by

1		Excelsior, not Xcel's ratepayers. Ignoring such risks and costs would once again result
2		in an understated cost of the PPA.
3		
4	*D.*	*SUMMARY OF MY CRITICISM OF MR. BODMER'S REBUTTAL TESTIMONY*
5	**Q.**	**Dr. Amit, please summarize your response to Mr. Bodmer's Criticism.**
6	A.	Mr. Bodmer uses his own financial model and his own financial assumptions in
7		combination with the financial model of Fluor and certain data from the Burns and
8		McDonnell study (Docket No. E017/CN-05-619, October 2, 2006) to provide estimated
9		levelized costs for Big Stone II and Sherco 4, which are much higher than my estimated
10		levelized costs.
11		However, without a detailed analysis of the various financial models used and a
12		careful examination of the financial and economic assumptions used by Mr. Bodmer,
13		there is no basis to conclude that his estimates are more reliable than my estimates. In
14		particular, Mr. Bodmer fails to point to specific deficiencies in the financial models used
15		for Big Stone II and Sherco 4, respectively. Instead, he concludes that these estimates
16		are not reasonable because his financial models produces different results. I point out
17		Mr. Bodmer's errors and unsupported statements in my testimony above. Therefore, I
18		conclude that Mr. Bodmer's criticism of my estimated levelized costs is not well
19		supported by his analysis.
20		
21	**Q.**	**Does that complete your response to Mr. Bodmer?**
22	A.	Yes, it does.

1	**V.**	**RESPONSE TO THE REBUTTAL TESTIMONY OF THE COMPANY WITNESS**
2		**DOUGLAS H. CORTEZ**
3	**Q.**	**Please summarize Mr. Cortez's Rebuttal Testimony regarding your cost**
4		**comparisons.**
5	A.	Mr. Cortez claims that based on an updated Fluor Report (Cortex Exhibit ___ (DC-6))
6		Excelsior's levelized cost of electricity is similar to Big Stone's levelized cost of
7		electricity. Moreover, based on the same Report, Mr. Cortez claims that the construction
8		costs for Sherco 4 are unreasonably low.
9		
10	**Q.**	**Please discuss the updated Fluor Report (Report).**
11	A.	Fluor used its financial model and its financial assumptions including a discount rate of
12		9.75 percent, to estimate the levelized cost for Big Stone II, Sherco 4 and its own
13		hypothetical 600 MW supercritical Coal Plant (SCPC). Fluor estimates the levelized cost
14		for Big Stone II to be $95.05 per MWh. For Sherco 4, Fluor uses the costs per MWh
15		provided by Xcel in combination with all the costs from Big Stone II, excluding capital
16		costs, to conclude that the implied construction costs for Sherco 4 would have been
17		$1,570 per MWh, an unreasonably low number. Therefore, Fluor concludes that the
18		levelized costs for Sherco 4 are too low to be reasonable.
19		
20	**Q.**	**Please comment on the Fluor Report.**
21	A.	To analyze the difference between the results produced by the Fluor financial model and
22		the Big Stone II analysis (Burns & McDonnell Report (October 2, 2006, Docket
23		E017/CN-05-619)), it is necessary to carefully examine both models and their underlying

1		assumptions. Based on information available, it is not possible to do so at this time. However,
2		it appears that the main two differences in the results are construction costs per kW and the
3		inclusion or exclusion of AFUDC. Burns & McDonnell use a cost of $2,168/kW compared with
4		$2,860/kW used by Fluor. Fluor bases this estimate on information from the testimonies of Mr.
5		Creig and Mr. Trout (October 2, 2006 Docket E017/CN-05-619). However, a more careful
6		reading of the testimonies in this case would show that the cost is $2,168/kW, based on
7		construction costs of $1,366 million. Per the testimony of Mark Rolfes, the $1.8 billion is
8		reduced by about $165 million; deducting transmission costs of $266 million per Exhibit 33-H
9		results in approximately $1.37 billion in construction costs instead of the $1.8 billion
10		construction costs used by Fluor. Additionally, counter to the Fluor assumption, AFUDC costs
11		are included in the Big Stone II estimated levelized costs.
12		Thus, the conclusions regarding Sherco 4 are based on the inappropriate numbers
13		used by Fluor for Big Stone II and, therefore, are without merit.
14		
15	**Q.**	**Dr. Amit, please summarize your conclusions regarding Mr. Cortez's criticism of**
16		**your cost comparison.**
17	A.	Mr. Cortez's conclusion that the levelized costs for Big Stone II and Sherco 4 are similar
18		to the levelized costs of Excelsior is wrong. His conclusion is based on the updated
19		Report by Fluor. However, this Report is based on inappropriate data and, therefore, do
20		not support Mr. Cortez's conclusion.
21		
22	**Q.**	**Does that complete your response to Mr. Cortez?**
23	A.	Yes, it does.

1	**VI.**	**RESPONSE TO THE REBUTTAL TESTIMONY OF THE COMPANY WITNESS**
2		**MARGARET A. MEAL**
3	**Q.**	**Please summarize Ms. Meal's Rebuttal Testimony.**
4	A.	Ms. Meal testifies on the financial risks associated with the proposed PPA. Her main
5		conclusions are that the financial risks testified to by Xcel's witnesses are not very
6		significant and the alternative of self-building such a large facility by Xcel would impose
7		larger financial risk on Xcel than the PPA's financial risks.
8		
9	**Q.**	**Please discuss Ms. Meal's testimony in more detail.**
10	A.	One of the basic premises in Ms. Meal's analysis, and in other testimonies provided by
11		Excelsior witnesses, is that building a similarly sized baseload facility by Xcel would
12		impose higher financial risks on Xcel than the proposed PPA. Regardless of the merits
13		of such a premise, building a similarly sized baseload facility by Xcel may not be the
14		relevant alternative to be compared to the PPA.
15		
16	**Q.**	**Dr. Amit, please explain the issue of the appropriate alternatives to be compared to**
17		**the proposed PPA.**
18	A.	In its July 28, 2006 Order in Docket No. E002/RP-04-1752, the Commission required
19		Xcel to file by November 1, 2006 a certificate of need application or other proposal, such
20		as a PPA, for 375 MW of baseload capacity. Xcel must also file by December 31, 2006 a
21		request for the Commission to review or approve its proposed upgrades to its baseload
22		facilities at Sherco, Prairie Island and Monticello. Based on the Department's analysis in
23		the 2004 Xcel resource plan (Docket No. E002/RP-04-1752), Xcel will need 750 MW of

