

July 23, 2024

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: **Comments of the Minnesota Department of Commerce**
Docket No. E002/M-21-590

Dear Mr. Seuffert:

Attached are the comments of the Minnesota Department of Commerce (Department) regarding the March 29, 2024 filing of Northern States Power Company, doing business as Xcel Energy, regarding an electrification proposal and power purchase agreement (PPA) with Saint Paul Cogeneration.

Because Xcel has not provided all the necessary information required by Minn. Stat. § 216B.2424, subd. 5c(b)(3), the Department recommends conditional approval until additional information is provided by Xcel and District Energy. The Department is available to answer any questions the Minnesota Public Utilities Commission may have.

Sincerely,

/s/ Dr. SYDNIE LIEB
Assistant Commissioner of Regulatory Analysis

SC/SR/ar
Attachment



Before the Minnesota Public Utilities Commission

Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. E002/M-21-590

I. INTRODUCTION

On March 29, 2024, Northern States Power Company, doing business as Xcel Energy (Xcel or the Company), filed a proposal to the Commission for an electrification project that results in the St. Paul district heating and cooling system being powered by electricity generated from renewable energy technologies. Xcel submitted the proposal pursuant to Minn. Stat. § 216B.2424, subd. 5c, paragraph (b)(3)¹ and the Commission's January 24, 2022 Order in Docket No. E002/M-21-590.²

The proposed electrification project also requires an extension of Xcel's current power purchase agreement (PPA) with St. Paul Cogeneration, LLC (SPC), approved January 24, 2022.³ The current PPA expires December 31, 2024. Xcel has not filed a PPA extension for review, therefore the Department cannot comment on the terms of the PPA extension (length, price, etc.).⁴ Xcel states it will continue to work with Saint Paul Cogeneration on development of the electrification project and the PPA extension.

On April 19, 2024, the Commission issued a Notice of Comment Period regarding whether the Commission should approve Xcel's proposed electrification project and the requested PPA extension. The Notice listed the following topics open for comment:

- Should the Commission approve Xcel's electrification proposal in collaboration with SPC?
- Should the Commission approve Xcel's request to extend the PPA beyond December 31, 2024?
- Does Xcel's petition comply with the requirements of Minn. Stat. § 216B.2424, subd. 5c (the SPC statute)?
- Are there other issues or concerns related to this matter?

On July 9, 2024, SPC filed comments supporting Xcel's March 29, 2024 filing.

The Minnesota Department of Commerce (Department) analyzes and responds to the Commission's request for comments below. As noted above, the Department will provide its analysis of Xcel's PPA after Xcel files a PPA for approval. **Xcel has not fully provided the required information for each level of electrification analyzed. The Department requests Xcel provide this missing information and will provide final analysis regarding whether Xcel has satisfied the above filing requirements (i-v) after reviewing Xcel's reply comments.**

¹ Minn. Stat. § 216B.2424, subd. 5c, paragraph (b)(3) requires that Xcel submit an electrification proposal with various requirements.

² The 1/24/22 Order requires that Xcel file its electrification proposal by March 2024 (Order Point 4).

³ Xcel provided the existing PPA as Attachment A to its 7/30/21 petition in the instant docket.

⁴ Ibid.

II. BACKGROUND

A. SAINT PAUL COGENERATION

SPC is a joint venture between District Energy St. Paul, Inc. (District Energy) and DTE St. Paul, LLC (DTE St. Paul). District Energy is a nonprofit (501(c)(3)) utility which also owns and operates a heating and cooling system in and around downtown Saint Paul.⁵ DTE St. Paul is a subsidiary of DTE Energy Company, a publicly traded company based in Michigan.

SPC owns a combined heat and power (CHP, synonymous with cogeneration) plant, located at 125 Shepard Road. The facility burns natural gas (25% of fuel) and waste wood (75% of fuel), which boils water into superheated steam used to rotate a turbine and thereby produce electricity. The leftover steam is used for heating purposes.⁶

The District Energy heating and cooling system uses a network of pipes transporting hot water, a portion of which is supplied by steam extracted from the SPC's cogeneration facility. Natural gas and fuel oil combusted in non-CHP boilers provide the remainder of District Energy's thermal requirements.⁷

The existing PPA⁸ requires Xcel to pay a trade-secret price per megawatt-hour to receive the energy,⁹ capacity,¹⁰ and renewable energy credits (RECs) from SPC's combined heat and power (CHP), which is synonymous with cogeneration facility in downtown Saint Paul.

