Proactive Distribution Upgrade Workgroup Roster – July 14, 2025

Organization	Membership	Representative	Email	Designation
Alliance for Transportation Electrification (ATE)	Participant	Phil Jones	phil@philjonesconsulting.com	Lead
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		Diane Dietz	Diane.Dietz@state.mn.us	Observer
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		Steve Nadel	snadel@aceee.org	Observer
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		Brian Allen	brian.allen@allenergysolar.com	Observer
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Steve Coleman	Observer	Steve Coleman	stevecolemanpuma@gmail.com	Observer

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Joint Workgroup Meeting on Distribution Grid Upgrades

Friday, November 8, 2024
9:00 am – 12:00 pm
Minnesota PUC Large Hearing Room and WebEx

Logistics and Technology

- Virtual Lead Participants – please have your camera on. Use the raise hand feature or if there is a pause feel free to jump in.
- Please refrain from using the chat function as those in the room will have a difficult time seeing it.
- In the room – you must be at a microphone to be heard on the webcast.
- Bathrooms are on the first floor, at the breaks Commission Staff can also let folks into the Commission bathrooms.
- For any tech issues during the meeting please either privately message or contact Kit Gomez: kit.gomez@state.mn.us.

Agenda

9:00 am	Welcome and introductions • *Overview of Agenda* • *Workgroup Norms* • *Lead Participant Introductions*
9:15 am	Landscape overview (PUC Staff) • *Relevant Orders, legislation, related dockets, and general framing* • *Cost Allocation and Upgrades Framework* • *Questions?*
9:30 am	Existing Distribution Planning and Upgrades Processes • *Xcel Energy presentation* • *Additional utility input* • *Questions?*
10:30 am	Break

10:45 am	Scope and potential crossover between workgroups (PUC Staff) • *Scope of each workgroup* • *What is not in scope for workgroup discussions* • *Areas of potential crossover between the workgroups*
11:00 am	Discussion and stakeholder input on scope and crossover • *Reactions to scope and crossover between workgroups* • *Are there other topics that workgroup participants would consider out of scope?* • *Are there areas not covered that are important to include?* • *What level of information sharing between workgroup updates would be useful?* • *What types of information from each workgroup would participants want shared want shared?* • *Additional topics raised by workgroup participants*
11:45 am	Observer and Public Comment
11:55	Closing and next steps • *Next workgroup meetings* • *Workgroup participation status updates*

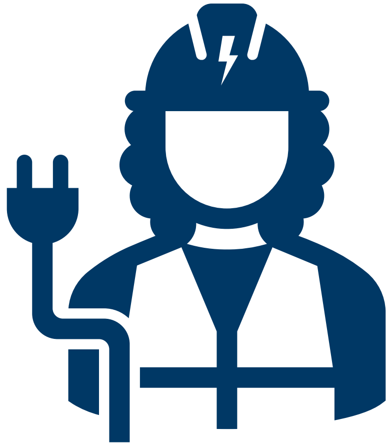
Minnesota Public Utilities Commission

- Consists of five Commissioners – appointed by the Governor, confirmed by the Senate

- Regulates three service industries: electricity, natural gas, and telephone.

- Mission is to ensure safe, adequate, and efficient utility services at fair and reasonable rates.

- Provides independent professional oversight and regulation of utility service providers in a manner that is consistent with the public interest.



Workgroup Norms

- Prepare for and attend the meetings and conference calls consistently throughout each phase
- Engage actively and respectfully in constructive dialogue during the issue discussions
- Review in a timely manner workgroup materials distributed by Commission staff provided via workgroup listserv or e-dockets
- Develop, when invited, as an organization or a member of an ad hoc subgroup, presentations and/or subtopic materials for consideration by the workgroup at upcoming meetings
- Work toward agreement where possible and, where not possible, clearly articulate differences.

Process

- Commission Staff will take notes and distribute them for workgroup review before publishing them to the docket.
- Decisions by the Commission will be made based on the written record, which will be informed by the workgroups. While workgroup summaries and slides will be filed to the docket, they will not be considered part of the official record.
- Commission Staff aim to serve as facilitators for this process and seek to clarify positions.

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Lead Participant Introductions

Name, Organization, Role, Workgroup(s)

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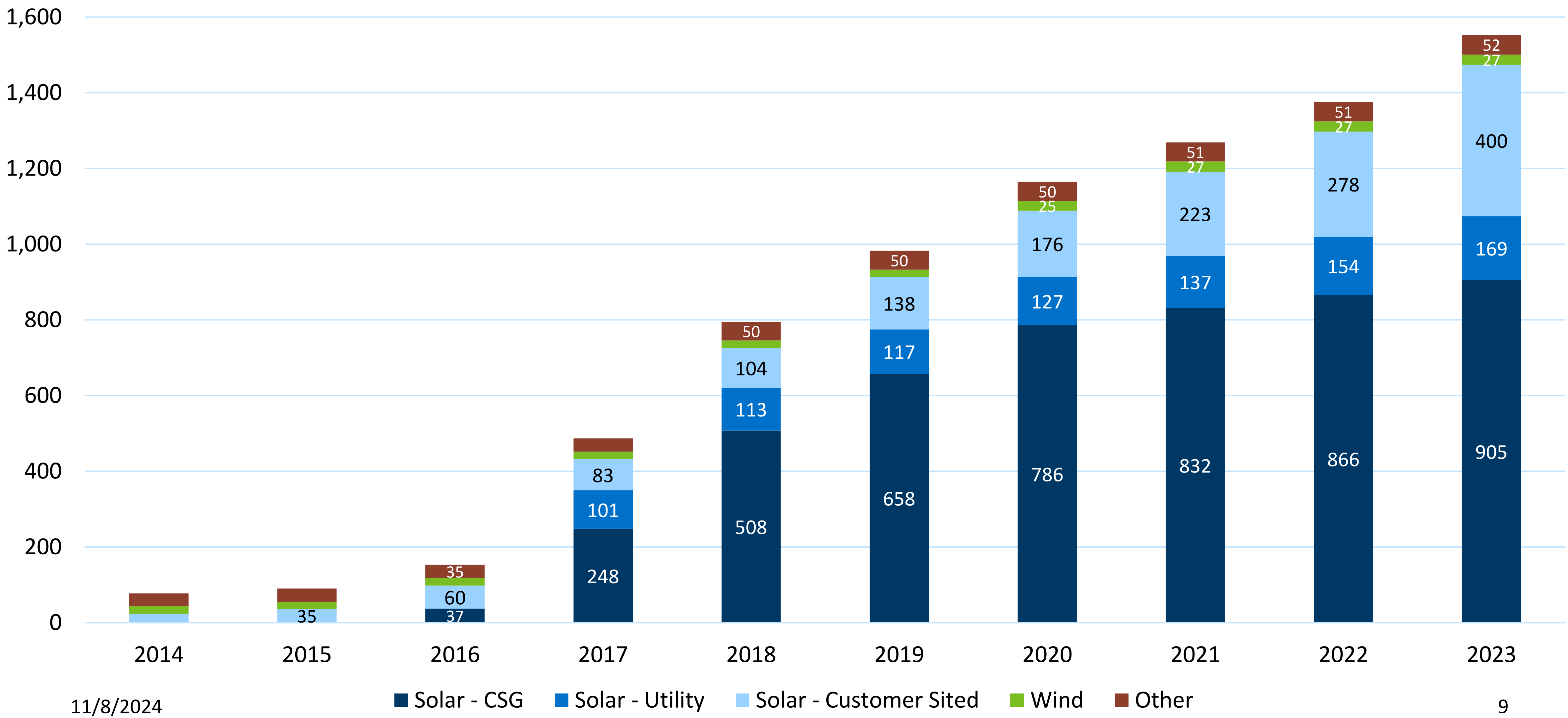
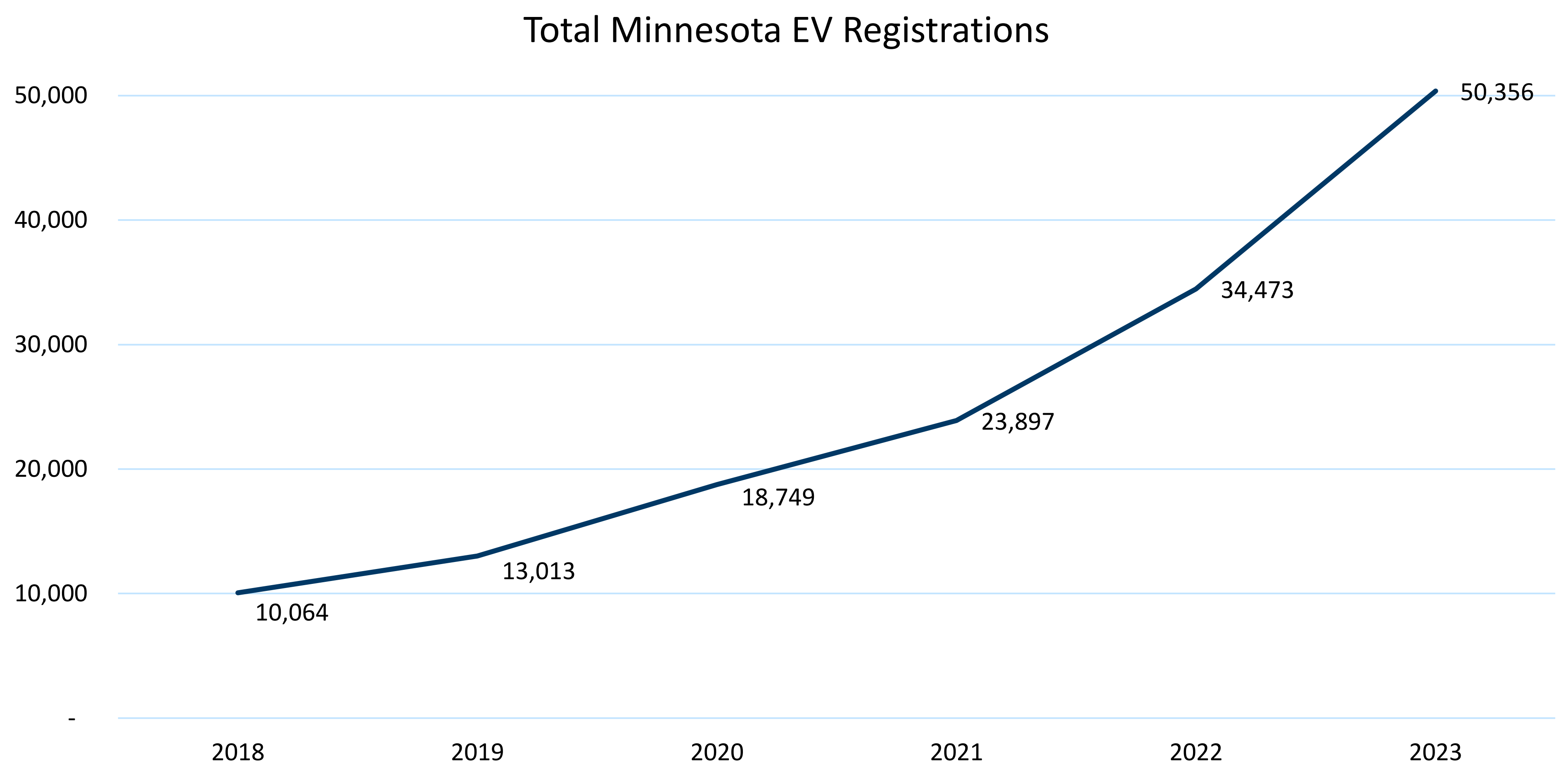
Landscape Overview

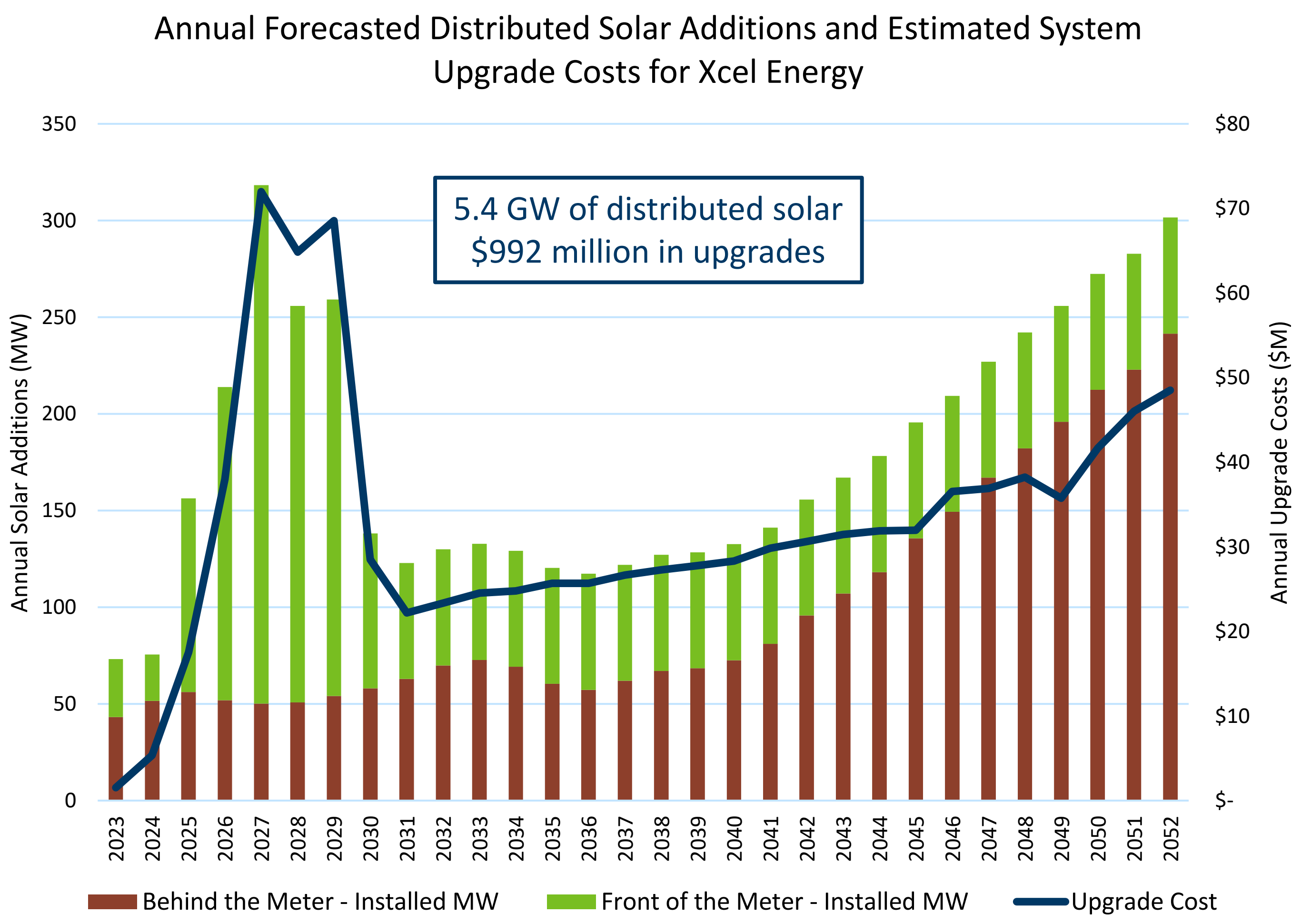
Cumulative Minnesota Installed DER Capacity (MW)

