

STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION

Chair Katie Sieben
Commissioner Hwikwon Ham
Commissioner Audrey Partridge
Commissioner Joseph Sullivan
Commissioner John Tuma

In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard
and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691

Docket No. E-999 /CI-23-151

REPLY COMMENTS OF GOOGLE LLC
March 19, 2025

I. Introduction

Google LLC (“Google”) appreciates the opportunity to provide these comments and thanks the Commission for its proactive efforts to establish the regulatory framework for the implementation of Minnesota’s landmark clean electricity standard of 2023.

To enable Minnesota’s clean energy goals under the Carbon-Free Standard in a cost-effective and reliable manner, Google respectfully submits the following recommendations for the Commission’s consideration:

1. Direct utilities to investigate and implement systems to track and certify clean energy on an hourly basis.
2. Direct utilities to establish a “Clean Transition Tariff” (CTT), an optional electricity tariff that allows users to pay for the incremental cost of accelerating clean energy deployment in exchange for capacity, energy, and environmental attribute credits provided by the resource to the system.
3. Direct utilities to include hourly matching analyses in future Integrated Resource Plans.

We believe implementation of these recommendations will ensure the successful and efficient realization of Minnesota's clean energy goals under the Carbon-Free Standard.

II. Recommendation 1: Direct Utilities to Investigate and Implement Systems to Track and Certify Clean Energy on an Hourly Basis

To effectively implement Minnesota's clean electricity standard, the Commission should actively pursue transparent hourly energy tracking, enabling consumers, utilities, and regulators to understand the granular dynamics of energy production and consumption. To facilitate this information flow, the Commission should direct the utilities it regulates to investigate the implementation of hourly, time-stamped clean energy certificates, or "Time-based Energy Attribute Certificates" (T-EACs). Alternatively, the Commission could lead its own process to explore this implementation.

Google's extensive experience demonstrates the feasibility and benefits of T-EACs. For over three years, we have collaborated with global energy attribute certificate registries to modernize tracking systems. In the Midwest, we partnered with M-RETS to pilot hourly tracking, enabling us to procure wind energy with certificates that include associated hourly data.¹ Furthermore, Google is part of the Granular Certificate Trading Alliance², which supports the Registry Acceleration Fund³, aimed at scaling these systems globally. And importantly, recent research from Princeton University demonstrates that the implementation of T-EACs trading will significantly lower the cost of procuring high levels of hourly matched clean energy by lowering transaction costs and providing greater accessibility to cheap energy during key times of the day.⁴

Notably, regulators in Colorado and Arizona have directed the utilities they regulate to investigate the implementation of T-EACs, demonstrating a growing trend.

- In Colorado, the Public Utilities Commission approved a Settlement Agreement with Xcel Colorado, directing the utility to "investigate the technical requirements, costs, and processes associated with tracking hourly renewable energy credits" during the

¹ Google. "T-EACs Offer New Approach to Certifying Clean Energy." Cloud Blog, 2023, <https://cloud.google.com/blog/topics/sustainability/t-eacs-offer-new-approach-to-certifying-clean-energy>.

² LevelTen Energy. 2025, March 17. The GC Trading Alliance: Building the market infrastructure for time- and location-based carbon-free energy. <https://www.leveltenenergy.com/alliance>

³ LevelTen Energy. 2025, March 17. *Registry Acceleration Fund - Request for Proposals*. <https://go.leveltenenergy.com/registry-acceleration-fund>

⁴ Jenkins, Jesse, et al. "Matching Renewable Energy Supply and Demand Could Save Billions and Cut Emissions." Andlinger Center for Energy and the Environment, Princeton University. February 23, 2023. <https://acee.princeton.edu/24-7/>.

implementation of its 2022-2025 Renewable Energy Compliance Plan.⁵

- Similarly, in Arizona, the Arizona Corporation Commission unanimously approved an amendment to Arizona Public Service Company's 2023 Renewable Energy Plan, directing the utility to "investigate the technical requirements, costs and processes associated with implementing T-EACs."⁶

Google recommends that the Commission pursue similar directives and direct the utilities it regulates to work with interested stakeholders to investigate the technical requirements, costs, and processes associated with implementing T-EACs and develop an associated implementation plan for Commission review and approval, with a completion target of year-end; or alternatively, lead its own process to explore this implementation. At a minimum, this investigation should include the review and consideration of the implementation of the open-source EnergyTag standard system,⁷ which Google supports.