The waste wood used at the cogeneration facility is low-grade wood that results from storm damage, emerald ash borer infestation, tree trimming, habitat restoration, and other processing that leaves behind a low-grade wood byproduct. The waste wood is primarily sourced from urban areas. The total waste wood used per year currently is around 240,000 tons.¹¹ To the Department's understanding, about half of the tonnage is from trees infested by emerald ash borer (EAB). Environmental Woody Supply (EWS) processes the waste wood by grinding or chipping brush, logs, chips, mulch, pallets, lumber, and stumps into small pieces. EWS is located at 2165 Pigs Eye Lake Rd, Saint Paul, MN 55119, which is 3.4 miles from the cogeneration facility. Waste wood is brought to this location and then

⁵ District Energy owns Ever-Green Energy (Ever-Green), which operates and manages the cogeneration facility and heating/cooling system. In addition, Ever-Green and DTE St. Paul co-own Environmental Wood Supply (EWS), which processes and supplies the waste wood used at the cogeneration facility.

⁶ When only producing electricity, the facility's electric capacity is 33 MW. When also producing steam for heating purposes (in full cogeneration mode), the facility's electric capacity is reduced to 25 MW because the steam for heating is extracted partway through the turbine. As a result, the facility's accredited capacity is 25 MW.

⁷ Xcel 3/29/24 filing, page 2.

⁸ The existing PPA replaced Xcel's prior PPA with SPC and extended Xcel's commitment to purchasing the energy and capacity from SPC's CHP plant for another two years, until the end of 2024.

⁹ SPC's CHP plant produces around 153,500 MWh per year.

¹⁰ SPC's CHP plant has 25 MW of accredited capacity.

¹¹ <https://www.districtenergy.com/services/how-it-works/combined-heat-power/>, accessed on June 14, 2024.

transported to the cogeneration facility after being processed into a form usable for fuel. The natural gas for the facility is supplied by Xcel.

B. PROPOSED ELECTRIFICATION PROJECT

1. Xcel's Initial Proposal

In July 2021 Xcel proposed three preliminary electrification options, all of which required new boilers.¹² Xcel stated that the electricity source for the boilers would be off-site wind or solar, provided to SPC through a program like Renewable*Connect, under which Xcel acquires additional renewable resources equivalent to serving 100% of a participating customer's load and then allocates the costs to the customer through a surcharge.

The Commission's January 24, 2022 Order found that Xcel submitted sufficient information supporting potential electrification projects and satisfying its obligations under Minn. Stat. § 216B.2424, subd. 5c(b)(3), for purposes of securing approval for its PPA. The Commission then required Xcel to file a complete electrification proposal by March 2024.

To inform the Commission's analysis of whether the proposed electrification project is in the public interest under subdivision 5c(c), the Commission required Xcel to include in its electrification proposal a societal cost-benefit analysis, developed with input from the Department, the Minnesota Pollution Control Agency (MPCA), SPC, and any other interested parties. Finally, the Commission set December 1, 2022 and December 1, 2023 as Xcel's filing dates for progress reports required by paragraphs (d) and (e) of the SPC statute, with Xcel updating the Commission on its progress toward development of an electrification proposal (paragraph (e)) and SPC updating the Commission on its attempt to obtain funding to reduce the cost of generating electricity (paragraph (d)).

C. PROGRESS REPORTS

Xcel filed the required progress reports on December 1, 2022 and November 30, 2023, with SPC filing progress reports on December 16, 2022 and January 5, 2024.

1. First Progress Reports

Xcel's first progress report stated that SPC and the Company had been working on an engineering study to develop an electrification proposal that includes an electrode boiler to provide heat to the District Energy and identified a 30-MW boiler as the most cost-effective option. Xcel stated that the 30-MW boiler would offset natural gas and that the amount of wood waste used would be unaffected. Xcel stated it was still working to finalize the estimated costs of 30-MW boiler proposal.

¹² 7/30/21 petition in the instant docket

Xcel also stated that it had met with SPC, MPCA, and the Department to discuss the development of a societal cost-benefit analysis (CBA). Xcel stated that the societal CBA would include consideration of the impacts of alternative disposal of wood waste and an alternative heating source for District Energy's customers, in the event SPC discontinues operation if there were no electrification project.

SPC's first progress report stated that it created an infographic illustrating the theoretical implementation of a tipping fee¹³ and that it will continue to engage with stakeholders to explore ways to mitigate SPC electricity cost concerns. SPC attached a report prepared by a consultant it hired, Cambium Carbon. The report (page 30) cited the opinion of District Energy's CEO, Ken Smith, who believes SPC requires a new PPA and subsidy of approximately \$30/ton to maintain current wood processing volumes.

2. *Second Progress Reports*

Xcel's second progress report stated that Xcel and SPC continued to work on an engineering study to develop an electrification proposal that includes an electrode boiler to provide heat to the District Energy system. Xcel stated that a 30-MW boiler offsetting natural gas use (and not biomass) use continued to be the preferred option, adding that Xcel was now studying the use of thermal storage to compliment the boiler. Xcel again stated it was still working to finalize the estimated costs of 30-MW boiler proposal. Xcel also stated that it had partially completed its societal CBA.

