

Staff Briefing Papers

Meeting Date	October 3, 2024	Agenda Item 5**
Company	Northern States Power Co. d/b/a Xcel Energy	
Docket No.	E002/M-21-590	
	In the Matter of Xcel Energy’s Petition for Approval of a Power Purchase Agreement (PPA) between Northern States Power Company and St. Paul Cogeneration, LLC (SPC)	
Issues	Should the Commission approve Xcel’s proposed electrification project and the requested Power Purchase Agreement extension?	
Staff	Yunpei Zhang yunpei.zhang@state.mn.us	651-539-1061

✓ Relevant Documents	Date
Xcel Energy, Initial Petition	July 30, 2021
Staff’s Briefing Paper	December 16, 2021
Commission Order	January 24, 2022
Xcel Energy, Progress Report	December 1, 2022
SPC, Progress Report	December 16, 2022
Xcel Energy, Progress Report	November 30, 2023
SPC, Progress Report	January 5, 2024
Xcel Energy, Compliance Filing	March 29, 2024
St. Paul Cogeneration, LLC, Comments	July 9, 2024
Partnership on Waste and Energy, Comments	July 16, 2024
Clean Energy Economy Minnesota, Comments	July 16, 2024
Minnesota Pollution Control Agency, Comments	July 16, 2024

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The attached materials are work papers of the Commission Staff. They are intended for use by the Public Utilities Commission and are based upon information already in the record unless noted otherwise.

✓ **Relevant Documents**

Department of Agriculture Thom Peterson, Public Comments

Date

July 16, 2024

Department of Commerce, Comments

July 23, 2024

Xcel Energy, Reply Comments (Public and Non-Public)

August 13, 2024

Department of Commerce, Reply Comments

September 18, 2024

I. Statement of Issues

Should the Commission approve Xcel's request to extend the Power Purchase Agreement beyond December, 31, 2024?

Should the Commission approve Xcel's electrification proposal in collaboration with Saint Paul Cogeneration?

II. Background

Xcel Energy purchases energy and capacity from Saint Paul Cogeneration (SPC) under a Power Purchase Agreement (PPA) approved by the Commission, helping Xcel Energy (Xcel or Company) meet Minnesota's Biomass Power Mandate. Minn. Stat. § 216B.2424 (the Biomass Mandate) was introduced as part of broader legislation permitting Xcel Energy to store spent fuel at the Prairie Island Nuclear Generating Plant. The mandate requires any public utility operating a nuclear plant in Minnesota to support 125 MW of biomass-generated power. To comply, Xcel was required to enter into a PPA for qualifying biomass by December 31, 1998. On December 23, 1998, Xcel fulfilled part of this obligation by executing a PPA with SPC, committing to purchase 25 MW of accredited capacity and energy from SPC's biomass generation station, which is affiliated with District Energy St. Paul, Inc.¹

SPC's facility meets this mandate by providing up to 33 MW of capacity using waste wood as the primary fuel source that supplies heating to downtown Saint Paul's district energy system and generates electricity for Xcel by repurposing tree waste, or renewable biomass fuel. Annually, SPC converts about 237,000 tons of tree waste into energy, with its fuel mix consisting of approximately 75 percent biomass and 25 percent natural gas.²

On January 11, 1999, Xcel filed for Commission approval of the PPA in Docket No. E002/M-96-1405. On August 5, 1999, the Commission issued an order deferring its decision due to concerns about project costs and encouraged further price negotiations between Xcel and District Energy. These negotiations resulted in significant cost reductions.

On January 11, 2000, the Commission approved a revised PPA. While the PPA set a required operational date of no later than December 31, 2002, delays occurred, and the project did not reach commercial operation until May 2003. The PPA was set to expire on December 31, 2022 until later legislative changes and Commission approval allowed for a continuation of the PPA.

On March 1, 2000, Xcel and SPC executed Amendment No. 1 to the PPA, which shifted the payment structure from anticipated energy and capacity payments to a "Pay for Production" agreement. This change means that payments are based solely on project output, eliminating

¹ Staff's briefing paper on December 16, 2021, at 2.

² Xcel's initial petition on July 30, 2021, at 4.

the previously expected annual capacity costs noted in the Commission's January 11, 2000 Order.

On July 30, 2021, Xcel filed for Commission approval to extend the PPA through December 31, 2024 in response to an amendment to Minn. Stat. § 216B.2424 during the 2021 Legislative Session³ that allowed Xcel and SPC to file a new PPA with the Commission, subject to certain conditions. The legislation also required the inclusion of specific elements, including a preliminary electrification project proposal at the SPC facility. Xcel requested approval for cost recovery through the Fuel Clause Rider (FCR) in this filing.

On January 24, 2022, the Commission issued its Order approving the two-year PPA with SPC under Minn. Stat. § 216B.2424, subd. 5c. The Commission initially denied Xcel's proposed cost allocation method and required Xcel to file an electrification proposal by March 2024, including a societal cost-benefit analysis. In response, on February 14, 2022, Xcel petitioned the Commission to reconsider its January 24, 2022 Order. Following this, on April 8, 2022, the Commission issued an order granting reconsideration to delay the statutory deadline under Minn. Stat. § 216B.27, subd. 4.

Subsequently, on May 3, 2022, the Commission authorized Xcel to recover purchased-energy costs from the PPA, after subtracting market-based amounts for non-Minnesota jurisdictional portions of the energy benefits.

By March 29, 2024, Xcel, in collaboration with SPC, submitted its electrification proposal for Commission approval in line with the initial order.

On August 13, 2024, Xcel filed the PPA extension for approval in its reply comments.

On September 18, 2024, the Department filed reply comments with final recommendations.

