Minneapolis
City of Lakes

City Coordinator
350 S. Fifth St. - Room 301M
Minneapolis, MN 55415
TEL 612.673.2032
www.minneapolismn.gov

September 17, 2015

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101

RE: Public Reply Comments of the City of Minneapolis on Xcel Energy's 2016-2030 Resource Plan, Docket No. E002/RP-15-21

Dear Mr. Wolf,

Attached are reply comments submitted by the City of Minneapolis in the matter of Northern States Power Company (Xcel Energy) application for Upper Midwest Resource Plan Approval 2015-2029.

We have generally organized our comments around the following topics:

1. Minneapolis and Xcel Energy's commitment to a Clean Energy Partnership, the significant energy savings potential in the city, the importance of demand side management programs to the City's goals, and the selection of an energy savings goal.

2. The importance of overall carbon intensity of electricity from Xcel's system to meeting City goals, and reply comments to the Clean Energy Organizations and Department of Commerce on scenarios with different generating mixes.

3. Providing certainty in the 2016-2030 Resource Plan about the future of Sherco Units 1 and 2.

4. Xcel's assumed adoption rates for distributed generation, like community and rooftop solar.

5. The need for continued focus on and options for consumers to be empowered users of the electrical energy system.

6. The importance of continuing to plan to meet the State's goal to reduce greenhouse gas emissions 80 percent by 2050, and interactions between that goal and the 2016-2029 Resource Plan.

We would like to recognize and commend Xcel Energy's prompt response to the many questions submitted by the City regarding details and assumptions in the Plan. These responses were very helpful as we prepared these comments.

We look forward to continued dialog about the Resource Plan, and we are available to answer any questions the Commission may have. Please direct any questions or communications to Brendon Slotterback at brendon.slotterback@minneapolismn.gov.

Sincerely,

/s/Spencer Cronk
City Coordinator

1. **The City and Xcel Energy will continue to work collaboratively to pursue State and City goals for greenhouse gas emissions reduction and demand side management savings. Adopting an energy savings goal above 1.5 percent may be appropriate.**

In October, 2014, The City signed a Clean Energy Partnership agreement with both Xcel Energy and CenterPoint Energy to jointly plan, implement and track clean energy activities in the city in pursuit of the City's adopted greenhouse gas reduction goals, which match those of the State of Minnesota. We appreciate Xcel's recognition of the Partnership in the Resource Plan, and note that changes identified to the energy generation portfolio and demand-side management programs will significantly impact the partners' ability to make progress towards our goals.

We believe there is significant potential to save energy in Minneapolis. Data from Xcel's recent energy efficiency potential study indicates that as much as 74 percent of the total lighting stock in residential buildings in Minneapolis is incandescent. In addition, information provided by the Center for Energy and Environment, the local provider of Xcel and CenterPoint's Home Energy Squad program, indicates that 24 percent of residential buildings in Minneapolis have no wall insulation. This shows that there is a tremendous opportunity just within Minneapolis to make homes more comfortable, more energy efficient, and to save residents money on their energy bills.

In 2015, Xcel and CenterPoint jointly launched a new energy efficiency program targeted at multifamily buildings with five or more units. Few efficiency programs existed before now for these properties, meaning the potential for energy savings from these properties is likely largely untapped. Over 88,000 housing units in Minneapolis are in buildings with five or more units, which accounts for over 45 percent of the total housing units in the City. These units are in 2,900 structures. Making the new multifamily program successful is of particular interest to the City, as well as to the two utilities. We hope that after a launch phase, this program can ramp up significantly to begin serving this significant number of housing units.

The City's commercial building benchmarking and transparency ordinance provides us with valuable data on the energy performance of the large commercial buildings in Minneapolis. Commercial buildings in Minneapolis account for over 45 percent of citywide greenhouse gas emissions, and action in this sector is critical for the City to meet its climate goals. For calendar year 2014, Minneapolis will be reporting the benchmarking results of roughly 308 buildings, both public and privately-owned. If these buildings reduced their electricity use just 10 percent, customers would save over 99 GWhs of electricity each year. This one-year savings is equal to 22 percent of Xcel Energy's proposed 2016-2021 DSM goal of 444 GWhs.

Information the City is collecting through the ordinance helps us to identify those buildings that are top performers, and those that have room for improvement. The City is undertaking a number of outreach efforts, leveraging the benchmarking data, to connect building owners and managers with technical and financial resources to improve their buildings. The City, in partnership with the Minnesota Pollution Control Agency, is also providing financial assistance to buildings wishing to pursue ENERGY STAR Certification. Certification provides a verification of top performance, and recognition by the US EPA that buildings use to distinguish themselves in the marketplace and with tenants.