SPC's second progress report noted that the SPC statute was modified to allow the Commission to approve a PPA extension without approving the electrification project. Regarding SPC's attempts to obtain funding to reduce the cost of generating electricity, SPC noted that the legislature provided a one-time \$16,562,000 grant to support SPC's current operations. According to SPC, the CHP plant was "very challenged to continue operations at the current contracted rate [in the PPA] without support from the State." SPC stated it was considering a variety of alternatives, including tipping fees, to reduce the cost of biomass fuel from tree waste.

D. *PARAGRAPH (F) REQUIREMENTS FOR PPA*

As noted in SPC's second progress report, paragraph (f) of the SPC statute originally prohibited the Commission from approving a PPA after 2024 unless it approves an electrification project. However, the legislature modified this requirement in 2023 and the statute now allows the Commission to approve a PPA extension without approving an electrification project. In addition, paragraph (f) states that nothing in the SPC statute shall require any utility to enter into a PPA with the cogeneration facility after December 31, 2024.

¹³ A tipping fee is a waste disposal charge.

E. PPA COST RECOVERY

The Commission's January 24, 2022 Order in Docket No. E002/M-21-590 allowed Xcel to recover the PPA costs through the Fuel Clause Rider (Order Point 2). The Commission's May 3, 2022 Order in Docket No. E002/M-21-590, amending the January 24, 2022 Order in the same docket, authorized Xcel to recover the PPA purchased-energy costs, net of any matching revenues, less a market-based amount for the non-Minnesota jurisdictional portion of the energy and capacity benefits (Order Point 1). The Commission also required Xcel to make compliance filings to show what Xcel recovers from customers in other states and demonstrate that Xcel will not ultimately recover more than the actual costs of the PPA (Order Point 2).¹⁴

III. DEPARTMENT ANALYSIS

A. ELECTRIFICATION PROPOSAL

The Department analyzes whether the Commission should approve Xcel's electrification proposal in collaboration with SPC.

1. Summary of Electrification Proposal

District Energy's heating system is currently powered by waste heat from the CHP plant (using biomass and natural gas) and boilers heated by natural gas and fuel oil.¹⁵ As noted above, for the Commission to approve a new PPA filed under Minn. Stat. § 216B.2424, subd. 5c, Xcel must submit a proposal that displaces 10-100% of this energy with renewable-powered electricity, to be implemented by December 31, 2027 or an alternative date.¹⁶ According to Xcel, 100% of the cooling for the District Energy is already provided by carbon-free electricity.¹⁷

To comply with this requirement, Xcel proposes a 30-MW electric boiler to be implemented on December 31, 2027, with the boiler assumed to operate for 30 years. SPC would buy electricity for the boiler during the off-peak hours 9PM-9AM Monday-Friday and all-day Saturday and Sunday. Presumably SPC would purchase energy under Xcel's General Time of Day Service tariff (to get the off-peak discount), combined with Renewable*Connect (to purchase the renewable energy). SPC would then store hot water produced by the boiler in a storage tank and discharge it as needed for the District Energy system. Xcel and SPC estimate the boiler would consume 52,721 MWh of electricity per year, based on an average load of 24.1 MW when consuming electricity.¹⁸

¹⁴ Xcel has not yet made the required compliance filing but informed the Department over email that it would do so in the near future.

¹⁵ 3/29/24 filing, page 2.

¹⁶ Minn. Stat. § 216B.2424, subd. 5c(b)(3).

¹⁷ 3/29/24 filing, page 10.

¹⁸ 3/29/24 filing, page 3.

According to Xcel, the 30-MW boiler would provide about 15% of District Energy's energy needs.¹⁹ Xcel also evaluated 20-MW and 175-MW options, representing 10% and 100% of the energy used at District Energy, but determined they were inferior to the 30-MW option.²⁰ Specifically, Xcel determined greater than 10% was feasible, but that 100% was not technically feasible and too costly.²¹

The 30-MW boiler would displace a portion of the energy used in District Energy's boilers and not displace any of the steam from the cogeneration plant. According to Xcel, the boiler would displace 219,271 MMBtu of natural gas used by District Energy boilers.²²

2. *Compliance with Filing Requirements*

Pursuant to Minn. Stat. § 216B.2424, subd. 5c(b), the "commission is prohibited from approving a new power purchase agreement filed under this subdivision that does not meet all of the [conditions established in subdivision 5c]." Subdivision 5c(b)3 states that any proposal for an electrification project must result in the St. Paul district heating and cooling system being powered by electricity generated from renewable technologies. Further, "[t]he plan must evaluate electrification at three or more levels from 10 to 100 percent, including 100% of the energy used by the St. Paul district heating and cooling system to be implemented by December 31, 2027.

For each level of electrification analyzed, the proposal must contain:

- (i) a description of the alternative electrification technologies evaluated and whose implementation is proposed as part of the electrification project;
- (ii) an estimate of the cost of the electrification project to the public utility, the impact on the monthly energy bills of the public utility's Minnesota customers, and the impact on the monthly energy bills of St. Paul district heating and cooling system customers;
- (iii) an estimate of the reduction in greenhouse gas emissions resulting from the electrification project, including greenhouse gas emissions associated with the transportation of waste wood;
- (iv) estimated impacts on the operations of the St. Paul district heating and cooling system; and
- (v) a timeline for the electrification project.