1		baseload in 2015 and 375 MW of baseload in 2017. Therefore, the relevant alternatives
2		to the PPA are Xcel's upgrades and the Certificate of Need (CN) or other proposal for
3		baseload capacity and power. Since Xcel is allowed to file a proposal for a PPA for
4		baseload resources, comparison by Ms. Meal as well as other Excelsior witnesses of the
5		PPA option to a similar self-built baseload facility as the only two viable and reasonable
6		alternatives is incomplete. The analysis should have included another PPA option for
7		base-load resources.
8		
9	Q.	**What are the implications of the above discussion on the financial risks associated**
10		**with the PPA versus the relevant alternatives?**
11	A	First, as I have already discussed on pages 29 through 31 of my Direct Testimony,
12		forcing Xcel to buy power it does not need over the period 2011 through 2014 would
13		unnecessarily increase Xcel's financial risk and cause unjustified cost to Xcel's
14		ratepayers. Thus, meeting its resource needs in 2015 rather than having to pay for the
15		PPA in 2011 would allow Xcel to meet its financial needs more reasonably. Second, the
16		upgrades are estimated to cost $1,500/kW at most, which is much cheaper than the
17		capital costs of the PPA. Third, the relevant alternatives to the PPA would allow Xcel to
18		finance its resource needs with a combination of self-built and long-term purchased
19		power.
20		Therefore, Ms. Meal's conclusion that the financial risks of the PPA may be
21		lower than the financial risks of the relevant baseload power alternative, is incorrect.

1	Q.	**Have you reviewed Ms. Meal's Testimony regarding the impact of the PPA on**
2		**Xcel's bond rating and cost of debt?**
3	A.	Yes, I did.
4		
5	Q.	**Please discuss Ms. Meal's Testimony on this issue.**
6	A.	Ms. Meal discuses several factors that, in her view, would mitigate the impact of the PPA
7		on Xcel's bond rating and cost of capital. Among the factors that she believes would
8		mitigate the financial impacts of the PPA she mentions favorable regulatory treatment, a
9		lower imputed debt than was calculated by Xcel's witnesses and smaller impact of
10		imputed debt on bond ratings.
11		
12	Q.	**Do you agree with her claims?**
13	A.	Some of her arguments may be true. However, significant amounts of the capacity
14		payments are debt equivalent and reduce Xcel's capacity to borrow, together with raising
15		Xcel's financial risk and cost of capital. Moreover, when a utility with, for example, a
16		50/50 percent debt-to-equity ratio builds a plant, it is financed by 50 percent equity and
17		50 percent debt. Yet under the PPA all the capacity costs are paid for by debt equivalent
18		payments. Thus, a PPA of this size has a significant effect on Xcel's cost of capital that
19		should be considered.
20		
21	Q.	**Please summarize your response to Ms. Meal's Rebuttal Testimony.**
22	A.	Ms. Meal's analysis and conclusions are based on comparing the PPA to a similar self-
23		built baseload facility. Based on this comparison, Ms. Meal concludes that, compared to

1		a self-built similar facility, the PPA may reduce rather than increase Xcel's financial risk.
2		However, Ms. Meal's conclusion is without merit, because the relevant alternative to the
3		PPA is upgrading to Xcel's existing facilities and a CN or purchased power filing
4		required of Xcel, with significantly later in-service dates than the Excelsior proposal.
5		Therefore, given this appropriate alternative the PPA is likely to increase Xcel's financial
6		risk significantly.
7		
8	Q.	**Does that complete your response to Ms. Meal?**
9	A.	Yes, it does.
10		
11	**VII.**	**RESPONSE TO THE REBUTTAL TESTIMONY OF THE COMPANY WITNESS**
12		**ROGER W. GALE**
13	Q.	**Dr. Amit, please summarize Mr. Gale's Rebuttal Testimony.**
14	A.	Mr. Gale discusses the imputed debt issue and the risk allocation of the PPA. I start my
15		discussion with the imputed debt issue and continue with discussion of the risk allocation
16		issue.
17		
18		<u>Imputed Debt</u>
19	Q.	**Please discuss the imputed debt issue.**
20	A.	Mr. Gale's main argument is that by allowing an appropriate cost recovery of the PPA,
21		the impact of the imputed debt on Xcel's financial risk would be reduced.

1	**Q.**	**Do you agree with Mr. Gale's conclusion?**
2	A.	Clearly, approving a full flow-through cost recovery of the PPA to Xcel would reduce the
3		negative impact of the financial risk on Xcel. However, this is not the issue in dispute.
4		The issue in dispute is the impact of the imputed debt on Xcel's financial risk and cost of
5		capital. Moreover, both Ms. Meal and Mr. Gale praise the advantages of the PPA over
6		the self-built model. However, while in a self-built model ratepayers do not pay any
7		capital cost until the new plant is put in the rate base via a rate case proceeding, under the
8		PPA ratepayers pay the capital costs once the plant is in operation. Thus, the rate case
9		approach represents a significant advantage to Xcel's ratepayers.
10		
11		<u>Risk Allocation of the PPA</u>
12	**Q.**	**Please discuss the risk allocation issue.**
13	A.	Mr. Gale provides a discussion of the differences between the risk allocation of a self-built
14		option and the PPA and identifies certain categories under which the risks to the ratepayers
15		are mitigated under the PPA in comparison to the risks under the self-built alternative.
16		
17	**Q.**	**Do you agree with his analysis?**
18	A.	I agree with Mr. Gale's general analysis. However, his analysis does not address the
19		specific risk allocation issues which I raised in my Direct and Rebuttal Testimony. Thus,
20		those issues continue to be matters that should be addressed.
21		
22	**Q.**	**Dr. Amit, does this complete your Surrebuttal Testimony of Mr. Gale?**
23	A.	Yes, it does.

