

NARUC Electric Vehicles State Working Group

PROACTIVE INVESTMENT STRATEGIES FOR TRANSPORTATION ELECTRIFICATION

DECEMBER 16, 3:00 - 4:30 PM ET

Welcome

EV SWG Chair

Commissioner Katherine Peretick, Michigan Public Service Commission

EV SWG Vice Chair

**Commissioner Milt Doumit, Washington Utilities and Transportation
Commission**

EV Commission Staff Leads

Benjamin Baker, Maryland Public Service Commission

Steve Olea, Arizona Corporate Commission

NARUC Staff

Margerie Snider

Danielle Sass Byrnett

Agenda

Feel free to enter
questions into chat at
any time

3:00 PM	Welcome and Announcements: Commissioner Peretick and Commissioner Doumit <ul style="list-style-type: none">• Agenda review
3:05 PM	Speakers: <ul style="list-style-type: none">• Shawn Enterline, RAP• Ronny Sandoval, RAP• David Mino, Xcel Energy Colorado• Zachary Pollock, Xcel Energy Colorado
4:05 PM	Member Discussion
4:30 PM	Adjourn

Next EV SWG Meetings:

January 13, 3:00-4:30 pm ET
Member Roundtable

No meeting in February due to
EV Workshop during Winter
Policy Summit

Upcoming Partner & NARUC EV Events

- ▶ **NARUC Winter Policy Summit** including EV Workshop on Affordability & Load Growth
February 8-11, 2026 in Washington, DC
- ▶ **Alliance for Transportation Electrification Annual Meeting**
March 5-6, 2026 in Washington, DC

If travel costs are a barrier to you attending one of these partner events, contact Danielle to discuss the possibility of a NARUC travel stipend.

Workshop: How Electric Vehicles Can Support Load Growth and Affordability

Objectives

- ▶ Identify opportunities and barriers to the increased use of EVs as flexible resources
- ▶ Highlight real-world examples of utilizing EVs for flexibility
- ▶ Develop key takeaways informed through participant discussions

Need Travel Funding?

- ▶ NARUC has travel funding available for attendance at the EV workshop
- ▶ Reach out to Margerie at msnider@naruc.org to make requests

[Register for the workshop here](#)



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REGULATORY
ASSISTANCE PROJECT

December 16, 2025

Proactive Distribution System Investment Strategies that Support Transportation Electrification

Presentation to the National Association of Regulatory Utility Commissioners
Electric Vehicle Working Group

Shawn Enterline, Sr. Associate
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Zach Pollock, Director of Grid Strategy
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Xcel Energy

Agenda

Background

- Proactive Planning Overview
- Proactive Planning Strategies
- Evolution of DSP
- Market Adoption

Differentiators & Examples

- Use Cases
- Load Forecasting Methods
- Examples
 - CO
 - NY

Observations & Considerations

- Regulatory Criteria
- Cost Recovery
- Observations
- Considerations




Background



Proactive Planning Defined

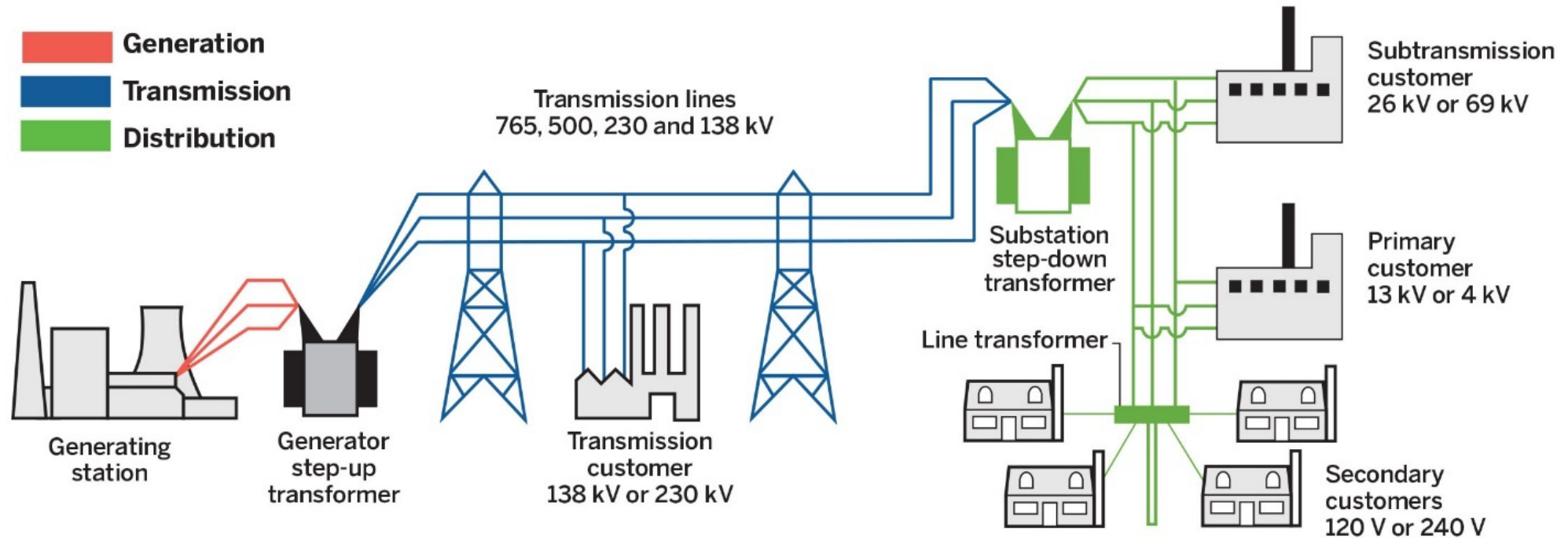
Proactive planning approaches recognize the nature of emerging and evolving sources of demand, including EV charging, and the challenge associated with accurately anticipating their impact on the grid.

These approaches identify responsive actions to mitigate risks associated with uncertainty in projecting demand, which may include refinements to forecasting inputs and methods, initiating additional traditional capital investments, and pursuing alternative solutions for providing load relief, such as expanding operational flexibility.