III. Electrification Proposal

A. Preliminary Progress

1. Xcel's Initial Proposal

The Commission's January 24, 2022 Order found that Xcel had submitted sufficient information to satisfy its obligations under Minn. Stat. § 216B.2424, subd. 5c(b)(3) for approval of the PPA with the preliminary electrification proposal, with a fully developed plan to follow. The Commission directed Xcel to file a complete electrification proposal by March 2024. Additionally, the Order required Xcel to include a societal cost-benefit analysis in the proposal, developed with input from the Department, MPCA, St. Paul Cogeneration, and other interested

³ <https://www.revisor.mn.gov/laws/2021/0/Session+Law/Chapter/23/>

parties, to evaluate whether the electrification project was in the public interest under subdivision 5c(c).⁴

Xcel and SPC have partnered to explore three electrification options for the district's thermal loads. The first two options are similar, involving installing 20 MW and 30 MW boilers, which would electrify 11.5 percent and 17 percent of the thermal load, respectively. Both options would connect to the existing infrastructure, include thermal energy storage, and allow for load shifting to match the thermal demand with carbon-free electric sources. Xcel explained these options would be relatively simple to implement and provide an opportunity to study boiler performance with thermal energy storage. For both options, the installation timeframe was estimated to be 18 to 24 months, depending on boiler availability.⁵

A third option under initial consideration was a 175 MW boiler, which would electrify 100 percent of the thermal load. Xcel explained this would be located at Xcel's High Bridge facility in Saint Paul, but would require new piping, infrastructure, and connections to the electricity supply. Also, installation would take about three years, and cost significantly more, making it difficult to justify financially. As a result, Xcel is focusing primarily on the 20 MW and 30 MW options.⁶

2. First Progress Report

On December 1, 2022, Xcel filed its first progress report, stating that it had been collaborating with SPC on an engineering study to develop an electrification proposal centered around a 30 MW electrode boiler as the most cost-effective option. Xcel explained that this boiler would reduce the use of natural gas while maintaining SPC's biomass operations and wood waste processing. Xcel also reported that it has been working with SPC, the Minnesota Pollution Control Agency, and the Department of Commerce on a societal cost-benefit analysis, as required by the Commission's Order, to assess alternative wood waste disposal and heating options if SPC discontinues operations without an electrification project.⁷

On December 16, 2022, SPC submitted updates supporting Xcel's first progress report. SPC held stakeholder meetings with the Minnesota Pollution Control Agency (MPCA) and the Partnership on Waste & Energy (PWE) and conducted research on its role in Minnesota's wood waste system. SPC also collaborated with Cambium Carbon on a study examining wood waste streams, particularly the Emerald Ash Borer (EAB). SPC stated it would continue working with

⁴ The Commission's Order on January 24, 2022, at 8.

⁵ Xcel's initial filing on July 30, 2021, at 10.

⁶ Xcel's initial filing on July 30, 2021, at 11.

⁷ Xcel's first progress report on December 1, 2022, at 2.

stakeholders to address wood waste challenges and explore electricity cost reduction options.⁸

SPC stated that without extending the PPA, rising costs may make it difficult for Environmental Wood Supply (EWS) to sustain current wood processing levels. The report cited the opinion of Ever-Green Energy and District Energy's CEO, Ken Smith, who stated SPC requires a new PPA and subsidy of approximately \$30/ton to maintain current wood processing volumes.⁹

3. Second Progress Report

During the 2023 legislative session, Minn Stat. § 216b.2424 was modified to permit an extension to the existing PPA, independent of approval of an electrification project, providing flexibility as Xcel Energy continues its analysis and stakeholder engagement.

On November 30, 2023, Xcel Energy filed its second progress report, stating that Xcel and SPC continued to work on an engineering study to develop an electrification proposal that includes a 30-MW electrode boiler to provide heat to the district energy system, aimed at offsetting natural gas use (and not biomass). Xcel stated this boiler remains the preferred option, with ongoing studies into the use of thermal storage to complement the boiler. Xcel noted that it is still finalizing the estimated costs of the 30-MW boiler proposal. Additionally, the report highlighted that Xcel has partially completed its societal cost-benefit analysis, which indicates significant societal damages from open burning of wood waste, underscoring the importance of the electrification project.¹⁰

On January 5, 2024, SPC submitted its second progress report in support of Xcel's PPA. SPC emphasized the recent legislative changes simplify the approval process for the agreement without requiring concurrent approval of an electrification project. A notable development was a one-time \$16.562 million grant from the Minnesota legislature to support SPC's operations. A cost-benefit analysis conducted by SPC, Xcel, and MPCA estimated a societal cost of \$787 million in net present value (NPV) if SPC ceased using biomass, primarily due to increased particulate matter from open wood waste burning outside SPC's operation.¹¹ Additionally, SPC reported progress on the 30 MW electrode boiler and thermal storage project, which was identified as the most flexible and cost-effective solution for District Energy St. Paul.

B. Project Description

Xcel reached the same conclusion as the Company's initial petition on July 30, 2021 for approval of the PPA that, although alternative scales of electrification were considered, including a 20

⁸ SPC's first progress report on December 16, 2022, at 2.

⁹ SPC's first progress report on December 16, 2022, at 10.

¹⁰ Xcel's second progress report on November 30, 2023, at 2.

¹¹ SPC's second progress report on January 5, 2024, at 2.

