

STATE OF MINNESOTA  
PUBLIC UTILITIES COMMISSION

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March 1, 2024

**RE: In the Matter of Xcel Energy's 2023 Integrated Distribution Plan**  
**Docket No. E002/M-23-452**

**Initial Comments of Fresh Energy, Union of Concerned Scientists, and Plug In America**

Fresh Energy, Union of Concerned Scientists, and Plug In America (the Clean Energy Groups, or CEGs) submit these Initial Comments in response to the Commission's November 17, 2023 [Notice of Comment Period](#) and January 19, 2024 [Notice of Extended Comment Period](#) on Xcel's 2023 Integrated Distribution Plan (IDP), focusing on electric vehicles and distribution grid impacts.

The CEGs have previously made the case for utilities' role in supporting electric vehicle (EV) adoption by increasing access to EV charging infrastructure and EV rates in its service area.<sup>1</sup>

EV adoption has increased significantly in Minnesota, particularly in Xcel Energy's service territory.<sup>2</sup> We are, however, still relatively early in the EV adoption curve, making the conversation posed in Xcel's IDP and the Commission's Notice of Comment Period regarding distribution grid upgrades related to EVs and other clean energy growth an important one to have now, so we can be best prepared to adapt to and support continued rapid EV adoption across vehicle sizes (e.g., light-, medium-, and heavy-duty vehicle segments).

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<sup>1</sup> For example, see our comments in (1) Docket E002/M-18-643 ([link](#)), supporting Xcel's Public Charging and Commercial EV Fleet Service Pilot; (2) Docket E002/M-20-745 ([link](#)), supporting Xcel installing, owning, and operating public fast charging stations in specific, underserved locations; and Docket E002/M-20-711 ([link](#)), supporting Xcel's piloting of a "full service" approach to installing, owning, and operating Level 2 charging stations at multi-dwelling unit properties as part of the MDU EV Service Pilot.

<sup>2</sup> Anjali Bains, Fresh Energy, "[Minnesota had a record number of EV sales in 2023. How is Xcel keeping up?](#)", posted February 26, 2024.

Planning for proactive grid upgrades is especially crucial given that long lead times are required for certain kinds of infrastructure upgrades and that supply chain constraints (e.g., delays in substation or transformer delivery) could have a significantly adverse impact on supporting the rapid EV adoption necessary to improve public health and avoid the worst impacts of climate change.<sup>3</sup> The question of where to make these upgrades, and how to pay for them, however, remains, and we believe additional information, discussion, and record development on the topic of how to plan for and allocate costs for distribution grid upgrades, particularly for non-residential charging infrastructure, is warranted.

In particular, we need to understand:

- (1) What data, analysis, and best practices exist that can provide a framework for improved distribution planning;
- (2) What approaches other jurisdictions, outside Minnesota, have adopted or are considering for proactive grid investments; and
- (3) What non-wires alternatives and other strategies exist that can offset the need for or create more time to install distribution grid upgrades related to EV charging.

To help with that record development, we submit the following resources, aligned with the above categories, and a brief summary of what they contain.

- (1) What data, analysis, and best practices exist that can provide a framework for improved distribution planning

#### **“Charging Ahead: Grid Planning for Vehicle Electrification” (2024)<sup>4</sup>**

In January 2024, the Energy Systems Integration Group’s Grid Planning for Vehicle Electrification Task Force (ESIG) published a report acknowledging the challenge of distribution grid planning with rapid EV adoption, and outlined 4 steps to support grid planning with respect to EV charging: (1) improve forecasting; (2) embrace smart charging; (3) incorporate future-reading equipment, and (4) promote proactive upgrades and processes to support an electrified future. The report goes into detail “good, better, and best practices” related to each of these

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<sup>3</sup> CEGs have drawn the connection between support for rapid EV adoption and addressing climate change and air pollution in most of its submitted comments to EV-related dockets, including its December 2023 initial comments regarding Xcel’s 2023 TEP.

<sup>4</sup> Energy Systems Integration Group, [“Charging Ahead: Grid Planning for Vehicle Electrification. A Report of the Grid Planning for Vehicle Electrification Task Force”](#) (January 2024).

four steps. The report also emphasizes that this type of grid planning will require multiple parties, including utilities, regulators, state legislators, other state officials, vehicle manufacturers, retail rate designers, and charging operators, alongside groups focused on doing this planning equitably.

**“Building the Grid to Need: Best Practices for Proactively Developing Distribution Grids to Support Truck and Bus Electrification” (2024)<sup>5</sup>**

Also in January 2024, the Environmental Defense Fund (EDF) published a report that similarly acknowledged the challenge of supporting medium and heavy-duty vehicle (MHDV) charging through current grid planning processes, and proposed several recommendations to address it, including creating a regulatory framework to support proactive grid investments to serve MHDV electrification “hot spots” while also creating “appropriate safeguards against utility overinvestment at customer expense;”<sup>6</sup> considering how to improve the interconnection process through setting of targets and metrics and incentives; and considering how to best allocate costs for these grid investments between the vehicle owners, ratepayers, and private and public funding sources.

