

STATE OF MINNESOTA
BEFORE THE PUBLIC UTILITIES COMMISSION

*In the Matter of Xcel Energy's
2020-2034 Upper Midwest
Integrated Resource Plan*

PUC Docket No. E002/RP-19-368

CLEAN ENERGY ORGANIZATIONS' SUPPLEMENTAL COMMENTS

On Behalf Of
Fresh Energy
Clean Grid Alliance
Union of Concerned Scientists
Minnesota Center for Environmental Advocacy

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INTRODUCTION...	1
I. XCEL’S ALTERNATE PLAN REFLECTS FAR SAFER ASSUMPTIONS ABOUT LONG-TERM NEEDS, OPPORTUNITIES AND CONSTRAINTS THAN ITS PREVIOUS PLAN	2
A. The Removal Of The Proposed Sherco CC Significantly Reduces Future Carbon Emissions And The Financial Risks Associated With Them	3
1. The proposed Sherco CC plant was incompatible with the rate of deep decarbonization needed in this decade and beyond	3
2. The proposed Sherco CC threatened ratepayers’ interests given the high risk it would become a stranded asset	5
B. The Addition Of The Gen-Tie Lines Opens The Door To Significantly More Renewable Energy Sooner	8
1. CEOs’ modeling shows that much more renewable energy leads to a cleaner, cheaper, and still reliable system for Xcel	9
2. Multiple national pathways for decarbonizing the economy establish the need to greatly accelerate renewables deployment	10
II. THE COMMISSION SHOULD MODIFY XCEL’S ALTERNATE PLAN BY DECLINING TO APPROVE THE LYON COUNTY AND FARGO CTs IN THIS DOCKET	12
A. For Approval Of The Proposed CTs, Xcel Must Show The CTs Are In The Public Interest, Including By Overcoming The Renewable Energy Preference And Other Statutory Hurdles	12
B. Xcel Has Not Shown In This Docket That The Proposed Lyon County And Fargo CTs Are In The Public Interest	14
1. EnCompass modeling shows that the two proposed new CTs are not in the public interest on economic grounds	14
2. Xcel has not shown the proposed Lyon County CT is in the public interest for stability	20
C. Xcel’s Request To Use The Modified Track 2 Bidding Process To Acquire The Lyon County CT Must Be Denied, Because Such An Abbreviated Process Cannot Be Used To Acquire New Fossil Fuel Resources Not Yet Shown To Be Needed Or In The Public Interest	23

INTRODUCTION

Clean Energy Organizations (“CEOs”) applaud Xcel Energy (“Xcel”) for putting forward its Alternate Plan in recognition of the challenges and drawbacks of the proposed gas-fired Sherco combined cycle (“CC”) plant. The urgent need to deeply decarbonize the power sector in this decade has made the construction of a new CC plant much too risky, both for the environment and for Minnesota ratepayers. We also applaud Xcel’s decision to build new tie-lines that will allow the Company to replace retiring coal capacity with more renewable capacity.

However, CEOs urge the Commission to modify Xcel’s Alternate Plan by declining to approve in this docket the proposed Lyon County and Fargo gas-fired combustion turbines (“CTs”). While these proposed CTs would operate far less than the proposed Sherco CC would have, they are still new nonrenewable plants that cannot be approved under Minnesota law until Xcel has demonstrated that the plants are in the public interest,¹ including a showing of how the plants overcome the law’s explicit preference for renewables.² Xcel has failed to make that demonstration in this docket. CEOs’ EnCompass modeling shows that the proposed CTs are not in the public interest on economic grounds, and Xcel has not shown that the CTs are in the public interest either for line stability or reliability. Given the absence of the necessary public interest showing, the Commission must also reject Xcel’s unprecedented request to use the Modified Track 2 bidding process to acquire the Lyon County CT.

Because the new CTs are not proposed to come online until 2027 and 2029, there is sufficient time to consider whether they are in the public interest in future proceedings. Indeed, given how fast carbon policy and carbon-free technologies are advancing, the Commission should

¹ Minn. Stat. § 216B.2422, subd. 2.

² Minn. Stat. § 216B.2422, subd. 4.

not approve new fossil fuel projects like these when there is so much lead time before they are alleged to be needed.

The Commission should also decline to approve Xcel's request to [TRADE SECRET BEGINS...

...TRADE SECRET ENDS]

Finally, CEOs ask the Commission to reject Xcel's request to increase the requirements imposed on intervenors who submit alternative plans. The new requirements are unnecessary and contrary to the Commission's existing rule.

I. XCEL'S ALTERNATE PLAN REFLECTS FAR SAFER ASSUMPTIONS ABOUT LONG-TERM NEEDS, OPPORTUNITIES AND CONSTRAINTS THAN ITS PREVIOUS PLAN

CEOs commend Xcel for recognizing the major new challenges and opportunities facing the power sector, and for updating its resource plan in response to the emerging realities. As Xcel correctly states, "the industry is currently in the midst of particularly accelerated change and to say the landscape is evolving quickly would be an understatement."³ CEOs agree with the Department of Commerce's ("the Department") previously-expressed general expectation for all utilities "to be aware of current market conditions and to prudently adapt to those conditions rather than blindly pursue a path pre-determined months or years before."⁴

³ Xcel Energy Reply Comments, *In the Matter of Xcel Energy's 2019-2034 Upper Midwest Integrated Resource Plan*, Docket No. E002/RP-19-368, 95 (June 25, 2021) [hereinafter "Xcel Reply Comments"].

⁴ Minnesota Department of Commerce, Division of Energy Resources Initial Comments, *In the Matter of Xcel Energy's 2019-2034 Upper Midwest Integrated Resource Plan*, Docket No.

Two things are increasingly obvious in this fast-changing industry landscape: the need to accelerate carbon reductions and the need to accelerate renewable energy deployment while maintaining reliable power. Xcel's Alternate Plan does both, compared to its 2020 Supplemental Plan. It is therefore undeniably a step in the right direction and one we applaud.

A. The Removal Of The Proposed Sherco CC Significantly Reduces Future Carbon Emissions And The Financial Risks Associated With Them.

As CEOs argued in their reply comments, the original logic behind building the Sherco CC gas plant has been subject to severe erosion for years due to major developments in climate science, economics, and policy.⁵ These developments have made locking in the substantial long-term carbon emissions of a new CC gas plant particularly unwise, both for climate protection and ratepayer protection.

1. The proposed Sherco CC plant was incompatible with the rate of deep decarbonization needed in this decade and beyond.

The 2018 Special Report of the Intergovernmental Panel on Climate Change ("IPCC"), *Global Warming of 1.5°C*, transformed the global climate policy debate by finding that keeping warming below 1.5 degrees Celsius required cutting greenhouse gases ("GHG") roughly in half by 2030 and to net zero by 2050.⁶ Based on this new report, the United States updated its Nationally Determined Contribution ("NDC") under the Paris Agreement. Under that agreement, the U.S. has formally committed to cut the nation's GHG emissions by 50-52% below 2005 levels by 2030.⁷

E002/RP-19-368, 100 (Feb. 11, 2021) [hereinafter "DOC Initial Comments"].. But see CEOs' discussion of Modified Track 2 in Section III.C.

⁵ Clean Energy Organizations Reply Comments, *In the Matter of Xcel Energy's 2019-2034 Upper Midwest Integrated Resource Plan*, Docket No. E002/RP-19-368, 9-18 (June 25, 2021) [hereinafter "CEOs Reply Comments"].

⁶ Intergovernmental Panel on Climate Change ("IPCC"), *Special Report: Global Warming of 1.5°C: Summary for Policymakers* (2018), available at <https://www.ipcc.ch/sr15/chapter/spm/>.

⁷ White House, *Fact Sheet: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean*

The Biden administration also aims to reach net zero emissions by 2050 economy-wide, and – more importantly for this proceeding – aims to achieve complete decarbonization of the power sector by 2035.⁸ The budget reconciliation package currently before Congress, which by Senate rules may only address the next ten years, would advance this goal by including a mechanism of payments and penalties to ensure the power sector cuts emissions by 80% by 2030. In short, the federal executive branch has dedicated itself to a policy that would have required the Sherco CC to shut down (or transform itself into something else at an entirely unknown expense) just 8 years after it would have come online, and that policy is firmly grounded in what science says is needed to avoid catastrophic climate change.