MW and a 175 MW boiler, the 30 MW option is the most cost-effective option. Xcel explained the 175 MW boiler would be technically and financially infeasible, and a 20 MW boiler would not fully utilize SPC's thermal storage capacity and displace less natural gas than the 30 MW option.¹²

SPC informed Xcel that this 30 MW electric boiler would operate from November to March during off-peak hours (9 p.m. to 9 a.m. on weekdays and all day on weekends), allowing the project to benefit from lower electricity prices. Hot water would be stored in a thermal storage tank for use during peak hours. The boiler is expected to run approximately 2,268 off-peak hours annually, consuming 54,721 MWh of renewable electricity and displacing an estimated 219,721 MMBtu of natural gas currently used by District Energy. The biomass consumption of 237,000 tons per year would remain unaffected. Xcel plans for the boiler to be operational by the end of 2027, with a 30-year lifespan.¹³

1. Encompass Modeling Results

Xcel conducted modeling using EnCompass to evaluate the costs of implementing the electrification project and extending the SPC PPA. The modeling compared the Electrification/PPA Extension Scenario, which includes a 30 MW electric boiler operating from 2027 for 30 years, to a reference case in which the PPA expires in 2024 as shown in Table 1.¹⁴

Table 1
EnCompass Modeling Results, Comparing Electrification/PPA
Extension Scenario to Reference Case
(Red numbers are negative costs, i.e. societal benefits)

PVSC Production Cost	Delta in NPV (\$m) 2025-2040	NPV (\$m) 2025-2040	Delta in NPV (\$m) 2025-2047	NPV (\$m) 2025-2047	Delta in NPV (\$m) 2025-2050	NPV (\$m) 2025-2050
Scenario 3 - Base (PVSC)	\$0	\$ 48,407	\$0	\$ 61,643	\$0	\$ 67,004
Scenario 3 - Electrification/PPA Extension (PVSC)	(\$15)	\$ 48,392	(\$29)	\$ 61,615	(\$30)	\$ 66,974
<i>*PVSC scenario includes \$40/ton regulatory cost of carbon starting in 2028.</i>						
PVRR Production Cost	Delta (\$m)	NPV (\$m) 2025-2040	Delta in NPV (\$m) 2025-2047	NPV (\$m) 2025-2047	Delta in NPV (\$m) 2025-2050	NPV (\$m) 2025-2050
Scenario 3 - Base (PVRR)	\$0	\$ 34,009	\$0	\$ 45,470	\$0	\$ 49,888
Scenario 3 - Electrification/PPA Extension (PVRR)	\$79	\$ 34,089	\$126	\$ 45,596	\$157	\$ 50,044

The modeling showed that the Electrification/PPA Extension Scenario results in a small societal cost savings of \$30 million in Present Value of Societal Costs (PVSC), assuming the PPA price is set at the statutory ceiling of \$98/MWh. Conversely, the modeling indicated a \$157 million

¹² Xcel's reply comments on August 13, 2024, at 3.

¹³ Xcel's compliance filing on March 29, 2024, at 2-3.

¹⁴ Xcel's compliance filing on March 29, 2024, at 6.

increase in Present Value Revenue Requirement (PVRR) terms, which excludes the consideration of environmental cost values, over 2025-2050. Xcel emphasized that if they could reach an agreement on a lower PPA price with SPC, the societal benefits would increase while system costs would decrease.

2. Societal Cost-Benefit Analysis

Xcel emphasized that the EnCompass modeling captures only a small part of the overall societal benefit. Without a PPA extension, the closure of SPC would lead to significant societal costs from open burning wood waste. Xcel conducted a societal cost-benefit analysis in collaboration with the Department, MPCA, and SPC to account for the societal benefit of avoiding open burning. A partially-completed analysis was provided in the second progress report filed on November, 30, 2023. Xcel updated several assumptions compared with the last cost-benefit analysis in the first progress report:¹⁵

- *Reference Case*: with no electrification project approved, the Saint Paul Cogeneration PPA terminates at the end of 2024. Lacking PPA revenues, Saint Paul Cogeneration closes. All wood residuals currently burned at Saint Paul Cogeneration must find alternate disposal; this leads to an increase in open burning. Natural gas use also increases to replace the lost thermal energy provided to the downtown Saint Paul district energy system by Saint Paul Cogeneration.
- *Electrification/PPA Extension Scenario*: a 30 MW electric boiler is installed, displacing natural gas currently used to provide supplemental thermal energy to the downtown Saint Paul district energy system. Saint Paul Cogeneration continues to use biomass for about 80 percent of its heat input, which is unaffected by the electrification project. Xcel Energy continues to purchase electricity under the PPA. The new 30 MW of electrical load operates off-peak, and a new renewable resource is needed to power this load.

Xcel also updated its earlier analysis in three key areas:

1. SPC provided new ten-year averages for thermal energy supplied to the district energy system (734,200 MMBtu per year) and wood residuals consumption (237,000 tons per year).
2. Greenhouse gas (GHG) emissions, including CO₂, CH₄, and N₂O, were recalculated using updated Social Cost of Greenhouse Gases (SC-GHG) values from the U.S. EPA's 2022 draft report, as adopted by the Commission in December 2023.
3. The net present value of costs and benefits was recalculated using the Company's approved weighted average cost of capital of 6.39 percent, consistent with its Upper Midwest Integrated Resource Plan (IRP).

¹⁵ Xcel's compliance filing on March 29, 2024, at 7.

With all other assumptions remaining consistent, Xcel provided the result in Table 2 below.¹⁶ The total societal benefit is shown as a negative societal cost. Xcel concluded that the updated assumptions further increase the societal benefit of the Electrification/PPA Extension Scenario compared to the reference case. Xcel stated that key benefits include avoided greenhouse gas emissions, reduced criteria pollutant emissions from the open burning of 237,000 tons of wood waste, and savings to the electric system. And Xcel further noted that the largest societal cost came from particulate matter emissions during open burning, with \$600 million in costs attributed to particulate matter alone, emphasizing the high societal value of avoiding these emissions.

Table 2
Societal Costs of Electrification/PPA Extension.

