

**STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION**

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September 26, 2019

**In the Matter of the Review of the Fiscal Year 2017
and 2018 Annual Automatic Adjustment Reports for
Electric Utilities**

**Docket Nos. E999/AA-17-492
and E999/AA-18-373**

COMMENTS OF FRESH ENERGY

Fresh Energy submits these comments in response to Xcel Energy's (Xcel) May 8, 2019 *Compliance Filing* regarding the practice of self-commitment and self-scheduling.¹ On February 7, 2019, the Public Utilities Commission (the Commission) issued an *Order Accepting 2016-2017 Reports and Setting Additional Requirements* (Order).² Xcel filed a *Compliance Filing* (filing) responding to this matter on May 8, 2019. Fresh Energy reviewed Xcel's filing and filed Information Requests (IRs) on June 18 and September 4 to gather additional relevant data.

Fresh Energy appreciates the Commission's inquiry into Minnesota utilities' use of self-commitment and self-scheduling for their electricity generating units. These features of our wholesale power market have broad implications for affordability and the transition to carbon-free electricity as well as the potential to increase costs to customers today. Importantly, this proceeding is the first extensive study of self-commitment and self-scheduling by a state public utilities commission in our region. We respectfully submit these comments to the Commission presenting findings from our investigation of this issue based on Xcel's initial compliance filing and recommendations for future filings concerning self-scheduling and self-commitment of electric generating units.

Fresh Energy recognizes that over four months have passed since the compliance filing date and apologizes that we were unable to submit these findings earlier. Responses and evaluation of the responses to our Information Requests have proceeded more slowly than usual. Given

¹ Xcel, *Compliance Filing—Self Commitment*, May 8, 2019, Dockets E999/AA-17-492 and E999/AA-18-373 ([link](#)).

² Commission, *Order*, February 7, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, page 5 ([link](#)).

the volume of information requested and newness of this compliance reporting component, we hope this delay is understandable.

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I. Background

Self-commitment and self-scheduling are “commitment” and “dispatch” statuses available to electricity generators participating in the Midcontinent Independent System Operator (MISO) Day Ahead wholesale power market. As the Commission’s February 7, 2019 Order states under Section III Cost of Self-Commitment and Self-Scheduling:

MISO markets identify the supply of electric generation available throughout the MISO regions, and the anticipated (and, in real time, the actual) demand for electricity in each area, selecting generators for dispatch in a manner designed to minimize overall costs to the system while meeting reliability requirements. MISO unit commitment is the process that determines which generators (and other resources) will operate to meet the upcoming need. MISO scheduling and dispatch sets the hourly output for each committed resource, using simultaneously co-optimized Security Constrained Unit Commitment and Security Constrained Economic Dispatch to clear and dispatch the energy and reserve markets. A market participant—that is, anyone registered for participation in MISO markets—can specify the production cost of its generator, and MISO will refrain from dispatching the resource until market prices meet or exceed that level, again, subject to reliability requirements. But under some circumstances a participant will prefer to commit its generator to be available for MISO dispatch (“self-commit”), and unilaterally set the generator’s output level (“self-schedule”), accepting whatever market price results rather than awaiting economic dispatch by MISO.

Renewable sources of generation have the advantage of incurring no fuel costs, which tends to reduce their operating costs and make them attractive options for MISO dispatch. However, self-committed and self-scheduled generators may displace these resources—even if, at any given moment, the renewable resource had lower operating costs.³

Self-commitment enables a participant to request that MISO commit a particular unit regardless of market price.⁴ In the MISO tool set, self-commitment is “must-run” status. Unless there is a reliability concern, MISO will commit the unit to at least that unit’s specified minimum output level (often referred to as “economic minimum”). In this situation, the unit is a price taker and revenues from selling into the market may be below the unit’s cost to generate. Depending on market pricing and reliability needs, MISO may also clear the unit above economic minimum.

³ Commission, *Order*, February 7, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, page 4 ([link](#)).

⁴ See MISO Energy and Operating Reserve Markets Business Practices Manual BPM-002-r19 Effective Date: OCT-15-2018, section 4.2.3.4.6 ([link](#)).

Self-scheduling enables participants to submit an hourly generation schedule to MISO.⁵ Self-scheduling does not guarantee dispatch but pre-determines the minimum output level. Units are price takers up to the self-scheduled amount but may be dispatched at a higher level, up to the unit's economic maximum, if market pricing or reliability supports it. Many MISO participants using self-commitment will also use self-scheduling to ensure the unit is dispatched at least at economic minimum.⁶

For example, a 500 MW coal unit may designate 400 MW as its “economic minimum.” If that unit self-schedules for the next day, it would be a price-taker for 400 MW and it would provide an offer price for the remaining 100 MW. In that case, MISO could dispatch the remaining 100 MW if that generation cost is economic. However, that unit's costs for the self-scheduled, or “must run,” 400 MW may often exceed market revenues, resulting in a net loss.

In these comments, we present findings from our investigation of this issue based on Xcel's compliance filing and recommendations for future filings concerning self-scheduling and self-commitment. Section II concerns the data and analysis presented in Xcel's May 8, 2019 filing and Section III concerns our material findings on the costs and benefits of Xcel's use of self-commitment and self-scheduling.

II. Compliance Filing Methodology

The Commission's February 7, 2019 Order asked Minnesota Power, Otter Tail Power, and Xcel to “make compliance filings containing an initial analysis of the consequences of self-commitment and self-scheduling of their generators, including the annual difference between production costs and corresponding prevailing market prices for both FYE17 and FYE18.”⁷ All three utilities calculated this difference by taking net MISO revenues from the Day Ahead and Real Time (DART) markets by hour and subtracting production costs by hour, for relevant hours. However, it appears that the utilities did not agree on which hours of the year are relevant for this analysis and may have used different definitions of “production cost.”

a. Hours included in the analysis

Minnesota Power, Otter Tail, and Xcel each used a different subset of hours to calculate the difference between revenues and costs for self-committed and self-scheduled plants. Minnesota Power focused on hours where a unit was cleared in the day ahead market at

⁵ See MISO Energy and Operating Reserve Markets Business Practices Manual BPM-002-r19 Effective Date: OCT-15-2018, Section 4.2.3.4.7 ([link](#)).

⁶ Participants may also self-commit a unit and self-schedule its output to test unit performance, perform maintenance, and/or accommodate fuel, steam, or operational contract requirements.