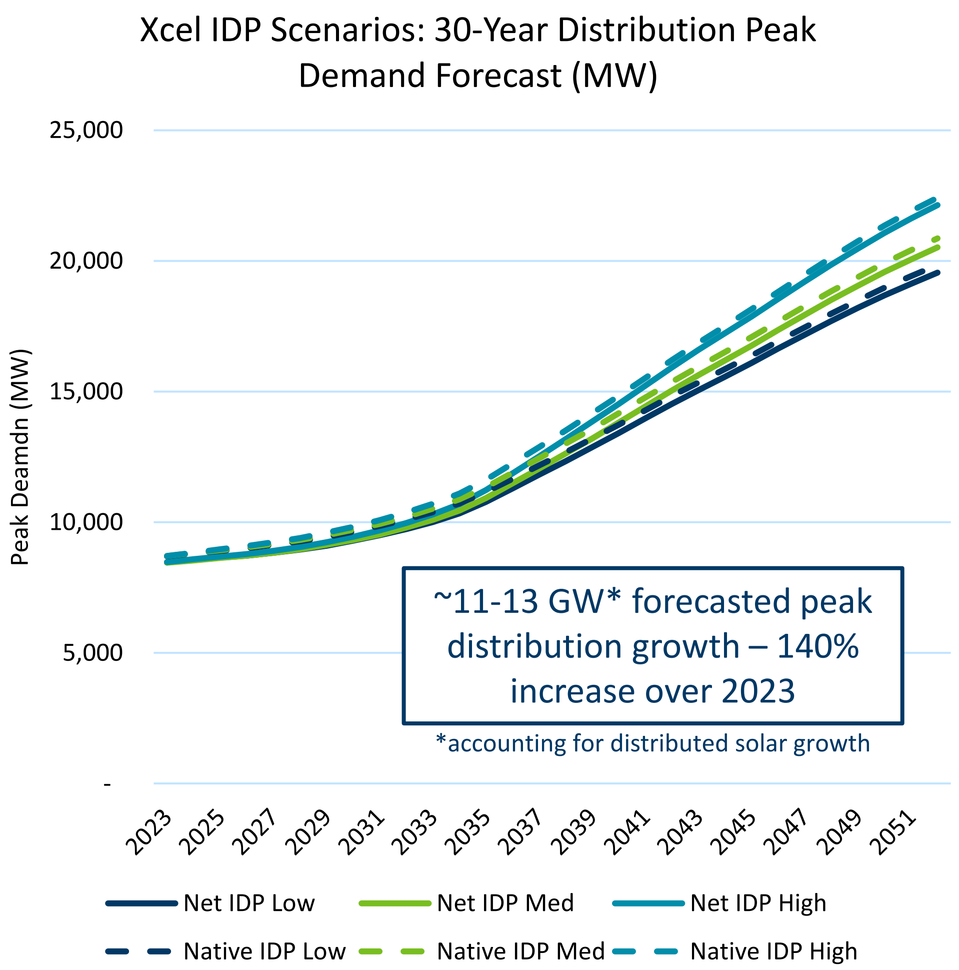


Minnesota EV Registrations



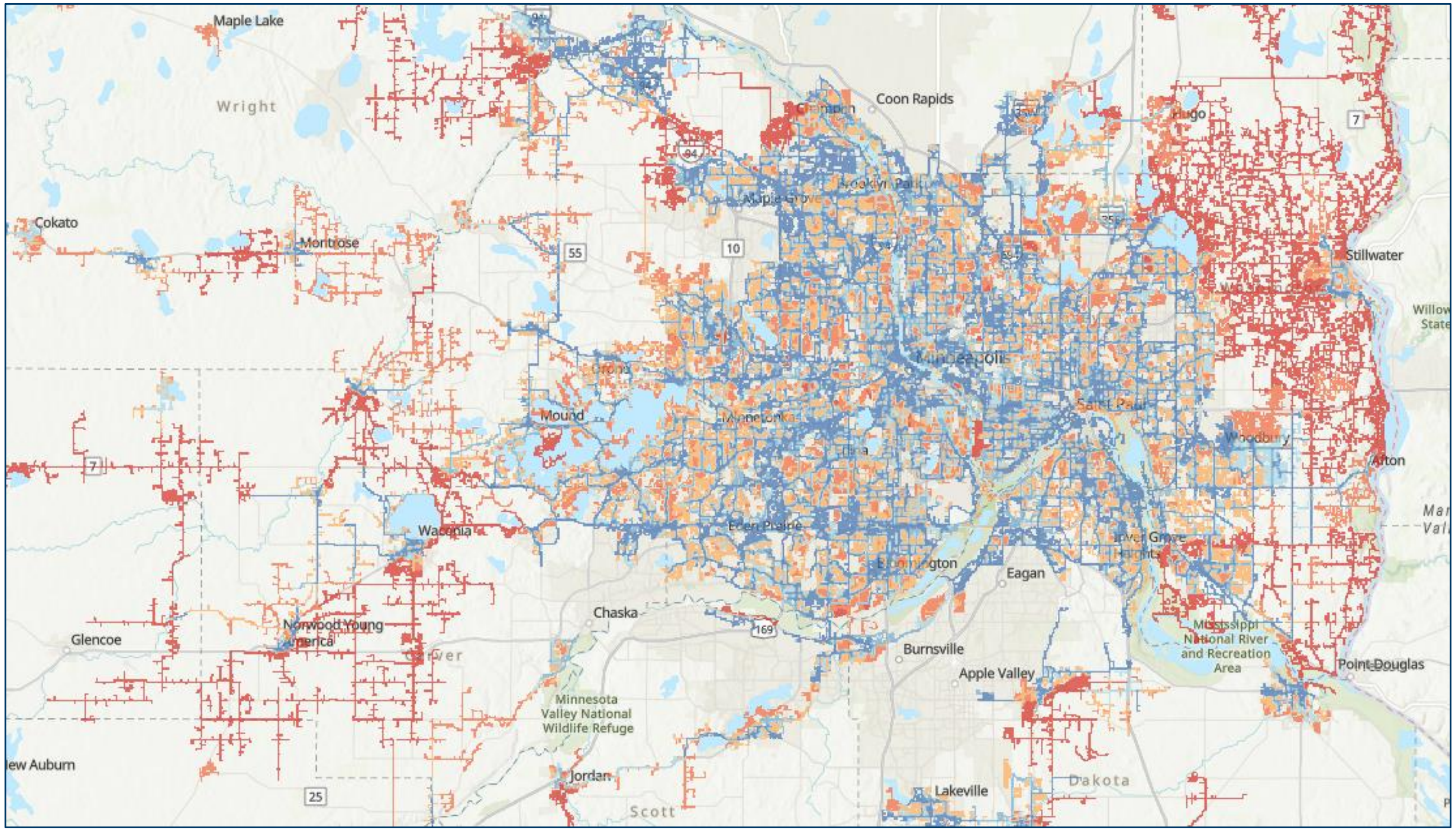
Need to expand distribution system for increasing DERs and electrification





Source: Xcel Energy IDP, Docket 23-453

Distribution System Congestion



Changing Policy Landscape

- Energy Conservation Optimization (ECO) Act
- Inflation Reduction Act rebates
- Transportation electrification + State and Federal EV rebates
- LMI Accessible CSG Program
- Distributed Solar Energy Standard (DSES)
- Continued consumer adoption of solar, storage

Cost Allocation and Upgrades Framework

	Proactive Upgrades	Reactive Upgrades
Shared Cost Allocation	• Build distribution budgets around DER and electrification forecasts. • Assign incremental infrastructure costs via typical class cost allocation methods, e.g., in next rate case. • Benefits customers adopting DER and electrification by reducing or eliminating wait time and cost of interconnection. • Risks include deploying assets that are not used and useful if forecasts are not accurate, the potential for shifting costs of upgrades onto non-benefitting customers, and risk of inequitable investments.	• Grid upgrades are made in response to individual customer requests. • Costs assigned via typical class cost allocation methods, e.g., in the next rate case. • Benefits customers adopting DER and electrification by eliminating the cost of interconnection; benefits ratepayers by ensuring upgrades are used and useful. • Risks include continued wait-times in the interconnection process, the potential for shifting costs of upgrades onto non-benefitting customers, and risk of inequitable investments.
Individually Allocated Costs	• Build distribution budgets around DER and electrification forecasts. • Individual customers, where appropriate, pay a fee to cover their share of the upgrade at time of interconnection. • Benefits customers adopting DER and electrification by reducing or eliminating wait times for interconnection; benefits ratepayers by reducing the costs of upgrades via reimbursement over time. • Risks include deploying assets that are not used and useful if forecasts are not accurate, and the potential for shifting costs of upgrades onto non-benefitting customers if forecasts or reimbursement fees are not accurate.	• Grid upgrades are made in response to individual customer requests. • Individual customers, where appropriate, pay a fee to cover their share of the upgrade at time of interconnection. • For the most part the model in place today • Benefit is ensuring upgrades are used and useful. • Risks include wait time and interconnection costs for DER and electrification customers.

Source: Fresh Energy Initial Comments, Xcel Energy IDP, Docket 23-452

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Questions/Discussion

Existing Distribution Planning and Upgrades Processes

Utility Upgrades Overview

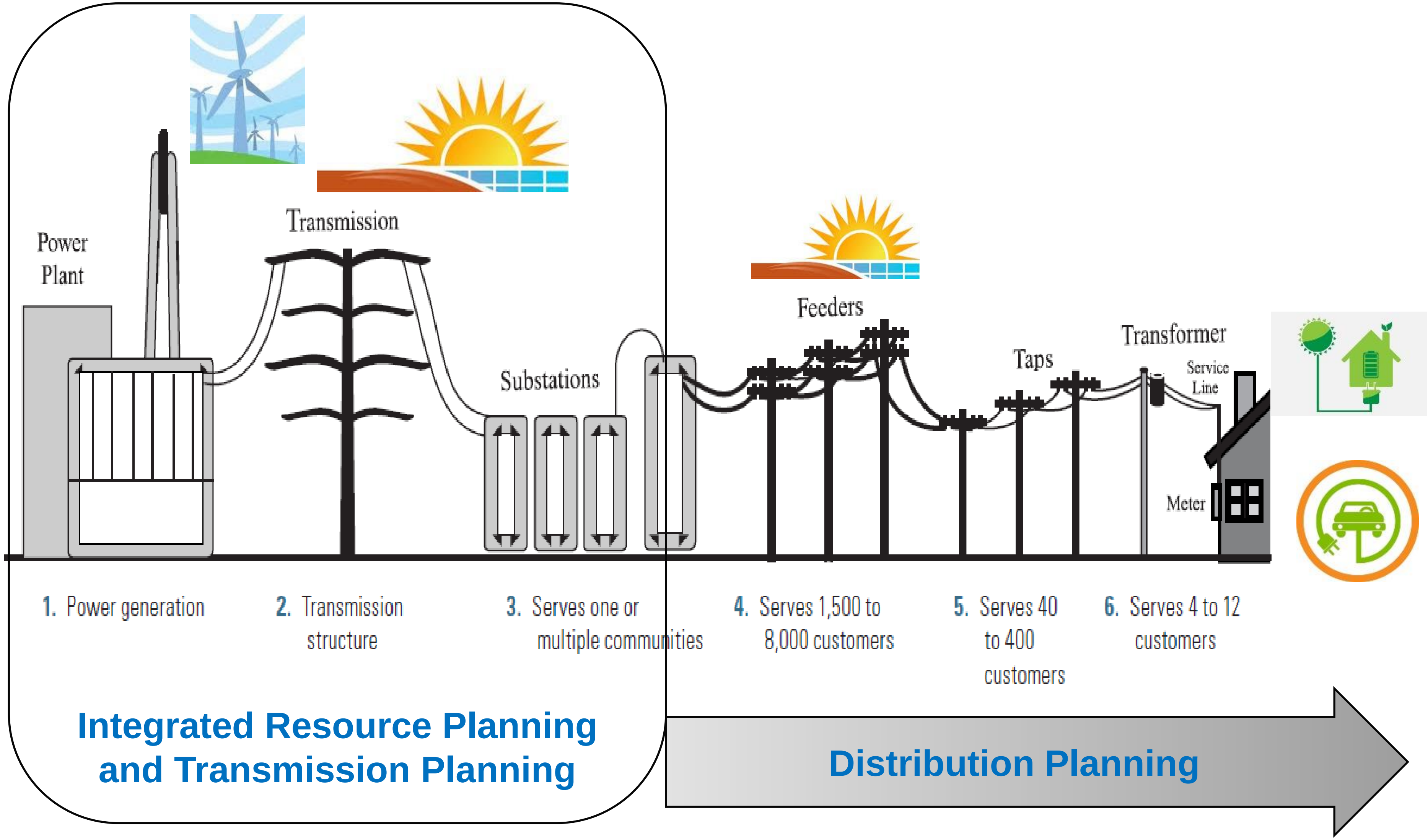
- High level steps for the distribution upgrade process (planning, design, equipment procurement, construction)
- What are the reasons that a utility upgrades the distribution system?
- When does a utility start planning for an upgrade and how long does it take to plan and implement?
- What types of equipment are upgraded?
- How does a utility determine how much capacity to include for a capacity upgrade?
- For non-capacity upgrades is it typical to gain additional capacity?
- When there is a developer-initiated upgrade, is there additional capacity that is made available beyond what is necessary for that interconnection?
- How does a capacity upgrade differ for load vs generation?

CURRENT UPGRADE PROJECT PLANNING PROCESS

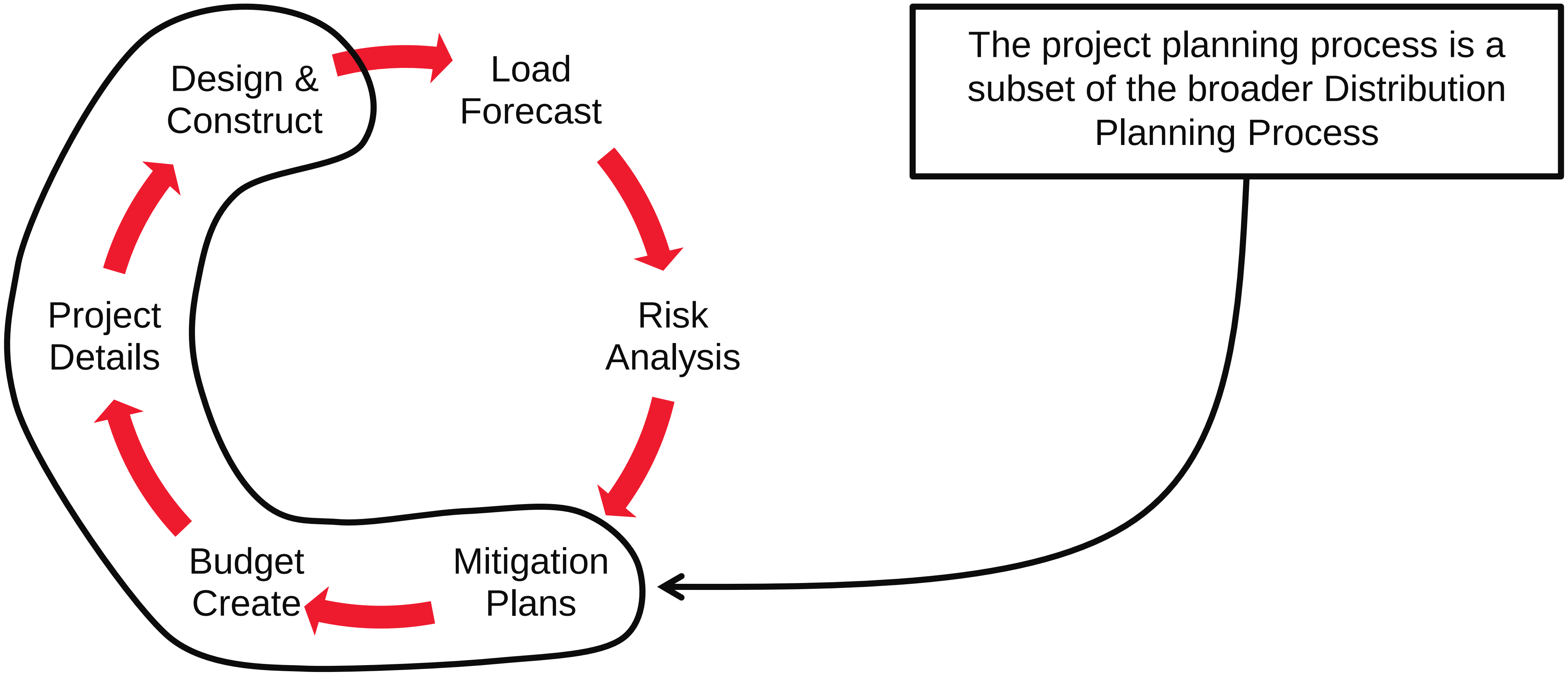
Dean Schiro | Manager, DER Integration
Brian Monson | Manager, Regulatory Affairs

8 November 2024

Electric Power System Planning



Fundamental Distribution Planning Process



Reasons for Upgrading the Distribution System

Load-Driven

- Capacity deficiency identified
  - Feeder or substation transformer loading exceeds planning limit – historical or forecasted
  - Could be caused by individual customer(s) adding load (cost causation), or general increasing usage from customers over time
  - Install nearest standard equipment size that provides mitigation
- End of life replacement of assets
  - Replace with nearest standard equipment size
- Power quality, reliability, or resiliency concerns
  - Replace with nearest standard equipment size

Generation-Driven

- Interconnection Screen/Study identifies mitigation on a per project basis (cost causation)
  - Feeder or substation transformer exceeds limits
  - Voltage performance (over-voltage, under-voltage, flicker)
  - Protection system (site recloser, feeder recloser, fusing, …)
  - Replace with nearest standard equipment size that provides mitigation

Types of Upgrade Projects

Load-Driven

- Upgrade capacity of existing feeder circuit
  - Could include reconductoring, replacing existing equipment, or voltage conversion
- Extend existing feeder circuit
- Install new feeder circuit
- Upgrade capacity of existing substation equipment
- Install new substation transformer
- Install new substation

Reconfiguration of existing feeders or load transfers may or may not be included with any of the above

Generation-Driven

- Upgrade capacity of existing feeder circuit
  - Could include reconductoring, replacing existing equipment, or voltage conversion
- Reconductor feeder to mitigate voltage performance
- Extend existing feeder circuit
- Install new feeder circuit
- Upgrade capacity of existing substation equipment
- Install new substation transformer
- Install new substation
- Install Voltage Supervisory Reclosing

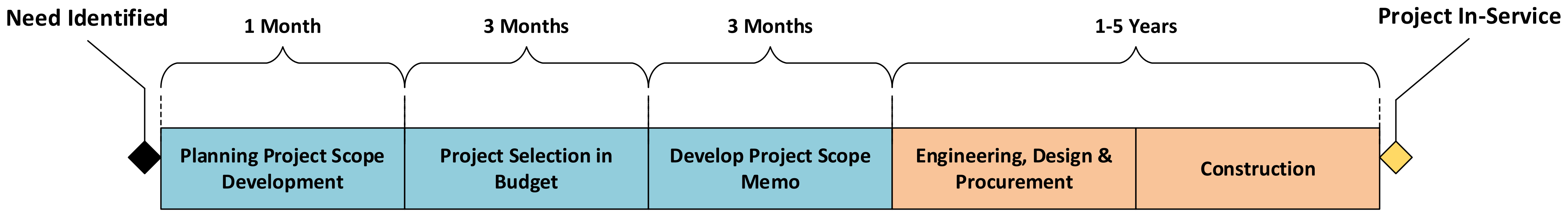
Types of Equipment Upgraded

Same for Both Load- and Generation-Driven Upgrades

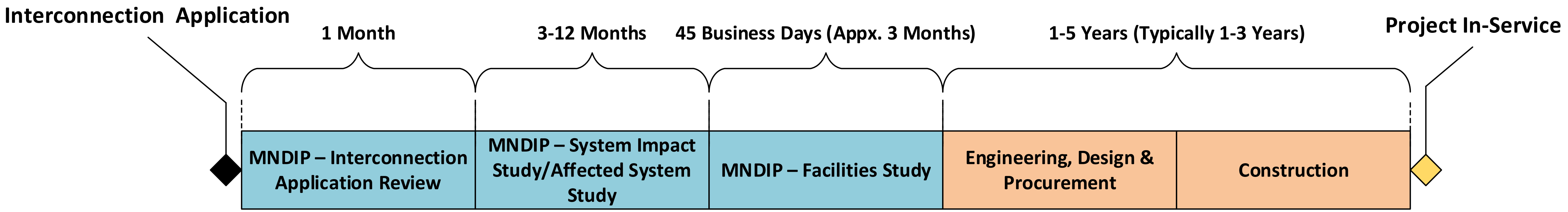
- Substation Equipment ~ 2-4 years lead time
  - Transformer
  - Reactor
  - Regulator
  - Circuit breaker
  - Metal-clad switchgear
- Feeder Equipment ~ 1-2 years lead time
  - Overhead conductor
  - Underground cable
  - Voltage regulator
  - Recloser
  - Service transformer