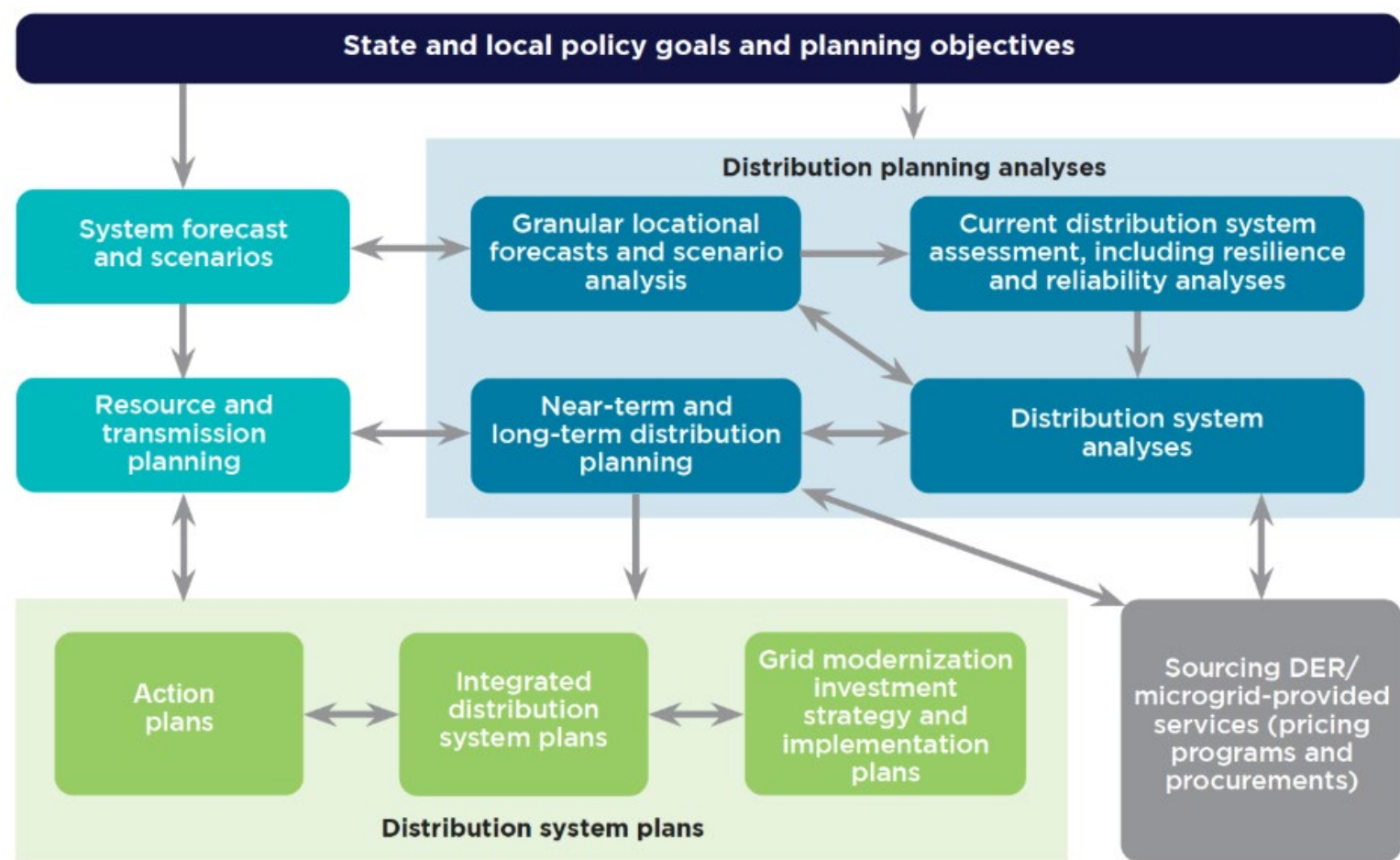
The Evolution of Dist. Sys. Planning

An Illustrative Electric System

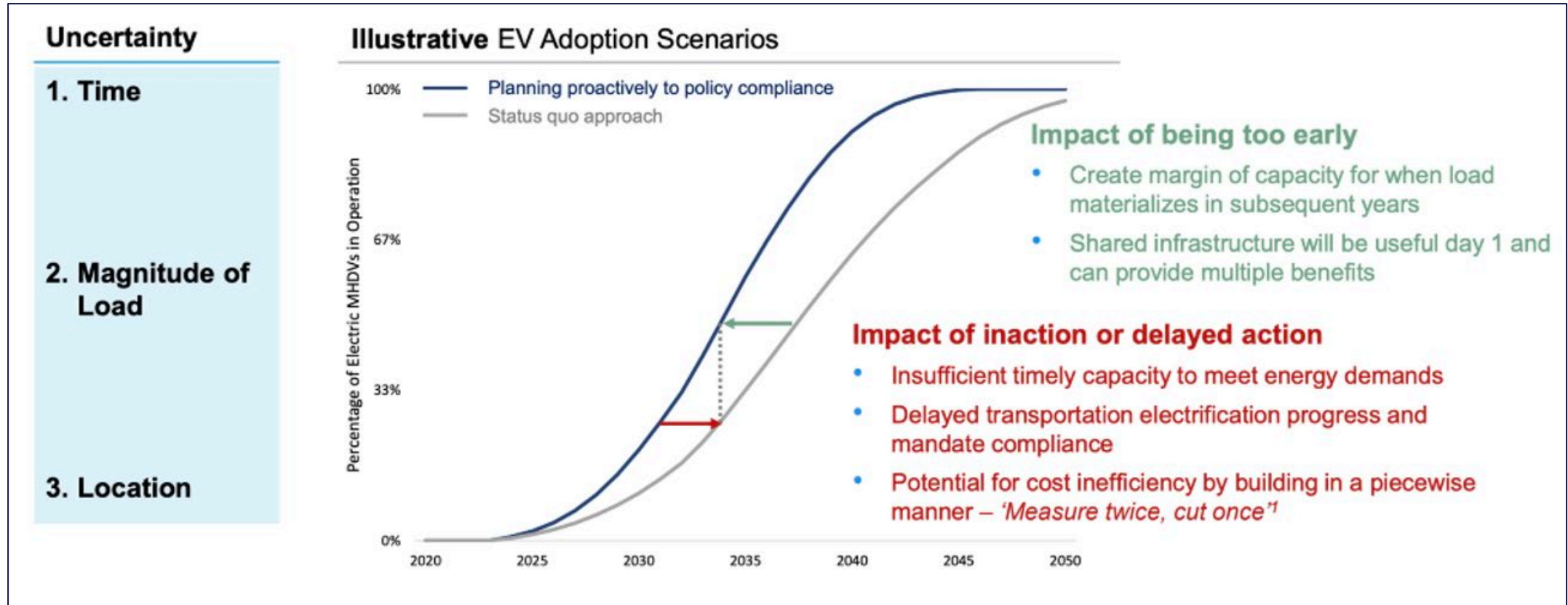


Source: Adapted from U.S.-Canada Power System Outage Task Force. (2004). *Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*

Distribution System Planning Flow Chart



Why Make Proactive Investments?



Proactive Planning Strategies

1. Forecasting improvements:

- Additional data sources and methodologies for forecasting energy demand are incorporated in determinations of grid need to account for emerging and evolving loads, including transportation electrification.

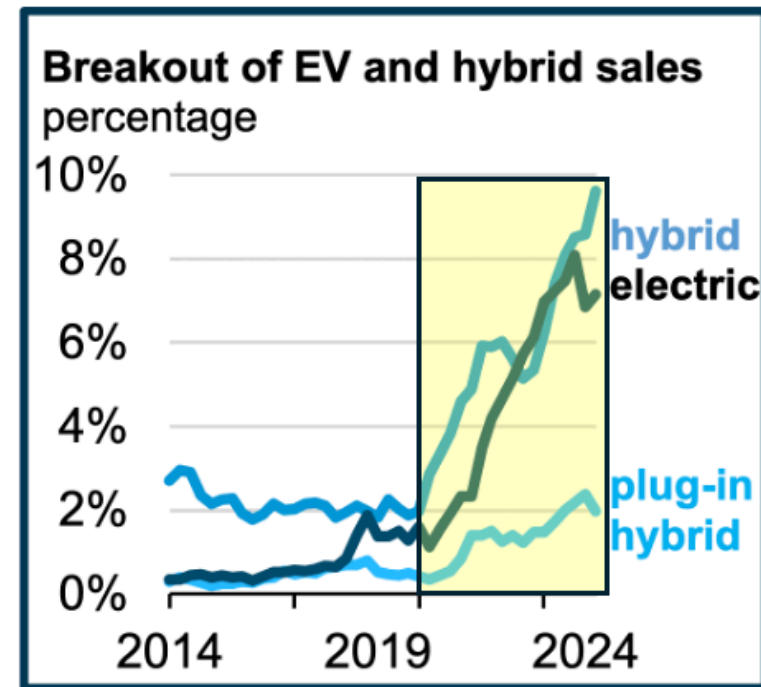
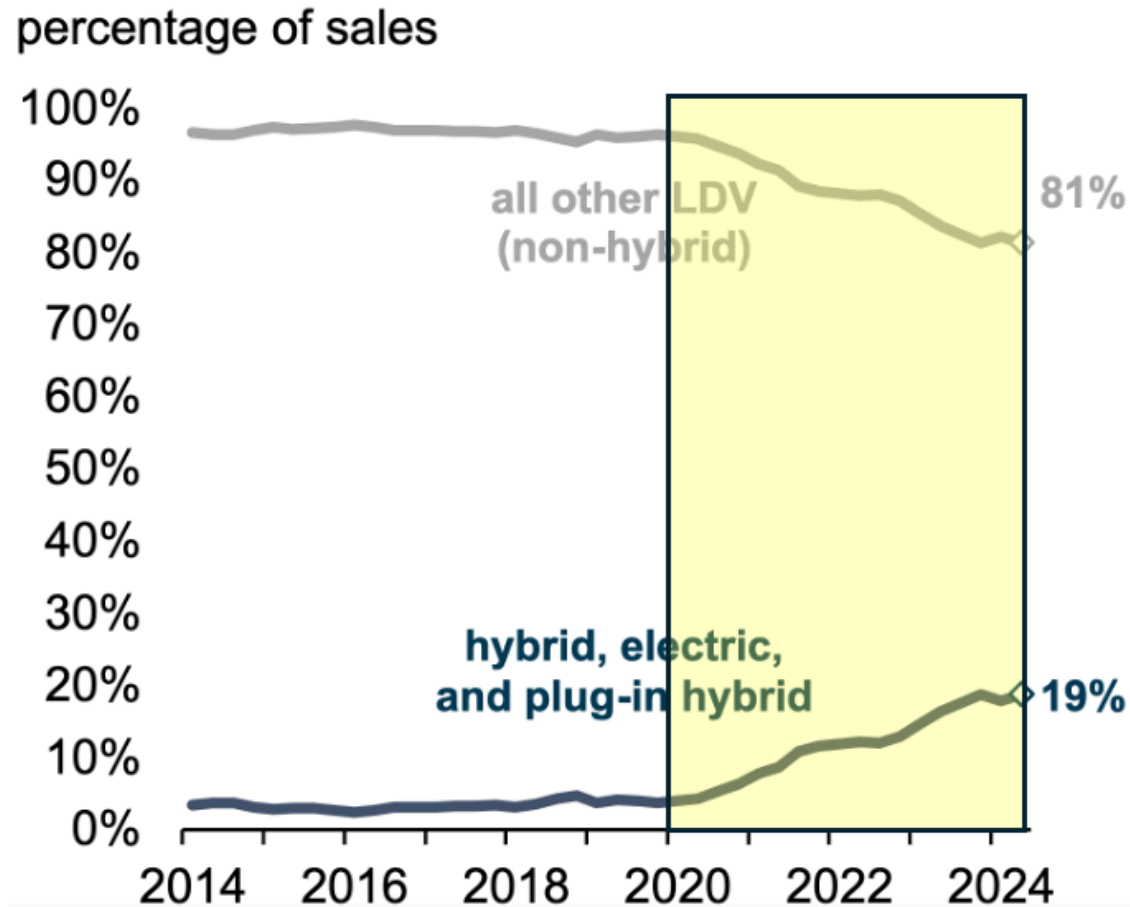
2. Changes to criteria for investments:

- Determination on when investments in the grid are made should evolve in the face of novel sources of demand to continue to ensure lowest cost and beneficial outcomes for energy customers.