The recently-recognized need for greatly accelerated decarbonization has spurred new modeling studies by various research groups identifying pathways that can deliver that nationwide decarbonization.⁹ These studies vary in their focus and assumptions, but they strongly support the finding that deep decarbonization is feasible and affordable, and that it delivers tremendous co-benefits. The pathways they portray share several core features: the power sector must

Energy Technologies, (Apr. 22, 2021), available at <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/>

⁸ *Id.*

⁹ See, e.g., Robbie Orvis, *A 1.5 Celsius Pathway to Climate Leadership for the United States*, Energy Innovation (Feb. 2021), available at <https://energyinnovation.org/wp-content/uploads/2021/02/A-1.5-C-Pathway-to-Climate-Leadership-for-The-United-States.pdf> [hereinafter “Orvis, 2021”]; Nathan Hultman, et al., *Charting an Ambitious U.S. NDC of 51% Reductions by 2030*, Univ. Md. Center for Global Sustainability (Mar. 2021), available at <https://cgs.umd.edu/research-impact/publications/working-paper-charting-ambitious-us-ndc-51-reductions-2030> [hereinafter “Hultman, et al., 2021”]; *2035: The Report: Plummeting Solar, Wind and Battery Costs Can Accelerate our Clean Energy Future*, Goldman School of Public Policy (June 2020), available at <https://www.2035report.com/electricity/> [hereinafter “2035 Report”]; *2030 Report: Powering America’s Clean Economy, A Supplemental Analysis to the 2035 Report*, Goldman School of Public Policy (April 2021), available at <https://gspp.berkeley.edu/faculty-and-impact/centers/cepp/projects/2030-report-powering-americas-clean-economy> [hereinafter “2030 Report”].

decarbonize much faster than the rest of the economy; the power sector must take on new load as the transportation, industrial, and buildings sectors increasingly electrify; and coal power¹⁰ must be eliminated.

And what about new natural gas plants like the proposed Sherco CC? Pathways focused on achieving the 2030 or 2035 emission reduction goals, which align with the Paris goal and the nation's new NDC, explicitly exclude new natural gas plants.¹¹ Even the less ambitious pathways that seek to achieve net zero by 2050 but do not achieve the cuts needed by 2030 – thereby failing to limit warming to 1.5 degrees Celsius or meet the nation's new NDC target – still find gas generation going into a substantial decline over the next decade.¹²

In short, the Sherco CC plant was incompatible with the deep decarbonization we must pursue and can achieve. Confronting the climate crisis clearly demands shrinking our dependence on energy from natural gas plants in this decade, not increasing it. There is simply no room for new combined cycle gas plants in a world racing to deeply decarbonize.

2. The proposed Sherco CC threatened ratepayers' interests given the high risk it would become a stranded asset.

Even if decarbonization were not a priority, the increasing financial risk attached to the proposed Sherco CC would be reason enough to cancel the plant. Indeed, many existing combined

¹⁰ Some pathways would accommodate coal power with carbon capture and sequestration. *See* Hultman, et al., 2021 at 2.

¹¹ Orvis, 2021 at 8; Hultman et al., 2021, Technical App. at 4; 2035 Report at 20; 2030 Report at 4. Some pathways allowed completion of gas plants already under construction, *see* 2030 Report at 22, or would allow new gas plants with carbon capture, but their model did not select any. *See* Orvis at 8.

¹² *Accelerating Decarbonization of the U.S. Energy System*, National Academies of Sciences, Engineering, and Medicine, The National Academies Press (2021), 8 available at <https://www.nap.edu/catalog/25932/accelerating-decarbonization-of-the-us-energy-system>; James H. Williams, et al., *Carbon-Neutral Pathways for the United States*, AGU Advances, Figure 7 (2021), available at <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2020AV000284>.

cycle plants are already at substantial economic risk. CEOs showed in our initial comments that building the new CC is more costly than CEOs' renewable energy alternative, creating additional energy cost risk to ratepayers. Over the life of the plant, that financial risk was likely to multiply.

According to an August 2021 analysis by S&P Global Market Intelligence, the advances of carbon-free energy technologies combined with carbon reduction mandates mean some \$34 billion worth of U.S. investment in recently-built combined cycle gas plants – or 13% of the nation's fleet of CC plants – is at risk of being stranded just under *current policies and market conditions*.¹³ These financial analysts include the obvious warning that “[a] more rapid push to decarbonize would create bigger risks.”¹⁴ If existing CC plants are already at risk under current market and policy conditions, we can be sure the economic threat to plants like the proposed Sherco CC, intended to come online in 2027, would have been even greater.

A 2019 analysis by the Rocky Mountain Institute identified the widespread financial risk to proposed CC plants. It found that Clean Energy Portfolios (“CEPs”) – a combination of wind, solar, storage and demand-side management – would likely undercut the operating costs of over 90% of the nation's proposed combined-cycle capacity by 2035.¹⁵ That is, it will be more expensive to operate 90% of proposed CC generation than to build new CEPs, leading to tens of billions of dollars of stranded assets in the 2030s. This conservative projection did not account for future climate policies; obviously, the deep decarbonization policies under consideration today

¹³ Adam Wilson and Steve Piper, *A nationwide push for green energy could strand \$68B in coal, gas assets*, S&P Global Market Intelligence, 2, 9 (Sept. 6, 2021), available at https://www.mncenter.org/sites/default/files/permalinks/A_nationwide_push_for_green_energy_coul...pdf

¹⁴ *Id.* at 8.

¹⁵ Charles Teplin, et al. *The Growing Market for Clean Energy Portfolios: Economic Opportunities for a Shift from New Gas-Fired Generation to Clean Energy Across the United States Electricity Industry*, Rocky Mountain Institute, 9 (2019), available at <https://rmi.org/insight/clean-energy-portfolios-pipelines-and-plants/>.

would virtually ensure that new investments in CC plants would lead to deep losses. This analysis also assumed much slower declines in the cost of clean energy than what has occurred historically.

The financial risk attached to new CC plants comes largely from the dramatic cost reduction of wind, solar, and batteries, which have already fundamentally transformed power-sector economics. Since 2009, solar photovoltaic (“PV”) panel costs have fallen 90% and wind turbine costs have dropped 71%, and just since 2013 battery costs have fallen 80%.¹⁶ Cost reductions in these technologies are expected to continue even without new policies as, for example, wind turbines get larger and more efficient,¹⁷ and as solar power and batteries continue to evolve and take advantage of economies of scale. And there may well be major technological breakthroughs in battery technology, like the iron-based batteries being developed by Form Energy, which are expected to extend battery life from a typical 4-6 hours today to a game-changing 100 hours, at a fraction of the cost of today’s lithium-ion batteries.¹⁸ The first commercial deployment of this new battery, at a site here in Minnesota, is expected to be complete by the end of 2023.¹⁹

Moreover, ongoing cost reductions will not rely merely on the marketplace to drive them. Governments around the world, including the Biden administration, are getting more aggressive in pushing for ways to reduce the costs of renewable energy and storage. The U.S. Department of

¹⁶ Orvis, 2021 at 1 (citing cost figures from Lazard and Bloomberg NEF).

¹⁷ Ryan Wiser, et al., *Expert elicitation survey predicts 37% to 49% declines in wind energy costs by 2050*, *Nature Energy*, 6, 555-565 (Apr. 15, 2021), available at <https://www.nature.com/articles/s41560-021-00810-z>.

¹⁸ Russell Gold, *Startup Claims Breakthrough in Long-Duration Batteries: Form Energy’s iron-air batteries could have big ramifications for storing electricity on the power grid*, *Wall Street Journal* (July 22, 2021), available at <https://www.wsj.com/articles/startup-claims-breakthrough-in-long-duration-batteries-11626946330>.

¹⁹ Great River Energy, *Long-duration battery project in the works* (June 17, 2020), available at <https://greatrivereenergy.com/long-duration-battery-project-in-the-works/>.

Energy (“DOE”) has launched a program to drive the cost of long-duration storage down by 90 percent below the cost of today’s lithium-ion batteries by 2030, directing the experts at its national laboratories to focus on the challenge.²⁰ The DOE is also working to cut utility scale solar power costs even further, down to 2.0 cents/kWh by 2030.²¹

Expanding support for research and deployment of clean technologies is less controversial and thus faces fewer political barriers than direct efforts to regulate carbon emissions. Even if more ambitious carbon regulations are delayed, we can expect the intensifying focus on advancing renewables and storage by both governments and markets to further undercut the economics of new gas plants.

B. The Addition Of The Gen-Tie Lines Opens The Door To Significantly More Renewable Energy Sooner.

CEOs agree with Xcel and the Department that congestion in the Midcontinent Independent System Operator (“MISO”) interconnection queue currently represents a significant challenge to aggressively deploying renewables.²² The use of the Sherco and King plant interconnection rights, as proposed by Xcel’s Alternate Plan, allows Xcel to use MISO’s Generator Replacement tariff provision to deploy more cost-effective renewable power sooner. Based on a comparison of Tables 4-6 and 4-10 of Xcel’s Reply Comments, we understand that the Alternate Plan increases Xcel’s renewable energy deployment by 1250 MW (with 800 MW of additional

²⁰ Brad Plumer, *Energy Department Targets Vastly Cheaper Batteries to Clean Up the Grid*, New York Times (July 14, 2021), available at <https://www.nytimes.com/2021/07/14/climate/renewable-energy-batteries.html>.