The Department reviews these five filing requirements for below. **As indicated below, Xcel has not fully provided the required information for each level of electrification analyzed. The Department requests Xcel provide this missing information and will provide final analysis regarding whether Xcel has satisfied the above filing requirements (i-v) after reviewing Xcel's reply comments.**

(i) A description of the alternative electrification technologies evaluated and whose implementation is proposed as part of the electrification project.

¹⁹ Based on page 2 of the 3/29/24 filing stating the 20-MW boiler equated to 10% District Energy's thermal energy input.

²⁰ 3/29/24 filing, page 2.

²¹ 3/29/24 filing, pages 9-10.

²² 3/29/24 filing, page 3.

Xcel's March 29, 2024 filing (pages 9-10) states that Xcel evaluated three levels of electrification ranging from 10-100%: a 20-MW boiler, a 30-MW boiler, and a 175-MW boiler. However, on page 10 of the filing, regarding this requirement, Xcel states that it only reviewed the 30-MW boiler. **To fulfill compliance with this statutory requirement, the Department requests Xcel provide a description of the alternative electrification technologies evaluated and whose implementation is proposed as part of the electrification project for each level of electrification analyzed (20-MW, 30-MW, and 175-MW).**

(ii) An estimate of the cost of the electrification project to the public utility, the impact on the monthly energy bills of the public utility's Minnesota customers, and the impact on the monthly energy bills of St. Paul district heating and cooling system customers.

According to Xcel, all costs would be borne by SPC.²³ Therefore, there would be no cost to Xcel or impact on the monthly energy bills of Xcel's Minnesota customers (other than SPC).

For District Energy customers, the filing (page 11) states that SPC estimated a monthly bill increase of 10% on average for the 30-MW option. However, Xcel did not provide the impact for the 20-MW and 175-MW boilers. **To fulfill compliance with this requirement, the Department requests Xcel provide the impact on the monthly energy bills of St. Paul district heating and cooling system customers for the other two levels of electrification analyzed (20-MW and 175-MW boilers).**

(iii) An estimate of the reduction in greenhouse gas emissions resulting from the electrification project, including greenhouse gas emissions associated with the transportation of waste wood.

Xcel's filing (page 12) states that the 30-MW boiler would displace heating provided by District Energy's natural gas boilers. Xcel estimates the reduction in GhG emissions due to displacing this natural gas would save 12,854 tons of carbon dioxide emissions per year. However, Xcel did not provide GhG reduction estimate for the 20-MW and 175-MW boilers. **To fulfill compliance with this statutory requirement, the Department requests Xcel provide an estimate of the reduction in greenhouse gas emissions resulting from the electrification project, including greenhouse gas emissions associated with the transportation of waste wood for the other two levels of electrification analyzed (20-MW and 175-MW boilers).**

(iv) Estimated impacts on the operations of the St. Paul district heating and cooling system.

Xcel's filing (page 13) states that the 30-MW boiler "enhances the resilience of the district heating facility since there is added diversification in the available input energy sources that can be utilized to meet peak load." However, Xcel did not provide the estimated impacts for the 20-MW and 175-MW boilers. **To fulfill compliance with this statutory requirement, the Department requests Xcel provide estimated impacts on the operations of the St. Paul district heating and cooling system for the other two levels of electrification analyzed (20-MW and 175-MW boilers).**

²³ Xcel's response to DOC IR 6(a).

(v) A timeline for the electrification project.

Xcel's filing (page 13) proposes a timeline of the 30 years beginning December 31, 2027 for the 30-MW boiler. However, Xcel did not clarify the timeline for the 20-MW and 175-MW boilers. **To fulfill compliance with this statutory requirement, the Department requests Xcel provide a timeline for the other two levels of electrification analyzed (20-MW and 175-MW boilers).**

3. *Cost-Benefit Analysis*

In addition to the statutory filing requirements, the Commission's January 24, 2022 Order states that Xcel shall include in its electrification proposal a societal cost-benefit analysis, to be developed with input from the Department of Commerce, Minnesota Pollution Control Agency, St. Paul Cogeneration, LLC, and other interested parties.

On the cost-side, Xcel provided the following information in response to Department information request (IR) 6(f)²⁴:

According to District Energy, their early-stage estimate of the electrification project cost – including a 30 MW electrode boiler coupled with thermal storage to enable use of off-peak electricity – is \$6,719,655. This estimate is based on a cost of \$2,989,000 for the electrode boiler with a 10 percent rebate for CIP incentives; and a cost of \$4,477,283 for the thermal storage development with a 10 percent rebate for CIP incentives (i.e. a total cost of \$7,466,283).