Project Planning Process – Upgrade Timeline

Load-Driven



Generation-Driven

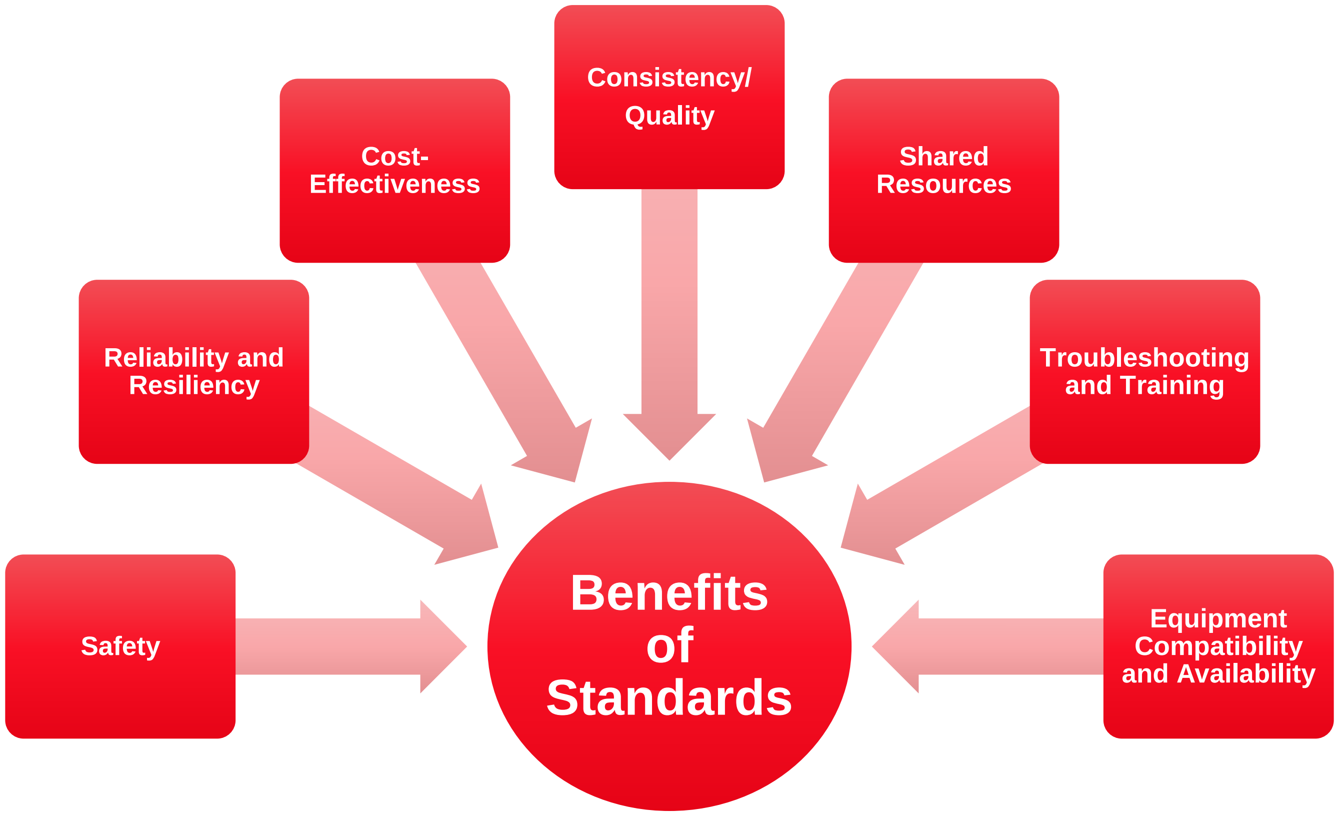


Capacity Increases Resulting from Upgrades

Reason for Upgrade	Capacity Increase from Upgrade
Capacity Deficiency	Capacity increased to **nearest standard size** that mitigates capacity deficiency
End of Life Replacement	Like-for-like replacement with **nearest standard size** – may result in capacity increase when equipment being replaced is obsolete size
Power Quality, Reliability, or Resiliency Concerns	Like-for-like replacement with **nearest standard size** – may result in capacity increase when equipment being replaced is obsolete size
DER Interconnection Screen/Study Identifies Mitigation	Capacity increased to **nearest standard size** that mitigates criteria violation

Importance of Following Standards

Good utility practice requires the use of standard operating procedures and material



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Additional Utility Input

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Questions/Discussion

Break

10:30 – 10:45

Workgroup Scope

Proactive Grid Upgrade Workgroup

- Create a framework for Xcel Energy to help evaluate proposed proactive upgrade spending
- Will look at upgrades for generation and load
- Guided by Commission Order
- Planning upgrades based on forecasted need

DER Cost Sharing Workgroup

- Create generic standards for the sharing of upgrade costs amongst developers
- "Market" or Developer driven upgrades for generation
- Guided by Minnesota Statute

Proactive Workgroup Order Language

September 16, 2024, Order, Docket 23-452, Xcel Energy IDP

14. The Commission delegates authority to the Executive Secretary to establish a stakeholder process to develop a framework on cost allocation and proactive upgrades for Xcel. The stakeholder workgroup may also include Dakota Electric Association, Minnesota Power, and Otter Tail Power if they wish to participate. The Commission sets the following guidelines for the process:
    a. The goal of the workgroup is to develop a framework for proactive upgrades and cost allocation for Commission consideration and possible adoption.
    b. The process does not need to reach consensus but should aim to clearly identify areas of agreement and disagreement to facilitate a Commission decision.
    c. The Commission establishes a goal of completing the stakeholder process by July 1, 2025. At the conclusion of the process there will be a notice and comment period on any framework followed by a Commission decision.
    d. The framework should address, at minimum, the following topics
        i. How to allocate the costs of proactive upgrades.
        ii. How to ensure any proactive upgrades are distributed in an equitable manner throughout a utility's service territory.
        iii. If costs are socialized among ratepayers, whether portions of the upgraded capacity should be reserved for certain customer classes.
        iv. How a proactive upgrade program would integrate with a utility's planned distribution investment programs.
        v. How a utility's other capacity programs and changes to distribution standards impact available hosting capacity.
        vi. How to determine where and when there is a need for proactive upgrades using forecasted DER and load adoption.
        vii. Whether there should be changes to any of a utility's service policy provisions such as Contributions In Aid of Construction (CIAC).

DER Cost Sharing Workgroup Legislation

Minnesota Session Laws – 2024, Regular Session, Chapter 126, Article 6, Section 53

(a) No later than September 1, 2024, the commission must initiate a proceeding to establish by order generic standards for the sharing of utility costs necessary to upgrade a utility's distribution system by increasing hosting capacity or applying other necessary distribution system upgrades at a congested or constrained location in order to allow for the interconnection of distributed generation facilities at the congested or constrained location and to advance the achievement of the state's renewable and carbon-free energy goals in Minnesota Statutes, section 216B.1691 and greenhouse gas emissions reduction goals in Minnesota Statutes, section 216H.02. The tariff standards must reflect an interconnection process designed to, at a minimum:

(1) accelerate the expansion of hosting capacity at multiple points on a utility's distribution system by ensuring that the cost of upgrades is shared fairly among owners of distributed generation projects seeking interconnection on a pro rata basis according to the amount of the expanded capacity utilized by each interconnected distributed generation facility;
(2) reduce the capital burden on owners of trigger projects seeking interconnection;
(3) establish a minimum level of upgrade costs an expansion of hosting capacity must reach in order to be eligible to participate in the cost-share process and below which a trigger project must bear the full cost of the upgrade;
(4) establish a distributed generation facility's pro rata cost-share amount as the utility's total cost of the upgrade divided by the incremental capacity resulting from the upgrade, and multiplying the result by the capacity of the distributed generation facility seeking interconnection;
(5) establish a minimum proportion of the total upgrade cost that a utility must receive from one or more distributed generation facilities before initiating constructing an upgrade;
(6) allow trigger projects and any other distributed generation facilities to pay a utility more than the trigger project's or distributed generation facility's pro rata cost-share amount only if needed to meet the minimum threshold established in clause (5) and to receive refunds for amounts paid beyond the trigger project's or distributed generation facility's pro rata share of expansion costs from distributed generation projects that subsequently interconnect at the applicable location, after which pro rata payments are paid to the utility for distribution to ratepayers;
(7) prohibit owners of distributed generation facilities from using any unsubscribed capacity at an interconnection that has undergone an upgrade without the distributed generation owners paying the distributed generation owner's pro rata cost of the upgrade; and
(8) establish an annual limit or a formula for determining an annual limit for the total cost of upgrades that are not allocated to owners of participating generation facilities and may be recovered from ratepayers under section 216B.16, subdivision 7b, clause (6).

Not In Scope

- Xcel Energy Technical Planning Standard
  - Ongoing litigation
- Changes to Interconnection Standards
  - Discussed in the DGWG
- Programmatic changes to existing programs or new program proposals
  - Discussed in program dockets, rate cases, IDPs, etc.
- New data/reporting requirements
  - Discussed in Distribution Data Workgroup, IDPs, etc.

Potential interactions between processes

- How to account for areas that may have both proactive and reactive upgrades
- What will the process for upgrades look like down the road when everything is up and running?
- What happens if developers wait for proactive upgrades instead of using the reactive option?
- What voice do developers have in where proactive upgrades happen, especially for front of the meter installations?
- What if there are difference in cost recovery and cost allocation between the two processes?
- How far down the road are we making proactive investments and how does that impact whether developers use the reactive option?
- What if there are difference between how front of the meter vs behind the meter generation are treated in the two processes, including capacity reservations for either type of generation?
- How does increasing load growth factor in?

Discussion

- Reactions to scope and crossover between workgroups.
- Are there other topics that workgroup participants would consider out of scope?
- Are there areas not covered that are important to include?
- What level of information sharing between workgroup updates would be useful?
- What types of information from each workgroup would participants want shared want shared?
- Additional topics raised by workgroup participants.

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Observer and Public Comment

Wrap Up and Next Steps

Future Meetings – Proactive Grid Upgrade Workgroup

Phase 1	November 15, 2024 9:30 am – 12:00 pm	First Workgroup Meeting
Phase 2 (tentative dates and topics)	December 13, 2024	Second Workgroup Meeting • Forecasting DER and load adoption for proactive upgrades • Determining the location of proactive upgrades • Equitable distribution of proactive upgrades
	January 24, 2025	Third Workgroup Meeting • Impact of changes in distribution planning standards and other initiatives to available hosting capacity • Coordination of proactive upgrades with other planned utility investments
	February 21, 2025	Fourth Workgroup Meeting • Cost allocation of proactive upgrades • Reservation of upgrade capacity for customer classes • Changes to other utility service policy provisions
Phase 3 (tentative)	March 2025	Draft Framework Published
	April 2025	Initial Comments Due
	May 2025	Reply Comments Due
	Q3 2025	Agenda Meeting

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Kit Gomez
kit.gomez@state.mn.us

Future Meetings – DER Cost Sharing Workgroup

Phase 1	November 22 12:30 pm – 3:30 pm	First Working Meeting
Phase 2	January 10, 2025	Second Working Group Meeting
	February 7, 2025	Third Working Group Meeting
	March 7, 2025	Fourth Working Group Meeting, if needed
Phase 3	April 2025	Proposals Due
	May 2025	Initial Comments Due
	June 2025	Reply Comments Due
	Q3	Agenda Meeting

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Kit Gomez
kit.gomez@state.mn.us

Change Workgroup Participation Status

- Requests to observe may be sent at any point through the process – please file a letter if you are a new organization
- Deadline to change to participant status for the Proactive Grid Upgrade Workgroup is November 15, 2024
- Deadline to change to participant status for the DER Cost Sharing Workgroup is November 26, 2024
- For changes to existing participant status please email lead Commission Staff for the designated workgroup.

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Appendix

Related PUC Proceedings

Docket	In the Matter of	Topics Covered
13-867	Petition for Approval Xcel Energy's CSG Program	Legacy CSG program
16-521	Request for Approval of an Update to its Generic Standards for Interconnection and Operation of Distributed Generation Facilities	Distributed Generation Working Group (DGWG) – responsible for ongoing updates to the statewide interconnection standards (MNDIP) and related matters
18-714	Modifications to Xcel's Interconnection Tariff	Xcel Energy's implementation of MNDIP and related matters
20-800	Grid and Customer Security Issues: Grid Data	Security of information shared about the distribution grid
23-258 23-380 23-420 23-452	Minnesota Power's 2023 Integrated Distribution Plan Otter Tail Power Company's 2023 Integrated Distribution Plan Distribution System Planning for Dakota Electric Association Xcel Energy's 2023 Integrated Distribution Plan	Utility's 2023 IDPs- budgets, long range plans, forecasts. Next filed Nov 1, 2025. Ongoing IDP improvement workgroups (incl. Distribution Data Workgroup)
23-335	Implementation of 2023 Legislative Changes to Xcel Energy's Community Solar Garden Program	Implementation of New CSG program
23-403	Distributed Solar Energy Standard	Implementation of Minn. Stat. 216B.1691, Subd. 2h for investor-owned utilities
23-424	Formal Complaint and Request for Relief by the Minnesota Solar Advocates against Xcel Energy.	Complaint against Xcel Energy's Technical Planning Standard (TPS) – under litigation
24-10	Annual Utility Distributed Generation Interconnection Reports	Annual reporting on DERs on the system of MN's 175 distribution utilities
24-370	2024 Hosting Capacity Analysis Report	Report on Xcel Energy's Hosting Capacity Analysis

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		Boratha Tan	btan@votesolar.org	Observer
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Proactive Grid Upgrade Workgroup Roster

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MINNESOTA
PUBLIC UTILITIES COMMISSION

Proactive Grid Upgrades Workgroup

Friday, November 15, 2024
9:30 am – 12:00 pm
Minnesota PUC Large Hearing Room and WebEx

Logistics and Technology

- Virtual Lead Participants – please have your camera on. Use the raise hand feature or if there is a pause feel free to jump in.
- Please refrain from using the chat function as those in the room will have a difficult time seeing it.
- In the room – you must be at a microphone to be heard on the webcast.
- Bathrooms are on the first floor, at the breaks Commission Staff can also let folks into the Commission bathrooms.
- For any tech issues during the meeting please either privately message or contact Kit Gomez: kit.gomez@state.mn.us.

Agenda

9:30 am	Welcome and introductions • *Overview of Agenda* • *Workgroup Norms*
9:45 am	Process and Deliverables • *Timeline and meeting schedule* • *Deliverables and regulatory process* • *Discussion*
10:30 am	Information and Scope for Phase 2 meetings • *What information to have ahead of meetings* • *Subtopics or questions for discussion*
10:45 am	Break
11:00 am	• Discussion of topics from Nov 8 meeting • Discussion of terms and definitions
11:45 am	Observer and Public Comment
11:55	Closing and next steps • *Next workgroup meetings* • *Workgroup participation status updates*

Lead Participants

- Phil Jones, Alliance for Transportation Electrification
- Nick Bowman, CCSA*
- George Damian, CEEM*
- Alex Nelson, Dakota Electric Association
- Daniel Tikk, Department of Commerce
- Erica McConnell, ELPC
- Rachel Wiedewitsch, Fresh Energy
- Shay Banton, IREC
- Jess McCullough, Minnesota Power
- Sarah Whebbe, MNSEIA
- Kate Tohme, New Leaf Energy
- Matthew Melewski, Nokomis Energy
- Peter Scholtz, Office of the Attorney General
- Mal Skowron, Tesla
- Will Kenworthy, Vote Solar
- Brian Monson, Xcel Energy

* indicates new workgroup participant since Nov 8 meeting

Workgroup Norms

- Prepare for and attend the meetings and conference calls consistently throughout each phase
- Engage actively and respectfully in constructive dialogue during the issue discussions
- Review in a timely manner workgroup materials distributed by Commission staff provided via workgroup listserv or e-dockets
- Develop, when invited, as an organization or a member of an ad hoc subgroup, presentations and/or subtopic materials for consideration by the workgroup at upcoming meetings
- Work toward agreement where possible and, where not possible, clearly articulate differences.

Process

- Commission Staff will take notes and distribute them for workgroup review before publishing them to the docket.
- Decisions by the Commission will be made based on the written record, which will be informed by the workgroups. While workgroup summaries and slides will be filed to the docket, they will not be considered part of the official record.
- Commission Staff aim to serve as facilitators for this process and seek to clarify positions.
- Guided by the Commission’s September 16, 2024 Order in Docket 23-452

Proactive Workgroup Order Language

September 16, 2024, Order, Docket 23-452, Xcel Energy IDP

14. The Commission delegates authority to the Executive Secretary to establish a stakeholder process to develop a framework on cost allocation and proactive upgrades for Xcel. The stakeholder workgroup may also include Dakota Electric Association, Minnesota Power, and Otter Tail Power if they wish to participate. The Commission sets the following guidelines for the process:
    a. The goal of the workgroup is to develop a framework for proactive upgrades and cost allocation for Commission consideration and possible adoption.
    b. The process does not need to reach consensus but should aim to clearly identify areas of agreement and disagreement to facilitate a Commission decision.
    c. The Commission establishes a goal of completing the stakeholder process by July 1, 2025. At the conclusion of the process there will be a notice and comment period on any framework followed by a Commission decision.
    d. The framework should address, at minimum, the following topics
        i. How to allocate the costs of proactive upgrades.
        ii. How to ensure any proactive upgrades are distributed in an equitable manner throughout a utility's service territory.
        iii. If costs are socialized among ratepayers, whether portions of the upgraded capacity should be reserved for certain customer classes.
        iv. How a proactive upgrade program would integrate with a utility's planned distribution investment programs.
        v. How a utility's other capacity programs and changes to distribution standards impact available hosting capacity.
        vi. How to determine where and when there is a need for proactive upgrades using forecasted DER and load adoption.
        vii. Whether there should be changes to any of a utility's service policy provisions such as Contributions In Aid of Construction (CIAC).

Workgroup Products

- "Develop a framework for proactive upgrades and cost allocation for Commission consideration and possible adoption"
  - What level of specificity should the framework entail?
  - What does the process for approving proactive upgrades look like? For example, should the framework include a scorecard to evaluate individual upgrades?
  - How should the framework be written?
    - For example, workgroup member could write sections of framework based on prior meetings – may have two options if there is not agreement.
    - Commission Staff would compile a draft framework as a starting point for a comment period.

Phase 2 Proposed Schedule

December 13, 2024	Second Workgroup Meeting • Forecasting DER and load adoption for proactive upgrades • Determining the location of proactive upgrades • Equitable distribution of proactive upgrades
January 24, 2025	Third Workgroup Meeting • Impact of changes in distribution planning standards and other initiatives to available hosting capacity • Coordination of proactive upgrades with other planned utility investments
February 21, 2025	Fourth Workgroup Meeting • Cost allocation of proactive upgrades • Reservation of upgrade capacity for customer classes • Changes to other utility service policy provisions

- Goal: determine contents of framework
- Questions for input:
  - Length and time of meetings
    - keep 9-noon Friday timeframe?
    - More time? Less time?
  - Is this enough meetings?

Phase 3 Proposed Timeline

March 2025	Draft Framework Published
March 2025	Workgroup meeting?
April 2025	Initial Comments Due
May 2025	Reply Comments Due
Q3 2025	Agenda Meeting

- Goal: develop formal record for Commission decision
- Would a meeting after a draft framework is published be helpful?
- To hit July 1 timeframe, extension requests during comment periods unlikely – important to focus efforts on framework development during workgroup

Regulatory Process for Approving Proactive Upgrades

- Step 1: Determine the need
  - Forecast of load, generation
  - Evaluation of forecast validity
- Step 2: Identify where upgrades are required
  - Risk analysis and mitigation options
  - Coordination with non-capacity projects
  - List and prioritization of upgrades
- Step 3: Project design and construction

- Where should this process occur?
  - IDP, rate case, etc.
- At what points should should the PUC collect input? For example, should the forecast be evaluated before upgrades are proposed, and how would regulatory lag impact that process?
- How often should this cycle occur?

Budget and Cost Recovery

- Overall budget and cost recovery
  - Does overall budget determine the number of proactive upgrades?

  OR

  - Does the number of proactive upgrades determine the overall budget?
- How does cost recovery occur in conjunction with the prior slide?
- Workgroup will not determine specific budget amounts but may be informed by information from Xcel’s 2023 IDP about the potential scope of upgrade costs.