²¹ U.S. Department of Energy, *Investing in a Clean Energy Future: Solar Energy Research, Deployment, and Workforce Priorities*, Issue Brief, 4 (Aug. 2021) [hereinafter “DOE Issue Brief”], available at <https://www.energy.gov/sites/default/files/2021-08/investing-in-a-clean-energy-future-solar-energy.pdf>.

²² In the Department’s words, “either substantial new transmission needs to be built or Xcel will be limited to pursuing projects that avoid the MISO [generator interconnection queue].” Xcel Reply Comments at 103-104 (quoting the Department).

wind and 450 MW of solar).²³ Perhaps more importantly, given the urgent need to ramp up carbon-free power supplies, the Alternate Plan would allow Xcel to bring on that additional 1250 MW of wind and solar in this decade.²⁴

1. CEOs’ modeling shows that much more renewable energy leads to a cleaner, cheaper, and still reliable system for Xcel.

In our Initial Comments and Reply Comments, CEOs showed that Xcel did not need the proposed Sherco CC, and that the Company would benefit from adding significantly more renewable energy and storage than Xcel originally proposed to add.²⁵ Those benefits include not just substantially lower carbon emissions but also lower costs for ratepayers and continued reliability. Xcel is still proposing to add less wind and solar in aggregate than CEOs recommend: Xcel’s Alternate Plan adds a total 5800 MW of wind and solar capacity,²⁶ while CEOs’ new modeling (described in part II.B.1 as CEOs’ Alternate Plan) selects 6600 MW of wind and solar capacity.²⁷ In short, CEOs support Xcel’s changes to add more renewables in its Alternate Plan, and our modeling shows that it would be beneficial for Xcel to continue to build on its Alternate Plan by adding even more renewables in the future.

CEOs’ Preferred Plan and CEOs’ Alternate Plan both rely heavily on battery storage to add flexibility to the system as we increase wind and solar, adding storage starting in 2027 and

²³ Xcel Reply Comments at 100, 113. These figures represent installed capacity and do not count the unchanged 575 MW of distributed solar.

²⁴ Xcel’s Updated Supplement Plan added 1600 MW of solar and no wind before 2030, and added 2950 MW of solar and wind between 2030 and 2034. Its Alternate Plan adds 2850 MW of solar and wind before 2030, and still adds 2950 MW between 2030 and 2034. *Id.*

²⁵ Clean Energy Organizations Initial Comments, *In the Matter of Xcel Energy’s 2019-2034 Upper Midwest Integrated Resource Plan*, Docket No. E002/RP-19-368, 8-21 (Feb. 11, 2021) [hereinafter “CEOs Initial Comments”]; CEOs Reply Comments at 19-20.

²⁶ Xcel Reply Comments, Table 4-10 at 113.

²⁷ Energy Futures Group, *A Clean Energy Future for Xcel: Response to Xcel’s Alternate Plan* at Section 2.3, Table 5 (Sept. 2021) [hereinafter “EFG Alternate Plan Report”].

especially in the 2030s. We believe Xcel's modeling continues to overprice battery storage and inappropriately limit its deployment, and for that reason the Company's modeling still selects very little storage in its Alternate Plan. CEOs urge the Commission, consistent with Minn. Stat. § 216B.2422, subd. 7,²⁸ to order Xcel to provide a deeper analysis of storage options in future proceedings. This analysis should include making solar-battery hybrids a resource option, given the key role that battery storage is expected to play in the nation's push to decarbonize, and given its already rapidly-growing cost-effective deployment in other states, including Xcel states like Colorado.²⁹

2. Multiple national pathways for decarbonizing the economy establish the need to greatly accelerate renewables deployment.

The decarbonization studies discussed in section I.A.1 depend on an aggressive acceleration of the nation's deployment of wind, solar, and batteries. For example, the 2030 Report by the Goldman School of Public Policy at the University of California Berkeley, identifies a pathway to achieving 80% carbon free electricity by 2030. This pathway is consistent with the provisions currently being debated by Congress in the budget reconciliation package and consistent with achieving 50% economy-wide cuts by 2030, as the United States has committed to under the Paris Agreement.³⁰ The 2030 Report assumes 2% growth in the power sector as growing shares of transportation, buildings, and industry are electrified.³¹ And, it finds that meeting these

²⁸ "(a) Each public utility required to file a resource plan ... must include in the filing an assessment of energy storage systems that analyzes how the deployment of energy storage systems contributes to: (1) meeting identified generation and capacity needs; and (2) evaluating ancillary services. (b) The assessment must employ appropriate modeling methods to enable the analysis required in paragraph (a)."

²⁹ See Jules Scully, *Xcel Energy plans up to 2.9GW of additional solar in Colorado by 2030*, PV-Tech (Mar. 1, 2021), available at <https://www.pv-tech.org/xcel-energy-plans-up-to-2-9gw-of-additional-solar-in-colorado-by-2030/>.

³⁰ 2030 Report at 2.

³¹ *Id.* at 4.

goals requires building about 95 GW per year of wind and solar (combined), along with about 23 GW per year of battery storage capacity.³² By comparison, in 2021, the United States is scheduled to deploy about 31.7 GW of wind plus solar, and 4.3 GW of batteries.³³ In short, achieving reductions commensurate with the United States' NDC commitment (and consistent with avoiding catastrophic climate impacts) demands a sustained annual deployment of renewable energy at roughly triple this year's rate, and annual deployment of batteries at roughly five times this year's rate. The solar predictions of the 2030 Report are supported by a federal analysis showing that "to reach a largely decarbonized energy sector by 2035, solar deployment would need to accelerate to three to four times faster than its current rate by 2030."³⁴

A build-out of renewable generation and batteries at the necessary magnitude is an enormous challenge, but it is not infeasible. As the 2030 Report notes, China already built 120 GW of combined solar and wind capacity in 2020. And in 2019, interconnection queues in the United States already included 650 GW of wind, solar, and hybrid and standalone battery storage.³⁵

While CEOs believe Xcel can and should deploy renewable energy and batteries faster than it currently plans, its Alternate Plan clearly moves in the direction that deep decarbonization demands. Moreover, it incorporates an innovative approach to avoiding the interconnection queues currently slowing renewable deployment in MISO.

³² *Id.* at 28.

³³ Figures for 2021 include 15.4 GW of utility-scale solar, 4.1 GW of small-scale solar PV, 12.2 GW wind, and 4.3 GW batteries. *Renewables account for most new U.S. Electricity generating capacity in 2021*, U.S. Energy Info. Admin. (Jan. 11, 2021), available at <https://www.eia.gov/todayinenergy/detail.php?id=46416>.

³⁴ DOE Issue Brief at i.

³⁵ 2030 Report at 29.

II. THE COMMISSION SHOULD MODIFY XCEL'S ALTERNATE PLAN BY DECLINING TO APPROVE THE LYON COUNTY AND FARGO CTs IN THIS DOCKET.

A. For Approval Of The Proposed CTs, Xcel Must Show The CTs Are In The Public Interest, Including By Overcoming The Renewable Energy Preference And Other Statutory Hurdles.

Xcel must demonstrate to the Commission that the proposed Lyon County and Fargo CTs are “consistent with the public interest”³⁶ in order to earn approval of the plants in this proceeding. One part of the public interest demonstration requires Xcel to overcome Minnesota’s renewable energy preference. Minnesota Statutes § 216B.2422 mandates that the Commission “shall not approve a new . . . nonrenewable energy facility in an integrated resource plan . . . unless the utility has demonstrated that a renewable energy facility is not in the public interest.”³⁷ Unless Xcel makes that demonstration, the Commission cannot legally approve the proposed new CTs in this docket.

Moreover, several other relevant statutory provisions discourage continued reliance on fossil fuels. Minnesota governmental agencies are instructed “to use all practicable means . . . [to] minimize the environmental impact from energy production and use.”³⁸ The resource planning statute requires modeling analysis detailing how “the deployment of energy storage systems” could meet identified needs and ancillary services.³⁹ Additionally, the law requires IRPs to include “the least cost plan for meeting 50 and 75 percent” of identified need through a combination of conservation and renewable energy resources, and long-range emission reduction planning.⁴⁰ The Commission must consider environmental externalities⁴¹ and the likely costs of future GHG

³⁶ Minn. Stat. § 216B.2422, subd. 2(a).