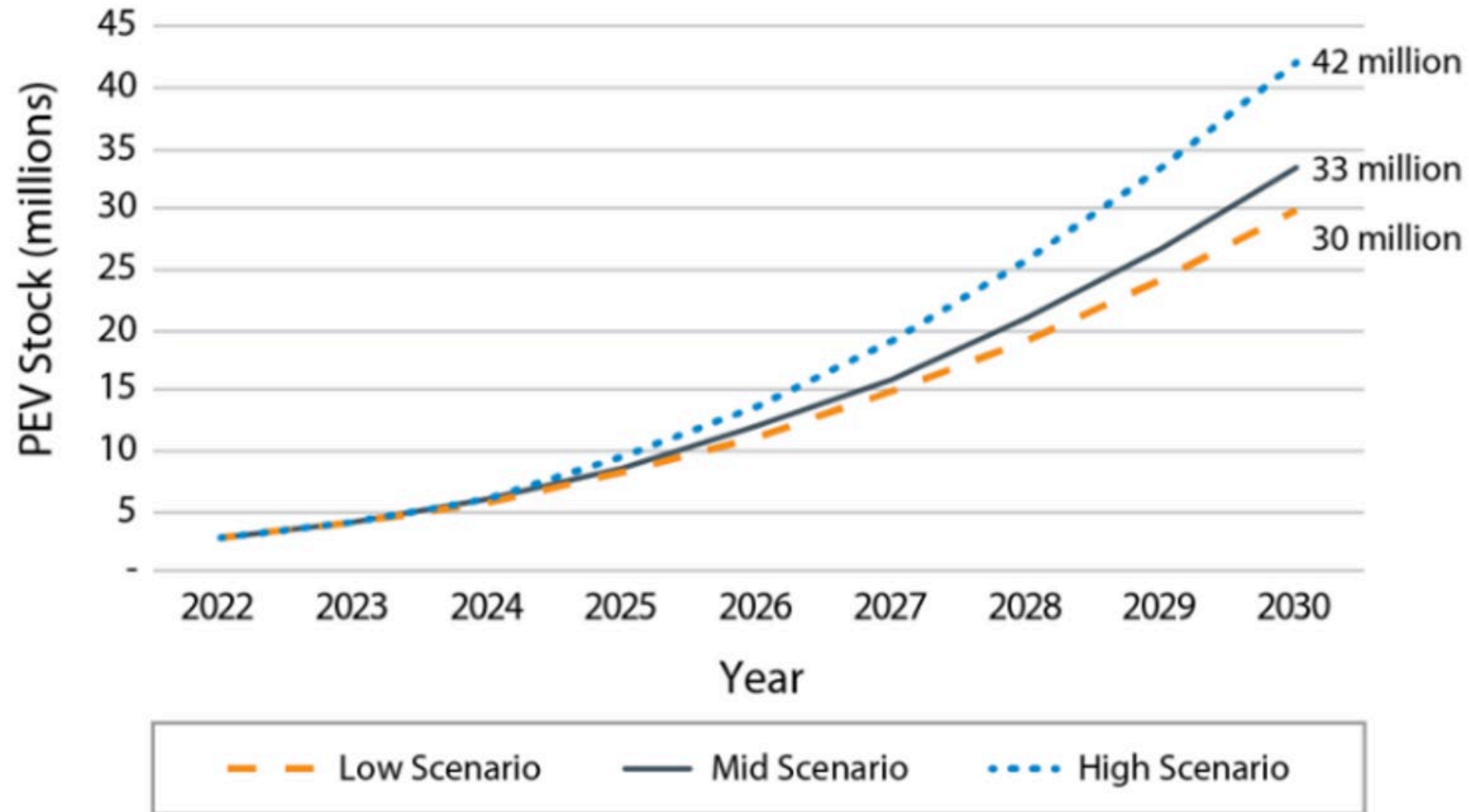
3. Prioritization and investment:

- Managing the risk and uncertainty in forecasting demand requires a balanced approach to ensure adequate capacity to serve demand reliably is preserved while costs are contained.

US Light Duty Vehicle Sales by Powertrain (EIA)



US Light Duty EV Adoption Scenarios (NREL)