⁷ Commission, *Order*, February 7, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, Order Point 4 ([link](#)).

exactly the dispatch minimum set by the utility for that hour (e.g. the self-scheduled level). In their May 8 Filing, Minnesota Power says:

The analysis evaluated only the hours in each year where the unit was committed to its minimum value and compares the cost to operate at the Day Ahead Dispatch Minimums versus the payments Minnesota Power received from the MISO market during these same periods. If the culmination of the times MISO utilized the Boswell unit only at its minimum operating parameter created value for the customer then the self-commit strategy is beneficial for the customer.⁸

These hours are not necessarily the only hours the unit was committed as “must run” or dispatched using a self-schedule, but they are the hours when must run status is “forcing” the market to take the unit’s self-scheduled level of generation. In other words, if market conditions supported dispatch for an economic or reliability reason, in almost all cases we would expect the unit to be dispatched at a level above the self-scheduled minimum.

Xcel states in their compliance filing that they excluded refused derived fuel units from the analysis, and excluded hours when self-commitment was used for testing, maintenance, or contract requirements:

In evaluating instances of self-commit of these units, we also excluded hours when Xcel Energy’s self-commit action in the MISO market was unavoidable (e.g., mandatory generating resource testing, fuel and steam offtake contract requirements, and generating resource maintenance outages).⁹

Otter Tail included all hours of the year in the cost-benefit analysis for Big Stone and Coyote and included all hours for the months in which Hoot Lake was self-committed and self-scheduled. Hoot Lake is only self-scheduled during winter months when one of the units must be committed in order to heat the plant.

b. Costs included in the analysis

As mentioned above, all three utilities calculated the difference in production costs and market pricing by taking net MISO revenues from the Day Ahead and Real Time (DART) markets by hour and subtracting production costs by hour, for relevant hours. To our knowledge, all three utilities used fuel cost, exclusive of other variable costs, to calculate production cost.

⁸ Minnesota Power, *Compliance Filing and Attachment 1*, May 8, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, page 4 ([link](#)).

⁹ Xcel, *Compliance Filing–Self Commitment*, May 8, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, page 2 ([link](#)).

Xcel's filing says it uses "As-Offered Production Cost."¹⁰ We did not seek further clarification of this in IRs but based on our analysis of Xcel's May 8 filing and subsequent IR responses, their calculation appears to include only fuel cost. In response to Fresh Energy IR 1 at Part B(a), Minnesota Power clarified that the unit cost provided in their May 8 filing was fuel cost defined as "average cost of inventory on hand for the generating station,"¹¹ rather than delivered fuel cost. Otter Tail's filing states: "This analysis compares the market energy revenues received for the time frames the units were self-committed or self-scheduled vs. the fuel costs of each unit" and "the cost of reagents is not included in this analysis because those costs are not currently eligible for fuel clause recovery. Those costs are recovered in base rates."¹² Thus, we understand that Otter Tail's analysis includes only fuel costs eligible for recovery through the fuel clause.

c. Data included in compliance filings

The data and supporting calculations provided in the compliance filings submitted by Minnesota Power, Otter Tail, and Xcel vary significantly. Xcel's filing included a monthly summary of DART revenue and production cost, and annual summaries of the difference (or "margins"), for each unit by fiscal year and calendar year. In contrast, Minnesota Power's filing included hourly data on cost, revenue, and market participation for its two units that utilize self-commitment and self-scheduling, Boswell 3 and Boswell 4. Data of this granularity is essential for conducting any analysis of unit commitment practices and was incredibly helpful to furthering our understanding of how self-commitment and self-scheduling of these units works in practice over the course of a year. For this reason, we requested in Fresh Energy IR 1 that Xcel provide these data points by hour for its self-scheduled units.

Specifically, we requested the following data points from Xcel by hour for each unit:

- a) Date and hour
- b) b. Cleared MWh
- d. Day ahead locational marginal price at unit node
- e. Real time MWh adjustment
- f. Real time locational marginal price at unit node
- g. Day ahead dispatch minimum
- h. Real time dispatch minimum
- i. Unit cost
- j. Actual production in MWh
- k. Day ahead payment

¹⁰ Xcel, *Compliance Filing*, May 8, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, Attachment A ([link](#)).

¹¹ Minnesota Power, *Response To Fresh Energy IR 1*, July 19, 2019, Docket E999/AA-17-492 and E999/AA-18-373, page 2 ([link](#)).

¹² Otter Tail Power, *Compliance Filing*, May 8, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, page 3 ([link](#)).

- l. Real time payment
- m. Net MISO payment
- n. Revenue from ancillary services
- o. Revenue from make-whole payments, by category
- p. Net cost or benefit (revenue – costs)

We also requested several additional data points:

- Ancillary service revenue
- Make whole payments revenue
- Variable operations and maintenance costs
- Fixed operations and maintenance costs
- Capital revenue requirements
- Average heat rate at economic minimum
- Average heat rate at economic maximum

Xcel provided responses on each of these data points, which significantly advanced our understanding of how self-scheduling and self-commitment fit into the overall performance of their generating units.

III. Findings: Xcel Coal Units

Fresh Energy evaluated the data provided in compliance filings and subsequent IRs by all three utilities. These comments discuss our findings related to the coal units in Xcel's filing. We acknowledge that some of these findings are preliminary and may change after clarification from the utility.

a. Frequency of self-commitment

Xcel's May 8 compliance filing focuses on self-commitment, as the Company does not utilize self-scheduling for the unit or hours included in the analysis. The filing states: "For FYE 17 and FYE 18, Xcel Energy did not find any instances of self-scheduling of resources for energy."¹³ Xcel also clarifies that their analysis focuses on periods of "strategic" self-commitment, and excluded hours when self-commitment was used for testing, maintenance, contract requirements, or other operating requirements.

Xcel presented data on self-commitment for seven units, Allen S King, Sherco 1, Sherco 2, Sherco 3, Monticello, Prairie Island 1 and Prairie Island 2. The Company's filing states that "the analysis evaluates actions taken for Xcel Energy's baseload units, exclusive of its Refuse Derived Fuel units,"¹⁴ which Fresh Energy understands to mean that Xcel may also use self-

¹³ Xcel, *Compliance Filing*, May 8, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, page 3 ([link](#)).

¹⁴ *Id.*, page 2 ([link](#)).

commitment for refuse derived fuel units. Xcel also uses self-commitment for combined cycle and simple cycle combustion turbine units when necessary for testing or operating directives, but as discussed, these time periods are not included in the analysis. Fresh Energy focuses on the four coal units, Allen S King and Sherco units 1, 2, and 3, in the remainder of this comment.

b. Hours when cost exceeded revenue

Public Utilities Commission Information Request 2 (PUC IR 2) requested that Xcel provide data on the number of hours each generating unit's costs exceeded revenues for each of the 12 months during FYE17 and FYE18. The tables below show Xcel's response to PUC IR 2¹⁵ (for the coal units only), with columns added for the percentage of hours each month that cost exceeded revenue. However, this percentage is based on all hours of the month, not the more narrowly defined "strategic" self-commitment hours. It is not clear how many hours Xcel categorizes as strategic self-commitment for each unit. This information was not included in their compliance filing.¹⁶ In this comment, Fresh Energy uses the term "discretionary must-run" to refer to Xcel's strategic self-commitment periods.