³⁷ Minn. Stat. § 216B.2422, subd. 4.

³⁸ Minn. Stat. § 116D.02, subd 2(9).

³⁹ Minn. Stat. § 216B.2422, subd. 7.

⁴⁰ Minn. Stat. § 216B.2422, subd. 2(c); subd. 2c.

⁴¹ Minn. Stat. § 216B.2422, subd. 3.

regulation.⁴² Minnesota’s renewable energy standard⁴³ and conservation goals⁴⁴ likewise evidence the desire of lawmakers to disfavor new investments in fossil fuel facilities. And finally, proponents of new fossil fuel plants in Minnesota (or of other new large energy facilities) must show that need cannot be met more cost effectively through energy conservation or load management.⁴⁵

We note that even though Xcel intends to pursue regulatory proceedings in North Dakota for the Fargo plant, where it already has a “regulatory commitment” to build a CT,⁴⁶ it is still asking the Commission to approve the Fargo plant in this docket. It is seeking that approval despite providing particularly scant information about that plant, as if its out-of-state location means the Commission does not have much reason or authority to scrutinize it. However, even if the Fargo CT is exempt from Minnesota’s certificate of need provisions,⁴⁷ the IRP provisions and other Minnesota statutory standards still apply to the plant.⁴⁸ Indeed the renewable energy preference explicitly applies to both approval of any nonrenewable plant in an IRP, and also to rate recovery for such a plant, which presumably Xcel would eventually seek from Minnesota ratepayers.⁴⁹

In sum, the IRP statute’s general public interest standard, the renewable energy preference, and the multitude of legislative directives aimed at reducing emissions, require a fuller evaluation of the proposed CTs than can be or has been made in this docket. CEOs applaud Xcel’s efforts to reevaluate its original plan and submit an alternative that will be better for ratepayers and for the

⁴² Minn. Stat. § 216H.06.

⁴³ Minn. Stat. § 216B.1691.

⁴⁴ Minn. Stat. §§ 216B.2401, 216B.241.

⁴⁵ Minn. Stat. § 216B.243, subd. 3.

⁴⁶ Xcel Reply Comments at 23, n.13, and 25.

⁴⁷ Minn. Stat. § 216B.243, subd. 2.

⁴⁸ *See, e.g.*, Minn. Stat. § 216B.2422.

⁴⁹ Minn. Stat. § 216B.2422, subd. 4.

environment. However, these two proposed CTs have only been presented at the final stages of a two-year long resource planning docket, and other parties have not been given the chance to fully assess the CTs. Moreover, Xcel has not been able to demonstrate that the two CTs are needed, in the public interest, preferable to renewable alternatives, and otherwise in compliance with the law. On this record, the Commission should not approve the CTs.

B. Xcel Has Not Shown In This Docket That The Proposed Lyon County And Fargo CTs Are In The Public Interest.

Xcel has failed to establish that the Lyon County and Fargo CTs are in the public interest at this stage of the regulatory process. While the issues Xcel has raised relating to extreme weather, reliability, and Sherco tie-line stability are legitimate, there is time to make sure all of these issues are fully understood and to identify and implement the best approaches to dealing with them. At this time and on this record, however, Xcel has not come close to demonstrating that the two new CTs are needed or in the public interest on economic grounds, for line stability, or for reliability. Rather, CEOs' analysis shows that the two new CTs are not economic resources based on EnCompass modeling, and that there are many unanswered questions and viable options for both Sherco gen-tie line stability and other reliability needs as Xcel's fleet transitions. Moreover, given that the new CTs are not proposed to be in-service until 2027 and 2029, there is time to do the proper analysis. Indeed, it would be imprudent to lock in new, costly fossil plants with this much lead time, given the rate of technology advancement and changes to the electricity system broadly.

1. EnCompass modeling shows that the two proposed new CTs are not in the public interest on economic grounds.

CEOs' analysis of Xcel's EnCompass modeling and our own modeling shows that the two new CTs proposed for Fargo and Lyon County are not part of a reliable least-cost plan. Energy Futures Group ("EFG"), on behalf of CEOs, reviewed Xcel's EnCompass modeling for its

Alternate Plan and performed additional modeling with corrections to a handful of modeling assumptions. EFG's findings, which are described in detail in *A Clean Energy Future for Xcel: Response to Xcel's Alternate Plan* (Attachment 1), reveal that when a handful of modeling assumptions are corrected and the model is allowed to select the CTs or other new resources, the model does not choose the CTs.

In order to determine whether the two new proposed CTs are an economic resource, CEOs ran the EnCompass model using Xcel's Alternate Plan modeling and assumptions with two basic changes. First, CEOs made standalone battery storage and solar-battery hybrids fully available to the model, which Xcel did not do. Second, CEOs included the same actual, market-based battery storage cost assumptions as used in our initial modeling.⁵⁰ As stated in the EFG Report:

The CEOs' modeling evaluated the impact of allowing solar-battery hybrid resources as a resource option for the Sherco and King replacement capacity. In the CEOs' original EnCompass modeling, 4,200 MWs of solar hybrid resources were selected between 2027 and 2034. Given that the results of our initial modeling favored the selection of solar-battery hybrids, we believed that solar-battery hybrid resources should also be available for the model to select in this simulation. Xcel's Alternate Plan also did not allow standalone battery storage resources to be considered as replacement resources for King and Sherco. The CEOs' original EnCompass modeling included 1,227 MWs of standalone battery storage resources

⁵⁰ See EFG Alternate Plan Report, Section 2, "The changes made in producing what we call the CEO Alternate Plan include:

1. Allowing solar-battery hybrids to be selected as a resource option for the King and Sherco replacement resource;
2. Allowing standalone battery storage to be selected as a resource option for the Sherco replacement resource;
3. For the standalone battery storage resources, the battery storage resource is set at 321 MW in size, but with the partial unit setting in EnCompass, which allows the model to choose the optimal project size; and
4. For the standalone battery storage and the battery component of the solar-battery hybrid resources, we assumed project costs and operating life based on Public Service Company of New Mexico ("PNM") battery project pricing as discussed in Section 1.2 of EFG's report filed as an attachment to CEOs' Initial Comments."

between 2028 and 2034. As with hybrids, it made sense to evaluate the economic nature of standalone battery storage as replacement capacity for Sherco.⁵¹

These changes to available resources in CEOs’ modeling are summarized in Table 3 from the EFG

Report:

Table 1. Resources Available for Replacement Capacity in CEOs’ Alternate Plan compared to Xcel’s Alternate Plan

	Resources available in Xcel’s Alternate Plan			Additional resources made available in CEOs’ Alternate Plan	
Gen-Tie Line Capacity replacement	Solar	Wind	CT	Battery Storage standalone	Solar-Battery Hybrid
Sherco 1*	X	X	X	X	X
Sherco 2*	X			X	X
Sherco 3*	X	X	X	X	X
AS King*	X				X
NSP System	X	X	X	X	X

**Replacement capacity for the gen-tie lines*

Re-running Xcel’s Alternate Plan model with the above two basic changes resulted in a plan without the two new proposed CTs and, similar to CEOs’ Preferred Plan filed in our initial comments, no new fossil resources added throughout the planning period. In addition, this new plan, which we refer to as the “CEO Alternate Plan,” adds a significant amount of solar-battery hybrids, among wind, solar, and standalone battery storage additions. Between 2027 and 2029, the CEO Alternate Plan adds 450 MW of solar hybrid, 400 MW of battery storage hybrid, 116 MW of standalone battery storage, and 100 MW of wind in place of the proposed new CTs.⁵² The CEO

⁵¹ *Id.* at Section 2.2.

⁵² *Id.* at 10-11.

Alternate Plan Capacity Expansion Plan through 2034 is shown here in Figure 2 from the EFG Report.