The first two-year work plan of the Clean Energy Partnership specifies that Xcel, CenterPoint, and Minneapolis will be developing an outreach plan intended to drive participation in energy efficiency programs like Home Energy Squad, the new multifamily program, and commercial building energy efficiency programs. The goals of this outreach are to drive participation in previously underrepresented areas and property types, increase citywide participation beyond historic levels of utility program usage, and to pursue the City's climate action goals.

Because of this Partnership, and because of the significant energy savings potential we believe is present in Minneapolis, we ask that the Commission adopt an energy savings goal for Xcel's demand side management programs that is at least 1.5 percent annually for the entire planning period. Other commenters have noted that Xcel has exceeded the 1.5 percent goal in the past, and that costs have been lower than expected. We believe the Clean Energy Partnership and initiatives like building benchmarking and transparency are new approaches to achieving energy savings goals, and leverage previously untapped resources, such as the City's communication and regulatory channels. These new tools, and the expansion of energy efficiency programs to previously

underserved markets, means that the Commission may be justified in adopting an energy savings goal above 1.5 percent. Higher goals, more resources for utilities to pursue energy savings, and new and innovative programs will all help Minneapolis and the State reach our climate action goals.

2. A final resource plan with carbon intensities at or below those identified in the Preferred Plan for 2025 is necessary for the City to meet its medium-term greenhouse gas reduction goal (a 30% reduction from 2006 levels by 2025).[1]

Emissions from the production of electricity are responsible for over 35% of Minneapolis' greenhouse gas emissions. Without continued reduction in the carbon intensity of electricity supplied to residents and businesses in the city, it would be extremely difficult for Minneapolis to meet its goals. The Preferred Plan represents a significant improvement over previous resource plans, and the "Reference Case" in terms of planned carbon emissions reductions. Multiple parties, such as the Clean Energy Organizations and the Department of Commerce, have identified different resource plans which may be more cost effective and reduce the carbon intensity of electricity more than the Preferred Plan. We hope that the plan adopted by the Commission includes future carbon intensity levels at or below those in the Preferred Plan, and that Xcel take actions to guarantee that these carbon intensity levels can be met.

While the Preferred Plan shows significant carbon reductions in Xcel's system, we share some of the concerns of the Clean Energy Organizations, expressed in their comments, about Xcel's ability to guarantee these goals given the interaction of Xcel's generating units with the MISO system. In response to an informal information request that Xcel sent to the City[2], Xcel confirmed that, "there is no current regulatory mechanism to guarantee a generating plant runs at a level other than the level at which its capacity is accredited by MISO." Xcel also stated that they are only able to model their own resources, and cannot predict or model what might happen on the broader system.

Also in response to the City's questions, Xcel ran their model of the Preferred Plan with the "Markets On" sensitivity. The results provided to the City show that the carbon intensity per MWh of electricity would be 0.2%, 0.6% and 0.9% higher in 2020, 2025 and 2030 than with "Markets Off".

Because these modeling exercises are very complex, and not accessible to a typical commenter, we ask the Commission to adopt a plan that provides a high level of certainty that emissions will be at or below those identified by Xcel given the mix of resources they will be running in 2030 and their interaction with the regional market.

The City is also encouraged by the results from the scenario developed by the Department of Commerce that shows a shutdown of one unit at the Sherco generating facility in 2025 to be more cost effective than Xcel's Preferred Plan. These results also show total CO_2 reductions would be lower in 2030 than under Xcel's Preferred Plan.

We encourage the Commission to select a resource plan that is cost-effective, reduces carbon emissions as much and as quickly as possible, and that includes a pathway to meet or exceed the State and City's greenhouse gas reduction goals (including an 80 percent reduction by 2050).

3. The adopted 2016-2030 Resource Plan should provide certainty about the timing of repowering or retirement of Sherco Units 1 and 2.

Many commenters noted the significant preparation that will need to take place to repower or retire any units at the Sherco generating facility. The Clean Energy Organizations also note in their comments that evidence in record, the 2013 Life Cycle Management Study, does not show any reliability concerns from the retirement of Units 1 and 2. In addition, Xcel's modeling results provided in the March 16th supplement indicate that multiple scenarios that include retiring both units are within one or two percent of the net present value of the preferred plan (for example, scenario 26B). This difference should not be considered meaningful given the 15-year scale of the planning period, and in fact shows that it is cost-effective to retire these units and begin an orderly transition

[1] Based on figures supplied by Xcel Energy staff in an email dated 1/7/2015.

[2] See Appendix A

off of coal.

While more analysis and planning is certainly needed to determine all the details of the retirement or repowering of Units 1 and 2, the Commission should set a timeframe in this Resource Plan so that all stakeholders can have certainty, and begin the necessary work. We do not believe that the Commission should wait for future resource plans to identify a date for repowering or retirement.