The tables below display some noteworthy data points about the use of self-commitment. We can see that each of these units is running at a loss at least 30%-45% of hours each fiscal year, and that there are a number of months where more than half of all hours are net-negative discretionary must-run status, especially in FYE17.

Chart A: FY17: Hours Cost Exceeded Revenue During Discretionary Must-Run

Month	Total Hours in	King		Sherco 1		Sherco 2		Sherco 3	
	Month	Hours	%	Hours	%	Hours	%	Hours	%
Jul	744	191	26%	294	40%	335	45%	358	48%
Aug	744	259	35%	406	55%	415	56%	366	49%
Sep	720	365	51%	479	67%	477	66%	302	42%
Oct	744	399	54%	213	29%	207	28%	274	37%
Nov	720	438	61%	369	51%	439	61%	302	42%
Dec	744	324	44%	350	47%	317	43%	213	29%
Jan	744	267	36%	197	26%	206	28%	261	35%
Feb	672	429	64%	419	62%	456	68%	379	56%
Mar	744	185	25%	391	53%	370	50%	0	0%
Apr	720	44	6%	122	17%	67	9%	0	0%
May	744	100	13%	134	18%	191	26%	0	0%
Jun	720	82	11%	329	46%	198	28%	223	31%
Total	8760	3083	35%	3703	42%	3678	42%	2678	31%

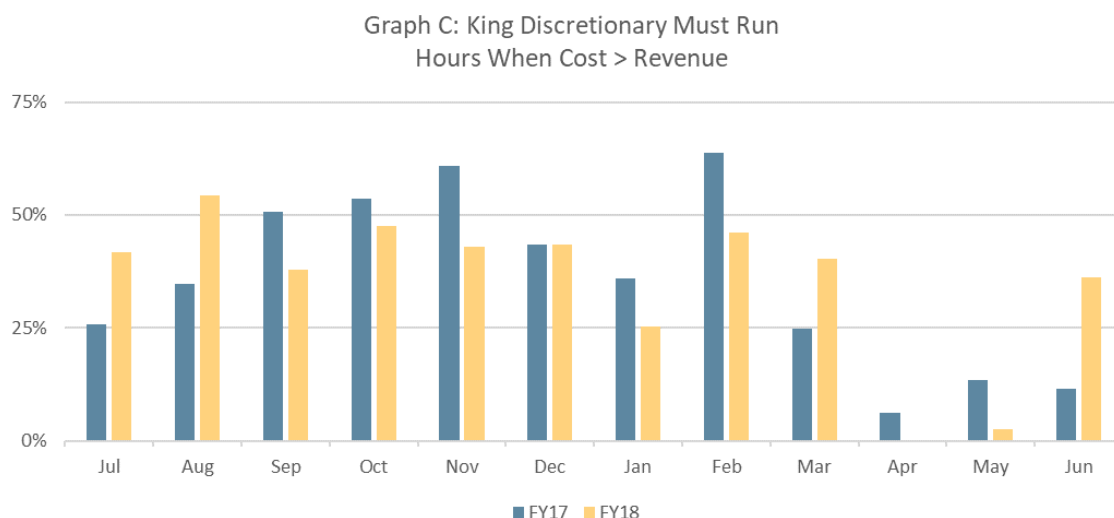
¹⁵ Xcel, *Response to PUC IR 1 and 2*, July 29, 2019, Dockets E999/AA-17-492 and E999/AA-18-373 ([link](#)).

¹⁶ Xcel, *Response to Fresh Energy IR 1*, July 18, 2019, Dockets E999/AA-17-492 and E999/AA-18-373, e-filed as part of Xcel *Response to PUC IR 1 and 2* ([link](#)).

Chart B: FY18: Hours Cost Exceeded Revenue During Discretionary Must-Run

Month	Total Hours in Month	King		Sherco 1		Sherco 2		Sherco 3	
		Hours	%	Hours	%	Hours	%	Hours	%
Jul	744	311	42%	236	32%	268	36%	259	35%
Aug	744	405	54%	271	36%	293	39%	303	41%
Sep	720	272	38%	337	47%	331	46%	256	36%
Oct	744	354	48%	305	41%	358	48%	333	45%
Nov	720	309	43%	263	37%	241	33%	244	34%
Dec	744	323	43%	353	47%	324	44%	378	51%
Jan	744	189	25%	272	37%	252	34%	269	36%
Feb	672	310	46%	276	41%	332	49%	352	52%
Mar	744	300	40%	0	0%	412	55%	446	60%
Apr	720	0	0%	0	0%	365	51%	367	51%
May	744	19	3%	140	19%	296	40%	330	44%
Jun	720	261	36%	361	50%	364	51%	305	42%
Total	8760	3053	35%	2814	32%	3836	44%	3842	44%

This same data is presented in graph form below, by unit.



¹⁷ There are five months in Charts A and B showing a zero value (i.e., that there was no self-commitment) – April 2018 for King, March and April 2018 for Sherco 1, and March, April, May of 2017 for Sherco 3. Fresh Energy understands that in these months the units may have been economically dispatched and/or self-scheduled for contract or other operating requirements. As Xcel’s compliance filing states:

At times when we believe system reliability risks are low, as when renewable generation is forecasted to be high, loads are forecasted to be low, and plant availability is high, we have offered baseload units into MISO as economic, making them available to be de-committed. In several instances coal units offered with an “Economic” status have been de-committed by MISO (Xcel Compliance Filing at page 4.).