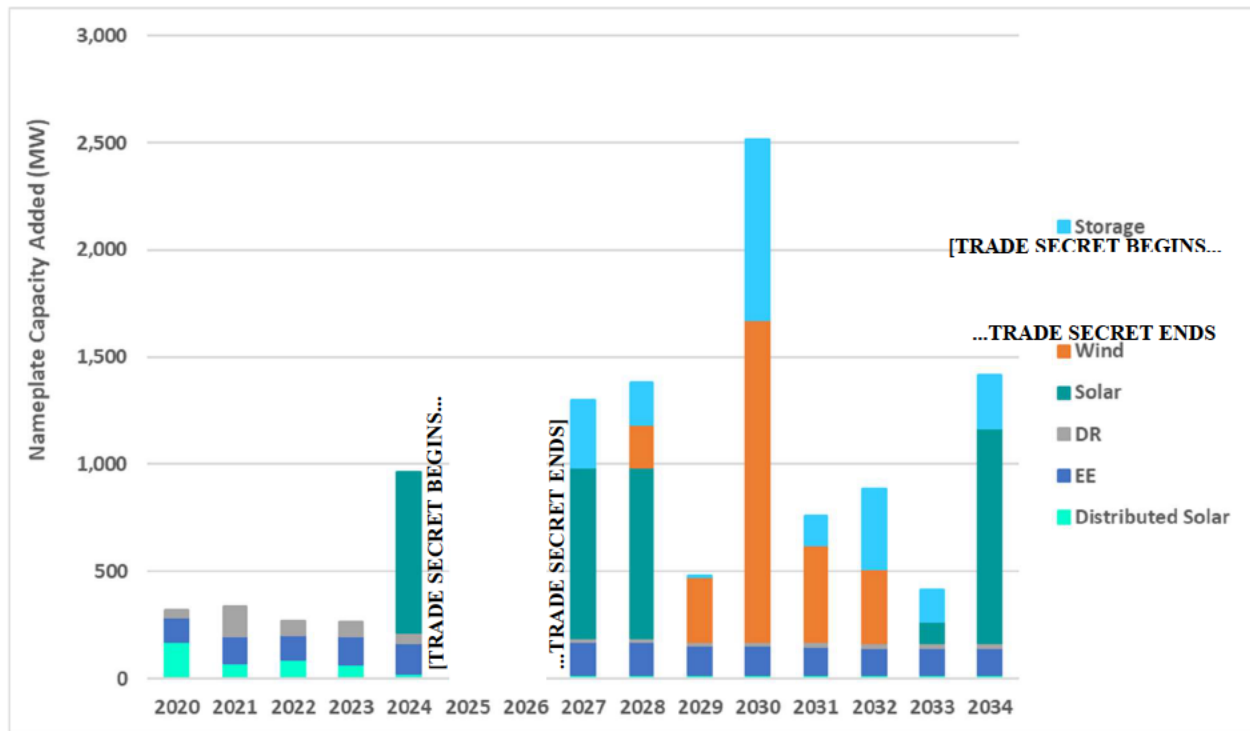


Figure 1. CEO Alternate Plan Capacity Expansion Plan (2020 – 2034)⁵³

The CEO Alternate Plan is also less expensive on a Present Value of Societal Cost (“PVSC”) comparison to Xcel’s Alternate Plan. In order to produce an apples-to-apples comparison of the CEO plan and Xcel plan, EFG reran Xcel’s Alternate Plan with the same standalone storage and solar-battery hybrid resources available in CEOs’ modeling and the updated accurate storage cost assumptions (“CEO Partial Reoptimization of Xcel Alternate Plan”).

The PVSC cost results are provided in EFG Table 6 below.⁵⁴

⁵³ “Solar” represents the sum of solar plus solar hybrid resources across the King tie-line, Sherco tie-line, and NSP general system. “Storage” represents the sum of standalone storage plus the solar-hybrid storage resources across King tie-line, Sherco tie-line, and NSP general system. The firm peaking resources represent Xcel’s proposed repowers. The DR, EE, and Distributed Solar capacity are the same as Xcel’s Alternate Plan. More detail on the expansion plan is provided in Section 2.3 of the EFG Alternate Plan Report.

⁵⁴ EFG Alternate Plan Report at Section 2.3.

Table 2. PVSC Comparison of Alternate Plans (Millions of Dollars)

	PVSC (\$M)
CEO Alternate Plan	\$39,179
CEO Partial Reoptimization of Xcel Alternate Plan	\$39,240
Xcel Alternate Plan as Filed	\$40,461

These PVSC cost results show that on an apples-to-apples comparison, the CEO Alternate Plan is less expensive than Xcel's Alternate Plan, and much less expensive than the full PVSC cost of Xcel's Alternate Plan without changes.

Xcel's Reply comments also make general claims about the continued need for firm dispatchable resources in the future, particularly to deal with periods of extreme weather.⁵⁵ CEOs agree that developing a portfolio of system flexibility, including dispatchable generation resources, both short- and long-duration storage, load-flexibility through rates and demand response, DERs, and increased transmission deployment, is critically important to achieving a carbon-free electric system. CEOs' modeling chose new battery storage (either standalone or hybrid) to provide this flexibility and reliability, especially in the near-term. We appreciate that Xcel has acknowledged that, other than the Fargo and Lyon County CTs, it is considering all other new CTs in its Alternate Plan as non-resource-specific, generic "firm peaking" or "firm dispatchable" resources.⁵⁶ Moreover, this is an issue that is much more concentrated in the 2030s than the 2020s, given Xcel's significant existing peaking gas plant fleet and other dispatchable resources, such as its nuclear units, and opportunities to add flexibility on the load side and through adding storage.

In fact, the most recent performance of Xcel's existing CTs during extreme cold weather shows that adding new gas in the near-term for flexibility and/or extreme weather reliability is not

⁵⁵ See Xcel Reply Comments at Section 2.

⁵⁶ *Id.* at 9.

the right approach; new gas is likely to either be superfluous on top of Xcel's existing gas fleet, or without access to fuel. Instead, it is important to continue Xcel's resource-type agnostic approach to system flexibility in resource planning and procurement proceedings because simply relying on fossil gas plants for system attributes carries risk, especially in the extreme weather events Xcel highlights.

EFG's report reviewed the operational data for Xcel's existing CTs during the 2021 Winter Storm Uri between February 14th and 18th, 2021.⁵⁷ EFG's review found that six of Xcel's CTs did not operate during any hour of Winter Storm Uri.⁵⁸ The CTs that did operate during the event did so at well below their full capacity, as seen in the EFG Report's Figure 3, below.

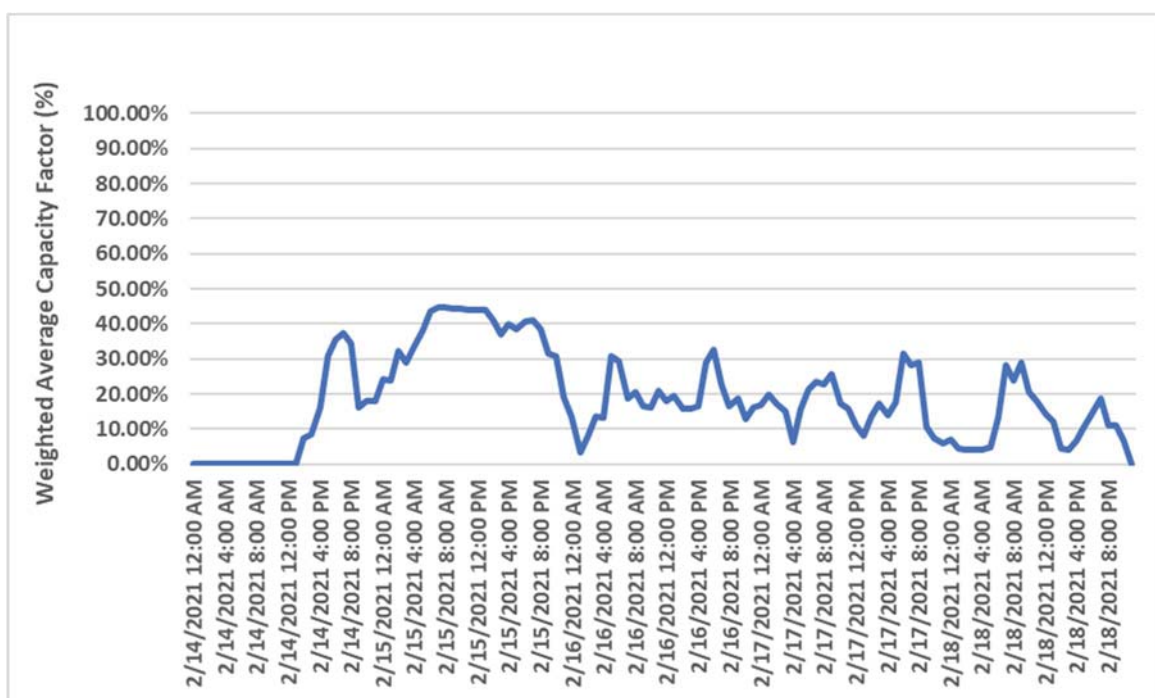


Figure 2. Weighted Average Capacity Factor (%) of Xcel's CTs During Arctic Event⁵⁹

⁵⁷ EFG Alternate Plan Report at Section 3.

⁵⁸ *Id.* at 12.

⁵⁹ This figure is calculated based on gross generation reported at these units to the EPA Air Markets program relative to the net nameplate of the units, therefore the overall weighted average capacity factor will be overstated.