4. Xcel may be underestimating the impact of, and customer demands for, distributed resources like rooftop solar and community solar gardens.

In their March 16th Supplement, Xcel updated their expansion plan to respond to new information including an overwhelming response to their new Solar Rewards Community program. However, the updated Preferred Plan in the March 16th Supplement identifies 388 MW of solar gardens added through 2030. According to Xcel's website[3], at the time of this writing over 1,071 applications had been submitted for solar gardens and 429 MW of solar gardens have had their application reviewed for completeness. The Public Utilities Commission recently approved a 5 MW cap on co-located solar garden size. Under this cap, the pipeline for eligible projects may be as large as 274 MW[4], or 70 percent of the total capacity of solar gardens Xcel identifies in its Preferred Plan.

We believe there will continue to be strong interest among Xcel customers in the solar garden program. Community solar gardens were identified in the Minneapolis Clean Energy Partnership work plan as a utility program that the City and Xcel would work jointly to promote to Minneapolis utility customers[5]. Many customers in Minneapolis, like those that do not own their home, or customers with houses that have poor solar access, are likely to be interested in this program that gives them access to solar energy resources. We believe the interest will be strong, and we will be working jointly with Xcel to drive more participation in the program. The City will also be exploring the issuance of one or more requests for proposals to understand how a community solar project or projects could meet the City's needs as a subscriber.

Since 2008, significant growth of distributed solar resources (rooftop and other behind-the-meter solar PV installations) has occurred in Xcel Energy's service territory. According to data from the Department of Commerce's Utility Annual Distributed Generation report, distributed PV capacity has grown by 30% or more each year between 2008 and 2014. While Xcel does project continued growth in distributed solar resources through 2030 (334 MW by 2030), their plan shows significantly slower growth rates in distributed solar after 2016. Based on the figures provided in Xcel's March 16th Supplement, we estimate that Xcel plans for distributed solar to provide less than 1 percent of the total energy used in their service territory in 2030.

Given the continued and rapid decline in the cost of solar PV components and total installation cost, and strong customer interest, customer adoption of distributed solar is likely to continue to grow through 2030. Like Community Solar Gardens, Minneapolis and Xcel will be using our Clean Energy Partnership to engage Minneapolis utility customers and promote resources for and options to install distributed solar resources. This could include financing options, utility programs, and state incentives. One example of this is PACE financing administered by the City, which can be used by commercial customers to finance the installation of solar PV on their property. We also plan to engage residential customers, to help them understand options for installing solar on their property.

Given these trends and increasing customer interest, we encourage the Commission and Xcel to carefully consider the impacts of more significant growth in distributed solar. It may be valuable for Xcel to model a number of scenarios of distributed solar growth and re-estimate the need for other capacity additions, or the potential to more rapidly reduce dependence on fossil fuel resources.

5. Energy customers are increasingly seeking access to additional options for clean, renewable, affordable and reliable energy. Xcel Energy should respond to this demand proactively and promptly.

[3] http://www.xcelenergy.com/Energy_Solutions/Business_Solutions/Renewable_Solutions/SolarRewards_Community-MN Accessed on July 15th, 2015.

[4] US Community Solar Market Outlook 2015-2020, GTM Research. http://www.greentechmedia.com/research/report/us-community-solar-market-outlook-2015-2020

[5] https://cleanenergypartnership.files.wordpress.com/2015/05/cep-15-16-final-work-plan-attachment-b.pdf

Customers want to be energy producers as well as consumers. They also want to be informed participants in their energy future. This is the case for both Minneapolis residents and businesses, and the City itself. We encourage Xcel and the Commission to continue to explore how to provide these options to utility customers. For example, the City would like to have additional opportunities to support renewable energy project developers by purchasing power directly. Other examples may include additional and easier access to energy usage information by customers, and new renewable energy options like "green tariffs".

Customer interest in solar and other renewable energy options is strong, as evidenced by the overwhelming response to the Solar Rewards Community Program, and significant growth in rooftop solar in Xcel Energy service territory. We note that Xcel's Resource Plan shows most additions of solar and wind resources occurring beyond 2020, with a majority beyond 2025. Demand for solar and other clean energy solutions will be strong and growing in the next five years, and we encourage the Commission to adopt a plan that provides these options for customers now, and does not delay until the late 2020's.

Minneapolis has been a participant in the e21 Initiative, and we believe changes to the utility business model may be needed to fully align public policy goals with utility incentives and practices, as well as enable more options for customers. However, when considering changes, the Commission should carefully consider consumer protection, cost implications and their ability to maintain strong regulatory oversight.