Graph D: Sherco 1 Discretionary Must Run
Hours When Cost > Revenue

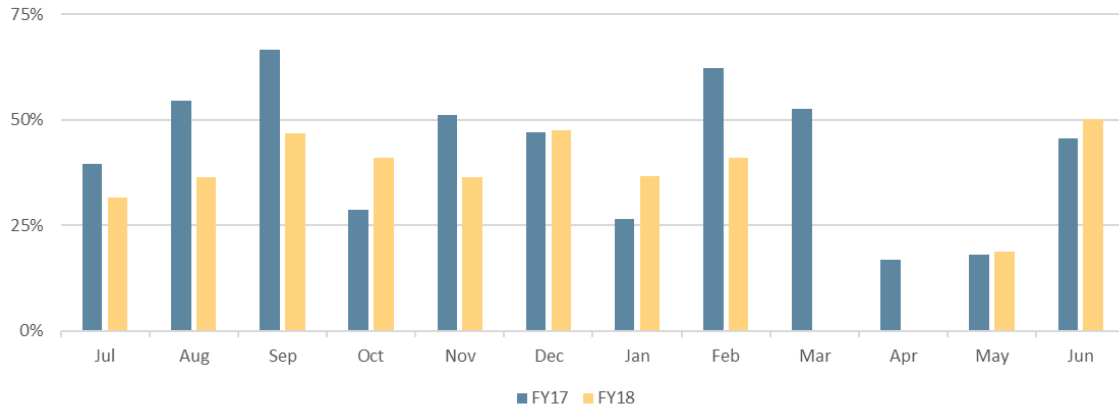


Chart E: Sherco 2 Discretionary Must Run
Hours When Cost > Revenue

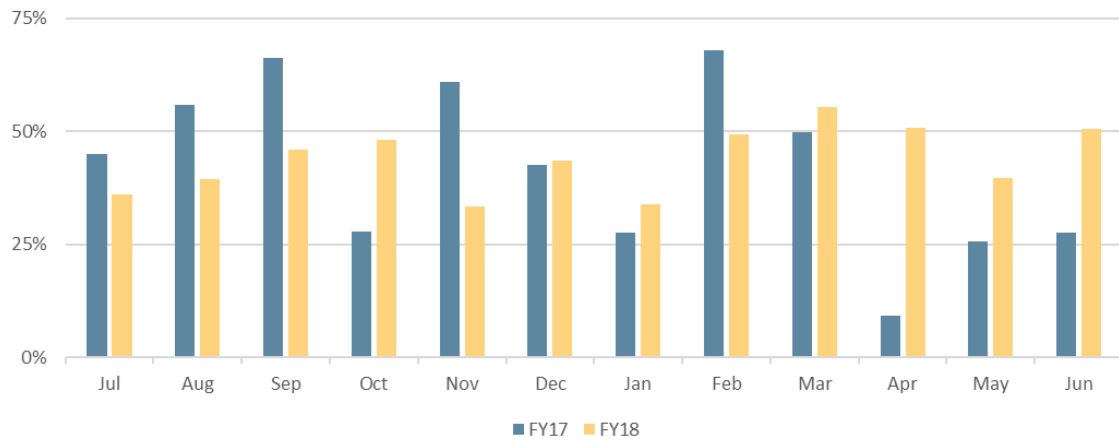
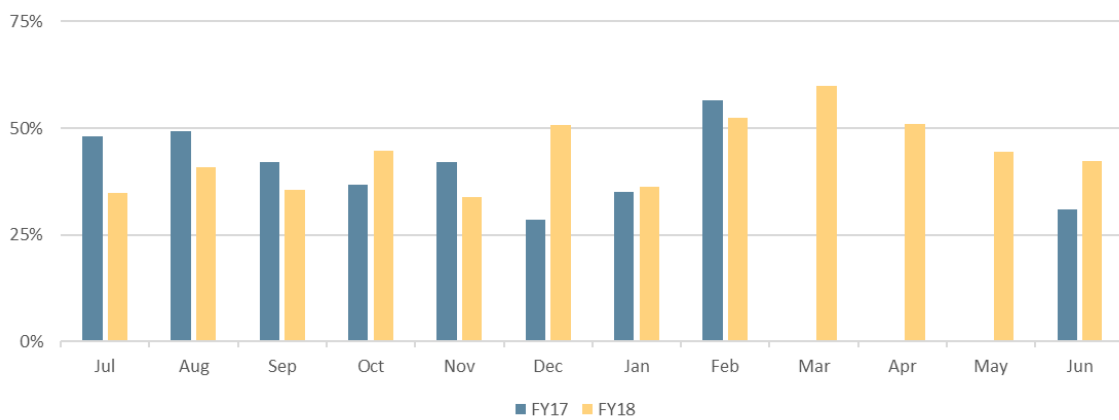


Chart F: Sherco 3 Discretionary Must Run
Hours When Cost > Revenue



c. Evaluation of net cost or benefit

As discussed above, all of the compliance filings examined the difference between production cost and DART revenues for each unit and fiscal year. In the remainder of this comments, we refer to this as the “net cost or benefit.” The following section examines annual net cost or benefit by unit several ways, in each case using a different approach for what hours are analyzed and/or using a different value for a plant’s production cost (i.e. the “cost” component of the benefit/cost analysis):

- Analyzing Xcel’s self-identified “discretionary must-run hours,” using only fuel cost
- Analyzing all hours of the year, using only fuel cost (i.e. the same approach as Otter Tail used in its analysis)
- Analyzing all hours of the year, including variable operations and maintenance cost as well as fuel cost
- Analyzing all hours of the year, using variable production cost as reported by Xcel in its FERC Form 1 filing

In each scenario analyzed, the number of months showing a “net cost” increase.

i. Discretionary must-run hours, fuel cost only

This section presents the net cost and benefit data for each unit using the methodology Xcel presented in their Xcel’s May 8 compliance filing, covering Xcel’s self-identified discretionary must-run hours and including only fuel costs. The charts below show the monthly results by unit. Months with a net loss are shaded.

[Trade Secret Data Begins]