As EFG found, “[e]ven if fuel supply were not an issue for Xcel, there is no indication that the existing fleet could not operate at higher capacity factors during extreme events.”⁶⁰ EFG’s review illustrates that gas generation cannot be solely relied upon for system flexibility and that Xcel’s current CT fleet was not fully utilized in the most recent extreme cold weather event.

CEOs’ analysis of Xcel’s EnCompass modeling and our own modeling shows that the proposed two new CTs are not optimal economic resources as part of a reliable least-cost plan. When CEOs allowed the model to select the proposed new CTs versus other options, including standalone storage and solar-battery hybrids, the new CTs were not selected. Moreover, CEOs’ Alternate Plan without the new CTs is less expensive than Xcel’s Alternate Plan. In addition, while longer-term system flexibility is critically important, the performance of Xcel’s system during recent winter extreme weather does not support adding new gas plants as the best approach; indeed, it suggests additional gas plants are unlikely to improve reliability in those instances. As such, based on the evidence in this docket, the proposed new CTs in Lyon County and Fargo are not in the public interest on economic grounds as part of a reliable, least-cost plan.

2. Xcel has not shown the proposed Lyon County CT is in the public interest for stability.

Xcel’s initial analysis that its Sherco gen-tie line proposal should include the proposed Lyon County CT at the end of the tie-line is far from complete, leaves many critical questions unanswered, and fails to evaluate potentially better alternatives. Xcel states that based on its preliminary⁶¹ Sherco tie-line project design, in order to connect the proposed 2,400 MW of renewables, the Company’s study suggests a need for “stability” resources at the end of the line

⁶⁰ EFG Alternate Plan Report at 13.

⁶¹ “[T]his proposed line is still in preliminary stages, and these stability investments are intended to be indicative of cost only.” Xcel Reply Comments at 52.

(proposed for Lyon County).⁶² CEOs retained Matthew Richwine of Telos Energy, Inc (“Telos”), an electrical engineer and expert in transmission planning and reliability, to review Xcel’s Reply comments and information requests regarding the Sherco gen-tie line’s stability needs. Specifically, Telos examined potential project design needs in order to meet Xcel’s goal of interconnecting 2,400 MW of renewables on the line and the potential role of the proposed 400 MW CT in Lyon County at the line’s end. After reviewing Xcel’s filing and IR responses in this docket, Telos concludes that: “The information provided in Xcel’s Reply Comments and subsequent information requests does not establish that the proposed CTs are required for adequate stability and leaves many major questions unaddressed. Further analysis should be done to determine the best approach for reliably interconnecting 2,400 MW of [inverter-based resources] via the proposed Sherco gen-tie line.”⁶³

Telos’ report, included as Attachment 2, identifies three critical unanswered questions regarding Xcel’s assertion that the proposed Lyon County CT is needed to interconnect 2,400 MW of renewables⁶⁴ (also referred to as inverter-based resources or “IBR”):

- Where along the 140-mile line is the 2,400 MW of IBR generation intended to be connected?
- How does the timing of implementing the whole project potentially address stability issues?
- Could grid-forming inverters provide significant stability on the line?

Both the geographic layout of the renewables along the Sherco gen-tie line and the timing of implementing the project and interconnecting the renewables will significantly impact the extent, if any, of stability issues with the line. As the Telos report states: “From a stability

⁶² *Id.* at 52, 74.

⁶³ Telos Energy, *Review of Xcel Reply Comments*, 2 (September 27, 2021) [hereinafter “Telos Report”].

⁶⁴ *Id.*

standpoint, sending all 2,400 MW of generation from the end of the line would be the most challenging configuration because the maximum power must be transmitted the greatest distance. However, siting generation closer to the Sherco interconnection and/or spreading out the generation to different points along the line would significantly reduce stability concerns.”⁶⁵ This is not only because power needs to travel less distance on the line overall, but also because the voltage support from wind and solar inverters is even more effective when it is provided at multiple points along a single-connection line, like the Sherco gen-tie.⁶⁶ Therefore, before determining that the Lyon County CT is a necessary part of the Sherco gen-tie line proposal, more analysis on how stability needs may be lessened or eliminated through strategic siting of generation along the route of the line must be done.

The timing of the Sherco gen-tie line implementation also lends itself well to further examination in a future docket, when the Commission can determine what is actually needed on the line and the most cost-effective and least-risk way to achieve it. Based on Xcel’s Alternate Plan generation additions, it appears that generation would be added to the Sherco gen-tie line over an extended period of time. Indeed, Xcel’s Reply Table 1-2 shows the timing spanning 2024 to 2032.⁶⁷ Not only does this provide ample time to do more analysis that would ensure a better, more informed decision, but it also defers any stability challenges. This deferral is because stability issues, to the extent they emerge, are not most acute until the generation on the tie-line is close to its full capacity. Therefore, exactly what generation resource type may or may not need to be at the end of the line does not need to be determined until much closer to 2032 under Xcel’s timeline.

⁶⁵ *Id.* at 2.

⁶⁶ *Id.* at 2-3.

⁶⁷ Xcel Reply Comments at 20.

Finally, Xcel's preliminary study does not consider the potential of grid-forming inverter technology ("GFM"), which is already market-deployed and demonstrating the ability to provide stability attributes. GFMs are a rapidly emerging inverter technology that enhance the stability of inverter-based resources, such as wind, solar and battery storage. Unlocking this ability will enable more renewables on the grid with less transmission stability reinforcements required.⁶⁸ GFM technology is already deployed and commercially available for battery storage systems and the pace of GFM deployment is expected to happen quickly, in part because it is achieved largely through software, rather than continually needing new hardware.⁶⁹ Moreover, GFM are being found to provide superior grid stability services as compared to synchronous condensers.⁷⁰ As stated in the Telos report: "While GFM technology is not widely applied today, it is expected to dramatically increase in the coming years as it offers a powerful new tool to the industry for integrating high levels of IBR into the grid in a stable manner."⁷¹ Especially given the significant amount of time until the proposed in-service date of Lyon County CT, it would be folly to lock-in a stability solution at this time, rather than analyze the potential for the renewables and possible storage on the Sherco tie-line to utilize GFM, in addition to analyzing the project design options discussed above.

C. Xcel's Request To Use The Modified Track 2 Bidding Process To Acquire The Lyon County CT Must Be Denied, Because Such An Abbreviated Process Cannot Be Used To Acquire New Fossil Fuel Resources Not Yet Shown To Be Needed Or In The Public Interest.

Xcel's request to use the Modified Track 2 process to acquire the Lyon County CT is wholly inconsistent with Minnesota law and policy and with Commission precedent. The

⁶⁸ Telos Report at 3.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

Commission approved the Modified Track 2 process in its 2017 order approving Xcel's last resource plan.⁷² However, it approved this abbreviated process:

for the limited purpose of acquiring wind and solar resources in the 2016-2021 timeframe. The Commission declines to approve the proposed acquisition process without limitation because the two-track process has provided needed certainty and transparency for participants and regulators. But in this case, given the scope and nature of needed acquisitions, and the need for prompt action, the Commission agrees that the proposed modified process is reasonable and appropriate.⁷³

Importantly, this limited use of the Modified Track 2 process came only *after* the Commission had made the explicit and noncontroversial finding – based on its analysis of an extensive record compiled through a complete IRP process – that these wind and solar acquisitions were reasonable ways to meet need and reduce system costs.⁷⁴

Xcel's surprising request to now use this abbreviated process to acquire two new fossil fuel plants in 2027 and 2029 should not be given serious consideration. First, unlike in 2017, there is no "need for prompt action" given the proposed online dates for the CTs. In fact, even if Xcel had made a compelling showing in this docket that the CTs were in the public interest, it would be too soon for the Commission to make that public interest finding in this proceeding. While the IRP statute allows utilities to establish the need for a new power plant via an IRP process rather than through a separate Certificate of Need process, it contemplates that option only where construction of the proposed facility is likely to begin before the utility files its next resource plan.⁷⁵

⁷² Minn. Pub. Utils. Comm'n, *In the Matter of Xcel Energy's 2016-2030 Integrated Resource Plan*, Order Approving Plan with Modifications and Establishing Requirements for Future Resource Plan Filings, Docket No. E002/RP-15-21 (Jan. 11, 2017), at 11 [hereinafter, "2017 Order"].

⁷³ *Id.* at 8.

⁷⁴ *Id.* at 7.

⁷⁵ Minn. Stat. § 216B.2422, subd. 6. Xcel has not suggested that construction of the Lyon County CT, scheduled to come online 8 years from now, would need to commence before Xcel's next IRP. Moreover, the Certificate of Need determination cannot be consolidated with an IRP unless the Commission conducts the IRP proceeding consistent with the requirements of the Certificate of Need statute, which it has not done.