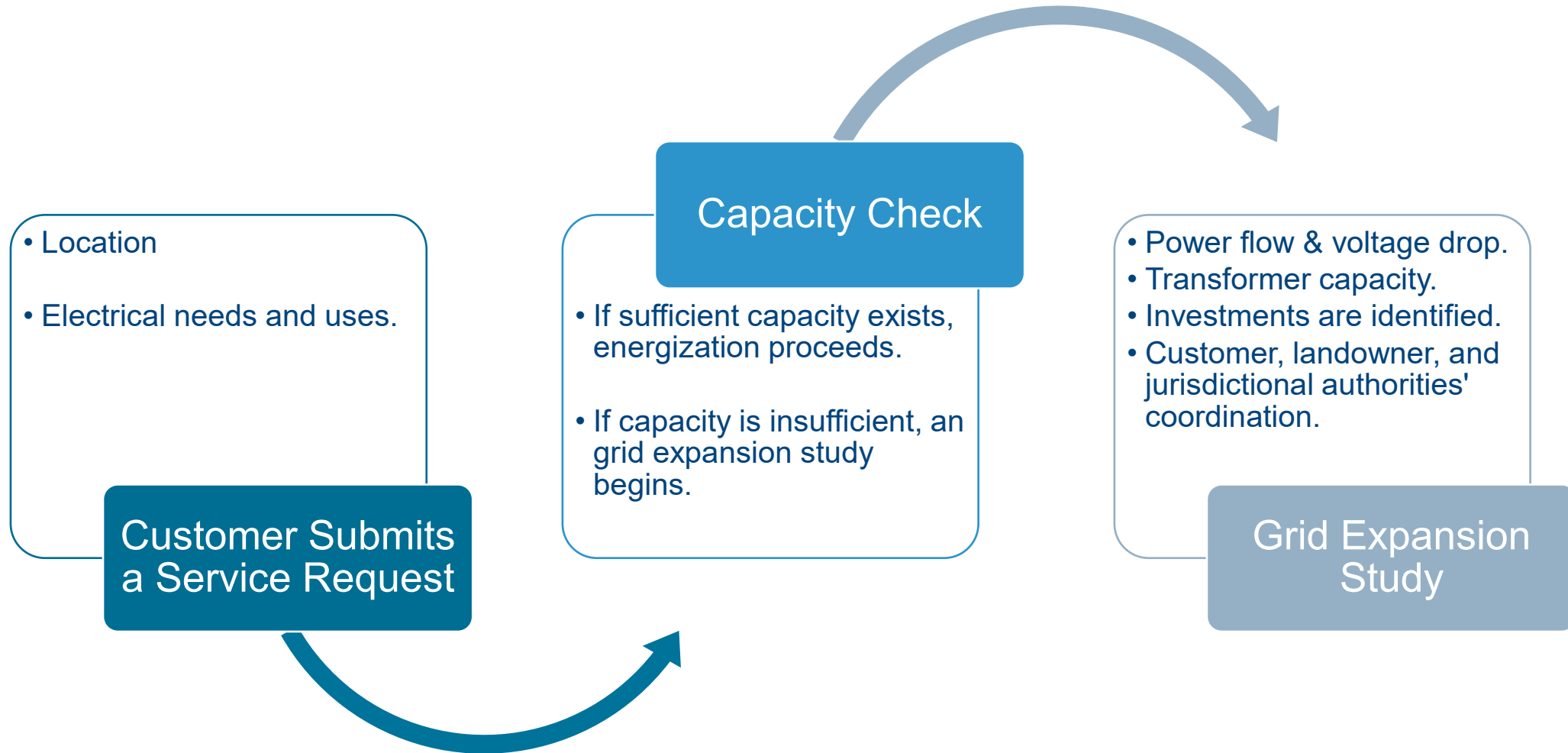




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Differentiators & Examples

A Generalized Load Service Request Process

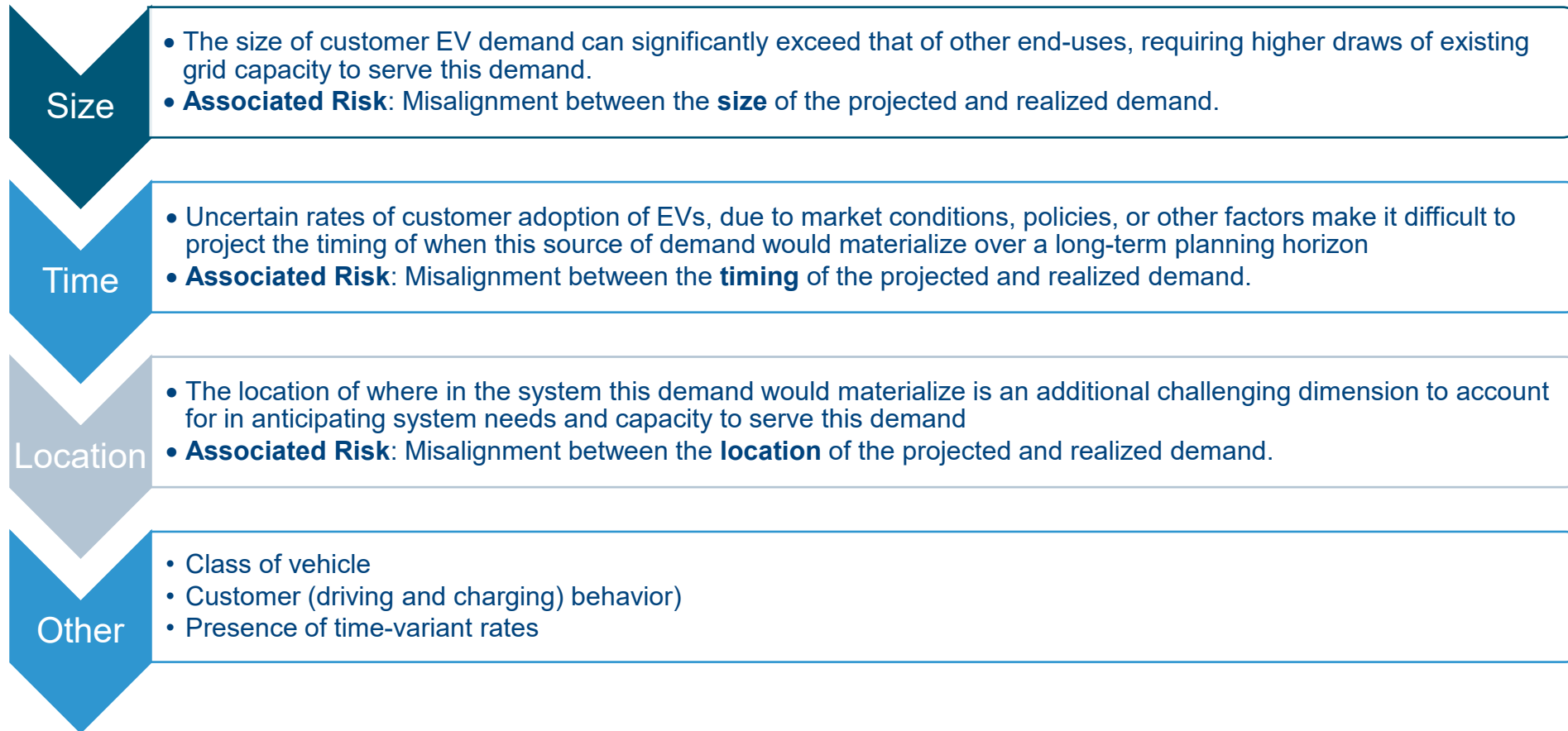


Charging Use Cases & Characteristics

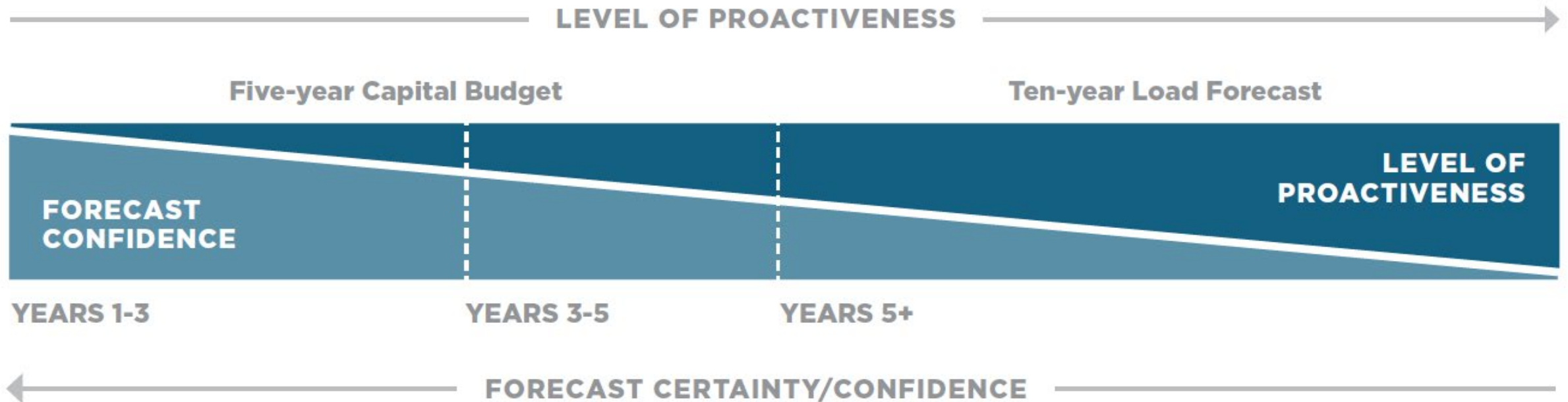
Characteristic	LD L2	DCFC	MHDV Fleets
Energization Time	<ul style="list-style-type: none"> • Short (weeks or months) • Study only required for larger banks of L2 installations. 	<ul style="list-style-type: none"> • Longer (months or years) • Requires an energization study. 	<ul style="list-style-type: none"> • Longer (months or years) • Requires an energization study.
Size of Load	<ul style="list-style-type: none"> • Small - Medium (kW) 	<ul style="list-style-type: none"> • Medium - Large (kW–MW) 	<ul style="list-style-type: none"> • Medium - Large (100s of kW to MW)
Location of Load	<ul style="list-style-type: none"> • Widely distributed 	<ul style="list-style-type: none"> • Along highway corridors, urban areas and tourist destinations. 	<ul style="list-style-type: none"> • Clustered around commercial and industrial areas.
Flexibility of Load	<ul style="list-style-type: none"> • High 	<ul style="list-style-type: none"> • Low 	<ul style="list-style-type: none"> • Low - Medium