**eRoadMAP and other EVs2Scale 2030 tools**

Electric Power Research Institute (EPRI) launched the EVs2Scale2030 initiative.<sup>7</sup> The initiative is intended to synthesize and analyze a wide array of data sources into comprehensive data sets and maps utilities can leverage in their forecasting efforts. The eRoadMAP tool shows “where, when, and how much EV charging load is likely to materialize” over time and “identifies the energy needs at roughly the individual feeder level where critical utility planning occurs.”<sup>8</sup> It also promises to provide fleets and other EV customers with timely insights into where there is existing capacity on the grid to inform where customers should prioritize electrification efforts.

- (2) What approaches other jurisdictions, outside Minnesota, have adopted or are considering for proactive grid investments; and

**California’s Assembly Bill (A.B.) 2700** requires utilities to proactively invest in grid upgrades necessary for EV charging anticipated by state goals and regulations, and it requires state

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<sup>5</sup> Environmental Defense Fund, “[Building the Grid to Need: Best Practices for Proactively Developing Distribution Grids to Support Truck and Bus Electrification](#),” published January 2024.

<sup>6</sup> *Id.* at 6.

<sup>7</sup> EPRI. “EVs2Scale230”. Accessed February 5, 2024. Available [here](#).

<sup>8</sup> *Id.*

agencies to provide fleet data to utilities to inform grid planning, among other provisions.<sup>9</sup> In **Southern California Edison's** ongoing general rate case (filed May 2023), the company proposed significant proactive investments to support heavy-duty EV charging, in accordance with A.B. 2700.

The **California Public Utilities Commission** has undertaken an effort to establish a Zero-Emission Freight Infrastructure Planning framework to “address the need for proactive planning of long-lead time utility-side electrical infrastructure” to support freight vehicle electrification across investor-owned utility service areas.<sup>10</sup>

The **New York Public Service Commission** approved the implementation of a coordinated grid planning process that uses a 20-year planning horizon to lead the utilities to study the grid impacts of truck electrification over decades rather than years and help avoid surprise upgrade needs in the future.<sup>11</sup>

In **New York, National Grid and ConEdison** have conducted proactive planning studies on serving EV charging loads as the basis for initiating investments.<sup>12</sup>

In both its **North Carolina** and **South Carolina** service areas, **Duke Energy** has taken a proactive approach to identifying the grid needs of clusters of fleet EVs as part of the integrated resources planning process in each state.<sup>13</sup>

Regional grid operators, such as the **Midcontinent Independent System Operator**, have already begun to think about how transportation electrification will affect total energy needs and the timing of annual peaks in electricity demand.<sup>14</sup>

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<sup>9</sup> Assembly Bill 2700 (McCarthy 2022). Text available [here](#).

<sup>10</sup> California Public Utilities Commission. “Freight Infrastructure Planning”. Accessed February 5, 2024. Available [here](#).

<sup>11</sup> State of New York Public Service Commission. Order Approving A Coordinated Grid Planning Process (August 17, 2023). Accessed February 5, 2024. PDF available [here](#).

<sup>12</sup> National Grid and ConEdison. 2023. “EV Proactive Planning Studies”. Accessed February 6, 2024. PDF available [here](#).

<sup>13</sup> Direct Testimony of Timony J. Duff and Johnathan L. Byrd on Behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC. (September 1, 2023). *In the Matter of Biennial Consolidated Carbon Plan and Integrated Resource Plans of Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC*. State of North Carolina Utilities Commission Docket No. E-100, Sub 190. Available [here](#). Direct Testimony of Teresa Reed on Behalf of Duke Energy Carolinas LLC and Duke Energy Progress, LLC (October 24, 2023). *In the Matter of Duke Energy Progress, LLC's and Duke Energy Carolina, LLC's 2023 Integrated Resource Plans*. Public Service Commission of South Carolina Docket No. 2023-8-E, Docket No. 2023-10-E. Available [here](#).

<sup>14</sup> Midcontinent Independent System Operator. 2021. “MISO Electrification Insights”. Accessed February 5, 2024. Available [here](#).

- (3) Non-wires alternatives and other strategies that can offset the need for or create more time to install distribution grid upgrades related to EV charging.