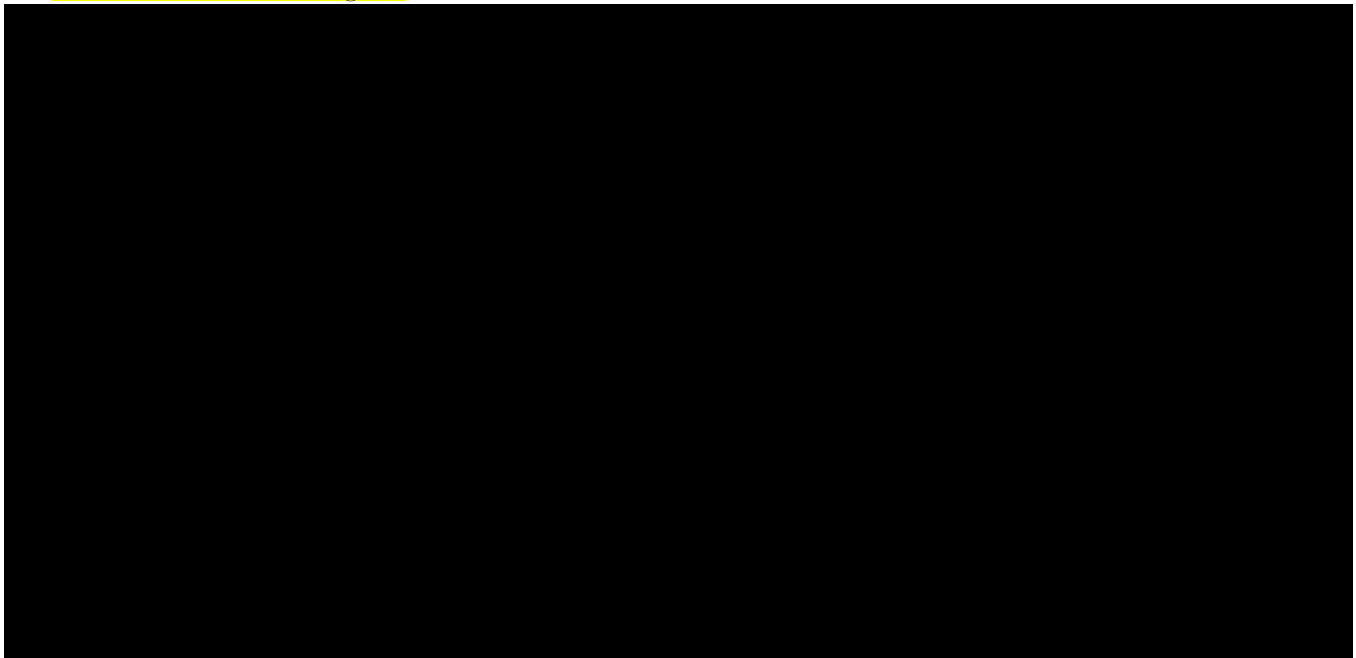


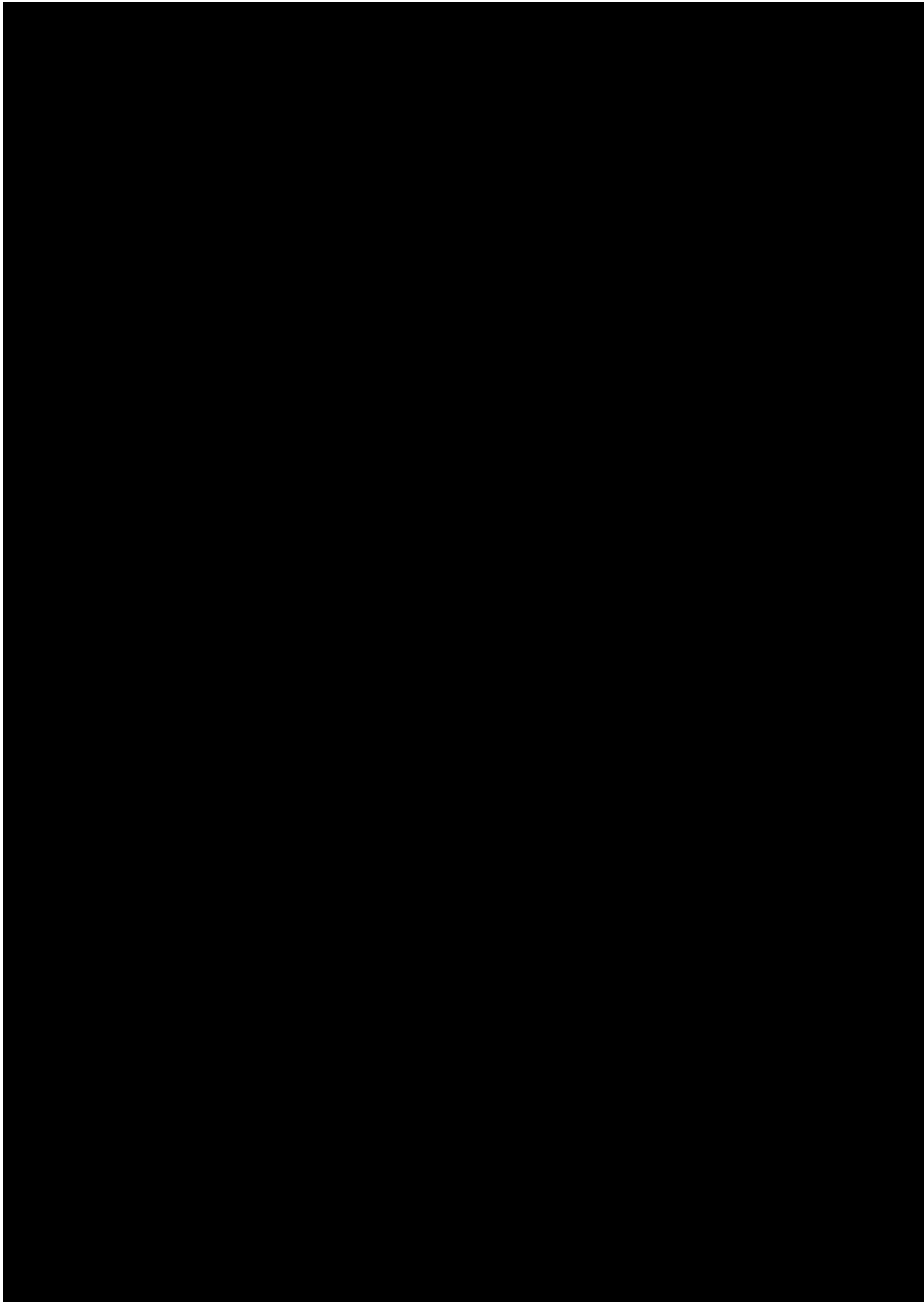


[Trade Secret Data Ends]

This same data is presented below in graph form.

[Trade Secret Data Begins]





[REDACTED]