Societal costs (in million dollars)	NPV 2025-2050
Avoided GHG emissions from natural gas combustion	-\$156
Avoided criteria pollutant emissions from open burning	-\$694
PVSC cost of Electrification/PPA Extension	-\$30
Total societal cost	-\$880

C. Compliance with Minn. Stat. § 216B.2424, subd. 5c(b)(3)

Pursuant to Minn. Stat. § 216B.2424, subd. 5c(b), the Commission is prohibited from approving any new PPA submitted under this subdivision unless it satisfies all the conditions outlined in subdivision 5c. Subdivision 5c(b)(3) specifies that any proposed electrification project must ensure that the St. Paul district heating and cooling system is powered by electricity generated from renewable technologies. Additionally, the plan must assess electrification at three or more levels, ranging from 10 percent to 100 percent, including a scenario where 100 percent of the energy used by the St. Paul district heating and cooling system is sourced from renewable energy by December 31, 2027. And for each level of electrification analyzed, the proposal must contain:¹⁷

- (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

¹⁶ Xcel's compliance filing on March 29, 2024, at 8.

¹⁷ Minn. Stat. § 216B.2424, subd. 5c(b)(3)

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.

Xcel addressed each requirement in the compliance filing as follows:

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

Per its agreement with SPC, Xcel limited its analysis to the addition of a 30 MW electric boiler to the District Energy system.¹⁸

(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.

Xcel conducted an analysis to estimate the impact of the Electrification/PPA Extension Scenario on the average monthly electric bill for a typical Minnesota residential customer. The analysis assumed that similar to the previous PPA extension per the Commission's January 24, 2022 Order, only the above-market costs and Minnesota-jurisdictional share of market costs would be passed to Minnesota customers. Using 2025 MISO market energy and capacity prices, Xcel estimated that the impact on a typical customer's monthly bill would be an increase of 29 cents. Separately, SPC evaluated the effect of adding a 30 MW electric boiler with hot water storage to the district heating system, estimating a 128 percent per-unit energy cost increase for the boiler versus natural gas. This would result in a roughly 10 percent increase in rates for downtown St. Paul heating customers, as the electric boiler is expected to supply 16 percent of the total annual energy for the district.¹⁹

(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 stated that the GHG emissions avoided by electrification can be evaluated from two perspectives. First, adding a 30 MW electric boiler to the Saint Paul district energy system, powered by renewable energy, would displace 219,721 MMBtu of natural gas currently used, avoiding 12,854 tons of CO₂ annually which is equivalent to removing 2,775 passenger cars

¹⁸ Xcel's compliance filing on March 29, 2024, at 10.

¹⁹ Xcel's compliance filing on March 29, 2024, at 11.

from the road. Alternatively, if SPC closes after its PPA expires in 2024, 80 percent of the heat it provides (587,360 MMBtu from biomass) would need to be replaced by natural gas, resulting in an increase of 40,424 tons of CO₂ annually which is equivalent to adding 8,728 cars. Additionally, GHG emissions from transporting waste wood would likely remain the same or increase in the absence of the electrification project due to longer transportation distances.²⁰

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

Xcel stated that SPC's electrification proposal would improve the resilience of the district heating and cooling system by adding an electric boiler, providing backup during winter natural gas curtailments, and enabling the use of off-peak electricity through thermal storage. Xcel further concluded that this project would benefit customers by increasing reliability, reducing costs, and transitioning to carbon-free energy.²¹

(v) a timeline for the electrification project.

Xcel stated that the modeling assumed the electrification project would begin on December 31, 2027, and would operate for 30 years.²²

IV. PPA Extension

The key issue is whether extending the PPA with SPC depends on implementing the electrification project. The 2023 legislative amendment allowed the PPA to be extended beyond December 31, 2024, without requiring electrification. However, Xcel viewed these two issues together as electrification supports state climate goals and extending the PPA prevents increased pollution from wood waste disposal, providing overall societal benefits.²³ Xcel proposed an Amendment to the current PPA with SPC in reply comments (Amendment). This Amendment would extend the PPA from January 1, 2025, through May 31, 2031, contingent on regulatory approvals.

V. Department Comments

A. Compliance with Minn. Stat. § 216B.2424, subd. 5c(b)(3) (i-v)

In its initial comments, the Department recommended conditional approval of Xcel's

²⁰ Xcel's compliance filing on March 29, 2024, at 12.

²¹ Xcel's compliance filing on March 29, 2024, at 13.

²² Xcel's compliance filing on March 29, 2024, at 13.

²³ Xcel's compliance filing on March 29, 2024, at 4.

electrification proposal. Because the Department determined Xcel did not provide all of the necessary information required by Minn. Stat. § 216B.2424, subd. 5c(b)(3), the Department requested the following prior to making a final recommendation:

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

To fulfill compliance with this statutory requirement, the Department requested 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).

Xcel stated in its reply comments that for the 20 MW option, neither the Company nor SPC considered electrification technologies beyond those evaluated for the 30 MW option. For the 175 MW option, Xcel did evaluate a different configuration in 2020, hiring an engineering firm to study the feasibility of installing electrode boilers, a chiller plant, and cooling towers at the High Bridge gas plant, with new piping to connect to downtown St. Paul's energy system. However, the project was deemed too costly and was not pursued further.²⁴

With information above provided by Xcel, the Department concluded that Xcel has satisfied this requirement.²⁵

(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.

To fulfill compliance with this requirement, the Department requested 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).

Xcel stated in its reply comments that it asked SPC to assess the impact of a 20 MW electric boiler with hot water storage on energy costs. SPC's analysis indicated a 136 percent increase in per-unit energy costs for district heating customers compared to using natural gas from existing boilers. Xcel attributed this increase primarily to the higher cost of electricity (80 percent of the difference) and debt service for installing the electric boiler and modifying the thermal storage system (20 percent). Xcel noted that, since the expected energy delivered from the electric boiler with hot water storage system accounts for about 10 percent of District Energy's total annual energy delivery, the average rate to District Energy customers would increase by 7 percent, compared to a 10 percent increase for the 30 MW option. Xcel also mentioned that

²⁴ Xcel's reply comments on August, 13, 2024, at 8.