Proactive Planning Differentiators







The Nature of the Demand




Proactive Planning Falls on a Continuum




Forecasting Evolution: Xcel Colorado

		Prior to 2021	2021 to 2022	2023 to 2024
 Forecasting Methodology		Reactive & Deterministic	Reactive, Deterministic & Probabilistic	Proactive & Probabilistic
 Temporal Considerations		Peak Hour per Asset & Growth Coincident with Peak	Time-Series TLY Curves (8760) & Load Curves	Time-Series TLY Curves (8760) & Load Curves
 Forecasting Adoption		Applied Fixed Growth Rate	Spatial Allocation & Propensity Modeling	Spatial Allocation & Propensity Modeling
 Growth Vectors		Service Applications	Service Applications & Corporate Energy Sales	Service Applications, Corporate Energy Sales, Clean Heat Plus BE, EV Growth, BTM PV
 Planning Scenarios		Single Scenario	Single Scenario	Two Scenarios
 Forecasting Tools		Itron's Distribution Asset Analytics (DAA)	Integral Analytics' LoadSEER	Integral Analytics' LoadSEER


Con Edison & National Grid (NY) Forecasting Method




Total number of vehicles per network per use case
(Static with time)



Electrification rate per use case (2023 – 2055)¹
(Evolves over time)



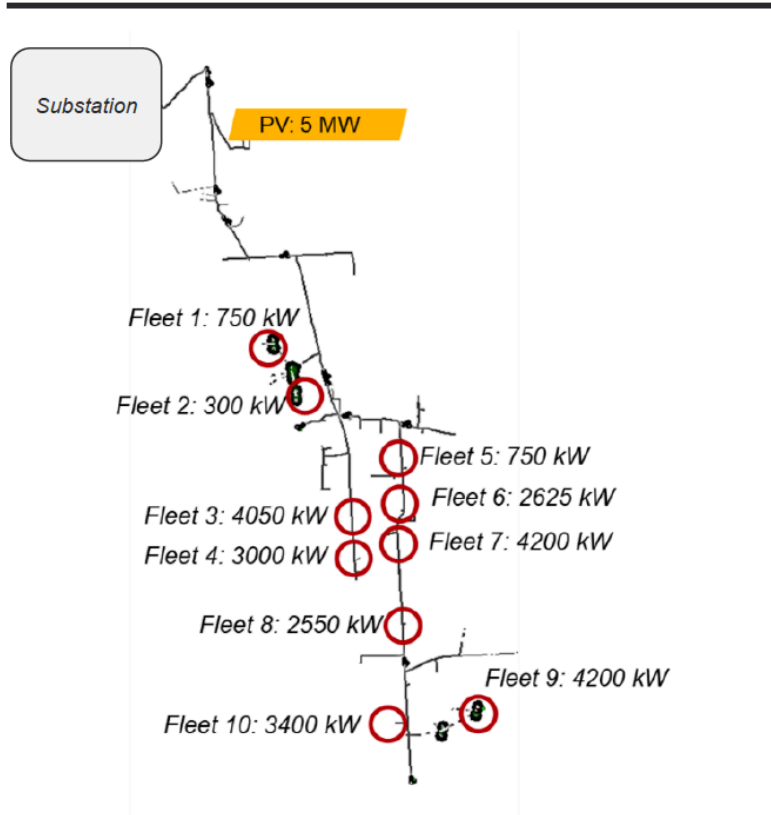
Energy consumption and charging demand per vehicle
(Detailed to hourly level)