1	**VIII. RESPONSE TO THE REBUTTAL TESTIMONY OF THE COMPANY WITNESS**
2	**THOMAS L. OSTERAAS**
3	**Q. Dr. Amit, please summarize Mr. Osteraas Rebuttal Testimony.**
4	A. Mr. Osteraas addresses the issue of risk allocation, Xcel's resource needs and its relation
5	to the current proceeding, and introduces the other Excelsior witnesses.
6	
7	**Q. Please discuss Mr. Osteraas' Rebuttal Testimony.**
8	A. I discuss first the risk allocation issues and then Xcel's resource needs and its relevancy
9	to this proceeding.
10	
11	<u>Risk Allocation</u>
12	**Q. Dr. Amit, please discuss the risk allocation issues.**
13	A. In the first part of his risk allocation analysis, Mr. Osteraas enumerates specific risk
14	factors that are borne by Excelsior and would have been borne by Xcel's ratepayers
15	under a self-built alternative.
16	
17	**Q. Do you agree with his conclusions?**
18	A. I largely agree with his general analysis that compares the risk allocation of a PPA with
19	the risk allocation of a self-built alternative. However, I have two comments regarding
20	his analysis: first, the self-built alternative may not be the relevant alternative for risk
21	comparison. Instead, the relevant alternative may be another PPA, or a combination of a
22	utility self-build and a PPA. Second, an appropriate analysis of risk allocation must

1		assess the risk allocation of the PPA not only in comparison to another alternative, but
2		also on a stand-alone basis.
3		
4	**Q.**	**Dr. Amit, please explain the concept of a risk allocation analysis on a stand-alone**
5		**basis.**
6	A.	In analyzing various features of the PPA, it is important to determine how the risks of
7		certain unexpected events are allocated between the seller and the ratepayers, based on
8		which party is responsible for the unexpected event. For example, if Excelsior's plant is
9		not operational over a certain time period, then Xcel's ratepayers should not have to pay
10		energy or capacity costs to Excelsior.
11		
12	**Q.**	**Does Mr. Osteraas propose specific changes to the PPA based on Ms. Hyde's (Xcel's**
13		**witness) Direct Testimony)?**
14	A.	Yes, he does. These amendments are shown in Exhibit ___ (TLO-2).
15		
16	**Q.**	**Dr. Amit, please discuss these amendments.**
17	A.	I discuss only significant amendments. I start my discussion with the capacity payments.
18		In my rebuttal testimony, pages 9 through11, I discussed the inappropriateness of the
19		capacity payment formula in Article 8.1 of the PPA. In particular, I explained that the
20		capacity payments are not appropriately reduced relative to the amount of natural gas
21		usage. Excelsior modified Article 8, Section 8.1 to better account for the usage of natural
22		gas in calculation of the capacity payments. After reviewing the amended capacity
23		payments formula, I conclude that this amendment is reasonable.

1		Payments for Fuel
2	**Q.**	**Please discuss the amendment to Section 8.3, Payment for Fuel.**
3	A.	Excelsior made a minor change to Section 8.3 to clarify some minor ambiguity. In my
4		Rebuttal Testimony, I explained that since capacity payments are only adjusted when the
5		fuel mix is 100 percent natural gas, ratepayers should always pay fuel charges based on
6		the proposed fuel mix of 75 percent PRB and 25 percent Coke blend. However, in view
7		of the amendment to the capacity payment formula, I conclude that the amended Section
8		8.3 is appropriate.
9		
10	**Q.**	**Are there any other amendments of the PPA on which you would like to comment?**
11	A.	No, there are none.
12		
13		Resource Need
14	**Q.**	**Dr. Amit, please discuss the issue of resource needs and the Commission's July 28,**
15		**2006 Order in Xcel's 2004 Integrated Resource Plan (IRP).**
16	A.	Mr. Osteraas seems to engage in his own interpretation of the Commission's Order and
17		Xcel's resource needs. However, the Commission's Order is very clear in requiring Xcel
18		to file a CN or other proposal for baseload resource needs by or before November 1,
19		2006, for 375 MW of baseload with intended in-service date of 2015, and also requiring
20		Xcel to file with the Commission by December 31, 2006, a plan for review and approval
21		for any upgrades of Sherco 4, Prairie Island and Monticello baseload facilities.
22		Moreover, the Department's own analysis in Xcel's 2004 IRP determined that Xcel will
23		need 750 MW of baseload in 2015 (which it could supply with the November 1, 2006

1		375 MW CON and the upgrades of its existing facilities mentioned above). Therefore, it
2		is clear, based on the evidence in the record that Xcel does not need any baseload prior to
3		2015.
4		
5	**Q.**	**Mr. Osteraas also claims that a public interest determination for Excelsior is**
6		**independent of the need issue because Excelsior is exempted from CON. Do you**
7		**agree with this statement?**
8	A.	No, I do not. It is true that Excelsior is exempted from the CON. However, the issue of
9		needs is closely tied to the issue of Excelsior being a least cost resource. As I have
10		discussed in my Direct Testimony, over the period 2011 through 2014, Xcel's ratepayers
11		would have to pay, under the PPA, much higher prices than they would have to pay
12		otherwise.
13		
14	**IX.**	**RESPONSE TO THE COMPANY WITNESS PROFESSOR JIM CHEN**
15	**Q.**	**Please summarize Professor Chen's testimony.**
16	A.	Professor Chen provides a lengthy legal interpretation of Minn. Stat. §216B.1693 and
17		Minn. Stat. §216B.1694 and also discuss the incentive of regulated utilities to object to
18		the PPA.
19		
20	**Q.**	**Dr. Amit, which issues in Professor Chen's testimony do you plan to response to?**
21	A.	I respond to only two issues discussed in his testimony. The first issue is the
22		interpretation of the public interest standard and the second issue is the incentive of
23		utilities to object to the PPA.

| 1 | **Q.** | **Dr. Amit, please discuss the public interest issue.** |

| 2 | A. | Professor Chen is engaged in a lengthy legal discussion trying to show as he states that: |

3
4
5
> Cost plays a legally circumscribed role in public interest determination that the MPUC is directed to conduct under subdivision 2(a)(7) of the IEP statute.