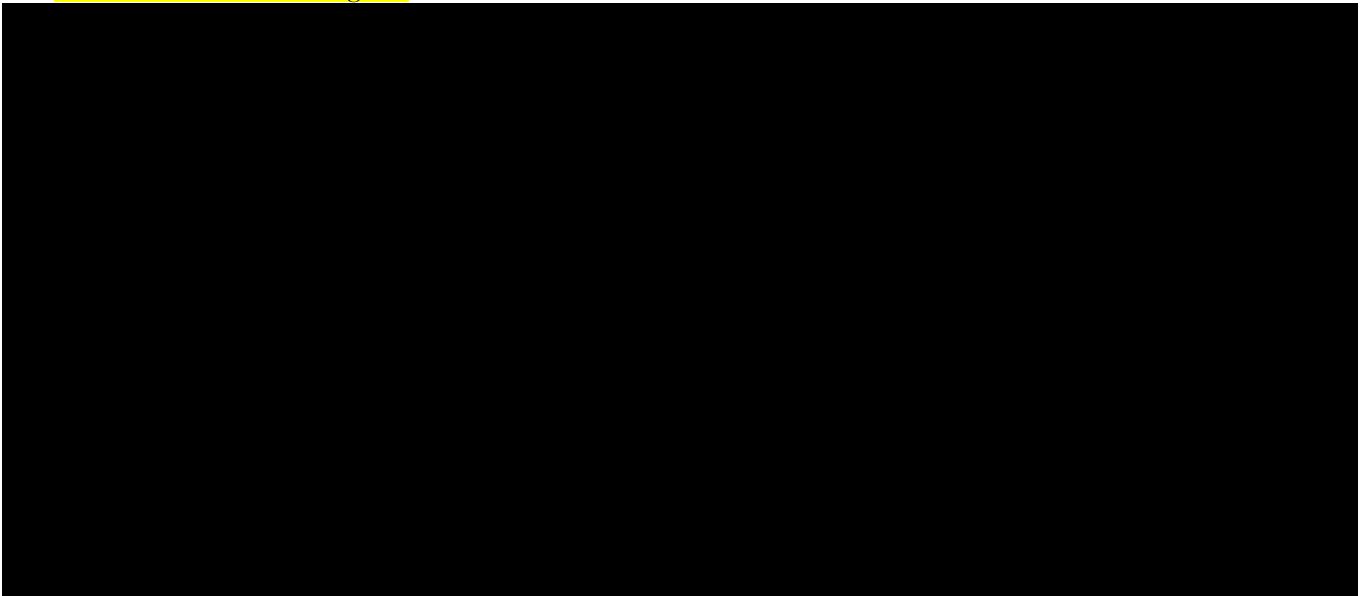
[REDACTED]

[Trade Secret Data Ends]

ii. All hours, fuel cost only

In Fresh Energy IR 1, we requested data for all units covering all 8760 hours of the year. We believe that evaluating the net cost/benefit of the units for all hours, in addition to Xcel's filed methodology of analyzing discretionary must-run hours provides important context for evaluating the impact of self-commitment. The chart and graphs below show the net cost/benefit incurred by the four Xcel coal generating units by month, when including all hours of the year and just fuel costs.

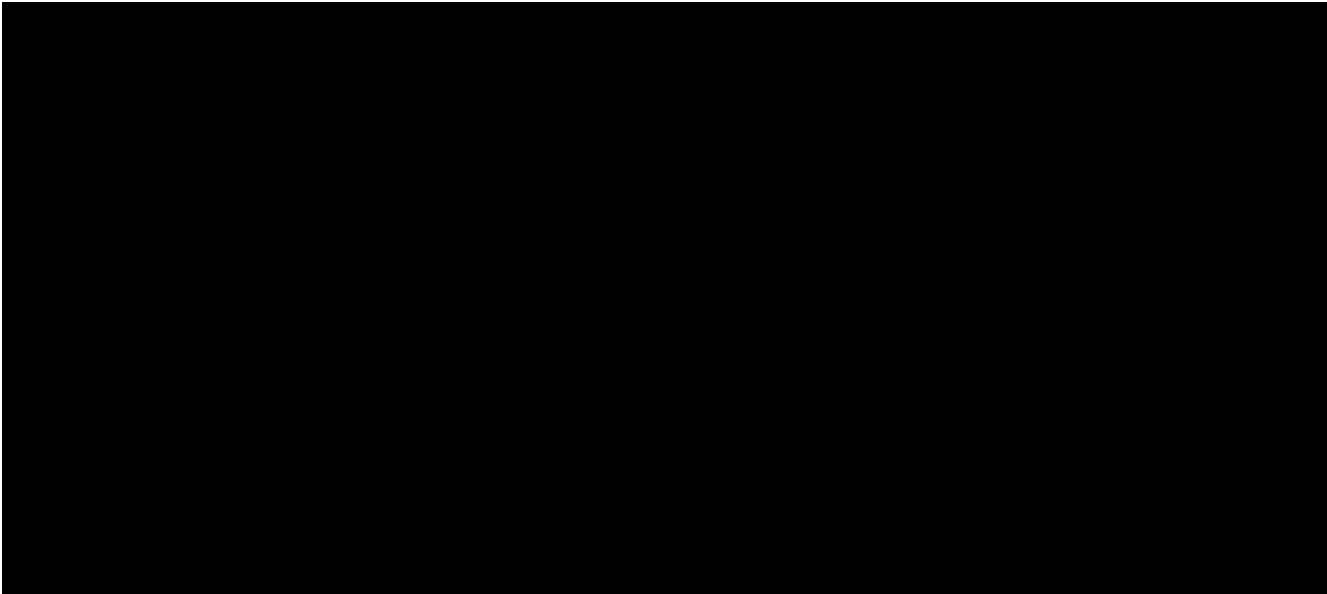
[Trade Secret Data Begins]