Second, the Commission cannot find that these CTs are in the public interest given Xcel's failure to provide a record in this docket that would satisfy the legal basis for that finding, as discussed above. Moreover, parties have had only a truncated opportunity to assess and comment upon the CTs given their recent appearance in Xcel's plan.

Third, as fossil fuel plants, not renewable resources, the CTs demand additional scrutiny under the law. This should include, at a minimum, a proceeding with a direct and system-level comparison between the proposed CTs and other options, including renewables and energy efficiency. Modified Track 2 is a bidding process that only compares bids received in response to a particular request for proposals.⁷⁶ Moreover, as proposed here, it does not provide any opportunity for interested parties to review and comment upon the resource choices being acquired, limiting the record on which the Commission can assess the options.

Proposed fossil fuel plants require even *greater* scrutiny going forward to determine whether they can be in the public interest despite the need for deep decarbonization in this decade and beyond, and despite the inevitably growing regulatory headwinds and financial risks. This is certainly no time to grant proposed fossil fuel plants a new procedural shortcut that would greatly reduce transparency and allow an end-run around Minnesota's statutory standards.

III. WHETHER THE TWO NEW CTs ARE NEEDED AND IN THE PUBLIC INTEREST CAN AND SHOULD BE CONSIDERED IN FUTURE DOCKETS.

A. There Is Sufficient Time To Wait For Future Proceedings, Which Will Provide Much More Informed Opportunities To Fully Assess System Needs And Whether The Proposed CTs Are The Proper Solution To Those Needs.

There is no urgency for the Commission to approve these two new CTs, given the proposed online dates of 2027 and 2029. There is time to consider these CTs in future regulatory dockets

⁷⁶ 2017 Order at 6-7.

that will be far better suited to considering the nature and extent of the particular system needs Xcel is raising, and whether the units are needed and in the public interest to address those needs.

For example, the Sherco gen-tie line will require a Certificate of Need from the Commission, as Xcel recognizes,⁷⁷ as well as a Route Permit. Upon noting various technologies that can be used to provide stability on the line, Xcel states that “this proposed line is still in preliminary stages, and these stability investments are intended to be indicative of cost only. Should the Commission approve the Alternate Plan, we would commence further regulatory proceedings related to the line, including specific proposed stability investments.”⁷⁸

That Certificate of Need proceeding would be a far more appropriate venue than this docket for determining what the line’s actual stability support needs are. As the Telos report shows, the line’s stability needs will depend on specific and currently unknown features of the line, such as how the generating resources will be distributed along it, when they will be constructed, and what other equipment, like GFM technology, will be used to ensure the line’s stability.⁷⁹ A proceeding focused specifically on this major project would yield much more of the information necessary to assess whether the Lyon County CT is the best option for stability support. However, even the Certificate of Need proceeding for the gen-tie line may take place too soon to assess whether the Lyon County CT is the best option for stability support, given how many years it will take to build and populate the line with resources, in which case the Commission could revisit the question in subsequent proceedings such as Certificate of Need or IRP filings.

Xcel’s next IRP represents another opportunity for the Commission to consider whether the Lyon County and Fargo CTs are needed and in the public interest on economic or reliability

⁷⁷ Xcel Reply Comments at 28.

⁷⁸ *Id.* at 52.

⁷⁹ Telos Report at 14.

grounds in the context of Xcel's evolving system needs. By then the rate of decarbonization required by climate protection policies will be clearer, as will the rate of improvement by non-carbon technologies – both issues critical to determining whether building the two CTs is needed and in the public interest.

CEOs recommend that the Commission set a two-year deadline for Xcel's next IRP filing, as is common practice and consistent with IRP rules. The accelerating speed of policy and technology changes in this decade warrants frequent re-assessment of Xcel's, or any utility's, long-term investment plans to ensure they reflect those changes and to ensure the Commission and stakeholders have appropriate oversight and input. Given that the two CTs are not scheduled to come online until 2027 and 2029, it may still be too soon for the Commission to decide whether they are in the public interest in the next IRP docket, but there can certainly be a more rigorous assessment of the CTs than in this docket, especially given their late appearance in Xcel's plan.

B. It Would Be Premature To Approve Two New Fossil Fuel Plants Years Before They Are Needed Given How Fast Carbon Policies And Carbon-Free Technologies Are Changing.

Xcel asserts that it will need new CTs in Fargo and Lyon County in 2027 and 2029, respectively. CEOs posit that when the time comes to actually build the two CTs, new decarbonization policies and cheaper renewable technologies will make the CTs unnecessary and unwise.

Waiting to consider the CTs in future dockets will give Xcel and the Commission a more accurate picture of the future climate policies, which may be utterly incompatible with building the CTs. The Biden administration aims to achieve 100% carbon-free electricity by 2035, when Xcel's CTs would be only six and eight years old, respectively. Waiting will also allow the use of more timely information about the cost of the CTs in relation to renewable and other carbon-free

technologies. Approving the CTs in this docket would be premature and would increase the likelihood of leaving ratepayers on the hook for a stranded asset.

Declining to prematurely approve a fossil fuel project is an action the Commission recently took, in its order modifying Xcel's previous IRP, with respect to the Sherco combined cycle plant. The Commission concluded that approval of the plant, with its specific fuel type and location, would be "premature" because alternatives had not been fully considered, and that a future Certificate of Need proceeding would "allow consideration of resources or resource combination alternatives . . . without prejudging or foreclosing Xcel's preferred plan."⁸⁰ Time has proven that there were in fact less polluting alternatives to the Sherco CC. The Commission should similarly decline to prematurely approve the Lyon County and Fargo CTs until alternatives can be more fully considered.

Indeed, the Commission cannot truly comply with the public interest standard or renewable energy preference⁸¹ if it approves a nonrenewable facility before that approval is actually necessary. A utility's demonstration that a renewable alternative is not in the public interest depends on key factors that are shifting yearly. The Commission cannot determine today how renewable alternatives will compare to a nonrenewable facility in 2027 and 2029, especially given all the changes that will be driven by the urgent need to deeply decarbonize in this decade. Giving renewables the preference mandated by statute means waiting as long as reasonably possible before ruling them out in favor of a nonrenewable energy facility.

⁸⁰ 2017 Order at 9.

⁸¹ Minn. Stat. § 216B.2422, subd. 4.

C. The Health And Environmental Impact Of The Proposed New CTs On Host Communities Should Be Considered In A Future Docket.

Evaluating the need for the proposed new CTs in a future docket (or dockets) would also have the benefit of allowing for consideration of the public health and environmental impacts of the proposed fossil gas plants compared to alternatives. Minnesota rules require the Commission to consider socioeconomic and environmental impacts of utility resource plans.⁸² And, during certificate of need proceedings, the Commission is required to evaluate whether “the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health.”⁸³

Evaluating the potential human health, environmental, and socioeconomic impacts of proposed new CTs will be essential for ensuring that new electricity generating resources are consistent with the public interest. During operational hours, CTs emit high levels of nitrogen oxides (“NOx”), highly reactive air pollutants with considerable human and environmental health implications. NOx pollution from peaking plants is of particular concern when the plants are located near population centers, especially in proximity to communities of color and under-resourced communities.

Long-term NOx exposure can cause serious respiratory illness and is associated with cardiovascular illness, diabetes, poorer birth outcomes, premature mortality, and cancer.⁸⁴ Short-term exposure aggravates respiratory conditions and increases emergency room visits.⁸⁵ NOx

⁸² Minn. R. 7843.0500, subp. 3(C).

⁸³ Minn. R. 7849.0120 (C).

⁸⁴ U.S. Env’tl Protection Agency, *Integrated Science Assessment (ISA) for Oxides of Nitrogen – Health Criteria*, Table ES-1, No. EPA/600/R-15/068 (Jan. 2016), available at <https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=310879>.

⁸⁵ *Id.*

contributes to the formation of ozone and particulate matter—air pollutants with similarly severe respiratory impacts.⁸⁶ It is also a key component of acid rain and nutrient pollution in our waterways.⁸⁷ These serious adverse human and environmental health impacts are relevant to the Commission’s decision on the appropriate resources for Xcel to develop in the next decade.

In our Initial Comments, CEOs highlighted the importance of considering procedural justice, climate and environmental justice, and racial equity during integrated resource plan proceedings.⁸⁸ The new public health impacts that would arise from Xcel’s proposed CTs have not been assessed on justice and equity grounds. That assessment should take place in future proceedings.