6
7
Professor Chen also seems to believe that because the IEP statute prescribes five specific

8
factors bearing on the Commission's Public interest determination and cost is not one of the

9
five factors, then cost is not be an important factor in the public interest determination.

10

| 11 | **Q.** | **Dr. Amit, please respond to Professor Chen's claims.** |

| 12 | A. | Professor Chen's argument that costs are not very important in assessing the public |

13
interest is not reasonable.

14

| 15 | **Q.** | **Please explain.** |

| 16 | A. | First, Professor Chen answers his question on page 8 of his surrebuttal testimony: |

17
18
19
20
21
22
23
24
> Q. Should the CET Statute, the IEP Statute and the 2003 Omnibus Energy Bill be construed in light of each other?
> A. Of course they should. It is cardinal canon of statutory interpretation that statutes in pari material, let alone statutes as intimately related as these, should be interpreted in harmony with each other.

25
The CET Statute (216B.1693) states in part (a)

26
27
28
29
30
31
32
> (a) If the commission finds that a clean energy technology is or is likely to be a least-cost resource, including the costs of ancillary services and other generation and transmission upgrades necessary, the utility that owns a nuclear generating facility shall supply at least two percent of the electric energy provided to retail customers from clean energy technology.

1 Thus, the CET Statute recognizes costs as being an extremely important element.

2 Therefore, based on Professor Chen's own finding that the CET and the IEP statutes are

3 closely related to each other, cost must be an important factor in considering the public

4 interest in the IEP Statute.

5   Second, in all previous PPAs approved by the Commission, the approvals were

6 based on the public interest which largely consists of three major factors:

7   • The reasonableness of the PPA's price (cost),

8   • Protection of ratepayers from the financial risks of the PPA, and

9   • Protection of ratepayers from the operational risks of the PPA.

10   According to Professor Chen's analysis, since none of these three factors is

11 specifically mentioned in Minn. Stat. §216B.1694, subd. 2,(7), none of them should be

12 considered in evaluating the public interest.

13   Clearly, this was not the intention of the IEP statute, as well recognized by

14 Excelsior itself in submitting several testimonies regarding the financial and operational

15 risks of the PPA.

16   Finally, Minn. Stat. §216B.1694, subd. 2(7), states:

17   The commission may approve, disapprove, amend, or
18   modify the contract in making its public interest
19   determination, taking into consideration the project's
20   economic development benefits to the state; the use of
21   abundant domestic fuel sources; the stability of the price of
22   the output from the project; the project's potential to
23   contribute to a transition to hydrogen a fuel resource; and
24   the emission reductions achieved compared to other solid
25   fuel baseload technologies;
26
27 The fact that it does not specifically mention price (cost), financial risks, or operational

28 risks as important public interest factors, does not mean that such factors are not

1		important. Instead, since these three factors were always the main factors in evaluation
2		of the public interest in any PPA proceeding, an appropriate interpretation of the IEP
3		statute is that in addition to the obvious factors used in evaluating the public interest
4		(price, financial and operational risks), in this particular case, the Commission must also
5		evaluate some additional factors unique to this project.
6		
7	Q.	**Does that complete your discussion of the public interest issue?**
8	A.	Yes, it does.
9		
10		Utilities' Incentives and Competition
11	Q.	**Dr. Amit, please discuss the utilities' incentive issues.**
12	A.	Professor Chen claims that there is a disconnect between the public interest and what is
13		perceived by utilities to be the public interest. He argues that utilities view the public
14		interest to be profit maximization and that they resist any new entry into the market to
15		protect their market power.
16		
17	Q.	**Please comment on Professor Chen's arguments.**
18	A.	First, under competition, profit maximization coincides with the public interest and there
19		is nothing wrong with the firm's goal of profit maximization.
20		Second, a utility's goal of profit maximization is as legitimate a goal as for any
21		other non-utility company. However, since an electric utility is a "natural monopoly"
22		(i.e., operates under economies to scale market structure), it must be regulated. Under
23		appropriate regulation, the regulatory model should produce results similar to the

1		competitive model. In particular, electric utilities, in maximizing their profit, would only
2		receive normal, not excessive, profit. In such a case, profit maximization, counter to
3		Professor Chen's claim, does not contradict the public interest.
4		
5	**Q.**	**Please continue.**
6	A.	Regarding the issue of competition in the generation sector of the electric industry, it
7		appears that the various states' attempts to restructure the electric industry to achieve
8		such a goal are not very successful. If economies to scale still dominate the generation
9		sectors, then competition is not going to work regardless of the utilities' actions.
10		It is interesting to note that Professor Chen is all in favor of competition, yet
11		Excelsior, on whose behalf he testifies, has to be legislated into existence and is provided
12		with Xcel's ratepayers subsidy and other federal subsidies, all of which are counter to the
13		idea of competition.
14		Finally, regardless of the incentive of utilities to resist or support the Excelsior
15		Petition, the appropriate approach is to discuss the specific arguments raised by these
16		utilities, rather than speculate on their motivation for bringing up such argument.
17		
18	**Q.**	**Does this complete your surrebuttal testimony of Professor Chen?**
19	A.	Yes, it does.

| 1 | **X.** | **CONCLUSION AND RECOMMENDATIONS** |
| 2 | *A.* | *GENERAL CONCLUSIONS* |

3   1.   The statues governing this PPA are Minn. Stat. 216B.1693 and 216B.1694.