In response to Department IRs 6(c) and 6(h), Xcel confirmed it was not incurring any direct costs for the electrification proposal. As confirmed in response to Department IR 6(b), the only costs Xcel would incur would be any costs needed to procure additional renewable energy credits, which would be paid for by SPC. In response to Department IR 6(a), Xcel noted that District Energy would pay for the electricity used for the boiler using a structure similar to Renewable*Connect. Xcel did not provide a comparison of fuel costs (electricity versus natural gas) for the 30-MW boiler, but noted in response to Department IR 6(g) that the cost per unit of thermal energy would be higher. As noted above, the 30-MW boiler would increase bills for District Energy's customers by 10% on average. Based on the information above, the Department concludes the cost of the electrification proposal of the 30MW boiler is approximately \$6.7 million in present value terms, plus or minus any difference in the cost of energy for renewable electricity versus natural gas.

On the benefit side, Xcel estimates the 30-MW boiler would displace 219,721 MMBtu of natural gas annually, equivalent to 12,854 tons of carbon dioxide avoided with no offsetting emissions from

²⁴ Xcel's response to Department IR 6 is attached to these comments.

electricity use due to SPC's purchases of RECs.²⁵ Xcel also assumes a 30-year life for the boiler, with the first year being 2028 and the last year being 2057.²⁶

Based on these assumptions and the Commission's approved carbon dioxide externality and regulatory cost values, the Department estimated a total benefit of the 30-MW boiler of \$55.8 million in present value terms. Table 1 shows how the Department reached this number.

Since the \$55.8 million estimated benefit is much greater than the ~\$6.7 million estimated capital cost, **the Department concludes the 30-MW boiler might pass the societal cost-benefit test. To complete the analysis, the Department requests Xcel and District Energy provide the difference in fuel (SPC purchase of electricity for 30-MW boiler versus avoided purchases of natural gas) and other operating costs, which will either increase or decrease the costs of the electrification proposal. Additionally, the Department requests that Xcel and District Energy provide this information for the other two electrification levels, including the above referenced data that went into the cost-benefit analysis for the 30 MW boiler proposal, which would allow the Department to run the necessary cost-benefit analyses comparing the three options and make a recommendation to the Commission.**

²⁵ 3/29/24 filing, page 12.

²⁶ 3/29/24 filing, page 13.

Table 1: Department Estimated Benefits of 30-MW Boiler using Xcel’s Assumed Avoided Carbon Dioxide and Commission Approved Externality Values²⁷

End of Year	Discount Factor	Externality CO2 Unit Cost (Adjusted for Reg Cost)	Regulatory CO2 Unit Cost	Total CO2 Unit Cost	Total Avoided CO2 Cost	Total Avoided CO2 Cost Discounted
	(6.390566% rate)	\$ / ton			\$	
	[A]	[B]	[C]	[D]	[E]	[F]
				= [B]+[C]	= [D]*12,854	= [E]*[A]
2026.5	1.00000					
2027.5	0.93993					
2028.5	0.88347	\$197.03	\$40.00	\$237.03	\$ 3,046,784	\$ 2,691,754
2029.5	0.83041	\$205.02	\$40.00	\$245.02	\$ 3,149,487	\$ 2,615,354
2030.5	0.78053	\$214.35	\$40.00	\$254.35	\$ 3,269,415	\$ 2,551,864
2031.5	0.73364	\$223.95	\$40.00	\$263.95	\$ 3,392,813	\$ 2,489,112
2032.5	0.68957	\$232.68	\$40.00	\$272.68	\$ 3,505,029	\$ 2,416,979
2033.5	0.64815	\$242.82	\$40.00	\$282.82	\$ 3,635,368	\$ 2,356,278
2034.5	0.60922	\$253.27	\$40.00	\$293.27	\$ 3,769,693	\$ 2,296,577
2035.5	0.57263	\$262.80	\$40.00	\$302.80	\$ 3,892,191	\$ 2,228,774
2036.5	0.53823	\$273.83	\$40.00	\$313.83	\$ 4,033,971	\$ 2,171,209
2037.5	0.50590	\$285.19	\$40.00	\$325.19	\$ 4,179,992	\$ 2,114,663
2038.5	0.47551	\$295.58	\$40.00	\$335.58	\$ 4,313,545	\$ 2,051,148
2039.5	0.44695	\$307.58	\$40.00	\$347.58	\$ 4,467,793	\$ 1,996,883
2040.5	0.42010	\$319.92	\$40.00	\$359.92	\$ 4,626,412	\$ 1,943,572
2041.5	0.39487	\$332.62	\$40.00	\$372.62	\$ 4,789,657	\$ 1,891,288
2042.5	0.37115	\$345.68	\$40.00	\$385.68	\$ 4,957,531	\$ 1,839,990
2043.5	0.34886	\$359.12	\$40.00	\$399.12	\$ 5,130,288	\$ 1,789,735
2044.5	0.32790	\$372.94	\$40.00	\$412.94	\$ 5,307,931	\$ 1,740,480
2045.5	0.30821	\$387.15	\$40.00	\$427.15	\$ 5,490,586	\$ 1,692,230
2046.5	0.28969	\$401.77	\$40.00	\$441.77	\$ 5,678,512	\$ 1,645,024
2047.5	0.27229	\$418.35	\$40.00	\$458.35	\$ 5,891,631	\$ 1,604,243
2048.5	0.25594	\$433.83	\$40.00	\$473.83	\$ 6,090,611	\$ 1,558,807
2049.5	0.24056	\$449.75	\$40.00	\$489.75	\$ 6,295,247	\$ 1,514,401
2050.5	0.22611	\$466.12	\$40.00	\$506.12	\$ 6,505,666	\$ 1,471,014
2051.5	0.21253	\$482.95	\$40.00	\$522.95	\$ 6,721,999	\$ 1,428,632
2052.5	0.19976	\$498.53	\$40.00	\$538.53	\$ 6,922,265	\$ 1,382,825
2053.5	0.18777	\$516.28	\$40.00	\$556.28	\$ 7,150,423	\$ 1,342,603
2054.5	0.17649	\$534.52	\$40.00	\$574.52	\$ 7,384,880	\$ 1,303,335
2055.5	0.16589	\$551.45	\$40.00	\$591.45	\$ 7,602,498	\$ 1,261,147
2056.5	0.15592	\$568.92	\$40.00	\$608.92	\$ 7,827,009	\$ 1,220,400
2057.5	0.14656	\$586.94	\$40.00	\$626.94	\$ 8,058,631	\$ 1,181,040
<i>No values available for 2056 and 2057 so assumed prior-year escalation rate</i>					Sum =	\$55,791,360