Incremental EV² load and peak demand by network
(Hourly, daily, and yearly)

National Grid's Case Study Feeder

The Case Study Feeder



About the Case Study Feeder

There's currently plenty of room on this distribution feeder for EV charging...

- Current peak load is only 2 megawatts.
- Depending on season, the line is rated for 8-13 MW of load – which can support plenty of EV charging.

...but the electrification of 400+ trucks will eventually exhaust that capacity.

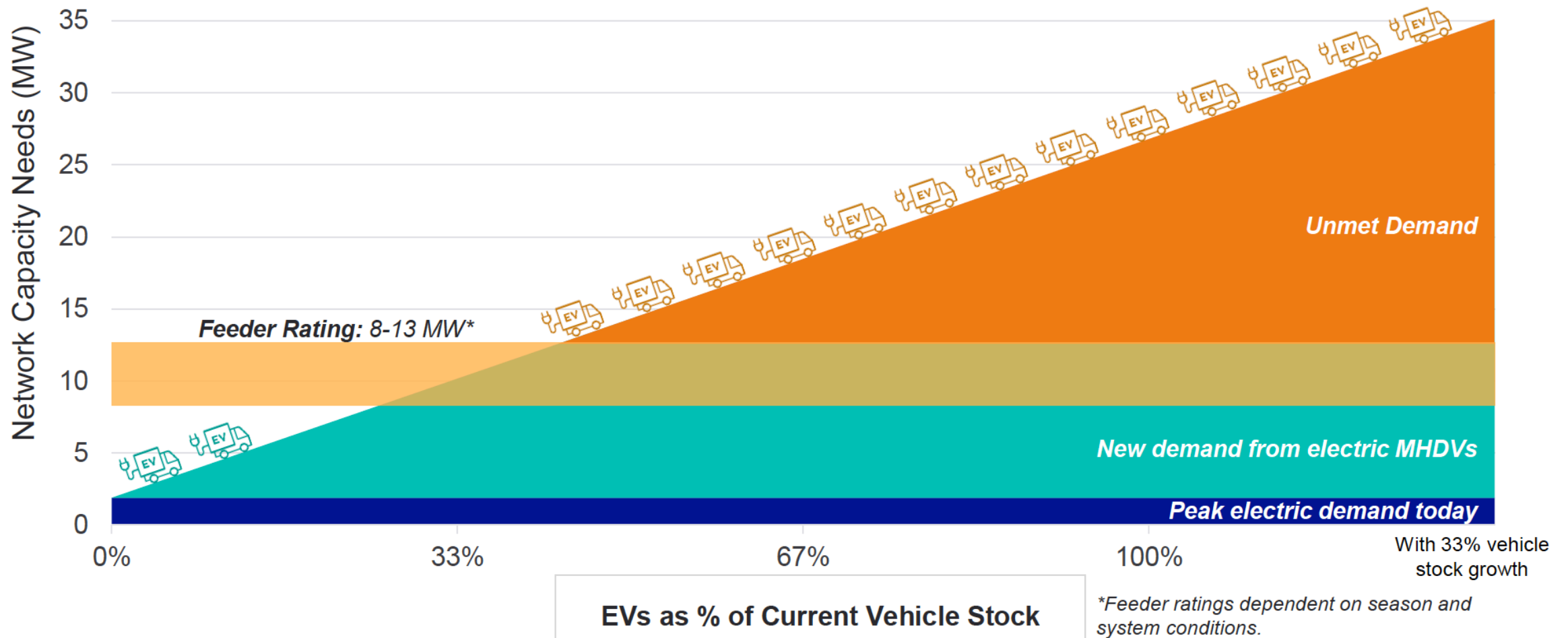
- Electrifying all trucks in the area will up to 25 MW of load – **up to a 12x increase**

Luckily, we may be able to “tap” neighboring lines or substations for capacity.

- Currently, there's room on neighboring distribution lines / substation – so the utility can switch some depots over to accommodate further electrification.

This feeder is what we call an “Area of Capacity” – it can accommodate many electric trucks, but will still need careful planning and investment in the long-term.

Capacity Limitations on the Case Study Feeder





3

Observations & Considerations

Regulatory Considerations in Assessing Proactive Planning



Exploring and developing additional data sets and methodologies that account for EV adoption trends in response to market conditions, customer usage trends, and other factors to narrow the variance in uncertainty between forecasting traditional sources of customer demand and EV charging – revisiting these adjustments periodically and as necessary.



Identifying and coordinating areas of continual improvements in proactive planning forecasts and approaches across other planning processes to ensure consistency and appropriate responsive action using the best available data.



Mitigating the risk of stranded or underutilized assets not only through better forecasts, but also through operational adjustments in the grid such as transferring loads through new electrical connections from congested areas in the grid to areas with excess capacity, particularly in dense and urban areas where connections to loads can more readily be moved around.



Considering diversity in customer project type and charging application when assessing risks. Risk may not be uniform across all EV demand served, classes of vehicles, or desired configurations. Thus, a mitigation strategy tailored to the dynamics of specific charging facilities may be more appropriate than a blanket approach.