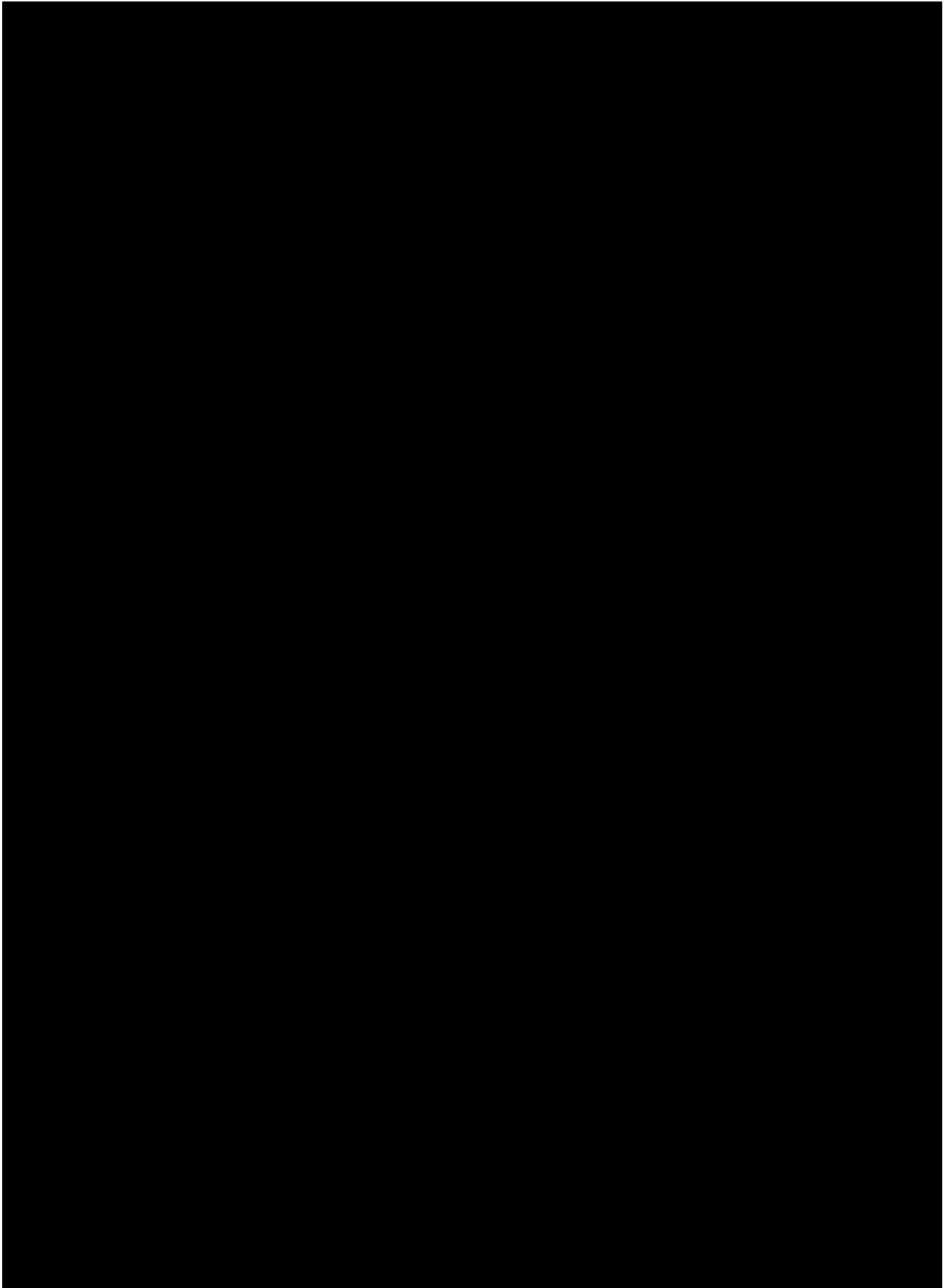




[Trade Secret Data Ends]

This table, and the graphs below of the same data by unit, show a clear seasonal trend. [Trade Secret Data Begins]





[REDACTED]

[Trade Secret Data Ends]

iii. All hours, variable O&M plus fuel costs

While Xcel did not include variable operations and maintenance (O&M) in their calculation of cost in the May 8 filing, and to our knowledge these costs are not recoverable under the fuel clause, they are included in the offer curve submitted to the MISO energy market. For this reason, and for consistency with our evaluation of the other utilities' compliance filings, we ran the cost/benefit analysis when including variable O&M as well as fuel cost. Xcel provided annual variable O&M costs in their response to Fresh Energy IR 1. The table below summarizes these costs for the four units in question.

[Trade Secret Data Begins]

[REDACTED]

[Trade Secret Data Ends]

The chart below shows cost/benefit results using all hours, when including variable O&M. Again, shaded areas are months when costs exceed revenues.

[Trade Secret Data Begins]

[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

[Trade Secret Data Ends]

iv. All hours, FERC Form 1 production costs

In performing this analysis, we discovered that the level of production costs reported on FERC Form 1 in 2016-2018 for King and the Sherco units¹⁸ is significantly higher than the level reported in Xcel's compliance filing and Response to Fresh Energy IR 1. We hope that this discrepancy is the result of certain costs being included in the FERC Form 1 report that the utilities do not typically consider variable fuel or O&M costs, or that are not included in the MISO offer curves for these plants. However, we were not able to determine what costs are driving this difference and if they are properly excluded from Xcel's analysis.

For the purposes of comparison, Fresh Energy evaluated the difference in net cost and benefit for all hours of the year first when using Xcel's reported fuel and variable O&M cost, and then the production cost reported on FERC Form 1 for 2016-2018.

[Trade Secret Data Begins]

[REDACTED]

[REDACTED]

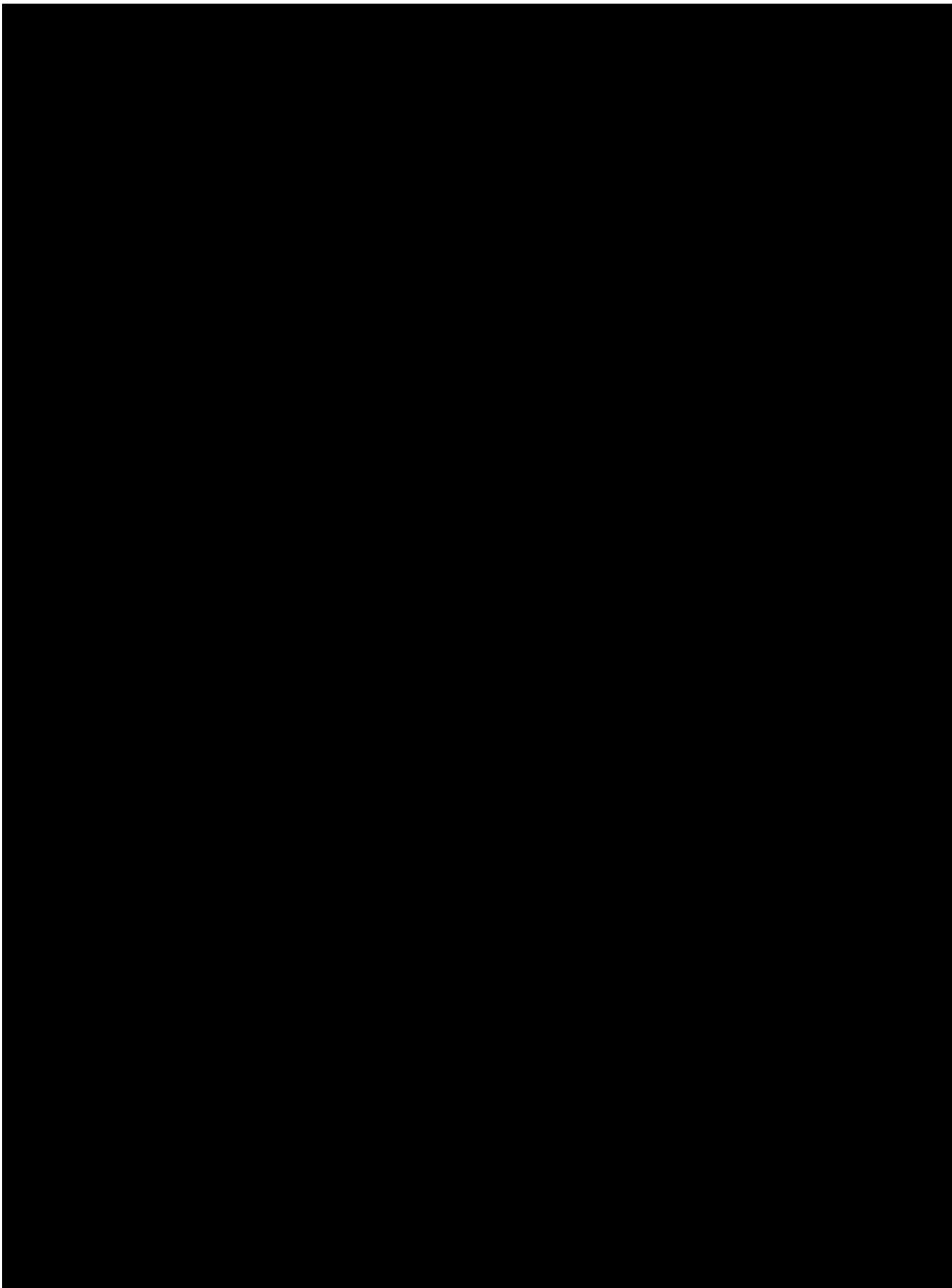
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