4   2.   The Commission provided guidance and directives; specifically, the following

5   questions should be developed in the record to recommend to the Commission

6   whether they should:

7   (1)   approve, disapprove, amend or modify the terms and conditions of a proposed
8   power purchase agreement that Excelsior has submitted to Xcel Energy under
9   Minn. Stat. 216B.1694;
10
11   (2)   determine that the coal-fueled Integrated Gasification Combined Cycle
12   (IGCC) power plant that Excelsior plans to construct in northern Minnesota is,
13   or is likely to be, a least cost resource, obligating Xcel to use the plant's
14   generation for at least two percent of the energy supplied to its retail
15   customers, under Minn. Stat 216B.1693; and
16
17   (3)   determine that, under the terms of Minn. Stat. 216B.1693, at least 13% of the
18   energy supplied to Xcel's retail customers should come from the IGCC plant
19   by 2013.
20

21   *B.*   *CONCLUSIONS REGARDING THE PPAs*

22   1.   Excelsior filed a PPA for 603 MW, along with a PPA for the 450 MW amount cited

23   in the statute. Based on Excelsior's filing, the Department provides a cost analysis

24   comparison for both MW levels.

25   2.   An evaluation of these PPAs should use the same criteria as the Commission uses to

26   evaluate other PPAs along with additional factors unique to this project. In

27   particular, a PPA is in the public interest if:

28   a.   the ratepayers are appropriately protected from the operational risks associated

29   with the PPA;

1   b.   The ratepayers are appropriately protected from the financial risks of the PPA;

2   and

3   c.   The purchase price to be paid by Xcel for the electric energy and capacity is

4   reasonable, when considered in combination with other socioeconomic factors

5   that may be beneficial.

6   Based on its review and analyses of the PPAs, the Department concludes:

7   d.   That the PPA as currently proposed does not protect Xcel's ratepayers from

8   the financial and business risks of the proposed PPAs.

9   e.   The proposed PPAs could result in a very significant increase of Xcel's cost of

10   debt, cost of common equity and overall cost of capital.

11   f.   Table 4 below provides a summary of my cost (price) comparison analysis.

Table 4: Cost (Price) Comparison Including Emission and Transmission Costs

Alternative	Levelized Price ($/MWh)
Excelsior Energy	
West Site (603 MW)	102.33
East Site (598 MW)	111.20
West Site (450 MW)	127.16
East Site (450 MW)	137.05
Big Stone II Super Critical	75.76
Comanche 3	**[TRADE SECRET DATA HAS BEEN EXCISED]**
Sherco 4 Super Critical	75.33

27   (3)   Excelsior does not have specific plans for the sequestration of CO_2. However,

28   based on the information provided by Excelsior, the cost of sequestration

29   would be significant. Table 5 below summarizes these estimated costs.

Table 5: PPAs Costs Including Sequestration Costs, Emission Costs and Transmission Cost		
Alternative	Levelized Sequestration Cost Per MWh	Levelized Total Levelized Cost Per MWh
Excelsior Energy		
West Site (603 MW)	$50.02	$152.35
East Site (598 MW)	$50.02[5]	$161.22
West Site (450 MW)	$50.02[4]	$177.18
East Site (450 MW)	$50.02[4]	$187.07

     (5)   Based on the price comparisons, the analysis of the economic development

            benefits and the analysis of the proposed PPA, the proposed PPA may not be

            in the public interest.

The Department is ready and willing to work with Excelsior to address the above

identified concerns.

C.   *CONCLUSIONS REGARDING THE DETERMINATION OF WHETHER OR NOT THE*

   PROPOSED IGCC IS A LEAST-COST RESOURCE

1.   Based on my review and analysis of Excelsior's proposed IGCC, I continue to

    conclude that it does not meet the provisions of Minn. Stat. 216B.1693 as being

    likely to be least-cost resource.

Q.   **Dr. Amit, does this complete your testimony?**

A.   Yes, it does.

---

[5] The actual sequestration costs per MWh for all the plants other than the West Site 603 MW plant are significantly higher because their expected annual MWh, over which the costs are spread, are significantly lower. The same holds true for their total levelized costs, including sequestration.

Sherco 4
Supercritical Plant
Costs Including AFUDC

	year	1 costs $/MWh	2 Npv(9.75%) costs $/MWh Trade Secret	3 Levelized costs $/MWh	4 Npv of levalized costs	5 levelized fector	6 afudc	8 annual afudc recovery $/MWh	9 costs with afudc $/MWh	10 Npv(9.75%) costs with afudc $/MWh	11 levelized costs with afudc $/MWh	12 Npv Levelized costs with afudc $/MWh	Levelized AFUDC costs $/MWh
1	2011	56.30	56.30	61.15	61.15	1.00	27,715,000	10.13	66.42	66.42	69.14	69.14	7.99
2	2012	56.81	51.76	61.15	55.71	0.91	74,597,000	9.85	66.66	60.74	69.14	63.00	7.99
3	2013	57.32	47.59	61.15	50.76	0.83	103,961,000	9.57	66.89	55.53	69.14	57.40	7.99
4	2014	57.85	43.76	61.15	46.25	0.76	129,246,000	9.30	67.14	50.79	69.14	52.30	7.99
5	2015	60.17	41.47	61.15	42.15	0.69	6,013,900	9.02	69.19	47.69	69.14	47.66	7.99
6	2016	58.95	37.02	61.15	38.40	0.63		8.75	67.70	42.51	69.14	43.42	7.99
7	2017	59.52	34.06	61.15	34.99	0.57		8.47	67.99	38.90	69.14	39.57	7.99
8	2018	60.10	31.34	61.15	31.88	0.52		8.19	68.29	35.61	69.14	36.05	7.99
9	2019	60.69	28.83	61.15	29.05	0.48		7.92	68.61	32.60	69.14	32.85	7.99
10	2020	61.31	26.54	61.15	26.47	0.43		7.64	68.95	29.85	69.14	29.93	7.99
11	2021	64.00	25.24	61.15	24.12	0.39		7.37	71.36	28.15	69.14	27.27	7.99
12	2022	62.59	22.49	61.15	21.97	0.36		7.09	69.68	25.04	69.14	24.85	7.99
13	2023	63.24	20.71	61.15	20.02	0.33		6.81	70.06	22.94	69.14	22.64	7.99
14	2024	63.92	19.07	61.15	18.24	0.30		6.54	70.46	21.02	69.14	20.63	7.99
15	2025	64.62	17.57	61.15	16.62	0.27		6.26	70.88	19.27	69.14	18.80	7.99
16	2026	65.32	16.18	61.15	15.15	0.25		5.99	71.31	17.66	69.14	17.13	7.99
17	2027	68.43	15.44	61.15	13.80	0.23		5.71	74.14	16.73	69.14	15.61	7.99
18	2028	66.80	13.74	61.15	12.57	0.21		5.43	72.23	14.85	69.14	14.22	7.99
19	2029	67.57	12.66	61.15	11.46	0.19		5.16	72.72	13.63	69.14	12.96	7.99
20	2030	68.35	11.67	61.15	10.44	0.17		4.88	73.23	12.50	69.14	11.80	7.99
21	2031	69.15	10.76	61.15	9.51	0.16		4.61	73.76	11.47	69.14	10.76	7.99
22	2032	69.98	9.92	61.15	8.67	0.14		4.33	74.31	10.53	69.14	9.80	7.99
23	2033	73.59	9.50	61.15	7.90	0.13		4.05	77.64	10.03	69.14	8.93	7.99
24	2034	71.69	8.44	61.15	7.20	0.12		3.78	75.47	8.88	69.14	8.14	7.99
25	2035	72.58	7.78	61.15	6.56	0.11		3.50	76.08	8.16	69.14	7.41	7.99
26	2036	73.48	7.18	61.15	5.97	0.10		3.23	76.71	7.49	69.14	6.76	7.99
Average		64.40	24.12	61.15	24.12	0.39		6.68	71.07	27.27	69.14	27.27	7.99
Total							341,532,900						