Second Workgroup Meeting
December 13, 2024

- Topics Covered:
  - Forecasting DER and load adoption for proactive upgrades
  - Determining the location of proactive upgrades
  - Equitable distribution of proactive upgrades

- What information do participants want on each topic ahead of the meeting?

- What subtopics or questions would participants like to see discussed?

Third Workgroup Meeting
January 24, 2025

- Topics Covered:
  - Impact of changes in distribution planning standards and other initiatives to available hosting capacity
  - Coordination of proactive upgrades with other planned utility investments

- What information do participants want on each topic ahead of the meeting?
- What subtopics or questions would participants like to see discussed?

Fourth Workgroup Meeting
February 21, 2025

- Topics Covered:
  - Cost allocation of proactive upgrades
  - Reservation of upgrade capacity for customer classes
  - Changes to other utility service policy provisions

- What information do participants want on each topic ahead of the meeting?
- What subtopics or questions would participants like to see discussed?

Break

10:30 – 11:00

Topics Raised at Joint Workgroup Meeting

Where do these topics fit in with the proposed schedule? Anything missing?

- Overall cost of proactive upgrades and how that relates to affordability
- Need for additional transparency into costs and what is driving upgrades, especially for generation
- How Flexible Interconnection can avoid the need for upgrades, and what technologies are needed to enable it
- Sharing of resources/examples from other jurisdictions
- How the timing of proactive investments interact with planned reactive investments
- What information customers can provide to help utility with planning proactive investments
- Impact of capacity reservation systems, legislative preference for projects 40kW and under

Definitions

- Proactive Upgrade Definition - starting point for discussion
  - For capacity: an upgrade made based on a forecasted need outside the traditional planning cycle
  - For non-capacity: an upgrade made before equipment reaches end of life or failure
- What other terms need definitions at outset of workgroup?

Time Horizons

- How far out is an upgrade considered to be “proactive?”
- How far out should a forecasted need trigger a proactive upgrade?
  - 5 years, 10 years, 15 years…
  - Would this differ if a non-capacity upgrade was necessary and there was an opportunity to also do a capacity upgrade?

Cost Allocation

- Goal to have alignment between proactive and reactive processes for cost allocation – should not be a measurable financial difference between choosing proactive or reactive upgrade path.
- Opportunity for participants to share initial thoughts/positions cost allocation
  - Differences between cost allocation for front/behind the meter
  - Capacity reservation for 40kW and under

Opportunity for additional topics

- Any other topics to discuss at the outset of the process?

Process Feedback

- After discussion, additional thoughts about timing and number of meetings for Phase 2?
- Thoughts on the timing and steps of Phase 3?
- Opportunity to send additional feedback or requested information/subtopics to Staff for inclusion in future meetings by November 22, 2024.

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Observer and Public Comment

Wrap Up and Next Steps

Scheduled Meetings

Phase 1	November 15, 2024 9:30 am – 12:00 pm	First Workgroup Meeting
Phase 2 (tentative dates and topics)	December 13, 2024	Second Workgroup Meeting • Forecasting DER and load adoption for proactive upgrades • Determining the location of proactive upgrades • Equitable distribution of proactive upgrades
	January 24, 2025	Third Workgroup Meeting • Impact of changes in distribution planning standards and other initiatives to available hosting capacity • Coordination of proactive upgrades with other planned utility investments
	February 21, 2025	Fourth Workgroup Meeting • Cost allocation of proactive upgrades • Reservation of upgrade capacity for customer classes • Changes to other utility service policy provisions
Phase 3 (tentative)	March 2025	Draft Framework Published
	April 2025	Initial Comments Due
	May 2025	Reply Comments Due
	Q3 2025	Agenda Meeting

PUC Staff Contacts:

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Resources and readings for future meetings

- Please email any resources to hanna.Terwilliger@state.mn.us – will share first round of resources December 2, 2024.
- Recommended: portions of Xcel Energy’s 2023 Integrated Distribution Plan filed Nov 1, 2023 (MN PUC Docket 23-452)
  - Appendix A1: System Planning
  - Appendix E: Distributed Energy Resources, System Interconnection, and Hosting Capacity
  - Appendix I: Distribution System Upgrades
- Watch for meeting notes from Nov 8 for review.

Appendix

Related PUC Proceedings

Docket	In the Matter of	Topics Covered
13-867	Petition for Approval Xcel Energy's CSG Program	Legacy CSG program
16-521	Request for Approval of an Update to its Generic Standards for Interconnection and Operation of Distributed Generation Facilities	Distributed Generation Working Group (DGWG) – responsible for ongoing updates to the statewide interconnection standards (MNDIP) and related matters
18-714	Modifications to Xcel's Interconnection Tariff	Xcel Energy's implementation of MNDIP and related matters
20-800	Grid and Customer Security Issues: Grid Data	Security of information shared about the distribution grid
23-258 23-380 23-420 23-452	Minnesota Power's 2023 Integrated Distribution Plan Otter Tail Power Company's 2023 Integrated Distribution Plan Distribution System Planning for Dakota Electric Association Xcel Energy's 2023 Integrated Distribution Plan	Utility's 2023 IDPs- budgets, long range plans, forecasts. Next filed Nov 1, 2025. Ongoing IDP improvement workgroups (incl. Distribution Data Workgroup)
23-335	Implementation of 2023 Legislative Changes to Xcel Energy's Community Solar Garden Program	Implementation of New CSG program
23-403	Distributed Solar Energy Standard	Implementation of Minn. Stat. 216B.1691, Subd. 2h for investor-owned utilities
23-424	Formal Complaint and Request for Relief by the Minnesota Solar Advocates against Xcel Energy.	Complaint against Xcel Energy's Technical Planning Standard (TPS) – under litigation
24-10	Annual Utility Distributed Generation Interconnection Reports	Annual reporting on DERs on the system of MN's 175 distribution utilities
24-370	2024 Hosting Capacity Analysis Report	Report on Xcel Energy's Hosting Capacity Analysis

Proactive Grid Upgrade Workgroup Roster

Organization	Membership	Representative	Email	Designation
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Proactive Grid Upgrades Workgroup

Friday, December 13, 2024
9:00 am – 12:00 pm
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- For any tech issues during the meeting please either privately message or contact Kit Gomez: kit.gomez@state.mn.us.

Agenda

Time	Topic
9:00 am	Welcome/overview
9:10 am	Workgroup Schedule and Process Updates • *Updated Schedule* • *Formation of Subgroups* • *Informational Sessions*
9:25 am	Discussion and feedback on draft Framework Outline
9:45 am	Forecast and LoadSEER discussion • *Questions on LoadSEER prerecorded presentation* • *Topics from draft Framework outline*
10:30 am	Break
10:45 am	Presentation by Cody Davis from Electric Power Engineers on how to determine the location and equitable distribution of proactive upgrades.
11:15 am	Discussion • *Question/responses to EPE presentation* • *Topics from draft Framework outline*
11:45 am	Observer and Public Comment
11:55	Wrap up and next steps

Lead Participants

- Phil Jones, Alliance for Transportation Electrification
- Nick Bowman, CCSA
- George Damian, CEEM
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Proactive Workgroup Order Language

September 16, 2024, Order, Docket 23-452, Xcel Energy IDP

14. The Commission delegates authority to the Executive Secretary to establish a stakeholder process to develop a framework on cost allocation and proactive upgrades for Xcel. The stakeholder workgroup may also include Dakota Electric Association, Minnesota Power, and Otter Tail Power if they wish to participate. The Commission sets the following guidelines for the process:
    a. The goal of the workgroup is to develop a framework for proactive upgrades and cost allocation for Commission consideration and possible adoption.
    b. The process does not need to reach consensus but should aim to clearly identify areas of agreement and disagreement to facilitate a Commission decision.
    c. The Commission establishes a goal of completing the stakeholder process by July 1, 2025. At the conclusion of the process there will be a notice and comment period on any framework followed by a Commission decision.
    d. The framework should address, at minimum, the following topics
        i. How to allocate the costs of proactive upgrades.
        ii. How to ensure any proactive upgrades are distributed in an equitable manner throughout a utility's service territory.
        iii. If costs are socialized among ratepayers, whether portions of the upgraded capacity should be reserved for certain customer classes.
        iv. How a proactive upgrade program would integrate with a utility's planned distribution investment programs.
        v. How a utility's other capacity programs and changes to distribution standards impact available hosting capacity.
        vi. How to determine where and when there is a need for proactive upgrades using forecasted DER and load adoption.
        vii. Whether there should be changes to any of a utility's service policy provisions such as Contributions In Aid of Construction (CIAC).

Updated Workgroup Schedule (Meetings)

Date	Event
Dec 13, 2024, 9am-12pm	Proactive Upgrade Workgroup Meeting 2 • Forecasting DER and load adoption for proactive upgrades • Determining the location of proactive upgrades • Coordination of proactive upgrades with other planned utility investments • Equitable distribution of proactive upgrades
Dec 18, 2024, 1pm-3pm	Info Session (Virtual) – Lessons from other jurisdictions
Jan 10, 2025, 1pm-3pm	Info Session (Virtual) – Upgrades costs, Xcel Energy
Jan 24, 2025 9am-12pm	Proactive Upgrade Workgroup Meeting 3 • Review of draft language • Additional discussion from Meeting 2 • Non-location specific proactive measures • Coordination with developers and reactive upgrades • Impact of changes in distribution planning standards and other initiatives to available hosting capacity
Week of Feb 3	Info Session (Virtual) – existing cost allocation and cost recovery practices
Feb 14, 2025, 9am-12pm	Proactive Upgrade Workgroup Meeting 4 • Review of draft language • Cost allocation of proactive upgrades • Reservation of upgrade capacity for customer classes • Changes to other utility service policy provisions
Mar 21, 2025, 9am-12pm	Proactive Upgrade Workgroup Meeting 5 • Discussion of draft framework
July 2025	Proactive Upgrade Framework Agenda Meeting

Updated Workgroup Schedule (Framework)

Date	Event
Jan 13, 2025	• Draft language on process, baseline info, forecast, site proposals, and proposal evaluation due • Proposals on cost allocation and capacity reservations due
Feb 3, 2025	• Draft language on non-site proposals, coordination with developers/reactive upgrades, reporting, and impacts to standards due • Revised language on process, baseline info, forecast, site proposals, and proposal evaluation due
Feb 21, 2024	• Revised language on non-site proposals, coordination with developers/reactive upgrades, reporting, and impacts to standards due • Draft language on cost allocation and capacity reservations due
March 1	Final deadline for language revisions for draft framework
Mar 10, 2025	Draft Framework for Proactive Upgrades sent to workgroup
Mar 17, 2025	Redlines to draft framework due before meeting 5
Mar 27, 2025	Final edits due before framework published
Apr 1, 2025	Proactive Framework published, notice of comment issued
May 1, 2025	Initial Comments due on Proactive Upgrade Framework
May 15, 2025	Reply Comments due on Proactive Upgrade Framework
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Proactive Upgrade Definition

Xcel offered revised version:

Proactive Upgrade: a~~n~~ capacity upgrade made solely based on a forecasted need outside the traditional planning cycle.

Framework Outline Feedback

- Intended to outline areas where language will need to be developed for the final framework. Bullet points will be expanded/replaced with more detailed language.
  - Dakota Electric – good starting point. Concern about it being part of IDP due to current process where IDPs are “accepted” not “approved.” Recommend filing as separate document that coincides with IDP filing.
  - Xcel (red) and the Department (green) provided edits to the document.

Proposed Language Drafting Process

- Xcel, ELPC/VS, the Department offered to assist with writing framework language.
- Propose to draft the language by outline section, deadlines noted below
- For cost allocation and reservations, have initial proposals with positions before formal language is written

Framework Section	Draft Language	Revised Language		Coordinator	Members
Process	Jan 13	Feb 3	Final Draft Language: Mar 1 Redlines to Framework: March 17 Final Revisions : March 27	PUC Staff	
Baseline Info	Jan 13	Feb 3			
Forecast	Jan 13	Feb 3			
Site Proposals	Jan 13	Feb 3			
Proposal Evaluation	Jan 13	Feb 3			
Non-Site Proposals	Feb 3	Feb 21			
Coordination w/Reactive	Feb 3	Feb 21			
Reporting	Feb 3	Feb 21			
Impacts to utility standards	Feb 3	Feb 21			
Cost Allocation; Reservations	Proposal: 13 Jan Language: Feb 21	Mar 1			

Process, Baseline Information

Process

a. Submit proposal for proactive upgrades with IDP due on November 1 of odd numbered years.

b. The proposal will align with the framework, and the Commission will determine sites of projects and approve the proposed plan as part of the IDP.

c. Cost recovery for approved upgrades occurs in rate case, with Commission approval from the IDP as the basis for a prudency review

d. Ongoing change to the framework - propose to reconvene the workgroup after the first round of upgrades goes through IDP to discuss changes

Baseline information provided with each submission:

a. What types of upgrades are currently available (may change over time based on utility capabilities), what issues they resolve, and general cost for each type of upgrade

b. Outline of future upgrade options (flexible interconnection, load flex, storage) and on what timeline they may be available

Redlines – Process, Baseline Information

Process

a. Utilities may propose proactive upgrades in IDPs due on November 1 of odd numbered years.

b. Proposals may include investments planned for up to five years from the date of the IDP.

c. Proposals must demonstrate alignment with the framework; the Commission will review proposals and approve, deny, or modify the proposed plans as part of the IDP.

d. Expenditures for approved upgrades shall be tracked as regulatory assets and/or receive deferred accounting treatment. *(PUC staff proposes to move discussion of this item to Meeting 4)*

e. Utilities may pursue cost recovery for approved upgrades through rate cases, with Commission approval from the IDP as the basis for a prudency review.

f. Utilities shall pursue cost recovery through a separate proceeding with Commission approval from the IDP as the basis for a prudency review. (Staff)

g. The framework is subject to refinement. The first review to occur after the first round of upgrade proposals go through an IDP cycle. ~~–~~ Commission Staff to reconvene the workgroup discuss potential changes.

Baseline information provided with the IDP:

~~a.~~ ~~What~~ The types of upgrade~~s~~ projects and programs that fit within the framework and are currently ~~available~~ considered when developing proposals (may change over time based on utility capabilities), what issues they resolve, and general cost for each type of upgrade

b. Outline of future upgrade options (~~flexible interconnection, load flex,~~ such as storage) and on what timeline they may be available

c. Summary of upgrades that had been previously proposed for proactive consideration but have since been accelerated and completed due to a short-term/reactive need.

LoadSEER Questions

- Can Xcel provide more information about the spatial allocation process for FTM solar? IDP Appendix A1 refers to consideration of land availability for FTM allocation, but what other factors determine the spatial allocation? In addition, does the consideration of land availability differentiate DSES and CSG projects or would they both be allocated to the same areas? *(Department)*
- Around the 22 min mark, Xcel showed a breakdown of expected L2 and DCFC charging needs for a fleet customer site. Can Xcel confirm this data comes from top-down EV adoption forecasts and geospatial analysis that IDs commercial/industrial zones, fleet size, and then estimates fleet charging needs? *(Tesla)*
- Can Xcel manually update service details for future potential adoption points based on informal conversations with customers on size of fleet, anticipated charging needs, etc, ahead of a formal interconnection request? If so, how would that impact the confidence level of expected charging needs for each customer site? *(Tesla)*
- Can resource operating profiles (i.e., the set of 8760 hourly magnitudes of the load/generation being added) for light/heavy EV charging and other forecast load/generation additions be shared? How are these profiles generated? *(ELPC)*
- Can Xcel create resource operating profiles for new/proposed programs or model potential changes to existing programs to study the impact within the forecast? *(ELPC)*
- Can LoadSEER model geotargeted programs focused on specific geographic or electrical (i.e., substation/circuit) footprint? For example, locational demand-side management or demand response? *(ELPC)*
- How is the relative confidence in the forecast assessed or communicated at the feeder, substation, and system level? How are the individual added load/generation node confidence values incorporated? *(ELPC)*

Forecast Topics from Draft Outline

a. Outline what the utility will submit, and at what granularity, and for what resource/load types

b. Outline how far out the forecast should go and at what point the forecast is deemed too speculative on which to base an upgrade

c. Discuss the process for review and input by participants

d. Contain an assessment of existing available hosting capacity for generation and load

Redline - Forecast Topics from Draft Outline

a. Outline what the utility will submit, and at what granularity, and for what resource/load types for justifying an individual project's fit within the framework.

b. Outline how far out the forecast should go and at what point the forecast is deemed too speculative on which to base an upgrade

c. Discuss the process for ~~review and~~ gathering input ~~by~~ from participants and communities.

d. Contain an assessment of existing available hosting capacity for generation and load

Break

10:30 – 11:00

Proactive Capacity Planning

Identifying Suitable Locations and Equity Impacts

Cody Davis – On Behalf of the Environmental Law and Policy Center (ELPC), GridLab, Vote Solar

Overview

Proactive Planning Approach

Proactive Planning departs from established investment justification practices

- Higher risk of under-utilized investment
- Higher risk of “not useful” rate increases

Consequently, it should only be used where it provides the <u>best method to achieve specific goals</u>

<u>Equity Consideration – What is “fair” for customers to expect?</u>

ELECTRIC POWER ENGINEERS

Location Specific Goals

Considerations For Where To Invest

Anticipate Adoption Speed

Coordinate Impacts

Efficiency

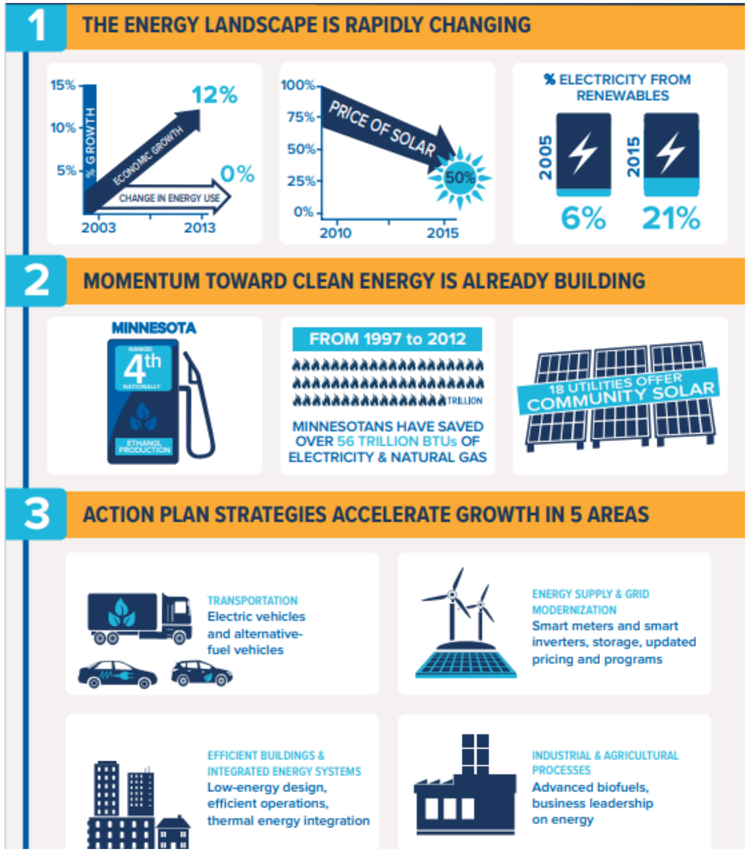
Anticipate Adoption Speed

Anticipate Adoption Speed

Location Specific Goal

- **Prevent <u>construction timelines</u> from blocking clean energy adoption and electrification**
  - Aligns with state policy