■ See Northern States Power Company's FERC Form 1 years 2016-2018, Section 402, Row 35 "Expenses per Net kWh," under Production Expenses for the relevant plant. These sections are included in Attachment B.



[Redacted]

[Redacted]

[Trade Secret Data Ends]

IV. Recommendations

a. Methodology

Access to underlying data, assumptions, and calculations is a foundational component of effective stakeholder engagement. Fresh Energy respectfully recommends the following modifications for future filings on this matter in the interest of consistency and clarity:

1. Utilities should report the self-commitment and self-scheduling analysis using a consistent methodology and should clearly define their assumptions and data inputs in the compliance filing.
 - a. Additional direction from the Commission on how utilities should define production cost for this analysis would be helpful. Fresh Energy recommends including fuel cost and variable O&M costs, matching the offer curve submitted to MISO energy markets.
2. Utilities should provide stakeholders with the underlying data (workpapers) used to complete the analysis, in a live Excel spreadsheet.

¹⁹ [Trade Secret Data Begins]

[Redacted]

[Trade Secret Data Ends]

- a. Fresh Energy recommends that the attachment referred to in recommendation 2 include at minimum the data points listed below for each generating unit, with the understanding that this attachment may include protected data.

Hourly data for all units:

- a) Date and hour
- b) Commit status (Null / Economic / Emergency / Must Run / Outage / Not Participating)
- c) Dispatch Status for Energy (Null / Economic / Self Schedule)
- d) Cleared MW
- e) Day ahead locational marginal price at unit node
- f) Real time MW adjustment
- g) Real time locational marginal price at unit node
- h) Day ahead dispatch minimum
- i) Real time dispatch minimum
- j) Fuel cost (\$/MWh)
- k) Variable operations and maintenance costs (\$/MWh)
- l) Day ahead locational marginal price representative of utility load zone
- m) Real time locational marginal price representative of utility load zone
- n) Whether Day Ahead Cleared = Day Ahead Dispatch Minimum (0 or 1)
- o) Actual production in MWh (for all 8,760 hours of the year)
- p) Day ahead MISO payment
- q) Real time MISO payment
- r) Net MISO energy payment
- s) Production costs $((J + K) * O)$
- t) Net cost or benefit $(R - S)$

Monthly or annual data for all units:

- u) Revenue from ancillary services (monthly)
- v) Fixed operations and maintenance costs (preferably monthly)
- w) Capital revenue requirements (annual)
- x) Average heat rate at economic minimum
- y) Average heat rate at economic maximum

Fresh Energy understands that fixed operations and maintenance costs, capital revenue requirements, and MISO payments when the plant is set to economic dispatch do not have a direct bearing on the net cost or benefit of self-committed and self-scheduled hours. However, this data is essential for evaluating how self-scheduling and self-commitment fit into a unit's overall operation, how a unit performs when being dispatched economically, and how the MISO market responds to different dispatch statuses. However, if the Commission decides that is beyond the scope of this investigation, it could omit v) and/or w) above.

Consistency in methodology, clarity about the calculations being performed, and inclusion of this data upfront will enable more robust and timely stakeholder engagement.

b. Further Investigation

As discussed in Section III, the evaluation of net cost or benefit by month for these four units reveals a seasonal trend, [Trade Secret Data Begins]

[Trade Secret Data Ends]

This raises several questions about the technical and economic limitations of changing these plants' commitment and dispatch status more regularly, how the plant's net revenues would change if operated differently, and which aspects of the plants' non-electricity contractual arrangements are currently barriers or limitations to changes in operating strategy.

For example, it seems that changing the commitment status to "economic"²⁰ for each plant's full output would greatly reduce the hours the units are running at a loss. Using this commitment status would still make the units available to the market. However, if a unit is not economically dispatched, it would not be running and would need to incur a "start-up cost" in any subsequent market offers.

However, utilizing an "economic" commitment would 1) still enable the units to qualify for MISO resource adequacy purposes; 2) would still protect Xcel customers from unexpected high market prices, because in those cases the units could still be dispatched economically. Even accounting for a "start-up cost" that would be included in a market offer price any time the unit was not running, the plant's marginal costs plus start-up cost would provide a very reasonable protection, or "hedge" for Xcel customers in the case of unusually high or unexpected market prices; and 3) in months that have consistently higher market prices, the unit would likely dispatch on the first day with higher prices.

Finally, utilizing an "economic" commitment does not need to be selected for a whole year, or even monthly. Rather, it is a daily decision. Therefore, another option would be for Xcel to consider utilizing "economic" commitment only for certain periods of time for more optimal operation.

For these reasons, Fresh Energy recommends that the Commission require Xcel to make a compliance filing analyzing the potential options for seasonal dispatch generally, and potential options and strategies for utilizing "economic" commitments for King and the three Sherco units. In addition to the cost saving opportunity for customers from these approaches, the

²⁰ As defined in MISO Energy and Operating Reserve Markets Business Practices Manual BPM-002-r19 Effective Date: OCT-15-2018, section 4.2.3.4.6 at p. 93 ([link](#)).

filing should include a specific explanation of barriers or limitations to each of these potential options, including but not limited to technical limits of the units and contract requirements (shared ownership, steam offtake contracts, minimum fuel supply requirements, etc.) as relevant.

Fresh Energy greatly appreciates the Commission's interest in self-commitment and self-scheduling. We intend to continue to engage with this important issue and to provide more in-depth feedback and analysis in future compliance filings. Please contact me at (651) 294-7148 or ricker@fresh-energy.org if you have any questions regarding this filing.

Respectfully submitted,

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Attachment A: Calculations, Workpapers and Underlying Data

Please see excel workbook Attachment A separately filed
in Dockets 17-492 and 18-373.

Attachment B: Northern States Power Company FERC Form 1, Section 402, 2016-2018

Please see PDF Attachment B separately filed
in Dockets 17-492 and 18-373.