1. Column 6 is based on information received from Xcel.
2. Column 8 is calculated based on 30 years straight line depriciation and 13% discount rate
3. Column 11 does not include emission costs

Sherco 4
Supercritical Plant
Costs Including AFUDC and Transmission

	year	costs $/MWh	Npv(9.75%) costs $/MWh Trade Secret	Levalized costs $/MWh	Npv of levalized costs	levalized fector	Annual Transmission costs $/MWh	Npv(9.75%) costs with Trans. $/MWh	Levelized Trans. Costs $/MWh	costs with Trans. & afudc $/MWh	Levalized costs with Trans. & afudc $/MWh
		1	2	3	4	5	6	7	8	9	10
1	2011	56.30	56.30	61.15	61.15	1.00	3.53	3.53	2.79	69.95	71.93
2	2012	56.81	51.76	61.15	55.71	0.91	3.43	3.13	2.79	70.09	71.93
3	2013	57.32	47.59	61.15	50.76	0.83	3.34	2.77	2.79	70.23	71.93
4	2014	57.85	43.76	61.15	46.25	0.76	3.24	2.45	2.79	70.38	71.93
5	2015	60.17	41.47	61.15	42.15	0.69	3.14	2.17	2.79	72.33	71.93
6	2016	58.95	37.02	61.15	38.40	0.63	3.05	1.91	2.79	70.74	71.93
7	2017	59.52	34.06	61.15	34.99	0.57	2.95	1.69	2.79	70.94	71.93
8	2018	60.10	31.34	61.15	31.88	0.52	2.85	1.49	2.79	71.15	71.93
9	2018	60.69	28.83	61.15	29.05	0.48	2.76	1.31	2.79	71.37	71.93
10	2020	61.31	26.54	61.15	26.47	0.43	2.66	1.15	2.79	71.61	71.93
11	2021	64.00	25.24	61.15	24.12	0.39	2.57	1.01	2.79	73.93	71.93
12	2022	62.59	22.49	61.15	21.97	0.36	2.47	0.89	2.79	72.15	71.93
13	2023	63.24	20.71	61.15	20.02	0.33	2.37	0.78	2.79	72.43	71.93
14	2024	63.92	19.07	61.15	18.24	0.30	2.28	0.68	2.79	72.74	71.93
15	2025	64.62	17.57	61.15	16.62	0.27	2.18	0.59	2.79	73.06	71.93
16	2026	65.32	16.18	61.15	15.15	0.25	2.09	0.52	2.79	73.39	71.93
17	2027	68.43	15.44	61.15	13.80	0.23	1.99	0.45	2.79	76.13	71.93
18	2028	66.80	13.74	61.15	12.57	0.21	1.89	0.39	2.79	74.12	71.93
19	2029	67.57	12.66	61.15	11.46	0.19	1.80	0.34	2.79	74.52	71.93
20	2030	68.35	11.67	61.15	10.44	0.17	1.70	0.29	2.79	74.93	71.93
21	2031	69.15	10.76	61.15	9.51	0.16	1.60	0.25	2.79	75.36	71.93
22	2032	69.98	9.92	61.15	8.67	0.14	1.51	0.21	2.79	75.82	71.93
23	2033	73.59	9.50	61.15	7.90	0.13	1.41	0.18	2.79	79.05	71.93
24	2034	71.69	8.44	61.15	7.20	0.12	1.32	0.15	2.79	76.79	71.93
25	2035	72.58	7.78	61.15	6.56	0.11	1.22	0.13	2.79	77.30	71.93
26	2036	73.48	7.18	61.15	5.97	0.10	1.12	0.11	2.79	77.83	71.93
Average		64.40	24.12	61.15	24.12	0.39	2.33	1.10	2.79	73.40	71.93
Total											

1. Column 6 is based on transmission costs of $119000000,30 year straight line depriciation and 13% discount rate.
2. Column 10 does not include emission costs