Key Takeaways

- Proactive planning approaches recognize the nature of emerging and evolving sources of demand, including EV charging, and the challenge associated with accurately anticipating their impact on the grid.
- These approaches identify responsive actions to mitigate risks associated with uncertainty in projecting demand, which may include refinements to forecasting inputs and methods, initiating additional traditional capital investments, and pursuing alternative solutions for providing load relief, such as expanding operational flexibility.
- Proactive planning processes should evolve over time not only with more rigor, but with a recognition that to realize least-cost outcomes, planning and investments should facilitate acting under uncertainty.
- Ultimately, answering the question “How can we make reasonable decisions given the information we have at the present time?”
- Changes contemplated to assess cost-effective proactive investments that support transportation electrification may ultimately be subsumed into broader planning processes.
- Additionally, these innovations may apply, directly or indirectly, to other sources of incremental load growth, including heating electrification, new manufacturing capacity, or data centers.



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Cost Recovery for Proactive Investments

State	Cost Recovery Mechanism	Citation
CA	Base rates or SB 410 mechanism	Decision Authorizing a Ratemaking Mechanism...pursuant to SB 410¹ (July 2024)
CO	Rider (Grid Modernization Adjustment Clause (GMAC))	Direct Testimony of Jason J. Peuquet (Dec 2024)
MA	Rider rolled into base rates. (e.g. Annual reconciling mechanism or Grid Modernization Factor)	ESMP Order (Aug 2024), page 435-447
MN	Base Rates (subject the Phase 2 Workgroup recommendations.)	Staff Compiled Decision Options and Draft Framework, (July 2025), page 14
NY	Rider (surcharge) rolled into base rates.	Joint Utilities Long Term Proactive Planning Framework, (Dec 2024), Sr.No. 55, page 32

¹ Decision Authorizing a Ratemaking.

Proceedings on Proactive Planning (CA & CO)

State	Proceeding	Latest Decision or Filing
CA	<u>Energization</u>	<ul style="list-style-type: none"> • 24-09-020, Order Instituting Rulemaking to Establish Energization Timelines; Rulemaking 24-01-018 Decision Establishing Target Energization Time Periods and Procedure for Customers to Report Energization Delays Decision (Sept. 2024)
	<u>High DER</u>	<ul style="list-style-type: none"> • Decision Adopting Improvements to Distribution Planning and Project Execution Process, Distribution Resource Planning Data Portals, and Integration Capacity Analysis Maps (Oct 2024) • Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resource Future. Rulemaking 21-06-017, Decision Adopting Improvements to Distribution Planning and Project Execution Process (Sept. 2024)
	Transportation Electrification Proactive Planning and Infrastructure (TEPI)	<ul style="list-style-type: none"> • Scoping Memo & Ruling (Apr 2024)

State	Proceeding	Latest Decision or Filing
CO	<u>Barriers to Electrification and DERs</u> <u>PSCo DSP Proceeding</u>	<ul style="list-style-type: none"> • Interim Decision Of Hearing Commissioner Megan M. Gilman Addressing Commission Study Of Potential Barriers To Beneficial Electrification And The Deployment Of Distributed Energy (Apr 2024) (“Colorado Interim Decision”) • PSCo Distribution System Plan Application, Proceeding No. 24A-E (Dec 2024) • PSCo Distribution System Plan (Dec 2024)

Proceedings on Proactive Planning (MA & MN)

State	Proceeding	Latest Decision or Filing
MA	<u>Elec. Sector Modernization Plan (Required Scope)</u>	<u>Order (Feb 2024)</u>
	<u>Elec. Sector Modernization Plan (Actual Plans)</u>	<u>Order (Aug 2024)</u> ***

State	Proceeding	Latest Decision or Filing
MN	<u>Integrated Distribution Planning</u>	<p><u>In the Matter of Xcel Energy’s 2023 Integrated Distribution Plan, Order Accepting 2023 Integrated Distribution Plan and Modifying Reporting Requirements (9/24)</u> ***</p> <p><u>Notice Establishing Workgroup (Sep 2024)</u></p> <p><u>In the Matter of a Commission Inquiry into a Framework for Proactive Distribution Grid Upgrades and Cost Allocation for Xcel Energy, Notice Soliciting Stakeholder Members (9/2024)</u></p>

Proceedings on Proactive Planning (NY)

State	Proceeding	Latest Decision or Filing
NY	<u>Barriers to MHDV Charging</u>	<u>CASE 23-E-0070 - Proceeding on Motion of the Commission to Address Barriers to Medium- and Heavy-Duty Electric Vehicle Charging Infrastructure, Order Instituting Proceeding and Soliciting Comments (April, 2023)</u>
	<u>Proactive Planning</u>	<u>CASE 24-E-0364 - In the Matter of Proactive Planning for Upgraded Electric Grid Infrastructure, Order Establishing Proactive Planning Proceeding (August, 2024)</u> <u>In the Matter of Proactive Planning for Upgraded Electric Grid Infrastructure Case 24-E-0364 Joint Utilities' Long-Term Proactive Planning Framework (December 2024) ***</u>
	EV Infrastructure and Interconnection Working Group (EVIIWG)	<u>About Electric Vehicle Infrastructure and Interconnection Working Group (EVIIWG) ***</u>

Member Discussion Questions

- In your state:
 - Are there currently proactive planning approaches and/or investments for transportation electrification?
 - Which of the three strategies (forecasting improvements, changes to criteria for investments, prioritization and investment) have you seen among your utilities?
 - Which of the four regulatory criteria (policy, cost benefit analysis, non-wire alternatives, equity) could you anticipate presenting challenges?

Next EV SWG Meetings

Member Roundtable:
January 13, 3:00-4:30 pm ET

No meeting in February due to
EV Workshop during Winter
Policy Summit

FIND ALL PAST RECORDINGS AND
PRESENTATIONS:

[WWW.NARUC.ORG/CORE-
SECTORS/ENERGY-RESOURCES-
AND-THE-ENVIRONMENT/ELECTRIC-
VEHICLES/](http://WWW.NARUC.ORG/CORE-SECTORS/ENERGY-RESOURCES-AND-THE-ENVIRONMENT/ELECTRIC-VEHICLES/)