4. *Public Interest Analysis*

Minn. Stat. § 216B.2424 subd. 5c(c) states the Commission may approve or approve as modified an electrification project if it finds the project is in the public interest, and may reject the project if it finds the project is not in the public interest. The Department will provide its final analysis of whether the 30-MW boiler is in the public interest after reviewing the information provided in Xcel's reply comments, which the Department needs to complete its analysis.

Regarding whether the Commission should act on the statutory option to approve or reject the project, the Department defers to the Commission given District Energy presumably can build the project with or without the Commission's approval.

5. *Reporting Requirements if Approved*

Minn. Stat. § 216B.2424, subd. 5c(g) states that upon approval of an electrification project, the Commission must require periodic reporting regarding the progress toward implementation of the electrification project. Xcel states that it will report periodically on an interval the Commission finds appropriate. However, Xcel clarified that the installation and operation of the electric boiler will be the responsibility of District Energy and/or Saint Paul Cogeneration, so it may make sense to request they report directly to the Commission.²⁸

If District Energy implements an electrification proposal, the Department recommends that the Commission request District Energy file the progress reports required under Minn. Stat. § 216B.2424, subd. 5c(g) every six months. If District Energy does not accept this request, the Department recommends the Commission require Xcel to file the reports.

6. *Cost Recovery*

Minn. Stat. § 216B.2424 subd. 5c(h) states that if the Commission approves an electrification proposal, the Commission may allow Xcel to recover prudently incurred costs net of revenues resulting from the electrification project through an automatic cost recovery mechanism that allows for cost recovery outside of a general rate case. The cost recovery mechanism approved by the commission must: (1) allow a reasonable return on the capital invested in the electrification project by the public utility, as determined by the Commission; and (2) recover costs only from the public utility's Minnesota electric service customers. Xcel stated that it does not anticipate investing any capital in the electrification project and therefore is not requesting any cost recovery under this clause of the statute.

²⁷ Externality unit values from 12/19/23 Order in Docket Nos. E999/CI-07-1199, E999/DI-22-236, and E999/CI-14-643. Discount rate is as used in Xcel's recent resource planning filings. 12,854 tons of carbon dioxide is Xcel's estimate.

²⁸ 3/29/24 filing, pages 14-15.

7. *Purchase of Electricity for 30-MW Boiler*

On pages 2-3 of the March 29, 2024 filing, Xcel states that the 30-MW boiler would be powered by renewable electricity and operate November through March from 9PM-8AM Monday-Friday and all-day Saturday and Sunday. Presumably SPC would purchase energy under Xcel's General Time of Day Service tariff, combined with Renewable*Connect, though Xcel may wish to clarify which tariff(s) Xcel would use for the 30-MW boiler.