²⁵ The Department's reply comments on September 18, 2024, at 2.

the 175 MW option was not evaluated for its impact on monthly bills.²⁶

With information above provided by Xcel, the Department concluded that Xcel has satisfied this requirement.²⁷

(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.

To fulfill compliance with this statutory requirement, the Department requested 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).

In reply comments, Xcel estimated that the 20 MW boiler would avoid 8,569 tons of carbon dioxide emissions per year and the 175 MW boiler would avoid 32,148 tons of carbon dioxide per year.²⁸

With information above provided by Xcel, the Department concluded that Xcel has satisfied this requirement.²⁹

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

To fulfill compliance with this statutory requirement, the Department requested 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).

Xcel asked SPC to analyze the operational impacts of the electrification project. Xcel highlighted that SPC found minimal differences between the 20 MW and 30 MW options. Xcel also noted that district heating customers would benefit from increased redundancy in thermal production assets, enhancing system resilience by diversifying energy sources to meet peak demand. Xcel explained that during winter natural gas curtailments, the electric boiler could offset fuel oil usage, and with planned hot water thermal storage, off-peak electricity would lower costs. Xcel emphasized that this project also provides carbon-free energy benefits to district heating customers and the broader community. However, Xcel acknowledged that SPC did not evaluate a 175 MW option, as 100 percent electrification would not maintain redundancy in energy

²⁶ Xcel's reply comments on August, 13, 2024, at 8-9.

²⁷ The Department's reply comments on September 18, 2024, at 3.

²⁸ Xcel's reply comments on August, 13, 2024, at 11.

²⁹ The Department's reply comments on September 18, 2024, at 3.

sources.³⁰

With information above provided by Xcel, the Department concluded that Xcel has satisfied this requirement.³¹

(v) a timeline for the electrification project.

To fulfill compliance with this statutory requirement, the Department requested Xcel provide a timeline for the other two levels of electrification analyzed (20-MW and 175-MW boilers).

Xcel assumed that for all options, the only timeframe evaluated was the one required by statute, which mandates that the electrification project (boiler load) must be operational by December 31, 2027. Xcel also noted that, for modeling purposes, the boiler is assumed to operate for 30 years after its implementation.³²

With information above provided by Xcel, the Department concluded that Xcel has satisfied this requirement.³³

B. Cost-Benefit Analysis

Xcel provided a cost estimate for the 30 MW electrode boiler in response to Department information request (IR) 6(f). The total estimated cost is \$6,719,655, consisting of \$2,989,000 for the electrode boiler and \$4,477,283 for the thermal storage, both factoring in a 10 percent rebate from CIP incentives. Without the rebate, the total cost would be \$7,466,283.

The Department acknowledged Xcel's cost estimate of approximately \$6.7 million, including the cost of the boiler and thermal storage, though Xcel incurs no direct costs for the project. Based on Xcel's assumed avoided carbon dioxide and Commission-approved externality values, the Department calculated a total benefit of \$55.8 million in present value terms, shown in Table 3 below. The Department concluded that the proposal may pass the societal cost-benefit.

³⁰ Xcel's reply comments on August, 13, 2024, at 9.

³¹ The Department's reply comments on September 18, 2024, at 4.

³² Xcel's reply comments on August, 13, 2024, at 9.

³³ The Department's reply comments on September 18, 2024, at 4.

Table 3: Department Estimated Benefits of 30 MW Boiler

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

To complete the analysis, the Department requested 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 requested 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. The Department stated this would allow the Department to run the necessary cost-benefit analyses comparing the three options and make a recommendation to the Commission.³⁴

³⁴ The Department's initial comments on July 23, 2024, at 9.

Xcel asked SPC to address the cost implications of a 30 MW electrode boiler with storage, estimating an annual electric consumption of 54,721 MWh at a total cost of \$3.94 million. This is \$2.7 million more expensive than using natural gas in existing boilers, with a small allowance for fuel oil during extreme cold weather. Xcel also provided estimates for a 20 MW electrode boiler with storage, projecting annual electric consumption of 34,734 MWh at a cost of \$2.5 million, which is \$1.7 million more than the natural gas alternative. Xcel noted that SPC did not assess operational impacts for the 175 MW option due to prior cost concerns.³⁵

The Department also requested Xcel provide the remaining required cost-benefit analysis information (capital cost and emission savings) for the 20 MW and 175 MW boilers.³⁶

Xcel asked SPC to address the capital costs for various electrification options. The estimated capital cost for the 30 MW boiler and thermal storage tank at \$5.1 million, while the 20 MW option was projected at \$4.5 million. For the 175 MW option, Xcel referred to its 2020 evaluation of a new heating/chiller plant at the High Bridge gas plant, where preliminary estimates indicated capital costs of approximately \$140 million, plus an additional \$50 million each for hot and cold water piping to connect to downtown St. Paul's district energy system.³⁷

As for emission savings, Xcel stated in reply comments that the 30 MW electric boiler could displace 219,721 MMBtu of natural gas annually, avoiding 12,854 tons of CO₂ emissions since the boiler would be powered by renewable electricity. A 20 MW boiler would similarly avoid 8,569 tons of CO₂ emissions. Xcel emphasized that, without the electrification project, the SPC plant might close, leading to a net increase of 40,424 tons of CO₂ from natural gas use to replace biomass combustion. Additionally, the closure could result in \$694 million in societal damages from methane and pollutant emissions from open burning of wood waste. For a 100 percent electrification scenario (175 MW), Xcel projected 32,148 tons of CO₂ would be avoided annually, but the societal benefit would be lower than the 30 MW option due to the loss of avoided emissions from biomass burning.³⁸

With the updated information provided by Xcel, the Department estimated that, with capital costs revised to \$5.1 million and operational fuel costs estimated at \$48.5 million, the 30 MW boiler could result in total costs of \$53.6 million. This is \$2.1 million less than the estimated benefits from avoided carbon dioxide emissions of \$55.8 million, but the Department is uncertain if the 30 MW option passes the societal cost-benefit test due to the high uncertainty of the estimates.³⁹

³⁵ Xcel's reply comments on August, 13, 2024, at 10.