III. Recommendation 2: Direct Utilities to Implement a Clean Transition Tariff to Expedite Clean Energy Deployment by Leveraging Private Capital

Clean Transition Tariffs (CTTs) are innovative rate structures designed to accelerate clean energy deployment by leveraging private capital. These optional tariffs enable large electricity consumers to directly support new clean energy resources through specialized agreements with their utility. Under a CTT, customers commit to pay for energy generated by one or more dedicated, newly-procured clean resource(s)—either utility-owned or acquired through a third party. Any additional energy consumption beyond what is generated by the CTT resource(s) would be billed at the customers' otherwise applicable rate.

⁵ Colorado Public Utilities Commission, Decision No. C22-0678, "In the Matter of the Application of Public Service Company of Colorado for Approval of its 2022-2025 Renewable Energy Compliance Plan," Proceeding No. 21A-0625EG. Order Point 50, Page 17.

https://www.dora.state.co.us/pls/efi/efi_p2_v2_demo.show_document?p_dms_document_id=998815

⁶ Arizona Corporation Commission, Decision No. 78782, "In the Matter of the Application of Arizona Public Service Company for Approval of its 2023 Renewable Energy Plan and Tariff," Docket No. E-00000A-22-0240, Page 9, Lines 12-16.

<https://docket.images.azcc.gov/0000208036.pdf?i=1742222783542>.

⁷ Energy Tag. 2025, March 17. *Granular Certificate Scheme Standard*. <https://energytag.org/standards/>

Key CTT features include: new and incremental clean energy resources, economic dispatch as part of the utility's portfolio, capacity and attribute allocation to the customer, and importantly, consumer protections to prevent cost-shifting. CTTs expand customer optionality, support state clean energy goals, and offer a strategic approach to integrating new large loads into the grid without burdening existing ratepayers or delaying resource procurement. Active CTT development in Nevada,⁸ the Carolinas,⁹ and Indiana¹⁰ demonstrates their potential.

As Minnesota's electricity demand increases, particularly from data centers and industrial facilities, CTTs provide a mechanism for these new loads to use their capital to accelerate and support the state's clean energy goals. ***Therefore, Google recommends the Commission direct regulated utilities to collaborate with interested stakeholders and submit a CTT proposal for review and approval by year-end, building upon the Commission's recent large load customer tariff actions and leveraging existing utility tariffs that align with, or can be adapted to, support CTT implementation goals.***

IV. Recommendation 3: Direct Utilities to Include Hourly Matching Analyses in Future Integrated Resource Plans

Google's experience with hourly clean energy matching reveals its strategic value in long-term clean energy planning. Ambitious hourly matching targets support the development of cost-effective clean energy portfolios. High targets can also position Minnesota as a clean electricity exporter, with excess energy displacing generation in neighboring grids. Research indicates that over 90% hourly matching is achievable with existing clean technologies and storage.

To leverage these benefits, Google recommends that Minnesota direct regulated utilities to include one or more analyses of different degrees of hourly clean energy matching as they develop future Integrated Resource Plans (IRPs). Directing the

⁸ See Public Utilities Commission of Nevada Docket No. 24-06014

⁹ Duke Energy. "Responding to Growing Demand, Duke Energy, Amazon, Google, Microsoft and Nucor Execute Agreements to Accelerate Clean Energy Options." Duke Energy News Center. <https://news.duke-energy.com/releases/responding-to-growing-demand-duke-energy-amazon-google-microsoft-and-nucor-execute-agreements-to-accelerate-clean-energy-options>.

¹⁰ See Order of the Commission. In The Matter Of The Verified Petition Of Indiana Michigan Power Company For Approval Of Modifications To Its Industrial Power Tariff – Tariff I.P. Cause No. 46097. P. 41-42.

incorporation of hourly matching analysis into IRPs will improve resource decisions and reduce capacity shortage risks as Minnesota works towards its clean energy goals.

V. Conclusion

Google reiterates its appreciation for the Commission's leadership and dedication to implementing Minnesota's landmark clean electricity standard. We value the opportunity to provide these recommendations and are confident that their implementation will foster collaboration and drive progress towards achieving Minnesota's clean energy objectives.