The Department does not have any objections to Xcel's proposed structure for the purchase of electricity given it appears Xcel would use existing tariffs and other ratepayers would not be harmed.²⁹ **However, the Department requests Xcel explain, in reply comments, whether it considered any ways to optimize the boiler's use of off-peak or renewable electricity beyond using an existing time-of-day tariff. The Department also request Xcel provide, in reply comments, its proposed electricity purchase structure for the other two levels of electrification, to comply with Minn. Stat. § 216B.2424, subd. 5c(b)(3) ("the proposal must evaluate electrification at three or more levels from ten to 100 percent") and so the Department can fully compare the costs and benefits of each level analyzed.**

B. *PPA EXTENSION*

Minn. Stat. § 216B.2424 subd. 5c(f) states that the Commission is allowed to approve a power purchase agreement after the agreement period without approving an electrification project. However, Minn. Stat. § 216B.2424 subd. 5c(b) states the Commission is prohibited from approving a new PPA filed under this subdivision that does not meet one of four conditions, one of which is the electrification proposal with five requirements (i) through (v). As reviewed above, the Department has concluded Xcel has not yet satisfied the filing requirements for the electrification proposal. In addition, Xcel has not yet filed a PPA. The Department will provide its analysis of Xcel's PPA after Xcel files a PPA for approval.

IV. **RECOMMENDATION**

Unless or until Xcel files the information required by Minn. Stat. § 216B.2424, subd. 5c(3)(i)-(v), the Department can only recommend conditional approval of Xcel's electrification proposal. To satisfy its statutory obligations and allow the Department to provide a complete analysis of the costs and benefits of each level of electrification analyzed, the Department requests Xcel provide, in reply comments, the following information:

- A description of the alternative electrification technologies evaluated and whose implementation is proposed as part of the electrification project for each level of electrification analyzed;

²⁹ Minn. Stat. § 216B.03 states that rates shall not be unreasonably preferential, unreasonably prejudicial, or discriminatory, but shall be sufficient, equitable, and consistent in application to a class of consumers.

- The impact on the monthly energy bills of St. Paul district heating and cooling system customers for the 20-MW and 175-MW boilers;
- Estimated impacts on the operations of the St. Paul district heating and cooling system for the other the 20-MW and 175-MW boilers;
- A timeline for the 20-MW and 175-MW boilers;
- The difference in fuel (SPC purchase of electricity for 30-MW boiler versus avoided purchases of natural gas) and other operating costs, which will either increase or decrease the costs of the electrification proposal, for each level of electrification analyzed; and
- The remaining required cost-benefit analysis information (capital cost and emission savings) for the 20-MW and 175-MW boilers.

The Department also requests Xcel explain, in reply comments, whether it considered any ways to optimize the boiler's use of off-peak or renewable electricity beyond using an existing time-of-day tariff.

The Department also recommends the Commission request District Energy or Xcel to file the progress reports required under Minn. Stat. § 216B.2424, subd. 5c(g) every six months.

- Not-Public Document – Not For Public Disclosure
- Public Document – Not-Public Data Has Been Excised
- Public Document

Xcel Energy Information Request No. 6
Docket No.: E002/M-21-590
Response To: Minnesota Department of Commerce
Requestor: Stephen Collins & Steve Rakow
Date Received: June 18, 2024

Question:

Topic: Electrification Proposal
Reference(s): 3/29/24 petition

Request:

(a) Page 15 states that the “costs of a new renewable resource providing an estimated 54,721 MWh annually to serve the electric boiler would be recovered from Saint Paul Cogeneration in the rates charged to Saint Paul Cogeneration for electricity.” How specifically is Xcel proposing to structure SPC’s purchase of renewable energy for the electric boiler? Would Xcel be using an existing tariff or is Xcel proposing to add a new tariff to support SPC’s purchase of renewable electricity for this specific load?

(b) Pages 7 and 15 refer to new renewable resources needed to power the 30-MW electric boiler. Would Xcel construct any incremental resources for the 30-MW off-peak load? If so, please clarify how Xcel would ensure only SPC pays for this incremental resource.

(c) Who would pay for the distribution system improvements needed for the 30-MW electric boiler cited on page 2?

(d) Please provide an estimate of the cost of the electrification project to the public utility, as required by Minn. Stat. § 216B.2424 subd. 5c(b)(3)(ii).

(e) Please provide the impact on the monthly energy bills of the public utility's Minnesota customers due to the electrification project, as required by Minn. Stat. § 216B.2424 subd. 5c(b)(3)(ii).

(f) Please provide the cost to District Energy of the 30-MW electrification project.

(g) Does SPC/District Energy expect any impact on their financial standing due to paying for the new boiler (page 11 of the petition states the unit costs of the electric boiler would be 128% higher than the existing boilers)? Please explain whether the capital required for the new boiler would impact the financial viability of the CHP plant.

(h) Please confirm that Xcel is not planning to invest any capital in the electrification project (page 14) and therefore not proposing any cost recovery pursuant to Minn. Stat. § 216B.2424 subd. 5c(h).

(i) Please provide annual financial statements for 2021, 2022, and 2023 for each of St. Paul Cogeneration LLC, District Energy St. Paul Inc., Environmental Wood Supply, Ever-Green Energy, and DTE Energy Company.