³⁶ The Department's initial comments on July 23, 2024, at 13.

³⁷ Xcel's reply comments on August, 13, 2024, at 10.

³⁸ Xcel's reply comments on August, 13, 2024, at 11-12.

³⁹ The Department's reply comments on September 18, 2024, at 5.

For the 20 MW boiler, the Department estimated \$37.2 million in present value of benefits, with \$35.3 million in total present value of costs. The total cost is about \$1.9 million less than the estimated benefits. However, the Department similarly concluded that it's unclear if the 20 MW option passes the societal cost-benefit test due to uncertainties.

C. Public Interest Analysis

In reply comments, the Department supported Xcel's conclusion that the 30-MW electrification option is preferable over the 20-MW alternative, based on the cost-benefit analysis provided. Using Xcel and SPC's assumptions on emissions and costs, both options show approximately \$2 million in net benefits from avoided carbon dioxide emissions compared to the incremental costs. However, the Department acknowledged the uncertainty in these estimates, as small changes in emissions, costs, or externality values could impact the results. Despite these uncertainties, the Department concurred with Xcel that the 30-MW option is more favorable due to its higher level of electrification and better utilization of District Energy's existing thermal storage capacity.⁴⁰

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

D. Cost Recovery

Per Minn. Stat. § 216B.2424 subd. 5c(h), if the Commission approves an electrification proposal, Xcel may recover prudently incurred costs through an automatic cost recovery mechanism, outside of a general rate case. The Department asserted that the cost recovery mechanism approved by the Commission must: (1) provide a reasonable return on the capital invested by the public utility in the electrification project, as determined by the Commission, and (2) ensure that costs are recovered solely from the public utility's Minnesota electric service customers.⁴¹ Xcel has stated that it does not plan to invest any capital in the electrification project and, therefore, is not seeking cost recovery under this clause of the statute.

E. Purchase of Electricity for 30 MW Boiler

The Department did not object to Xcel's proposed electricity purchase structure for the 30 MW boiler, as it appears to rely on existing tariffs without harming other ratepayers. However, the Department requested Xcel explain 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 requested Xcel provide its proposed electricity purchase structure for the other two levels

⁴⁰ The Department's reply comments on September 18, 2024, at 6.

⁴¹ The Department's initial comments on July 23, 2024, at 11.

of electrification, to comply with Minn. Stat. § 216B.2424, subd. 5c(b)(3) (“the proposal must evaluate electrification at three or more levels from 10 to 100 percent”) so the Department can fully compare the costs and benefits of each level analyzed.

Xcel responded that it did not consider alternatives and based its analysis on the assumption that SPC would pay for electricity using an existing time-of-day tariff for commercial and industrial customers. Xcel assumed this would allow SPC to benefit from savings by operating the boiler during off-peak hours, from 9 pm to 9 am on weekdays and all day on weekends, between November and March. Xcel also assumed that SPC would enroll in Renewable*Connect or a similar tariff, ensuring that the electric boiler could be claimed as powered by renewable energy without impacting other customers or adding costs.⁴²

F. PPA Extension

In initial comments, the Department determined that Xcel had not yet met the filing requirements for the electrification proposal. Furthermore, Xcel has not submitted a PPA. The Department will conduct its analysis of Xcel's PPA once it has been filed for approval.

Xcel provided the Amendment to the current PPA with Attachment A in reply comments, which would extend the current PPA from January 1, 2024 through May 31, 2031.⁴³

In its response to reply comments, the Department evaluated the PPA extension in three perspectives: general financial and operational risks, relationship with electrification proposal, and cost-benefit analysis.⁴⁴

The Department reviewed the Amendment's impact on financial and operational risks for Xcel's ratepayers and found the risks to be minimal. Key financial risks included the potential for seller default or project takeover, which would force Xcel to find more costly replacement power and terminate the electrification project. The Department found the likelihood of needing costly replacement power to be low. The Department found that operational risks, such as project shutdowns, are addressed by protections that ensure ratepayers' payments would be adjusted accordingly. Overall, the Department concluded that Xcel's ratepayers are adequately protected, with minimal incremental risk from the Amendment, except for certain clauses related to the electrification project.

Given the absence of any statutory requirement to link the PPA extension with the completion of the electrification project, and the potential risk that it could prevent Minnesotans from benefiting from the societal advantages associated with the PPA extension, the Department found the clauses in Xcel and SPC's proposed PPA extension that link its approval to the

⁴² Xcel's reply comments on August, 13, 2024, at 13.

⁴³ Xcel's reply comments on August, 13, 2024, Attachment A.

⁴⁴ The Department's reply comments on September 18, 2024, at 7-9.

successful completion of the electrification project to be unreasonable. The Department recommended the Commission require Xcel to delete all linkage and references to the electrification proposal in the PPA extension (**Decision Option 6**) and require Xcel to file the updated PPA as a compliance filing within 14 days of the Commission's written order regarding the PPA extension, if the PPA extension is approved. (**Decision Option 7**)

The Department estimated the value of avoided emissions from open burning from particulates to be \$23.6 million annually and the cost to Xcel's ratepayers to be \$11.2 million annually. With a significant higher value in avoided annual environmental costs compared to the incremental costs of the PPA extension, the Department concluded that the PPA extension, with the modification above, is in the public interest.