IV. THE COMMISSION SHOULD MODIFY XCEL’S ALTERNATE PLAN BY EXPLICITLY DECLINING TO APPROVE XCEL’S REQUEST TO [TRADE SECRET BEGINS...

A.

...TRADE SECRET ENDS] CEOs certainly agree that blackstart – the process of restarting the grid and restoring power to customers in the very rare event of a grid-wide blackout – is a fundamental reliability component of our electric system. **[TRADE SECRET BEGINS...**

...TRADE

⁸⁶ U.S. Env’tl Protection Agency, *Nitrogen Dioxide (NO₂) Pollution: Basic Information About NO₂* (June 7, 2021), available at: <https://www.epa.gov/no2-pollution/basic-information-about-no2>.

⁸⁷ *Id.*

⁸⁸ CEOs Initial Comments at 43-45.

⁸⁹ Xcel Reply Comments, Section 3.

SECRET ENDS] However, the new information Xcel has provided in its Reply Comments and IRs fails to establish that **[TRADE SECRET BEGINS...**

...TRADE SECRET ENDS] and it lacks significant, fundamental analysis that would be needed to determine the right future blackstart plan and what resources that plan would use. Mr. Richwine from Telos Energy, Inc. also reviewed Xcel's filing and relevant IR responses relating to future blackstart, and his findings are detailed in the Telos Report, (Attachment 2). The Telos report concludes that:

Xcel's justification for its new "zonal" blackstart approach **[TRADE SECRET BEGINS...** **...TRADE SECRET ENDS]** is based on an incomplete analysis. Xcel has not quantified the costs for existing power plants of similar technologies **[TRADE SECRET BEGINS...**

...TRADE SECRET ENDS] Xcel has not considered the dynamics of system restoration in evaluating the needs for blackstart resources and has likely overestimated the scale of its blackstart need. Xcel has not adequately considered the use of new and proven technologies for blackstart like battery storage. And while mentioning that the proposed new approach could include more participation from renewable resources, Xcel has not provided a description of how renewables could be included nor described changes to the blackstart planning process and resource qualification criteria. These critical aspects of the analysis are missing; and therefore, the proposed changes are insufficiently substantiated.⁹⁰

As Telos identifies, Xcel's analysis is incomplete, and there are major unanswered questions that should be addressed **[TRADE SECRET BEGINS...**

...TRADE SECRET ENDS]

One major flaw is Xcel's failure to evaluate **[TRADE SECRET BEGINS...**

⁹⁰ Telos Report at 13-14.

⁹¹ *Id.* at 7.

⁹² Xcel Reply Comments at 74.

⁹³ What Xcel describes as a “zonal” versus “central” blackstart plan, is not an industry-standard descriptor or an established electric system dichotomy. Telos Report at 12.

...TRADE SECRET ENDS]

Xcel also incorrectly dismisses battery storage as an option for blackstart and fails to do any quantitative analysis regarding batteries. As the Telos report notes, it has been demonstrated in both Australia and California that batteries can play a role in providing blackstart functions.

Finally, the Telos report finds that Xcel's approach for quantifying the scale or MW amount of blackstart load that would need to be serviced is over-estimated, and that while Xcel explains some benefits from its proposed new blackstart approach, it does not account for or quantify additional operational complications and costs that are likely in a change to a "zonal" approach.

Given these serious analysis gaps and unanswered questions, **[TRADE SECRET BEGINS...**

...TRADE SECRET ENDS]

⁹⁴ Telos Report at 8-10; CEO Information Request No. 028 to Xcel Energy, Docket No. E002/RP-19-368 (July 12, 2019).

Still, blackstart is an essential electric system attribute that must be planned for. Fortunately, [TRADE SECRET BEGINS...

...TRADE SECRET ENDS] There is also time to fully explore carbon-free options, including rapidly advancing technologies, and to fully explore approaches that leverage existing units.

B. The Commission Can And Should Wait To Consider Xcel's Revised Blackstart Plan In A Future Proceeding.

Xcel acknowledges that “there is likely need for additional work, analyses and regulatory proceedings including potentially a broader Blackstart proceeding that looks more broadly at blackstart needs for Minnesota and the Upper Midwest area.”⁹⁵ Indeed, Xcel requests that the Commission launch a new regulatory docket that would consider the need for blackstart additions under its new zonal system.⁹⁶ Elsewhere in its comments, Xcel acknowledges that its new zonal approach “may necessitate additional proceedings and potentially a broader System Restoration proceeding that involves all Minnesota utilities.”⁹⁷ We agree that more work is needed and that a future process would be a good place to take a more holistic look at blackstart and leverage the time available.

[TRADE SECRET BEGINS...

⁹⁵ Xcel Reply Comments at 67-68.

⁹⁶ *Id.* at 27.

⁹⁷ *Id.* at 55.

...TRADE SECRET ENDS] And rather than considering the blackstart needs of Xcel's system in isolation, a broader blackstart proceeding would allow them to be considered within a broader, systemic review of available blackstart options that may be outside the Xcel system. This is particularly important given the geographic proximity of resources owned by other utilities **[TRADE SECRET BEGINS...**

...TRADE SECRET ENDS]

A proceeding focused on blackstart capabilities would allow the Commission and stakeholders to look at the issue on a systemic level, considering all the existing resources available to provide blackstart services, as well as the emerging, carbon-free technologies that could provide these services. Utilities around the nation, indeed around the world, will be increasingly tackling the question of how to ensure blackstart capabilities in a decarbonizing world. Promising carbon-free options will be subject to greater attention and experimentation, hopefully improving their ability to provide blackstart capabilities. A systemic discussion would also allow Xcel to explain why it divided the zones as it did, and whether these are the optimal zone delineations for a decarbonized future.

V. XCEL'S PROPOSED MINIMUM INFORMATION REQUIREMENTS FOR PARTIES SUBMITTING ALTERNATIVE PLANS INAPPROPRIATELY LIMITS STAKEHOLDER PARTICIPATION.

Xcel proposes in its Reply Comments that parties submitting alternative plans in future IRP proceedings be required to include several specific components in their alternative plans beyond what is required by law. The Commission's IRP rule already requires parties that file a proposed plan different from the utility's to include "a narrative and quantitative discussion of why the proposed changes would be in the public interest," considering the factors the Commission must

use to assess IRPs.⁹⁸ Xcel appears to be asking the Commission to add new minimum requirements for parties submitting alternate plans that are not required by the rule.

Imposing this new list of requirements puts a major and unwarranted burden on stakeholders, who unlike Xcel are unable to pass the costs of their plan formation onto Minnesota ratepayers. Xcel has every opportunity in IRP proceedings to point out what it considers the shortcomings of an alternative plan offered by another party, and the Commission can judge the relevance of the missing elements on a case-by-case basis. Moreover, even alternative plans that are missing some of the elements Xcel seeks to require can provide information and a perspective that helps the Commission assess a utility's plan. Xcel's proposal would unnecessarily restrict stakeholder participation, would deprive the Commission of useful information, and is inconsistent with the applicable rule. The Commission should reject it.

CONCLUSION

Xcel's Alternate Plan wisely abandons the fossil fuel Sherco CC plant and allows for the deployment of greater levels of renewable power using the proposed new tie-lines. These two major changes are much more consistent with the deep decarbonization the power sector needs to make in this decade. However, Xcel has not shown in this docket that the Lyon County and Fargo CTs are in the public interest, and there is time to consider these plants in future dockets.

Therefore, CEOs respectfully request that the Commission:

1. approve Xcel's Alternate Plan but modify it by declining to approve the Lyon County CT and Fargo CT, and either:
 - a. replace them with 450 MW of solar hybrid, 400 MW of battery storage hybrid, 116 MW of standalone storage, and 100 MW of wind in 2027-2029, consistent with the CEOs' Alternate Plan; or

⁹⁸ Minn. R. 7843.0300, subp. 11.

- b. designate the 800 MW of proposed CTs in 2027 and 2029 in Xcel's Alternate Plan as "generic firm peaking," consistent with Xcel's treatment of the additional CT capacity in its Alternate Plan;
2. order that Xcel submit its next IRP in two years;
3. require that Xcel's next IRP include a deeper analysis of storage options, including making solar-battery hybrids a resource option;
4. require that Xcel include improved load flexibility and demand response modeling methodologies going forward and in its next resource plan;⁹⁹
5. require that Xcel consider and pursue opportunities to deploy renewable resources and storage technologies on a schedule faster than in its Alternative Plan, if such deployment would be cost-effective, maintain reliability, and aid in achieving compliance with decarbonization policies; and
6. take up Xcel's future blackstart needs in a future proceeding.

Respectfully submitted,

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⁹⁹ See CEOs Reply Comments at 20.