Response:

(a) Minn. Stat. § 216B.2424 subd. 5c (b)(3) requires the electrification proposal to “result in the St. Paul district heating and cooling system being powered by electricity generated from renewable energy technologies,” and to be online by 12/31/2027. Thus, the 30 MW boiler that is the focus of our March 29 filing – which, per Saint Paul Cogen’s estimates, would consume about 54,721 MWh per year – must be powered by a renewable resource. We used Renewable*Connect pricing as the proxy for this resource in our modeling. One way to structure Saint Paul Cogen’s purchase to meet the statutory requirements would be a subscription to Renewable*Connect at about 54,721 MWh per year, with the Company retiring 54,721 Renewable Energy Credits (RECs) per year on Saint Paul Cogen’s behalf to match the boiler’s load. If this amount of capacity is not available in Renewable*Connect in 2027, the Company could seek to add capacity to Renewable*Connect, or could structure the pricing of a new resource similarly to Renewable*Connect. In either case, all costs would be borne by Saint Paul Cogen and none by other customers.

(b) We cannot, at this time, determine whether in 2027 and later years there will be 54,721 MWh per year available from existing resources in the Renewable*Connect portfolio to serve the new electric boiler load; this depends on other Renewable*Connect subscriptions between now and that time. If it is not, the Company could seek to add capacity to Renewable*Connect, or could structure the pricing of a new resource similarly to Renewable*Connect. In either case, the pricing would be structured such that Saint Paul Cogen pays the full cost, and RECs are retired uniquely on Saint

Paul Cogen's behalf for the electric boiler load, allowing Saint Paul Cogen to claim to be using renewable electricity.

- (c) We expect no incremental costs for distribution system improvements. Saint Paul Cogen's plant has 30 MW of capacity that is used in the summer for chiller load. This capacity can be used in the winter to power an electric boiler. As noted on page 2 of our March 29 filing, this was part of the reason for focusing on the 30 MW boiler option rather than 100 percent of the district energy system's thermal load, which would have entailed a much larger electric load likely requiring distribution system upgrades.
- (d) and (e) We evaluated the overall cost and bill impact of the electrification project and PPA extension as a package; we have not evaluated the cost of electrification on its own. We compared the Electrification/PPA Extension Scenario to a reference case representing our IRP Preferred Plan filed February 1, 2024 in Docket No. E002/RP-24-67, in which no electric boiler is added and the Saint Paul Cogen PPA expires at the end of 2024. We then assumed that the Commission applies the same cost recovery requirements to a new PPA extension as to the current two-year extension, i.e. that only the above-market cost of the PPA plus the Minnesota-jurisdictional portion of the market costs are borne by our Minnesota customers. We used MISO market energy and capacity prices to estimate market costs of energy and capacity, deducted those from the overall PPA cost, and assigned the above-market portion of PPA costs plus the Minnesota-jurisdictional share of the market costs to the Company's Minnesota customers. This resulted in estimated annual costs to Minnesota customers of about \$12.8 million, or an estimated average residential bill impact of 29 cents per month, which includes 16 cents/month for the above-market PPA costs and 13 cents/month for the Minnesota share of market costs. See March 29 filing, pages 10-11.
- (f) The Company sought a response from District Energy to this subpart. According to District Energy, their early-stage estimate of the electrification project cost – including a 30 MW electrode boiler coupled with thermal storage to enable use of off-peak electricity – is \$6,719,655. This estimate is based on a cost of \$2,989,000 for the electrode boiler with a 10 percent rebate for CIP incentives; and a cost of \$4,477,283 for the thermal storage development with a 10 percent rebate for CIP incentives (i.e. a total cost of \$7,466,283).
- (g) The Company sought a response from District Energy to this subpart. According to District Energy, the financial viability of the CHP plant would not be impacted by the capital required for the new boiler. There would be an

ongoing higher cost per unit of energy to the St. Paul downtown district heating customers as a result of the implementation of the new electric boiler and thermal storage system investment, due primarily to the higher cost of the input energy for electricity to the new boiler versus the cost of an equivalent amount of natural gas to the existing district energy boilers.

(h) Confirmed.

(i) The Company has communicated with Ever-Green Energy on this subpart. Financial statements of St. Paul Cogeneration LLC, District Energy St. Paul Inc., and Environmental Wood Supply, LLC will be provided directly to the Department of Commerce by St. Paul Cogeneration. Financial statements of DTE Energy Company, a publicly traded company, can be found on DTE's website at [DTE Energy Company - SEC Filings - SEC Filings Details](#).

Preparer:	Nicholas Martin	Mike Auger
Title:	Director, Strategic Outreach & Advocacy	SVP, Chief Business Officer
Department:	NSPM Community Relations	Ever-Green Energy
Date:	June 28, 2024	

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Comments

Docket No. E002/M-21-590

Dated this **23rd** day of **July 2024**

/s/Sharon Ferguson

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