6. We encourage Xcel Energy, the Commission and the Department of Commerce to continue to look beyond 2030, and plan for deep greenhouse gas emissions reductions.

Minneapolis shares the state's goal to reduce greenhouse gas emissions 80 percent or more by 2050. As Xcel Energy notes in their Resource Plan, achieving this goal will require a transformation of the electrical system. We encourage Xcel and the Commission to consider whether decisions made in the 2030 Resource Plan will impact the ability of the state to reach longer term goals. For example, how does the timing of retirement of coal units impact the ability to reach the 2050 goal? How long will it take to build the generation and transmission infrastructure necessary for meeting the 2050 goal, and does that build-out need to begin even before the next Resource Plan? Additionally, emissions reduction planning processes like the Climate Solutions and Economic Opportunities (CSEO) process conducted by the Environmental Quality Board, indicate that electric utilities may need to play an outsized role in state emissions reduction efforts, as reduction strategies in this sector are oftentimes more cost-effective in others (such as transportation or carbon sequestration).

Xcel has identified a number of potential costs, opportunities and technical barriers to meeting the 2050 goal in their 2015-2030 plan. We encourage the Commission and Xcel to continue to proactively explore these costs and opportunities, and importantly, engage a diverse range of stakeholders, including cities, which can work together to meet long-term goals. We look forward to continued discussions with Xcel and the Commission about how the state can most rapidly and cost-effectively meet these goals.

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☐ **Public Document – Trade Secret Data Excised**
☒ **Public Document**

Xcel Energy
Docket No.: E002/RP-15-21
Response To: City of Minneapolis — Informal Information
Requestor: Brendon Slotterback — Request No. 1
Date Received: July 8, 2015

Question:

1. In the Clean Energy Organization's comments, they assert that the way Xcel's coal fleet interacts with MISO in real life means that units like Sherco 1 and 2 will operate much more than is outlined in Xcel's RP (see section starting on page 19 of their comments). They assert that there isn't a way for Xcel to guarantee reduced operation. Does Xcel have a legal/regulatory mechanism to guarantee that the Sherco units will be operated at a continually reduced rate, in order to meet the GHG targets the company has identified in the RP?

2. You previously provided us with estimated CO2 coefficients based on the assumptions in the new RP, out to 2030. Related to the question above, can you provide an estimated CO2 coefficient in 2030 with the "MISO market representation" turned on? In other words, if there is no mechanism to guarantee reduced generation at Sherco, and the plant behaves as MISO might require it to, what would CO2/MWh look like in 2030?

3. The DOC comments say that the repowering of one Sherco unit in 2025 with a gas boiler is the most cost-effective scenario (see page 28). I think this is based on one of Xcel's modeled scenarios. Can you provide the estimated CO2/MWh in 2030 under this scenario?

Response:

1. We will more fully respond to this issue in our Reply Comments, but note: (1) we are only able to model our system/resources; and (2) there is no current regulatory mechanism to guarantee a generating plant runs at a level other than the level at which its capacity is accredited by MISO.

   As described in our resource plan filings, our modeling assumptions regarding the operation of our thermal generating units in our Preferred Plan reflect the significant addition of renewable resources, which are offered as "must-run"

resources. "Must-run" means that when those resources are producing, MISO must offset/reduce the production of other resources to balance resources and load on the system. Therefore, in our modeling, the significant renewables additions that are part of our Preferred Plan serve to reduce the operation of our thermal resources.

2. Using the same methodology as for the emission rate data previously supplied to the City, the emission rates for the Preferred with the "Markets On" sensitivity is shown below. This is the Company's best estimate of emissions under a MISO system dispatch.

			NSP system CO2 rate (lbs CO2/MWh)			
Scenario #	**Scenario family**	**Description**	**2015**	**2020**	**2025**	**2030**
10	Preferred Plan	Wind + Solar, Base Assumptions	1,047	861	802	720
10S	Preferred Plan	Wind + Solar, Markets On	1,046	863	807	727

3. Using the same methodology as for the emission rate data previously supplied to the City, the emission rates for the "Convert 1 Sherco Unit to a Gas Boiler" scenario is shown below.

			NSP system CO2 rate (lbs CO2/MWh)			
Scenario #	**Scenario family**	**Description**	**2015**	**2020**	**2025**	**2030**
10	Preferred Plan	Wind + Solar, Base Assumptions	1,047	861	802	720
11	Convert 1 SH Unit to Gas Boiler	Convert to gas, in service spring 2026	1,047	886	837	795

Preparer: Tom McDonough / Jon Landrum
Title: Manager, Transmission Access / Resource Planning Analytics
Department: Market Operation / Resource Planning
Telephone: (612) 337-2258 / (303) 571-2765
Date: July 13, 2015