- **Location Specific Investments:** Focus on areas with a high risk of growth occurring faster than construction timeline
  - Forecast accuracy/granularity are critical



[Minnesota's Energy Action Plan]

ELECTRIC POWER ENGINEERS

Anticipate Adoption Speed

Small Customer Growth

- Planning for high growth areas is similar to existing processes, but with **additional risk**
- Upgrades to provide capacity for **residential and small commercial growth** are clear frontrunners when prioritizing proactive investments
  - More feasible and reliable forecasting
  - Closer alignment with existing cost-recovery mechanisms
- **Ex:** Forecasting EV and solar for residential vs fleets for C&I

ELECTRIC POWER ENGINEERS

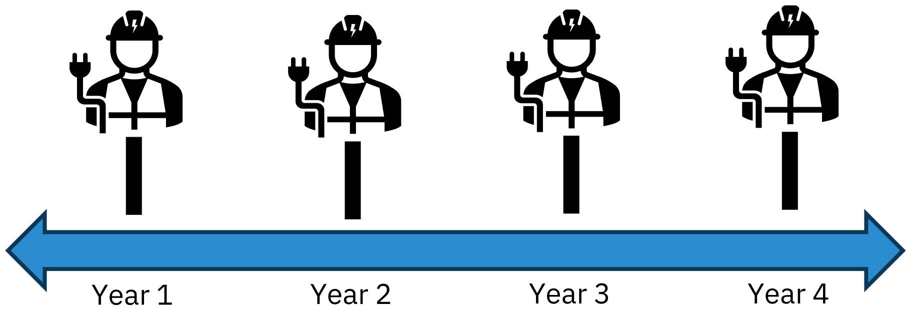
Coordinate Impacts

Coordinate Impacts

Location Specific Goal

- Spread **<u>rate impact</u>** and **<u>construction</u>** out over an appropriate amount of time to prevent:
  - Rate shock
  - Construction bottlenecks
  - Resource procurement bottlenecks

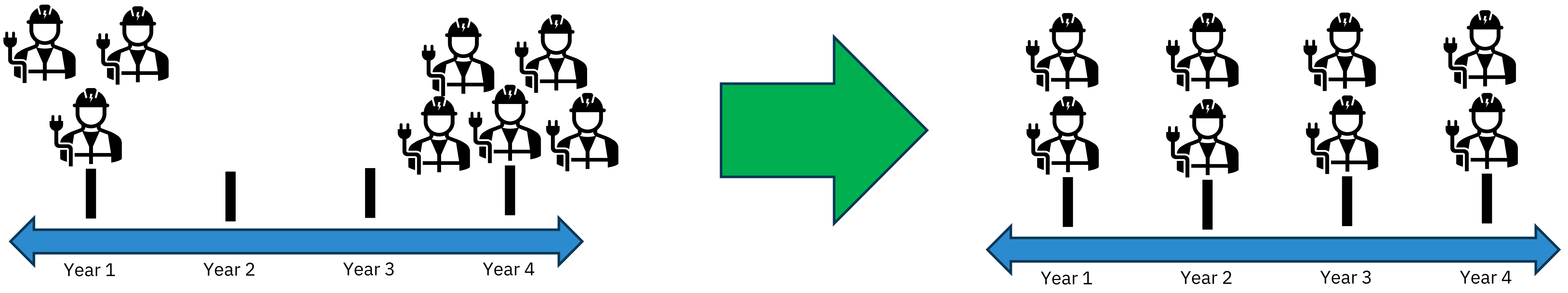
- Only applicable if volume of upgrades or construction costs increase significantly above the historical baseline



Coordinate Impacts

Workforce and Logistics Limitations

- Workforce limitations can make it impractical or costly to construct **<u>too many facilities</u>** in a given year
  - Scarcity of specialized labor
  - Scarcity of materials and equipment
  - Limited System Switching Capability
  - Limited Availability of Mobile Substations



Coordinate Impacts – Example Actions

Standards Updates and Low-Risk Procurement

- Build additional stock of long-lead time materials (can be deployed anywhere)
  - Regulator/LTC Controllers
  - Service Transformers
  - Substation Transformers

- Land and right-of-way / easement procurement for expected new substations, feeders, or substation expansions

- Consider future needs and adoption in standards and design practices
  - Ex: Service Transformer Sizing Calculations

Efficiency

Efficiency

Location Specific Goal

- Minimize overall spending by **pairing proactive investments with other project or maintenance work** to reduce overall cost

- **For specific locations:** Focus on areas where it's more efficient to make a proactive upgrade alongside other work

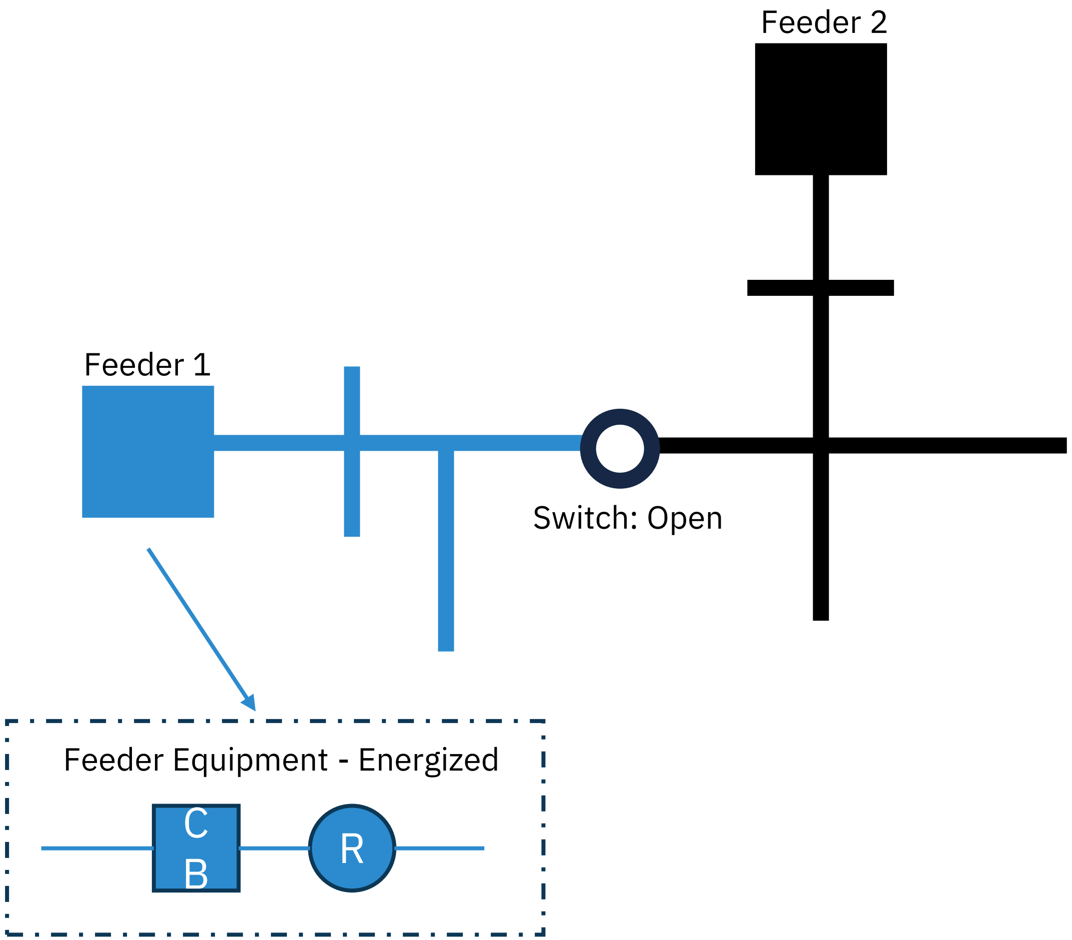
- **Process: Identity needs, flag opportunities**
  - Ex: Feeder outage for maintenance, good opportunity for low-cost modifications (regulator / LTC controller changeouts)

- **Requires significant utility inter-department coordination**

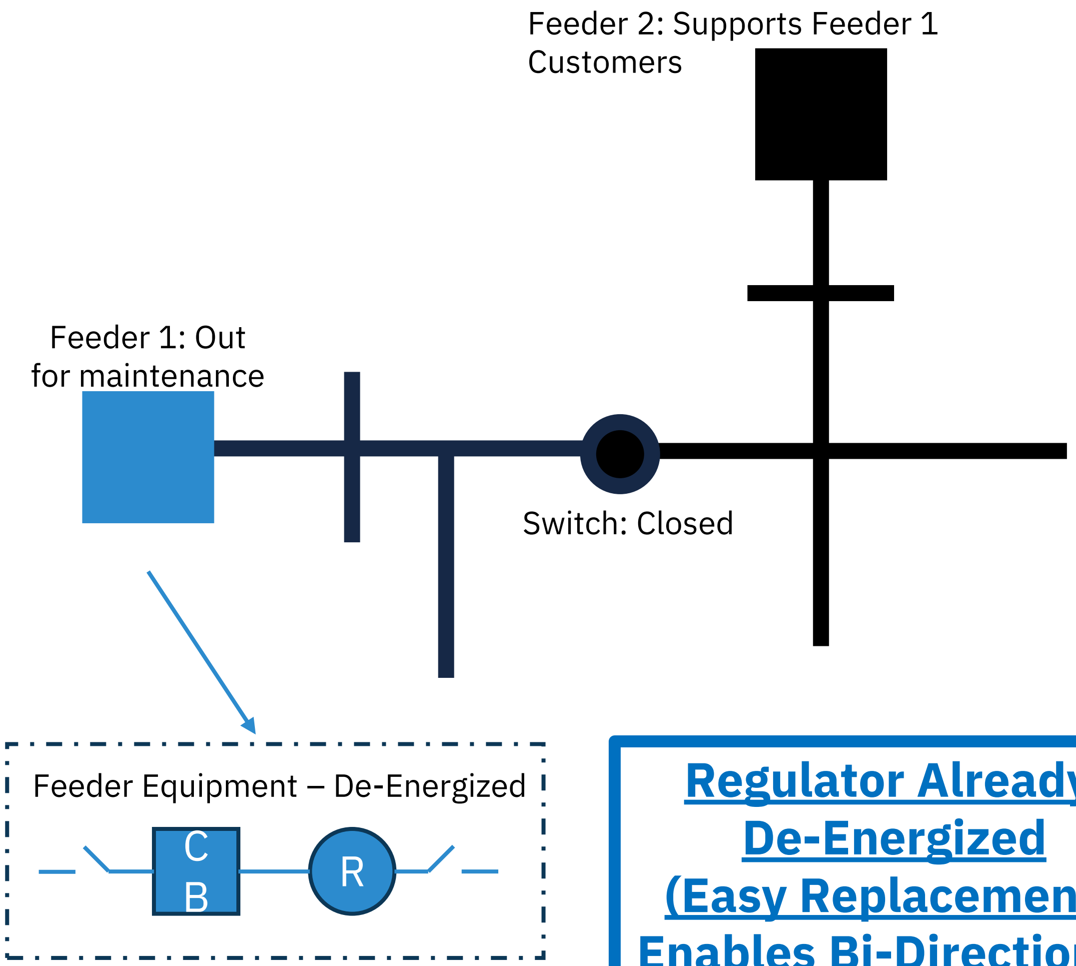
ELECTRIC POWER ENGINEERS

Feeder Switching for Breaker Maintenance – Regulator Controller Upgrade

Normal Configuration



Maintenance Configuration



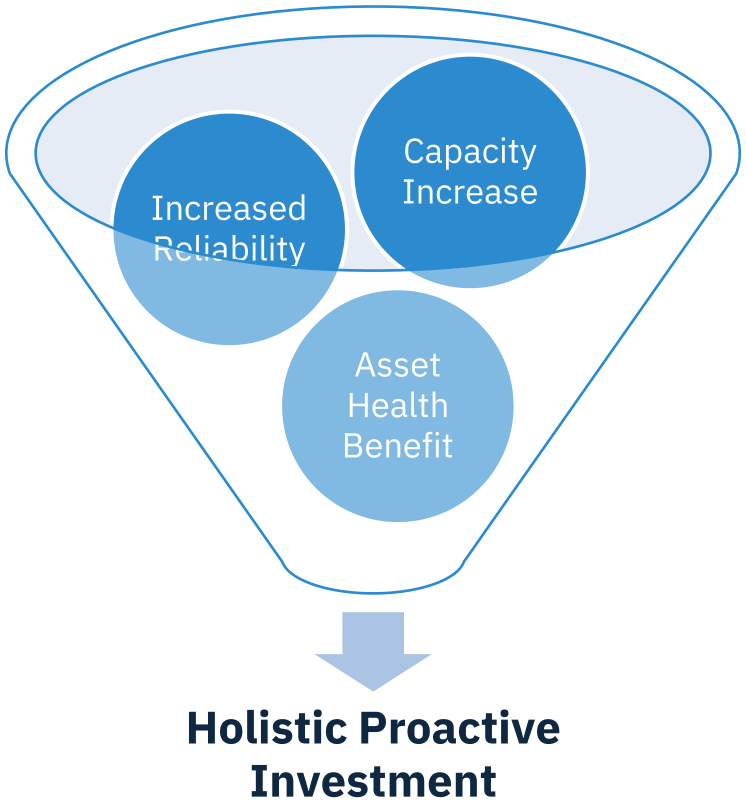
Regulator Already De-Energized (Easy Replacement. Enables Bi-Directional Power Flow)

Efficiency

Diverse Benefit Streams

- Lower risk of stranded capital by investing where capacity is provided **alongside other benefits**

- Most Planning investments have multiple positive impacts
  - Load and DER Hosting Capacity
  - Reliability improvement
  - Asset health improvement

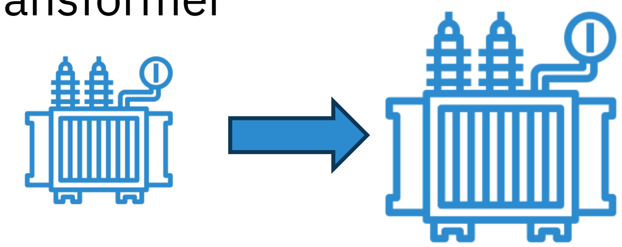


Efficiency

Example Investments with Multiple Benefit Streams

25-year old 10 MVA transformer

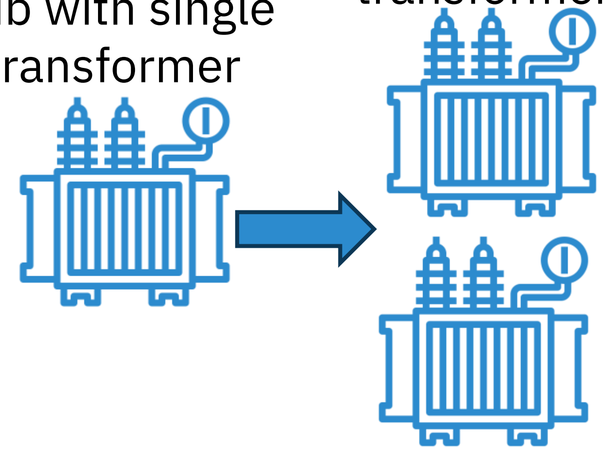
New 22 MVA transformer



Transformer Replacement
- Capacity
- Asset Health
- LTC Controller Upgrade
  - If Present

Sub with single transformer

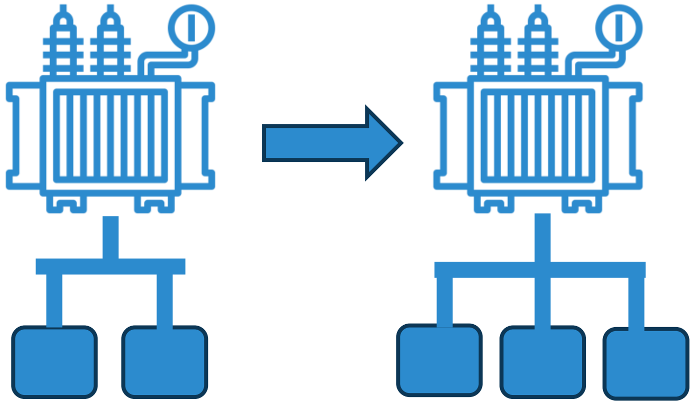
Sub with two transformers



Add Second Transformer
- Capacity
- Reliability
- Switching Flexibility

Transformer with two feeders

Transformer with three feeders



New Substation or Feeder
- Capacity
- Reliability
- Switching Flexibility

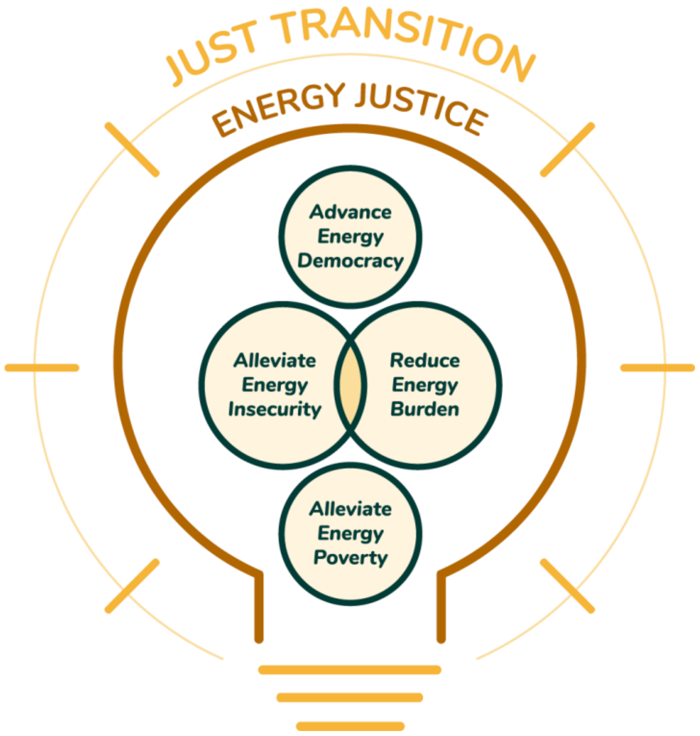
Equity Considerations

Equity Considerations

Considering Equity Impacts

- What is **<u>"fair"</u>** for everyone to expect?
  - Add an EV charger?
  - Add rooftop PV?