Big Stone II Updated Costs Including Transmission Costs

		Supercritical Plant							Levelized	Levelized
		costs	Npv(9.75% costs	Levalized costs	Npv of levalized costs	levelized fector	Levalized costs	Transmision costs	Transmision costs	costs with trans.
	year	$/MWh	$/MWh	$/MWh			$/MWh	$/MWh	$/MWh	$/MWh
	1	2	3	4	5	6	7	8	9	10
1	2011	68.76	68.76	74.40	74.40	1.00	69.62	3.61	2.74	72.36
2	2012	69.45	63.28	74.40	67.79	0.91	69.62	3.50	2.74	72.36
3	2013	70.14	58.23	74.40	61.77	0.83	69.62	3.38	2.74	72.36
4	2014	70.84	53.59	74.40	56.28	0.76	69.62	3.27	2.74	72.36
5	2015	71.55	49.32	74.40	51.28	0.69	69.62	3.16	2.74	72.36
6	2016	72.26	45.38	74.40	46.73	0.63	69.62	3.05	2.74	72.36
7	2017	72.99	41.77	74.40	42.58	0.57	69.62	2.93	2.74	72.36
8	2018	73.71	38.43	74.40	38.79	0.52	69.62	2.82	2.74	72.36
9	2018	74.45	35.37	74.40	35.35	0.48	69.62	2.71	2.74	72.36
10	2020	75.20	32.55	74.40	32.21	0.43	69.62	2.60	2.74	72.36
11	2021	75.95	29.96	74.40	29.35	0.39	69.62	2.48	2.74	72.36
12	2022	76.71	27.57	74.40	26.74	0.36	69.62	2.37	2.74	72.36
13	2023	77.48	25.37	74.40	24.36	0.33	69.62	2.26	2.74	72.36
14	2024	78.25	23.35	74.40	22.20	0.30	69.62	2.15	2.74	72.36
15	2025	79.04	21.49	74.40	20.23	0.27	69.62	2.04	2.74	72.36
16	2026	79.83	19.77	74.40	18.43	0.25	69.62	1.92	2.74	72.36
17	2027	80.63	18.20	74.40	16.79	0.23	69.62	1.81	2.74	72.36
18	2028	81.43	16.74	74.40	15.30	0.21	69.62	1.70	2.74	72.36
19	2029	82.24	15.41	74.40	13.94	0.19	69.62	1.59	2.74	72.36
20	2030	83.06	14.18	74.40	12.70	0.17	69.62	1.47	2.74	72.36
21	2031	83.89	13.05	74.40	11.57	0.16	69.62	1.36	2.74	72.36
22	2032	84.73	12.01	74.40	10.55	0.14	69.62	1.25	2.74	72.36
23	2033	85.58	11.05	74.40	9.61	0.13	69.62	1.14	2.74	72.36
24	2034	86.44	10.17	74.40	8.76	0.12	69.62	1.02	2.74	72.36
25	2035	87.30	9.36	74.40	7.98	0.11	69.62	0.91	2.74	72.36
26	2036	88.17	8.61	74.40	7.27	0.10	69.62	0.80	2.74	72.36
		78.08	29.35	74.40	29.35	0.39	69.62	2.20	2.74	72.36

1 The updated numbers in column 2 are based on Big Stone II response to the DOC IR. No.98 in Docket E017/CN-05-619
  (25% increase in the costs per MWh)

2. Capacity Factor = 88%.

3. The costs include only the incramental transmission costs for transmission upgrads from 230 kv to 345 kv

4. Column 7 is based the October 2,2006 updated report of Burns&McDonnel prepared for Big Stone II.

5. Column 8 is based on total transmission costs of $105761000 , 30 year straight line depriciation and discount
  rate of .1375

6. Column 10 does not include emission costs   ; column 10=column 7+column 9

West Site:
Excelsior average annual prices
and levelized transmission costs

	YEAR 1	Revenues 1000 $ 2	generation 1000 MWh 3	Npv (9.75%) of revenues 4	Levelized Factor 5	Levelized price 6	Npv (9.75%) Levelized price 7	transmission costs 8	transmission costs $/MWh 9	Npv transmission costs $/MWh 10	Levelized transmission costs $/MWh 11
1	2011	101194	792	101194.00	1.00	92.99	92.99	32,652,920	41,228	52.06	6.29
2	2012	406074	3283	369999.09	0.91	92.99	84.72	31,761,440	9,675	2.69	6.29
3	2013	416868	3798	346090.36	0.83	92.99	77.20	30,869,960	8,128	1.78	6.29
4	2014	428471	4335	324121.50	0.76	92.99	70.34	29,978,480	6,915	1.21	6.29
5	2015	438755	4767	302415.44	0.69	92.99	64.09	29,087,000	6,102	0.88	6.29
6	2016	441624	4780	277351.18	0.63	92.99	58.40	28,195,520	5,899	0.77	6.29
7	2017	442902	4767	253443.10	0.57	92.99	53.21	27,304,040	5,728	0.69	6.29
8	2018	446239	4767	232667.55	0.52	92.99	48.48	26,412,560	5,541	0.61	6.29
9	2019	449623	4767	213605.43	0.48	92.99	44.18	25,521,080	5,354	0.53	6.29
10	2020	453383	4780	196256.69	0.43	92.99	40.25	24,629,600	5,153	0.47	6.29
11	2021	456679	4767	180121.58	0.39	92.99	36.67	23,738,120	4,980	0.41	6.29
12	2022	460349	4767	165438.81	0.36	92.99	33.42	22,846,640	4,793	0.36	6.29
13	2023	464115	4767	151974.69	0.33	92.99	30.45	21,955,160	4,606	0.32	6.29
14	2024	468249	4780	139706.94	0.30	92.99	27.74	21,063,680	4,407	0.28	6.29
15	2025	471933	4767	128297.13	0.27	92.99	25.28	20,172,200	4,232	0.24	6.29
16	2026	475985	4767	117903.13	0.25	92.99	23.03	19,280,720	4,045	0.21	6.29
17	2027	480132	4767	108364.79	0.23	92.99	20.99	18,389,240	3,858	0.18	6.29
18	2028	484761	4780	99689.79	0.21	92.99	19.12	17,497,760	3,661	0.16	6.29
19	2029	488761	4767	91583.03	0.19	92.99	17.42	16,606,280	3,484	0.14	6.29
20	2030	493194	4767	84203.81	0.17	92.99	15.88	15,714,800	3,297	0.12	6.29
21	2031	497770	4767	77435.15	0.16	92.99	14.47	14,823,320	3,110	0.10	6.29
22	2032	502808	4780	71270.05	0.14	92.99	13.18	13,931,840	2,915	0.09	6.29
23	2033	507304	4767	65519.21	0.13	92.99	12.01	13,040,360	2,736	0.07	6.29
24	2034	512214	4767	60276.40	0.12	92.99	10.94	12,148,880	2,549	0.06	6.29
25	2035	517267	4767	55463.35	0.11	92.99	9.97	11,257,400	2,362	0.05	6.29
26	2036	391580	3580	38256.68	0.10	92.99	9.08	10,365,920	2,896	0.08	6.29
Average		449932.0769	4460	163563.42	0.39	92.99	36.67	21,509,420	6,063	2.48	6.29