**“Feasibility Study of DCFC + BESS in Colorado: A technical, economic and environmental review of integrating battery energy storage systems with DC fast charging” (2022)**<sup>15</sup>

The Colorado Energy Office analyzed the use of battery energy storage systems (BESS) with direct current fast chargers (DCFCs) to “better understand the costs and benefits of deploying BESS alongside DCFC,” including potential use cases.<sup>16</sup> One of the two identified use cases was “project cost reductions that enable access to fast charging at the grid edge as a result of avoided distribution cost upgrades.”<sup>17</sup> The report goes on to look at the role of utilities and state offices in supporting DCFC + BESS deployment, and some technology providers that currently exist.<sup>18</sup>

## **Conclusion**

We thank Xcel and the Commission for facilitating this important discussion on distribution grid planning for our clean energy transition. We look forward to other parties providing additional information and input that can further this discussion.

Sincerely,

/s/ Anjali Bains

Fresh Energy  
408 St. Peter Street, Suite  
350  
St. Paul, MN 55102  
651.726.7579  
[bains@fresh-energy.org](mailto:bains@fresh-energy.org)

/s/ Sam Houston

Union of Concerned  
Scientists  
1825 K Street NW, Suite  
800  
Washington, DC 20006  
202.331.5459  
[shouston@ucsusa.org](mailto:shouston@ucsusa.org)

/s/ Dean Taylor

Plug In America  
6380 Wilshire Blvd, Suite  
1000  
Los Angeles, CA  
323.372.1236  
[dtaylor@pluginamerica.org](mailto:dtaylor@pluginamerica.org)

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<sup>15</sup> Prepared by E9 Insight and Optony Inc on behalf of Colorado Energy Office, “Feasibility Study of DCFC + BESS in Colorado: A technical, economic and environmental review of integrating battery energy storage systems with DC fast charging,” (2022). PDF accessible [here](#).

<sup>16</sup> *Id.* at 2

<sup>17</sup> *Ibid.*

<sup>18</sup> *Id.* at 18-19.

## **CERTIFICATE OF SERVICE**

I, Anjali Bains, hereby certify that I have this day, served a copy of the following document to the attached lists of persons by electronic filing and electronic mail.

**Comments of Fresh Energy, Union of Concerned Scientists, and Plug In America**

**Docket No. E002/M-23-452**

**Dated this 1<sup>st</sup> day of March 2024**

/s/ Anjali Bains

Fresh Energy

408 St. Peter Street, Suite 350

St. Paul, MN 55102

651.726.7579

[bains@fresh-energy.org](mailto:bains@fresh-energy.org)