- Investing in disadvantaged communities is only valuable if the investment **<u>actually provides a benefit to the community</u>**
  - **Ex:** Reliability improvement



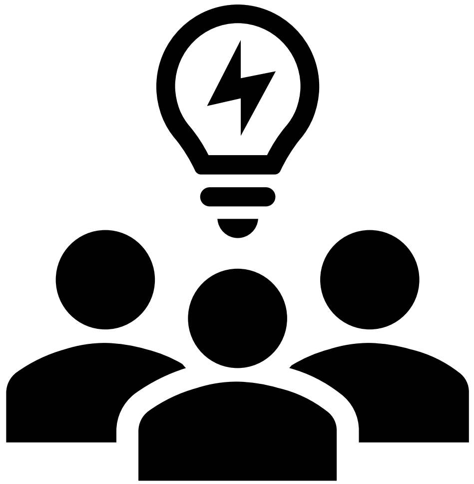
Initiative for Energy Justice

Equity Considerations

Forecasting Reliance

- How likely are forecasts to under-represent the desire for adoption of PV, EV, or other DERs in disadvantaged communities?
    - Forecasts driven by **econometrics and demographics**

- Must balance risk of underinvesting vs risk of building upgrades that are not utilized - while managing **potential forecast bias**



Questions for Location Specific Proactive Investments

How high is confidence in the forecast?

What specific risks result from waiting?

Where are there long construction timelines?

Where are potential construction or material procurement bottlenecks?

What are the current limitations in that area?

What other benefits are achieved by the project?

Who is impacted and how will they benefit?

How will costs be recovered?

EXAMPLE PROACTIVE UPGRADE NEED

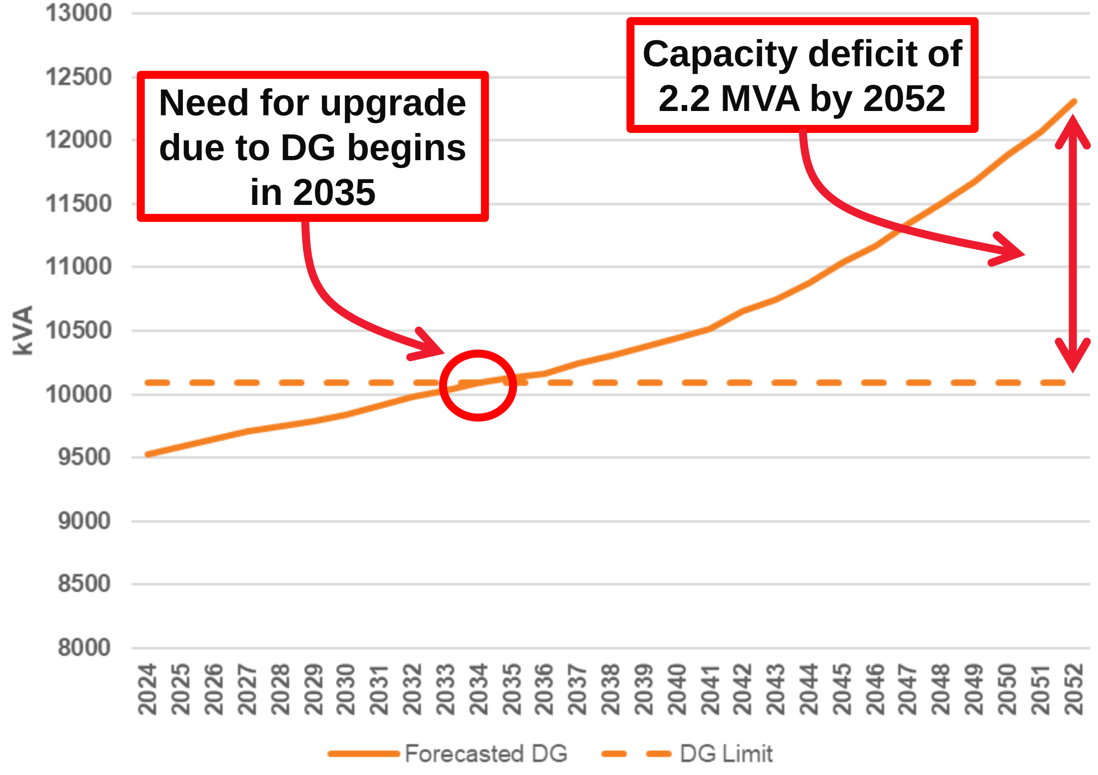
About the Feeder

- 13.8 kV feeder serves part of small city and surrounding rural areas
- Existing DG on feeder is largely comprised of large solar gardens
  - 30-year forecast reflects organic growth of demand in the city, adoption of electrification technologies, and adoption of BTM generation

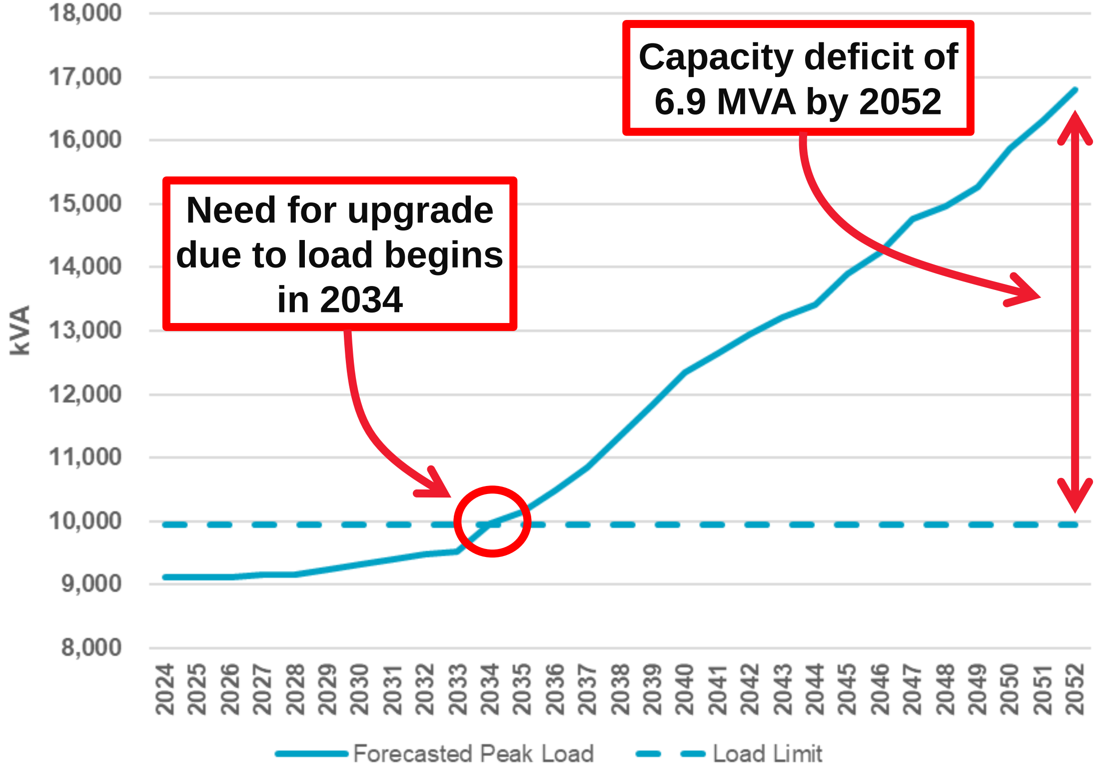
Generation on Feeder	Load on Feeder
• Installed and Queued DG: 9,485 kVA • Technical Planning Standard: 10,094 kVA • Available capacity for DG: 609 kVA	• Historic Peak Demand: 8,494 kVA • Feeder Continuous Rating: 9,943 kVA • Available capacity for load: 1,449 kVA

Forecast Data

Feeder Forecast – Connected DG



Feeder Forecast – Peak Load



Solution Considerations

1. Need for a capacity upgrade beginning in 2034 – driven by both load and generation.
2. Additional capacity of up to 6.9 MVA needed by end of forecast in 2052.
3. Option 1: Feeder is only rated for approximately 10 MVA – upgrading feeder to max possible rating would increase the rating by 4 MVA up to 14 MVA.
   1. **Cost of upgrading feeder: $1M**
   2. This would provide enough capacity to address the forecasted needs for *only* this feeder until 2046, at which point another solution such as a new feeder would be required (Option 2).
4. Option 2: Installing a new feeder at the substation would add 14 MVA of capacity, but would require upgrading the substation transformers to accommodate the additional feeder.
   1. **Cost of upgrading substation transformers and installing a new feeder: $10M**
   2. This would provide enough capacity to address the forecasted needs of both the feeder, and the rest of the substation, through 2052.

Site Identification

a. List of locations that are due for equipment replacement or other upgrades within the planning period with a forecast of expected load and generation growth

b. List of locations that have a forecasted need that are not otherwise due for upgrade or equipment replacement, how far out the need is forecasted

c. Proposal for which sites the utility believes should be updated, the expected type of upgrade at each location, an estimate of the cost of the upgrade, and the capacity gained for both load and generation

d. An analysis of the proposed upgrades and other available capacity to ensure equitable distribution of

e. How to engage with community to ensure upgrades are meeting needs (including discussions with cities that have DER/electrification goals)

Redline - Site Identification

a. ~~List of locations that are due for equipment replacement or other upgrades within the planning period with a forecast of expected load and generation growth~~

b. List of locations that are due for equipment replacement or other upgrades within the planning period with a forecast of expected load and generation growth, including the growth associated with each resource/load type

c. ~~List of locations that have a forecasted need that are not otherwise due for upgrade or equipment replacement, how far out the need is forecasted~~

d. List of locations that have a forecasted need that are not otherwise due for upgrade or equipment replacement, how far out the need is forecasted, including the growth associated with each resource/load type driving the need

e. List of locations of proposed upgrades in submission.

f. List of criteria used to identify site(s) for proactive upgrades

    i. Description of changes to upgrade locations and priorities since last submission in relation to the established criteria.

Redline - Site Identification

g. Proposal for which sites the utility believes should be updated, the expected type of upgrade at each location, an estimate of the cost of the upgrade, ~~and~~ the capacity gained for both load and generation, and how long the upgrade is anticipated to be a viable solution in relation to the forecast.

h. Proposal for which sites the utility believes should be updated, the expected type of upgrade at each location, an estimate of the cost of the upgrade, and the capacity gained for both load and generation, and the number of years after the upgrade for which the forecasted need is met.

i. An analysis of the proposed upgrades and other available capacity to ensure equitable distribution of upgrades.

~~j.~~ ~~How to engage~~ Demonstrate alignment of proposed upgrade with the community's energy objectives. ~~to ensure upgrades are meeting needs (including discussions with cities that have DER/electrification goals)~~

Site Evaluation Criteria

a. Evaluation of the risk of deferring the upgrade
b. Evaluation of forecast uncertainty
c. Evaluation of whether the upgrade does not result in unequitable outcomes
d. Evaluation of remaining existing equipment life and need for replacement
e. Overall cost of project

Redline – Site Evaluation Criteria

Priority ranking of proposed upgrade projects based on the following criteria:

a. Evaluation of the risk of deferring the upgrade
b. Evaluation of forecast uncertainty
c. Evaluation of whether the upgrade does not result in unequitable outcomes
d. Evaluation of remaining existing equipment life and need for replacement
e. Evaluation of how many years the upgrade will meet forecasted capacity needs
f. Overall cost of project, capacity gained, and cost per unit
g. Overall aggregate impact to ratepayers for the combined impact of proactive and reactive cost-shared upgrades.

Proactive upgrades must not already meet criteria for existing asset health, reliability, or capacity programs.

MINNESOTA
PUBLIC UTILITIES COMMISSION

Observer and Public Comment

MINNESOTA
PUBLIC UTILITIES COMMISSION

Wrap Up and Next Steps

MINNESOTA
PUBLIC UTILITIES COMMISSION

Proactive Grid Upgrades Workgroup

Friday, January 24, 2025
9:00 am – 12:00 pm
Minnesota PUC Large Hearing Room and WebEx

Logistics and Technology

- Virtual Lead Participants – please have your camera on. Use the raise hand feature or if there is a pause feel free to jump in.
- Please refrain from using the chat function as those in the room will have a difficult time seeing it.
- In the room – you must be at a microphone to be heard on the webcast.
- Bathrooms are on the first floor, at the breaks Commission Staff can also let folks into the Commission bathrooms.
- For any tech issues during the meeting please either privately message or contact Derek Duran: derek.duran@state.mn.us.

Agenda

Time	Topic
9:00 am	• Welcome/overview • Updates • DER Cost Sharing Workgroup Updates
9:10 am	Discussion on amended scope
9:30 am	Discussion of draft language
10:15 am	Break
10:30 am	Continued discussion of draft language
11:00 am	Discussion: • Non-location specific proactive measures • Coordination with developers and reactive upgrades • Impact of changes in distribution planning standards and other initiatives to available hosting capacity
11:45 am	Observer and Public Comment
11:55 am	Wrap up and next steps

Lead Participants

- Phil Jones, Alliance for Transportation Electrification
- Nick Bowman, CCSA
- George Damian, CEEM
- Alex Nelson, Dakota Electric Association
- Daniel Tikk, Department of Commerce
- Erica McConnell, ELPC
- Will Mulhern, Fresh Energy
- Shay Banton, IREC
- Jess McCullough, Minnesota Power
- Sarah Whebbe, MNSEIA
- Kate Tohme, New Leaf Energy
- Matthew Melewski, Nokomis Energy
- Peter Scholtz, Office of the Attorney General
- Ed Brolin, RWE Energy
- Mal Skowron, Tesla
- Will Kenworthy, Vote Solar
- Sam Houston, UCS
- Brian Monson, Xcel Energy

Workgroup Norms

- Prepare for and attend the meetings and conference calls consistently throughout each phase
- Engage actively and respectfully in constructive dialogue during the issue discussions
- Review in a timely manner workgroup materials distributed by Commission staff provided via workgroup listserv or e-dockets
- Develop, when invited, as an organization or a member of an ad hoc subgroup, presentations and/or subtopic materials for consideration by the workgroup at upcoming meetings
- Work toward agreement where possible and, where not possible, clearly articulate differences.

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Language Drafting Subgroups

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Forecast	Jan 13	Feb 3		Department	CCSA, CEEM, Fresh Energy, USC, Xcel
Site Proposals	Jan 13	Feb 3		Xcel	CCSA, CEEM, ELPC/VS, Fresh Energy, IREC, OAG, Tesla
Proposal Evaluation	Jan 13	Feb 3	Final Draft Language: Mar 1 Redlines to Framework: March 17 Final Revisions : March 27	Department	CCSA, ELPC/VS, Fresh Energy, IREC, Minnesota Power, OAG, Tesla, Xcel
Non-Site Proposals	Feb 3	Feb 21		ELPC/VS	CCSA, Xcel
Coordination w/Reactive	Feb 3	Feb 21		CCSA	Dep, IREC, MNSEIA, Xcel
Reporting	Feb 3	Feb 21		PUC Staff	CCSA, Dep, UCS, Xcel
Impacts to utility standards	Feb 3	Feb 21		Xcel	CCSA
Cost Allocation; Reservations	Proposal: 13 Jan Language: Feb 21	Mar 1		Department	CCSA, ELPC/VS, Fresh Energy, IREC, MNSEIA, OAG, Xcel

Amended Scope Discussion

- Divide workgroup into “Phase 1” and “Phase 2”
- Phase 1: Complete framework foundation for evaluation of upgrades for behind the meter generation and load
    - Complete draft framework by April 1, 2025
    - Commission decision in July 2025
    - Xcel initial proposal November 1, 2025
    - Commission decision on Xcel proposal in late Q2 2026
- Phase 2: Build on foundational framework and expand to include emerging solutions and proactive upgrades for front of the meter generation
    - Initial informational sessions and work on proposals starting August 2025
    - Start formal Phase 2 workgroups in Q3 2026
    - Phase 2 Commission decision by Early Q2 2027
    - Second Proactive Upgrade Proposal November 1, 2027

Proposed Phase 2 Topics

- Forecasting for FTM generation and inclusion of forecasted FTM generation in a Proactive Upgrade Proposal
- A service territory wide plan for the best location for proactive upgrades for FTM generation
- Flexible Interconnection
- Utility wide capacity reservation for various customer types
- Advanced cost allocation methodologies
- Other topics as identified

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Draft Language Review

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Break

10:30 – 11:00

Draft Language Review (cont.)

Non-location specific proactive measures

Topics identified from Draft Outline:

- Land purchases
- Transformer/equipment stockpiles
- What amount is appropriate to have in reserve based on overall forecast
- Programmatic investments proposals – proactive investment initiative that affect a variety of locations, but the specific locations will shift over time in alignment with established site selection criteria.
- Whether there are basic, low cost upgrades that can be done as a part of standard maintenance.

Questions to Discuss:

- How should any non-specific proposals be evaluated?
- Is this a topic to develop in Phase 2?

Coordination with developers and reactive upgrades

- What opportunities should there be for input from developers (gen and load) ahead of the forecast and proactive upgrade proposal?
- What level of information would be required from developers to provide certainty to the utility for already planned projects?
- the process by which the input can be incorporated into LoadSEER
- Should there be an opportunity to add additional capacity for future forecasted need when a reactive upgrade is initiated?
    - For example, a substation is at capacity, developers seek to interconnect 5 MW of generation in year 1. There is a forecasted need for 2 MW of capacity in year 5, for a total deficit of 7MW. Should there be a process to add the additional forecasted need of 2MW in conjunction with the 5MW upgrade outside of a bi-annual Proactive Upgrade Proposal filing?
    - If guidelines are set could a scorecard establish doing additional upgrade outside of the other proactive process?
    - Have a contingency budget set aside?
    - If there is a substation/feeder level forecast performed every two years, would the utility already know if additional capacity is forecasted, and if there is an opportunity to further pair it with a developer driven upgrade?

Impact of changes in distribution planning standards and other initiatives to available hosting capacity

- Are there changes or potential changes to distribution planning standards that could impact the amount of available capacity?
- Are there other utility initiatives (reliability, asset health replacement, etc.) that could increase/decrease hosting capacity outside of a proactive upgrade program?
- If this occurs after a proactive upgrade and increases/decreases the amount of capacity, how would that factor into the cost recovery/allocation?

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Observer and Public Comment

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Wrap Up and Next Steps

MINNESOTA
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Proactive Grid Upgrades Workgroup

Friday, February 14, 2025
9:00 am – 12:00 pm
Minnesota PUC Large Hearing Room and WebEx

Logistics and Technology

- Virtual Lead Participants – please have your camera on. Use the raise hand feature or if there is a pause feel free to jump in.
- Please refrain from using the chat function as those in the room will have a difficult time seeing it.
- In the room – you must be at a microphone to be heard on the webcast.
- Still no bathrooms, at the breaks Commission Staff will let folks into the Commission bathrooms.
- For any tech issues during the meeting please either privately message or contact Kit Gomez: kit.gomez@state.mn.us.