The Department found Xcel's 30 MW electrification proposal slightly preferable to the 20 MW option and significantly better than the 175 MW option, and Xcel has reasonably complied with all statutory filing requirements. While Xcel has met statutory filing requirements, the Department still found the costs and benefits of the 30 MW option remain uncertain, with only slightly higher benefits expected due to the current design.

The Department defers to the Commission on whether to approve the 30 MW project and recommends that if approved, the Commission should request SPC file the electrification progress reports required under Minn. Stat. § 216B.2424, subd. 5c(g) every six months (**Decision Option 3**). And if SPC does not accept this request, the Department recommends the Commission require Xcel to file the reports. (**Decision Option 4**)

VI. Participant Comments

A. St. Paul Cogeneration (SPC)

SPC recommended the Commission should approve the PPA extension and the Electrification Proposal proposed by Xcel.⁴⁵ (**Decision Option 1 and 5**)

SPC's comments highlighted several key areas:

- Societal Benefits
- Operational Importance
- Waste Wood Management
- Financial Considerations

SPC emphasized the substantial societal benefits associated with the PPA extension and Electrification Proposal. The PPA extension is projected to provide approximately \$694 million

⁴⁵ SPC's comments on July 9, 2024, at 2-4.

in social benefits over the next twenty-five years by avoiding open burning that would occur without SPC's operations. Additionally, the PPA extension is expected to provide approximately \$156 million in social benefits from avoiding an increase in natural gas combustion to replace thermal energy, as District Energy would need to burn more natural gas to meet heating demands if SPC ceased operations.

SPC also emphasized its vital role in the Twin Cities Metro area as a critical provider of thermal energy, supplying approximately 50 percent of District Energy's annual thermal energy through the beneficial use of regional waste wood. SPC stated that it has been instrumental in managing waste wood, particularly in response to the challenges posed by the emerald ash borer (EAB) infestation, and that the facility's operations help mitigate the environmental impact of waste wood disposal, preventing a return to open burning, which would significantly increase particulate matter emissions in the region.

While SPC acknowledged the cost implications of the PPA, it argued that the benefits significantly outweigh these costs. SPC also emphasized that the facility's continued operation is essential for maintaining thermal energy supply to District Energy, and without the PPA, SPC would face challenges in sustaining its operations, potentially leading to a shutdown and a shift to less sustainable energy sources, such as natural gas.

SPC also expressed its commitment to ongoing communication with legislators and stakeholders regarding the tree waste issue and the importance of the PPA. If approved, SPC is willing to provide regular updates to the Commission on efforts to further reduce generation costs for Xcel's customers. **(Decision Option 3)**

B. Partnership on Waste and Energy (PWE)

PWE supports Xcel's request to extend the PPA with SPC and the associated 30 MW electrification proposal **(Decision Option 1 and 5)**. PWE emphasized that SPC plays a critical role in managing the majority of wood waste in the Twin Cities region, especially given the challenges posed by EAB infestations. Without the PPA extension, SPC would likely switch from wood waste to natural gas, leading to increased open burning and significant public health and environmental risks. PWE highlighted the societal and climate benefits of avoiding the open burning of wood waste and urges approval of the PPA extension. Additionally, PWE supports the electrification project as a means to reduce natural gas use and meet the region's thermal energy needs while aligning with Minnesota's climate goals. PWE also encourages consideration of future projects that further reduce climate impacts, such as recovering waste heat from wastewater.⁴⁶

C. Clean Energy Economy MN (CEEM)

CEEM supports Xcel's electrification proposal, the extension of the PPA, and Xcel's compliance

⁴⁶ PWE's comments on July 16, 2024, at 1-3.

filing (**Decision Option 1 and 5**). CEEM highlighted that the electrification project in collaboration with SPC offers significant decarbonization benefits by using renewable electricity to reduce greenhouse gas emissions for commercial buildings connected to the district energy system. CEEM also pointed to the environmental health benefits from properly processing wood waste, which avoids the harmful effects of open burning.⁴⁷

D. Minnesota Pollution Control Agency (MPCA)

MPCA supports Xcel's electrification proposal with SPC and the extension of the PPA beyond December 31, 2024 (**Decision Option 1 and 5**). MPCA acknowledged that recent legislative changes allow the PPA to be approved without requiring electrification but agreed that the proposed 30 MW electrode boiler and thermal storage are ideal for the St. Paul facility. MPCA noted that this project will reduce natural gas use by 30 percent and enable SPC to continue managing a large portion of regional wood waste, prevent open burning, and reduce harmful emissions. MPCA is actively engaging with stakeholders to explore economic sustainability options for SPC, such as tipping fees and expanding wood waste markets. MPCA also highlighted the cost-benefit analysis results developed by Xcel and SPC that if SPC ceases biomass use, societal costs could reach \$880 million by 2050, primarily due to the health impacts from increased particulate matter emissions from open burning.⁴⁸

E. Minnesota Department of Agriculture (MDA)

MDA highlights the critical role of District Energy's St. Paul Cogeneration Facility in managing wood waste resulting from the EAB infestation. MDA noted that the infestation, which was first detected in St. Paul in 2009, continues to threaten ash trees, with wood waste from dying trees expected to peak in the late 2020s. District Energy processes about 260,000 tons of wood annually, but regional infrastructure is stretched thin. Losing this facility would severely impact the management of EAB-infested wood in the Twin Cities metro area and statewide, potentially accelerating the spread of the infestation to new areas. MDA emphasizes the growing importance of utilization facilities like District Energy as wood movement regulations become less practical with increasing infestations.⁴⁹

VII. Staff Discussion

A. Electrification Proposal

Xcel's electrification proposal for the installation of a 30 MW electric boiler in the downtown Saint Paul district heating system is expected to deliver environmental benefits, including a reduction of 12,854 tons of CO₂ emissions annually, aligning with the state's broader emissions

⁴⁷ CEEM's comments on July 16, 2024 at 4.