## Electronic Service Member(s)

Last Name	First Name	Email	Company Name	Delivery Method	View Trade Secret
Ashley	Thomas	tom@greenlots.com	Greenlots	Electronic Service	No
Auerbacher	Kevin	kauerbacher@tesla.com	Tesla, Inc.	Electronic Service	No
Bains	Anjali	bains@fresh-energy.org	Fresh Energy	Electronic Service	No
Baumhefner	Max	MBAUMHEFNER@NRDC.ORG	Natural Resources Defense Council	Electronic Service	No
Bertrand	James J.	james.bertrand@stinson.com	STINSON LLP	Electronic Service	No
Choquette	Ray	rchoquette@agp.com	Ag Processing Inc.	Electronic Service	No
Coffman	John	john@johncoffman.net	AARP	Electronic Service	No
Commerce Attorneys	Generic Notice	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	Electronic Service	Yes
Farrell	John	jfarrell@ilsr.org	Institute for Local Self-Reliance	Electronic Service	No
Ferguson	Sharon	sharon.ferguson@state.mn.us	Department of Commerce	Electronic Service	No
Garvey	Edward	edward.garvey@AESLconsulting.com	AESL Consulting	Electronic Service	No
Gerhardson	Bruce	bgerhardson@otpc.com	Otter Tail Power Company	Electronic Service	No
Halso	Joe	joe.halso@sierraclub.org	Sierra Club	Electronic Service	No
Havey	Kim	kim.havey@minneapolismn.gov	City of Minneapolis	Electronic Service	No
Hedlund	Amber	amber.hedlund@xcelenergy.com	Northern States Power Company dba Xcel Energy-Elec	Electronic Service	No
Heinen	Adam	aheinen@dakotaelectric.com	Dakota Electric Association	Electronic Service	No
Hoppe	Michael	lu23@ibew23.org	Local Union 23, I.B.E.W.	Electronic Service	No
Houston	Samantha	shouston@ucusa.org	Union of Concerned Scientists	Electronic Service	No
Hoye	Megan	megan.hoye@zefenergy.com	ZEF Energy	Electronic Service	No
Jenkins	Alan	aj@jenkinsatlaw.com	Jenkins at Law	Electronic Service	No
Johnson	Richard	rick.johnson@lawmoss.com	Moss & Barnett	Electronic Service	No
Johnson Phillips	Sarah	sarah.phillips@stoel.com	Stoel Rives LLP	Electronic Service	No
Jones	Philip	phil@phillipsonconsulting.com	Alliance for Transportation Electrification	Electronic Service	No
Jordan	Brendan	bjordan@gpisd.net	Great Plains Institute & Bioeconomy Coalition of MN	Electronic Service	No
Kaneski	Nick	nick.kaneski@enbridge.com	Enbridge Energy Company, Inc.	Electronic Service	No
King	Chris	chris_king@siemens.com	Siemens	Electronic Service	No
Kohlasch	Frank	frank.kohlasch@state.mn.us	MN Pollution Control Agency	Electronic Service	No
Krikava	Michael	mkrikava@taftlaw.com	Taft Stettinius & Hollister LLP	Electronic Service	No
Larson	Peder	plarson@larkinhoffman.com	Larkin Hoffman Daly & Lindgren, Ltd.	Electronic Service	No
Larson	James D.	james.larson@avantenergy.com	Avant Energy Services	Electronic Service	No
Levenson Falk	Annie	annief@cupminnesota.org	Citizens Utility Board of Minnesota	Electronic Service	No
Long	Ryan	ryan.j.long@xcelenergy.com	Xcel Energy	Electronic Service	No
Ludwig	Susan	sludwig@mnpower.com	Minnesota Power	Electronic Service	No
Maini	Kavita	kmairi@wi.rr.com	KM Energy Consulting, LLC	Electronic Service	No
Marshall	Pam	pam@energycents.org	Energy CENTS Coalition	Electronic Service	No
Miller	Kevin	kevin.miller@chargepoint.com	ChargePoint, Inc.	Electronic Service	No
Moeller	David	dmoeller@allete.com	Minnesota Power	Electronic Service	No
Moratzka	Andrew	andrew.moratzka@stoel.com	Stoel Rives LLP	Electronic Service	No
Nabong	Mark	mnabong@nrdc.org	Natural Resources Defense Council	Electronic Service	No
Niles	David	david.niles@avantenergy.com	Minnesota Municipal Power Agency	Electronic Service	No
Noble	Michael	noble@fresh-energy.org	Fresh Energy	Electronic Service	No
Opatz	Debra	dopatz@otpc.com	Otter Tail Power Company	Electronic Service	No
Overland	Carol A.	overland@legalelectric.org	Legalelectric - Overland Law Office	Electronic Service	No
Partridge	Audrey	apartridge@mnccc.org	Center for Energy and Environment	Electronic Service	No
Peterson	Jennifer	jipeterson@mnpower.com	Minnesota Power	Electronic Service	No
Podratz	Marcia	mpodratz@mnpower.com	Minnesota Power	Electronic Service	No
Prazak	David G.	dprazak@otpc.com	Otter Tail Power Company	Electronic Service	No
Residential Utilities Division	Generic Notice	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	Electronic Service	Yes
Reuther	Kevin	kreuther@mnccenter.org	MN Center for Environmental Advocacy	Electronic Service	No
Samson	Renee	rsamson@freewiretech.com	FreeWire Technologies	Electronic Service	No
Schlangen	Kevin	kevin.schlangen@co.dakota.mn.us	Dakota County	Electronic Service	No
Schwartz	Christine	Regulatory.records@xcelenergy.com	Xcel Energy	Electronic Service	No
Seuffert	Will	Will.Seuffert@state.mn.us	Public Utilities Commission	Electronic Service	Yes
Sexton	Timothy	Timothy.Sexton@state.mn.us	Minnesota Department of Transportation	Electronic Service	No
Smart	Anne	anne.smart@chargepoint.com	ChargePoint, Inc.	Electronic Service	No
Smith	Ken	ken.smith@districtenergy.com	District Energy St. Paul Inc.	Electronic Service	No
Starns	Byron E.	byron.starns@stinson.com	STINSON LLP	Electronic Service	No
Strommen	James M	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered	Electronic Service	No
Swanson	Eric	eswanson@winthrop.com	Winthrop & Weinstine	Electronic Service	No
Taylor	Dean	dtaylor@pluginamerica.org	Plug In America	Electronic Service	No
Tommerdahl	Stuart	stommerdahl@otpc.com	Otter Tail Power Company	Electronic Service	No
Tople	Talge	Talge.D.Tople@xcelenergy.com	Northern States Power Company dba Xcel Energy-Elec	Electronic Service	No
Wahl	Francesca	fwahl@tesla.com	Tesla	Electronic Service	No
Washington	Darrell	darrell.washington@state.mn.us	DOT	Electronic Service	No
Wilson	Justin	justin.wilson@chargepoint.com	ChargePoint	Electronic Service	No
Windler	Joseph	jwindler@winthrop.com	Winthrop & Weinstine	Electronic Service	No
Zimmerman	Kurt	kwz@ibew160.org	Local Union #160, IBEW	Electronic Service	No
Zomer	Patrick	Pat.Zomer@lawmoss.com	Moss & Barnett PA	Electronic Service	No