Average NPV of price=36.67
Average price=100.88

1. Source: Excelsior Energy Compact Disk (CD) data
2. The discount rate of 9.75% is from the Economic Study in Big Stone II (Docket No. E017/CN -05-619)
3. Average price = Average revenue/Average generation
4. Column 5 is the average of the NPV of annual income stream of $1
5. Levelized price = (average of column 7)/(average of column 5)
6. The average net present value of 36.67 = average net present value of revenues divided by the
   average energy
7. Column 8 is calculated using 13.11 discount rate and 30 years straight line depriciation

West Site:
Excelsior average annual prices including sequestration costs

	YEAR 1	Revenues 1000 $ 2	generation 1000 MWh 3	Npv (9.75%) of revenues 4	Levelized Factor 5	Levelized price 6	Npv (9.75%) Levelized price 7	sequestration cost $ 8	sequestration cost $/MWh 9	Npv sequestration cost $/MWh 10	Levelized sequestration cost $/MWh 11
1	2011	101194	792	101194.00	1.00	92.99	92.99	177,302,154	223.87	223.87	50.02
2	2012	406074	3283	369999.09	0.91	92.99	84.72	172,461,505	52.53	47.86	50.02
3	2013	416868	3798	346090.36	0.83	92.99	77.20	167,620,856	44.13	36.64	50.02
4	2014	428471	4335	324121.50	0.76	92.99	70.34	162,780,207	37.55	28.41	50.02
5	2015	438755	4767	302415.44	0.69	92.99	64.09	157,939,558	33.13	22.84	50.02
6	2016	441624	4780	277351.18	0.63	92.99	58.40	153,098,909	32.03	20.12	50.02
7	2017	442902	4767	253443.10	0.57	92.99	53.21	148,258,260	31.10	17.80	50.02
8	2018	446239	4767	232667.55	0.52	92.99	48.48	143,417,611	30.09	15.69	50.02
9	2019	449623	4767	213605.43	0.48	92.99	44.18	138,576,962	29.07	13.81	50.02
10	2020	453383	4780	196256.69	0.43	92.99	40.25	133,736,313	27.98	12.11	50.02
11	2021	456679	4767	180121.58	0.39	92.99	36.67	128,895,664	27.04	10.66	50.02
12	2022	460349	4767	165438.81	0.36	92.99	33.42	124,055,015	26.02	9.35	50.02
13	2023	464115	4767	151974.69	0.33	92.99	30.45	119,214,366	25.01	8.19	50.02
14	2024	468249	4780	139706.94	0.30	92.99	27.74	114,373,717	23.93	7.14	50.02
15	2025	471933	4767	128297.13	0.27	92.99	25.28	109,533,068	22.98	6.25	50.02
16	2026	475985	4767	117903.13	0.25	92.99	23.03	104,692,419	21.96	5.44	50.02
17	2027	480132	4767	108364.79	0.23	92.99	20.99	99,851,770	20.95	4.73	50.02
18	2028	484761	4780	99689.79	0.21	92.99	19.12	95,011,121	19.88	4.09	50.02
19	2029	488761	4767	91583.03	0.19	92.99	17.42	90,170,472	18.92	3.54	50.02
20	2030	493194	4767	84203.81	0.17	92.99	15.88	85,329,823	17.90	3.06	50.02
21	2031	497770	4767	77435.15	0.16	92.99	14.47	80,489,174	16.88	2.63	50.02
22	2032	502808	4780	71270.05	0.14	92.99	13.18	75,648,525	15.83	2.24	50.02
23	2033	507304	4767	65519.21	0.13	92.99	12.01	70,807,876	14.85	1.92	50.02
24	2034	512214	4767	60276.40	0.12	92.99	10.94	65,967,227	13.84	1.63	50.02
25	2035	517267	4767	55463.35	0.11	92.99	9.97	61,126,578	12.82	1.37	50.02
26	2036	391580	3580	38256.68	0.10	92.99	9.08	56,285,929	15.72	1.54	50.02
Average		449932.0769	4460	163563.42	0.39		36.67	116,794,042	32.92	19.73	50.02

1. Source: Excelsior Energy Compact Disk (CD) data
2. The discount rate of 9.75% is from the Economic Study in Big Stone II (Docket No. E017/CN-05-619)
3. Average price = Average revenue/Average generation
4. Column 5 is the average of the NPV of annual income stream of $1
5. Levelized price is the average of the NPV of annual income stream of $1
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7. The average net present value of 36.67 = average net present value of revenues divided by the average energy
8. Column 8 is calculated using 13.11% discount rate and 30 years straight line depriciation

STATE OF MINNESOTA)
) ss
COUNTY OF RAMSEY   )

AFFIDAVIT OF SERVICE

       I, **Sharon Ferguson**, being first duly sworn, deposes and says: that on the **31st** day of **October, 2006** served the attached **Minnesota Department of Commerce Public Surrebuttal Testimony and Exhibits of Eilon Amit**

DOCKET NO. E6472/M-05-1993

XX   by depositing in the United States Mail at the City of St. Paul,

        a true and correct copy thereof, properly enveloped with postage prepaid

XX   by electronic filing

to all persons on the attached list:

see attached list

                                  /s/Sharon Ferguson

E6472/M-05-1993

In the Matter of a Petition by Excelsior Energy, Inc., …
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