⁴⁸ MPCA's comments on July 16, 2024, at 1-2.

⁴⁹ MDA's comments on July 16, 2024, at 1.

reduction targets. The Department found that while Xcel's analysis shows potential societal benefits, there is uncertainty surrounding the cost-benefit outcomes for both the 20 MW and 30 MW options. Small changes in assumptions—such as emissions values, cost factors, and externalities—could shift the balance, making it unclear whether these electrification projects definitively pass the societal cost-benefit test. As a result, the Department deferred to the Commission to decide whether the electrification proposal should be approved, indicating that while the environmental benefits are tangible, the financial implications require further scrutiny.

From a financial perspective, the project could result in a roughly 10 percent increase in energy bills for District Energy customers, which Staff acknowledges is a considerable impact. While these costs are outweighed by the societal benefits of reduced emissions and fossil fuel use, the Commission must consider the direct impact on customers alongside the environmental gains. The Department's prudent approach in highlighting these uncertainties allows for a broader evaluation of whether the electrification project's benefits justify the potential costs to ratepayers.

Staff recommends that the Commission carefully consider the Department's findings and the uncertainties surrounding the cost-benefit analysis. While the 30 MW electrification proposal aligns with Minnesota's climate goals and offers significant environmental benefits, the financial risks and uncertainties should be weighed against the potential gains. The Commission may choose to approve the project if it determines that the long-term societal and environmental benefits outweigh the cost uncertainties and the increased financial burden on District Energy customers.

Staff also believes that additional oversight and periodic reporting, as recommended by the Department, would help mitigate some of the uncertainties and ensure that the project delivers its anticipated benefits. **Decision Option 3 and 4** address oversight and reporting requirements, and they would require Xcel/SPC to file the electrification progress reports every six months. This approach would allow the Commission to monitor the project's progress and adjust course if the financial or environmental impacts deviate from projections.

B. PPA Extension

One of the primary reasons for approving the PPA extension is the prevention of open burning. SPC processes approximately 237,000 tons of wood waste annually. Without SPC's capacity, much of this wood waste would need to be disposed of through open burning, leading to a substantial increase in harmful emissions, including particulate matter. Xcel's social cost benefit analysis modeling shows that avoiding open burning would save approximately \$694 million in societal costs over time, with the reduction in particulate matter alone accounting for around \$600 million of this benefit.

SPC's continued operation also ensures that the downtown Saint Paul district energy system remains powered by a renewable source of biomass energy. If the PPA is not extended, the

district energy system would need to rely on natural gas, increasing greenhouse gas emissions and pushing the state further from its renewable energy and emissions reduction goals. The PPA extension not only supports the district's energy needs but also aligns with Minnesota's long-term sustainability targets.

The Department has conducted a thorough review of the PPA extension proposal and highlighted both the benefits and risks associated with the project. While the Department acknowledges the high price of the PPA—modeled at \$98/MWh, which is higher than other renewable sources like wind and solar—it emphasizes that the societal benefits of avoiding open burning and maintaining the SPC facility outweigh the financial costs.

Staff recommends the Commission approve the PPA extension with SPC (**Decision Option 5**), recognizing the critical role SPC plays in wood waste management and the avoidance of harmful emissions. The continued operation of SPC under the PPA is essential for ensuring that Minnesota does not face the environmental and public health risks associated with open burning. However, Staff concurs with the Department that the Commission should carefully review the final PPA price once it is negotiated and ensure that appropriate cost recovery mechanisms are in place to protect ratepayers from undue financial burden.

C. Linkage of Electrification Proposal and PPA Extension

The Department has recommended that the Commission approve the PPA extension but requests that Xcel delete all linkage and references to the electrification proposal in the PPA. The Department's reasoning is based on the 2023 statutory amendment that formally delinks the PPA extension from the electrification project. While Xcel argues that the two are still related due to the added efficiency the electrification project would provide, the Department emphasizes that the PPA should stand on its own merits and not be contingent on the approval or implementation of the electrification project.

From Staff's perspective, separating the PPA extension from the electrification proposal ensures that the essential operation of SPC can continue without being delayed or jeopardized by uncertainties related to the electrification project. The primary benefits of the PPA extension—preventing open burning of wood waste, reducing particulate emissions, and providing renewable energy to the district heating system—are critical and should not be hindered by the complexities or potential delays of the electrification project. Thus, Staff recommends the Commission follow the Department's recommendation to approve the PPA extension with Saint Paul Cogeneration and require Xcel to delete all references and linkages to the electrification proposal. (**Decision Option 6**)

VIII. Decision Options

Electrification Proposal

1. Approve the electrification proposal with a 30 MW electric boiler. (Xcel, SPC, PWE, CEEM, MPCA)

OR

2. Deny the electrification proposal.

[If the Commission selects decision option 1, it should select one of the following options from decision option 3 and 4]

3. Request SPC to file the electrification progress reports required under Minn. Stat. § 216B.2424, subd. 5c(g), every six months. (Department, Xcel, SPC)

OR

4. Require Xcel to file the electrification progress reports required under Minn. Stat. §216B.2424, subd. 5c(g), every six months if SPC does not do so. (Department)

PPA Extension

5. Approve Xcel's request to extend the current PPA from January 1, 2025, through May 31, 2031. (Department, Xcel, SPC, PWE, CEEM, MPCA, MDA)

AND

6. Require Xcel to delete all linkage and references to the electrification proposal in the PPA extension. (Department)

AND [if decision option 5 is selected, decision option 7 should also be selected]

7. Require Xcel to file the updated PPA as a compliance filing within 14 days of the Commission's written order regarding the PPA extension. (Department)

OR

8. Deny the PPA Extension.