Agenda

Time	Topic
9:00 am	• Welcome/overview • DER Cost Sharing Workgroup Updates • Process and updated deadlines
9:20 am	Discussion of draft language: • Non-location specific proactive measures • Coordination with developers and reactive upgrades • Impacts to Utility Standards • Reporting
10:00 am	Cost Recovery and Allocation Background
10:15 am	Break
10:30 am	Discussion: • Cost Recovery • Cost Allocation • Capacity Reservation
11:45 am	Observer and Public Comment Wrap up and next steps

Update from DER Cost Sharing/Reactive Workgroup

- Currently determining/getting proposals for mobilization/construction thresholds
- Feb 28 meeting will focus on program logistics, how it will work on the ground
  - This may be a meeting developers not in the reactive workgroup are interested in observing
- March meeting will be centered on cost recovery - will have overlap with the Proactive Workgroup
- On pace for a May-July Comment Period

Lead Participants

- Phil Jones, Alliance for Transportation Electrification
- Nick Bowman, CCSA
- George Damian, CEEM
- Alex Nelson, Dakota Electric Association
- Rachel Wiedewitsch, Department of Commerce*
- Erica McConnell, ELPC
- Will Mulhern, Fresh Energy
- Shay Banton, IREC
- Jess McCullough, Minnesota Power
- Sarah Whebbe, MNSEIA
- Kate Tohme, New Leaf Energy
- Matthew Melewski, Nokomis Energy
- Peter Scholtz, Office of the Attorney General
- Ed Brolin, RWE Energy
- Mal Skowron, Tesla
- Will Kenworthy, Vote Solar
- Sam Houston, UCS
- Brian Monson, Xcel Energy

* Indicates change since last workgroup meeting

Workgroup Norms

- Prepare for and attend the meetings and conference calls consistently throughout each phase
- Engage actively and respectfully in constructive dialogue during the issue discussions
- Review in a timely manner workgroup materials distributed by Commission staff provided via workgroup listserv or e-dockets
- Develop, when invited, as an organization or a member of an ad hoc subgroup, presentations and/or subtopic materials for consideration by the workgroup at upcoming meetings
- Work toward agreement where possible and, where not possible, clearly articulate differences.

Proactive Workgroup Order Language

September 16, 2024, Order, Docket 23-452, Xcel Energy IDP

14. The Commission delegates authority to the Executive Secretary to establish a stakeholder process to develop a framework on cost allocation and proactive upgrades for Xcel. The stakeholder workgroup may also include Dakota Electric Association, Minnesota Power, and Otter Tail Power if they wish to participate. The Commission sets the following guidelines for the process:
    a. The goal of the workgroup is to develop a framework for proactive upgrades and cost allocation for Commission consideration and possible adoption.
    b. The process does not need to reach consensus but should aim to clearly identify areas of agreement and disagreement to facilitate a Commission decision.
    c. The Commission establishes a goal of completing the stakeholder process by July 1, 2025. At the conclusion of the process there will be a notice and comment period on any framework followed by a Commission decision.
    d. The framework should address, at minimum, the following topics
        i. How to allocate the costs of proactive upgrades.
        ii. How to ensure any proactive upgrades are distributed in an equitable manner throughout a utility's service territory.
        iii. If costs are socialized among ratepayers, whether portions of the upgraded capacity should be reserved for certain customer classes.
        iv. How a proactive upgrade program would integrate with a utility's planned distribution investment programs.
        v. How a utility's other capacity programs and changes to distribution standards impact available hosting capacity.
        vi. How to determine where and when there is a need for proactive upgrades using forecasted DER and load adoption.
        vii. Whether there should be changes to any of a utility's service policy provisions such as Contributions In Aid of Construction (CIAC).

Workgroup Schedule

Date	Event
Feb 14, 2025, 9am-12pm	Proactive Upgrade Workgroup Meeting 4 • Review of draft language • Cost allocation and recovery for proactive upgrades • Reservation of upgrade capacity for customer classes
Mar 3, 2025	***All subgroup language due***
Mar 7, 2025	***Draft Proactive Upgrade Framework sent to workgroup***
Mar 17, 2025	Redlines from all workgroup participants to draft framework due before Meeting 5
Mar 21, 2025, 9am-12pm	Proactive Upgrade Workgroup Meeting 5 • Discussion of draft framework
Mar 27, 2025	Final edits due before framework published
Apr 1, 2025	Proactive Upgrade Framework published, notice of comment issued
May 1, 2025	Initial Comments due on Proactive Upgrade Framework
May 15, 2025	Reply Comments due on Proactive Upgrade Framework
Jul 2025	Proactive Upgrade Framework Agenda Meeting

Language Drafting Subgroups

Framework Section	Coordinator	Members
Process	PUC Staff	CCSA, Dep, OAG, UCS, Xcel
Baseline Info	Xcel	CEEM, CCSA
Forecast	***UCS**	CCSA, CEEM, Department Fresh Energy, Xcel
Site Proposals	Xcel	CCSA, CEEM, ELPC/VS, Fresh Energy, IREC, OAG, Tesla
Proposal Evaluation	***Fresh Energy**	CCSA, Department, ELPC/VS, IREC, Minnesota Power, OAG, Tesla, Xcel
Non-Site Proposals	ELPC/VS	CCSA, Xcel
Coordination w/Reactive	CCSA	Dep, IREC, MNSEIA, Xcel
Reporting	PUC Staff	CCSA, Dep, UCS, Xcel
Impacts to utility standards	Xcel	CCSA
Cost Allocation; Reservations	***OAG**	CCSA, Department, ELPC/VS, Fresh Energy, IREC, MNSEIA, Xcel

* Indicates change since last workgroup meeting

- General check in – how do folks feel the process is going?
- Areas we have not discussed that need to be addressed?
- Questions about post-workgroup process and procedure?

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Draft Language Review

Cost Allocation, Cost Recovery, and Reservations

- Three main points to discuss:
  - How the initial investment for the proactive upgrade is recovered prior to customers using the new capacity
  - How and to what extent customers using the new capacity pay it back
  - Whether there should be a capacity reservation for proactive upgrade projects
- For purposes of the discussion today:
  - Cost Allocation: who pays the costs
  - Cost Recovery: where does the money come from
  - Customer: interconnecting facility (load or gen)
  - Ratepayer: all utilities customers
  - Fee: amount a customer pays to access available capacity resulting from a proactive upgrade
  - Cost: expenditures incurred by the utility to implement the proactive upgrade

Existing Cost Recovery for Interconnecting Customers

- Generation: when an upgrade is needed, the customer causing the upgrade pays for the entire cost, whether or not they will use all of the capacity
  - Xcel's small DER customers may access the Small DER Cost Sharing Fund which pays for up to $15,000 in upgrade costs
- Load: customer pays any costs that are more than the 3.5 years of estimated revenue from the new load.
  - Xcel customers enrolling in a managed charging rate do not pay for transformer upgrade costs.

Contribution In Aid of Construction (CIAC)

Subject to its Section 5, STANDARD INSTALLATION AND EXTENSION RULES, the Company will extend, enlarge, or change its distribution or other facilities for supplying electric service when the product of the three and one half (3.5) times the anticipated annual revenue, excluding the portion of the revenue representing fuel cost recovery from the sale of additional service to result there from is such as to justify the expenditure. When the expenditure is not so justified, the extension, enlargement, or change of facilities will be made only if the customer, at the Company's option:

A. Pays to the Company the portion of the capital expenditure not justified by the product of three and one half (3.5) times the anticipated annual revenue, excluding the portion of the revenue representing fuel-cost recovery (with or without provision for refund of all or part of such payment),
B. Agrees to pay a special monthly charge,
C. Agrees to pay annually a specified minimum charge, or
D. Agrees to a combination of the above methods.

In determining whether the expenditure is so justified, the Company will take into consideration the total cost of serving the applicant and will apply the general principle that the rendering of service to the applicant will not cast an undue burden on other customers. The Company's Section 5, STANDARD INSTALLATION AND EXTENSION RULES, imposes charges on customers for certain installation costs.

Rate Case Cost Allocation 101

- Utility uses a Class Cost of Service (CCOS) study to determine the cost needed to provide electrical service to different classes of ratepayers
  - Total cost to serve ratepayers is determined and divided into operational components (generation, transmission, distribution, etc)
  - Within an operational class (ex, distribution) costs are classified based on the type of service being provided – demand, energy, customer
  - Costs are allocated to customer classes that impose costs on the system (residential, commercial, industrial, etc.)
- Rates are determined to recover these costs from while balancing various public policy objectives

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Break

10:15 – 10:30

Potential Cost Recovery Process

1. Commission approves Proactive Upgrade Proposal
2. Utility makes capital expenditures to install the upgrades
3. Costs are tracked and recorded via deferred accounting/regulatory asset
4. Utility petitions and receives approval to recover deferred costs in rate case
5. Proactive upgrade costs are allocated to ratepayers and recovered via rates
6. Customer applies to interconnect, pays fee to access capacity from proactive upgrade
7. Fees collected from interconnection customers are returned to ratepayers
8. After X years, remaining costs not recovered from customers are socialized to ratepayers.

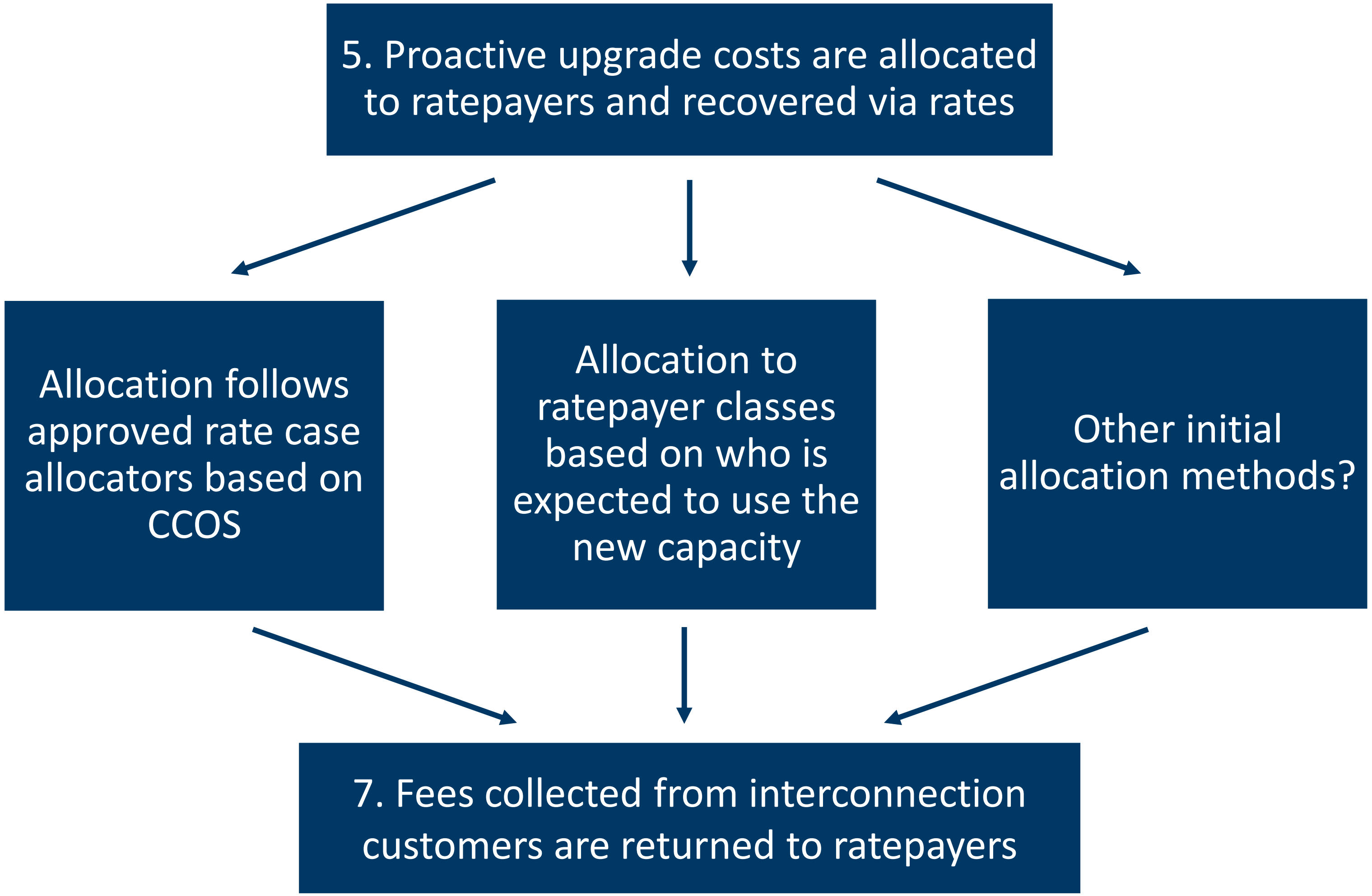
Method of Cost Recovery

3. Costs are tracked and recorded via deferred accounting/regulatory asset

- Should the utility be allowed to use deferred accounting/regulatory asset to track costs between approval of a Proactive Upgrade Proposal and the next rate case?
- If not deferred accounting, what other cost recovery options?
- Should total proactive upgrade costs recoverable by ratepayers be capped in some manner, such as a percentage of the total capacity-related five-year budget in the IDP, or a total cap on proactive upgrades?

How to allocate costs to ratepayers

- What cost allocation methodology should be used?
- When do costs become socialized?
- How to account for depreciation/return on investment?



Interconnecting Customer Fees

6. Customer applies to interconnect, pays fee to access capacity from proactive upgrade

- What portion of the total upgrade cost should a customer pay?
  - Should the fee be based on a pro rata (per/kW) share of the upgrade?
  - Should certain types of use cases or customers pay a smaller fee to advance public policy outcomes such as electrification?
- Should interconnecting load use existing CIAC tariff rules?
- Should under 40kW generation customers be able to use the small DER cost sharing fund (up to $15k) to pay their fee?
- Should initial fees be set to target recovering a certain threshold of the upgrade costs from interconnections, such as the $/kW fee set higher than the forecasted amount, which could be applied for the first X% of capacity?

Customer Fees: Generation

Example

Upgrade cost:	$1,000,000
Generation capacity gained:	10 MW
Cost per kW:	$100

		Per kW fee		Small DER Cost Share	
	Current System	Total Fee	% Savings over existing model	Total Fee	% Savings over existing model
1 MW CSG	$1,000,000	$100,000	90%	Not eligible	
100 kW commercial	$1,000,000	$10,000	99%	Not eligible	
35 kW commercial	$1,000,000	$3,500	99.65%	$200	99.98%
5 kW residential	$1,000,000	$500	99.95%	$200	99.98%
5 kW residential income qualified	$1,000,000	$500	99.95%	$0	100%

Customer Fees: Load

Example

Upgrade cost:	$1,000,000
Load capacity gained:	10 MW
Cost per kW:	$100
Electric Rate:	$0.10/kWh

Load	Annual Usage	Expected 3.5-year Revenue	Fee under existing CIAC	Fee under proactive framework (no CIAC)	Fee under proactive framework with CIAC
5 MW	5,000,000 kWh/year	$1,750,000	$0	$500,000	$0
1 MW	1,000,000 kWh/year	$350,000	$650,000	$100,000	$0
1 MW	250,000 kWh/year	$87,500	$912,500	$100,000	$12,500
100 kW	100,000 kWh/year	$35,000	$965,000	$10,000	$0
10 kW	10,000 kWh/year	$3,500	$996,500	$1,000	$0

Length of time for Cost Recovery

8. After X years, remaining costs not recovered from customers are socialized to ratepayers.

- At what point in time should proactive upgrade costs be deemed socialized and collected from ratepayers?
- What happens to customers interconnecting to that site after that date?

Capacity Reservations

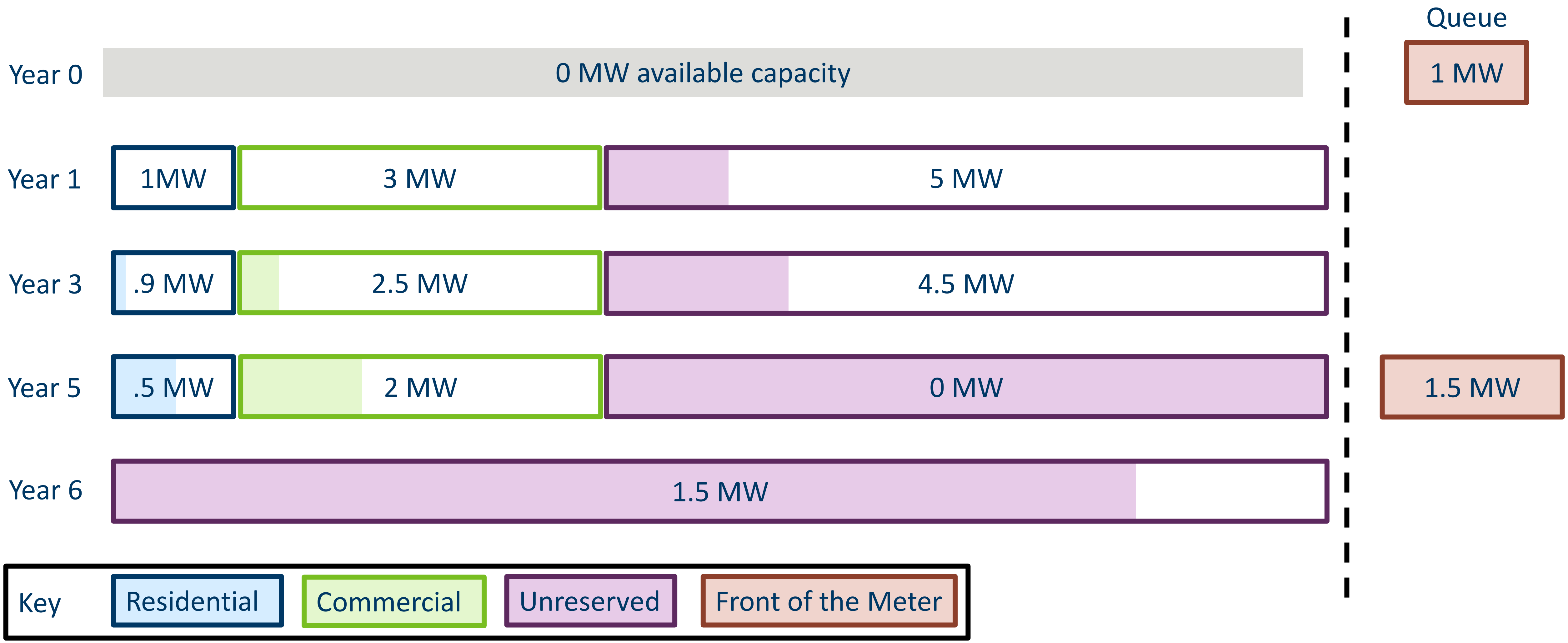
Proposals:

- No capacity reservation
- Reservation allocated proportionally to who is forecasted to use it
- 25% capacity reservation for under 40kW customers

Should the capacity reservation align with cost allocation?

How long should the capacity reservation be in place?

Capacity Reservation Example: Proportional to Forecast



Administrative considerations

- What changes or modifications would need to be made to a utility's billing systems to implement various proposals?
- Do proposals comply with existing accounting practices?
- What is the administrative burden of establishing/tracking capacity reservations for individual upgrades?
- What portions of the framework would need to be placed in Xcel's tariff?

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Observer and Public Comment

Wrap Up and Next Steps

MINNESOTA
PUBLIC UTILITIES COMMISSION

Proactive Grid Upgrades Workgroup

Friday, March 21, 2025
9:00 am – 12:00 pm
Minnesota PUC Large Hearing Room and WebEx

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Update from DER Cost Sharing/Reactive Workgroup

- Drafting proposals based on legislative requirements
- Proposal review at April 25 meeting
- Final meeting May 23
- Notice/Comment period in June

Lead Participants

- Phil Jones, Alliance for Transportation Electrification
- Nick Bowman, CCSA
- George Damian, CEEM
- Alex Nelson, Dakota Electric Association
- Rachel Wiedewitsch, Department of Commerce
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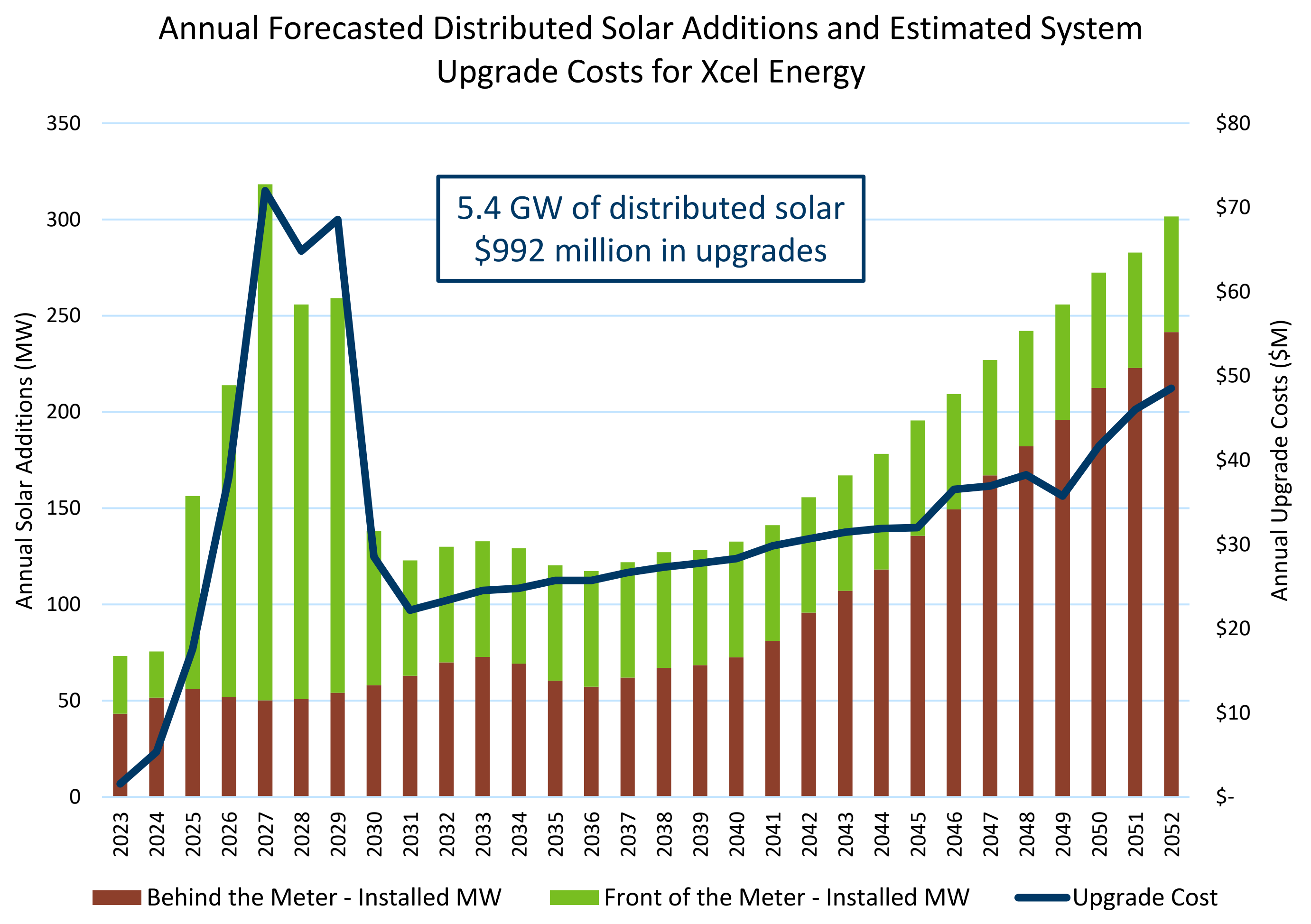
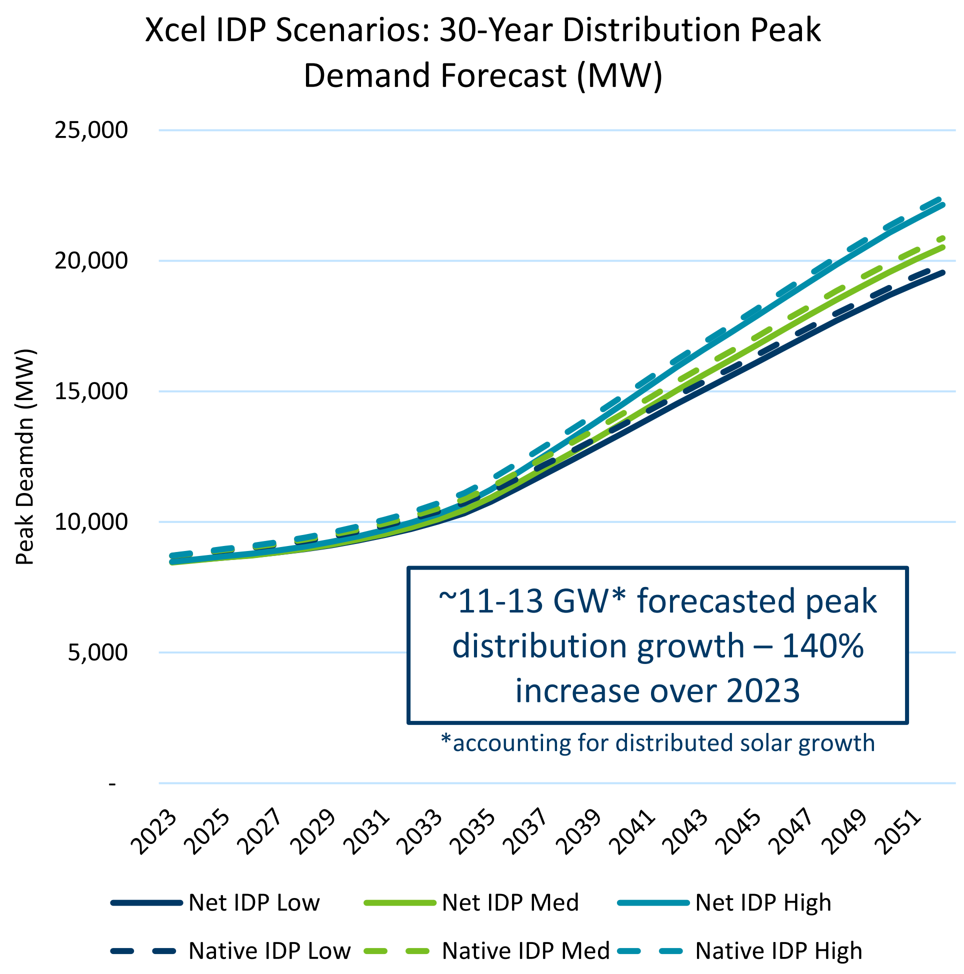
        vi. How to determine where and when there is a need for proactive upgrades using forecasted DER and load adoption.
        vii. Whether there should be changes to any of a utility’s service policy provisions such as Contributions In Aid of Construction (CIAC).

Workgroup Schedule

Date	Event
Mar 21, 2025 9am-12pm	Proactive Upgrade Workgroup Meeting 5 • Discussion of draft framework
Mar 27, 2025 12pm	Final edits due before framework published
Apr 3, 2025	Proactive Upgrade Framework published, notice of comment issued
May 6, 2025	Initial Comments due on Proactive Upgrade Framework
May 22, 2025	Reply Comments due on Proactive Upgrade Framework
July 24, 2025 (tent.)	Proactive Upgrade Framework Agenda Meeting

Problem: Need to expand distribution system for increasing DERs and Electrification





Source: Xcel Energy IDP, Docket 23-453

Solution: Cost Allocation and Upgrades Framework

	Proactive Upgrades	Reactive Upgrades
Shared Cost Allocation	• Build distribution budgets around DER and electrification forecasts. • Assign incremental infrastructure costs via typical class cost allocation methods, e.g., in next rate case. • ***Benefits*** customers adopting DER and electrification by reducing or eliminating wait time and cost of interconnection. • ***Risks*** include deploying assets that are not used and useful if forecasts are not accurate, the potential for shifting costs of upgrades onto non-benefitting customers, and risk of inequitable investments.	• Grid upgrades are made in response to individual customer requests. • Costs assigned via typical class cost allocation methods, e.g., in the next rate case. • ***Benefits*** customers adopting DER and electrification by eliminating the cost of interconnection; benefits ratepayers by ensuring upgrades are used and useful. • ***Risks*** include continued wait-times in the interconnection process, the potential for shifting costs of upgrades onto non-benefitting customers, and risk of inequitable investments.
Individually Allocated Costs	• Build distribution budgets around DER and electrification forecasts. • Individual customers, where appropriate, pay a fee to cover their share of the upgrade at time of interconnection. • ***Benefits*** customers adopting DER and electrification by reducing or eliminating wait times for interconnection; benefits ratepayers by reducing the costs of upgrades via reimbursement over time. • ***Risks*** include deploying assets that are not used and useful if forecasts are not accurate, and the potential for shifting costs of upgrades onto non-benefitting customers if forecasts or reimbursement fees are not accurate.	• Grid upgrades are made in response to individual customer requests. • Individual customers, where appropriate, pay a fee to cover their share of the upgrade at time of interconnection. • For the most part the model in place today • ***Benefit*** is ensuring upgrades are used and useful. • ***Risks*** include wait time and interconnection costs for DER and electrification customers.

Source: Fresh Energy Initial Comments, Xcel Energy IDP, Docket 23-452

Does the framework address the Commission's Order Points?

- The framework should address, at minimum, the following topics:
    - How to allocate the costs of proactive upgrades.
    - How to ensure any proactive upgrades are distributed in an equitable manner throughout a utility's service territory.
    - If costs are socialized among ratepayers, whether portions of the upgraded capacity should be reserved for certain customer classes.
    - How a proactive upgrade program would integrate with a utility's planned distribution investment programs.
    - How a utility's other capacity programs and changes to distribution standards impact available hosting capacity.
    - How to determine where and when there is a need for proactive upgrades using forecasted DER and load adoption.
    - Whether there should be changes to any of a utility's service policy provisions such as Contributions In Aid of Construction (CIAC).

A. Introduction

- Preferences on OAG, Xcel modifications on A.1-A.5
- Discussion of Staff compiled A.6
    - Attempt to simplify A.5/A.6/A.7 to make discussion easier. Staff does not take a position on individual components

B. Definitions

- Discussion/feedback on Xcel, IREC definitions of “capacity upgrade”
- Discussion on new proposed definitions from UCS, IREC.
  - Staff used the definition of DERs and Electrification from the IDP
    - Note: intentionally does not describe beneficial electrification, as the distribution system will need to accommodate all electrification, regardless of whether it is beneficial. Beneficial electrification is used as a measure for designing utility programs to incentivize electrification.
  - Question: should the definition be for DERs, or for Distributed Generation? If DG, Staff would propose to use the definition from Minn. Stat. 216B.1611, which implements the statewide interconnection standards:
    - Interconnected with the distribution system
    - Less than 10 MW in size
    - Operate in parallel with the utility
- Discussion on Staff additions

C. Process

- Whether Xcel.C.2 is duplicative given definition in B.2
- Necessity of Xcel.C.3
  - Staff note: the longest the Commission has taken to consider Xcel's IDP has been 7 months, and in that case, there were no requested formal decisions.
- Reactions to use of "advance determination of prudence" in C.5, C.6, and Xcel.C.8 and whether there is a foundation in MN statute
- Discussion on variations of C.7, C.7.a
  - Would inserting the word "prudently" in 7.a be helpful?
  - Up until the point that a previously approved project is canceled or rescinded by Commission Order, the utility is entitled to recover all costs that have been prudently incurred, not exceeding the previously approved amount.
- Discussion on variations of C.8: are there any that can be removed?
- Do C.5-C.9 belong in the cost recovery section?
- C.10 correction: This will include Phase 2 of the framework development in 2025 and 2026 to unresolved issues left out of Phase 1.
- CCSA.C.10: better in order point vs framework?

C. Process

- C.I. Coordination with the DER Cost Sharing Process
  - Should this section be removed and considered in Phase 2?
- C. II. Stakeholder Outreach
  - Feedback on ACEE/CCSA edits?
  - Should C.II.2 be considered in Phase 2?

D. Baseline Information; E. Forecast

- Baseline Information
  - Feedback on OAG.D.5
- Forecast
  - Feedback on UCS edits for E.1
  - Feedback on OAG E.4

F. Potential Sites for Proactive Upgrades

- Feedback on addition to F.1 to include a discussion of stakeholder feedback
- Feedback on ACEEE addition to F.5.f (adding “capacity gap”)
- Discussion on modifications to F.5.g
  - Split into two parts (OAG)
  - Addition of site users (ACEEE)
- Addition of “known” to F.5.h (Xcel)

G. Proactive Upgrade Proposal Evaluation Criteria

- G.1. – OAG Clarification
  - Is “overall cost” just the initial capital investment? Do we want to specify costs beyond the initial capital investment, as might be captured in a net-present-value of revenue requirements calculation?
- G.5 – OAG clarification; Xcel feedback
  - Whether to better define “standard process”
  - Whether G.5 and G.4 are duplicative
- G.6 – Staff language on reference to NWA
- G.7 – OAG feedback to cut “qualitative or quantitative;” feedback on direct customer engagement
- G.14 – Xcel feedback that this point is covered elsewhere
- G.4.a-c – OAG recommendation to align with goals in section A

H. Proposal for non-location specific proactive measures

- OAG suggestion to move section to Phase 2
- Xcel feedback on H.2

I. Impact of Changes to Utility Distribution Planning Standards

- ELPC/VS recommendation to relocate to Cost Recovery/Cost Allocation Section.

- OAG recommendation to allow flexibility to change the fee on a going forward basis.

Cost Recovery/Cost Allocation Relationship

Proactive Upgrade Occurs, Cost Incurred

Determined which customers are charged a cost-share fee

Determine how the fee is calculated, and whether it differs by load/gen and/or customer type

Determine where the revenue from the fees goes

Determine where and from which ratepayers costs are recovered during the cost share window

Cost Share Window Closes

Determine where costs that are not offset by fees are recovered after the cost share window closes

Cost Recovery/Cost Allocation Relationship

Proactive Upgrade Occurs, Cost Incurred

Which Customers:
Load v Gen | Size of DER | Cust. Class

Fee Calculation
Pro-rata | Based on benefits | Socialized | CIAC

Which Ratepayers
Rate Case Allocated | Based on Use

Fee Revenue
Ratebase | All upgrade fund | Individual upgrades

Cost Share Window Closes

Costs after cost-share
In Rate Base

J. Cost Recovery

- New ELPC/VS Introduction referencing C.8

I. Deferred Accounting

- Clarification on J.I.1: would this also apply to DERs, or is it just load related? If the later, what would the cost recovery practice be for upgrades for DERs?

II. Prudence Review

- Language changed to reference Proactive Upgrade Proposal instead of IDP
- Is this duplicative of C.8 and C.9? Where should it be located in the framework?

J.III. Interconnection Fee Revenues

- Should this be located in the cost allocation section?
- Clarification on what happens to any fees collected from interconnecting load customers under J.III.1
- For J.III.3, is this an offset to overall rate base, or would it be an offset to the specific proactive upgrade funds?
- How would interconnection load be accounted for – would the anticipated CIAC revenues be an offset to the "payback" on the proactive program?
  - Example: $1,000,000 upgrade → load project interconnects, expected 3.5 years of revenue = $100,000 → remaining upgrade costs = $900,000?

J.IV Cost Cap

- If a cap is adopted, what should it be?
- Would the calculation for the cap be determined with the Nov 1 filing, or would it be considered during the upcoming comment period?
- Overlap with fee revenues from prior page – especially for determining how load upgrades/fees would count against the cap

K. Cost Allocation

- Under K.I.5, how will costs be allocated to ratepayers both
  - Before interconnection fees are recovered from interconnecting customers
  - For any remaining unrecovered costs after the cost-share window has closed

L. Capacity Reservation

- New language from subgroup discussion
- With new language, can any of the old options be removed?
- Some options propose a capacity reservation, but do not set a level – how would that be determined? With the Proactive Upgrade Proposal filing?
- L.6.b discusses a “mobilization threshold” – does that refer to the reactive process?

M. Reporting

- Staff Amendment to L.2 to better define when projects are no longer reported
- Staff Amendment to L.4 to better define what costs are reported
- Request clarification from Xcel on how to subdivide L.5 – want groupings to align with how they will present their forecast.
- OAG additions L.10 and L.11

Administrative considerations

- What changes or modifications would need to be made to a utility's billing systems to implement various proposals?
- Do proposals comply with existing accounting practices?
- What is the administrative burden of establishing/tracking capacity reservations for individual upgrades?
- What portions of the framework would need to be placed in Xcel's tariff?

Observer and Public Comment

Next Steps

Final Round of Feedback

- Due no later than **12:00pm CST** on Thursday, March 27
- Please do not provide explanations for changes – any explanations/comments etc will not be included in the final draft provided with the notice
- Revised/new language: please provide individually with changes in red underline
- Grammatical/Consistency Edits: please include in blue underline

Draft Timeline - tentative

- After notice released Ex Parte rules apply – Staff must document and file any communications with participants in the docket about the merits of the proceeding.
- Procedural questions are not considered ex parte

March 27, 2025, 12:00pm	Final deadline for framework revisions
April 3, 2025	Notice for Comment Released
May 6, 2025	Initial Comments Due
May 22, 2025	Reply Comments due
July 10-11, 2025	Staff briefing papers posted
July 18, 2025	Meeting Notice posted
July 17, 2025, 12:00pm	Preferred Decision Options, Participant list for agenda meeting due
July 24, 2025, 10:00am	Agenda Meeting