AEG Clean Transportation Stakeholder Challenge

Boston Q4 2023
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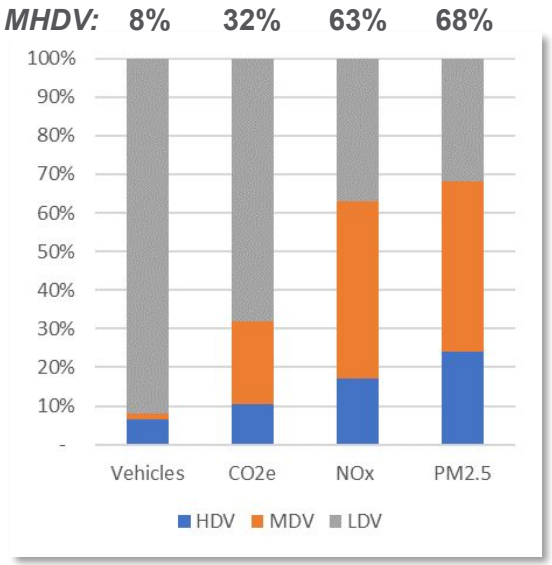
Introduction

Transportation causes >45% of GHG emissions and is a leading cause of air pollution in the Northeast. While MHDVs only account for ~8% of vehicles, they account for >30% of CO_2 and >60% of air pollutants.

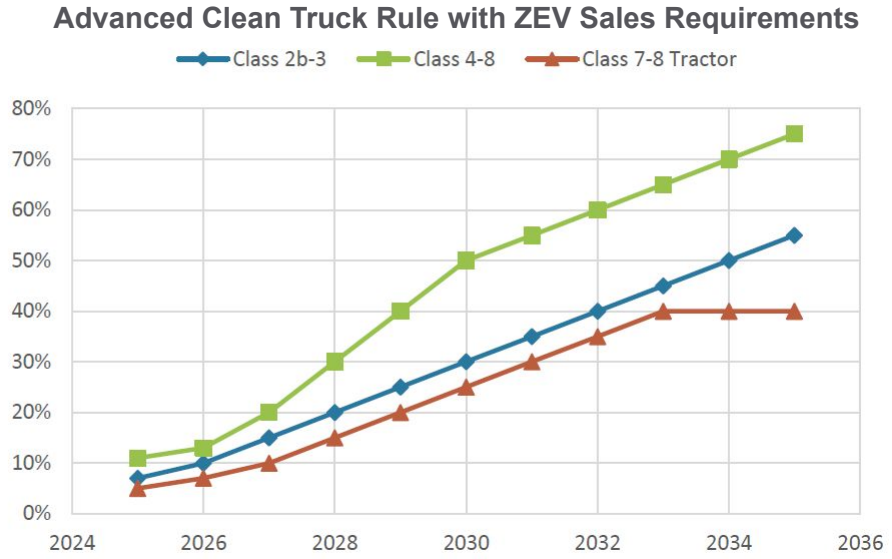
MHDV % of Vehicles & Emissions (US)[1]



Electrifying trucks results in:

- >8 x CO_2 Reduction**
- >30 x $PM_{2.5}$ Reduction**

Aggressive Clean Transportation Goals[2]

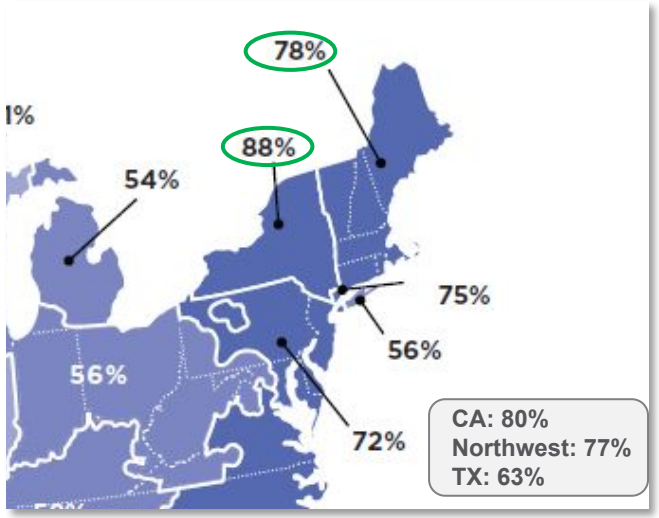


Advanced Clean Truck Rule 2035:

- Class 2b-3: 55% of new sales
- Class 4-8: 75% of new sales
- Class 7-8: 40% of new sales

The Northeast Could be the Most Impactful to Electrify

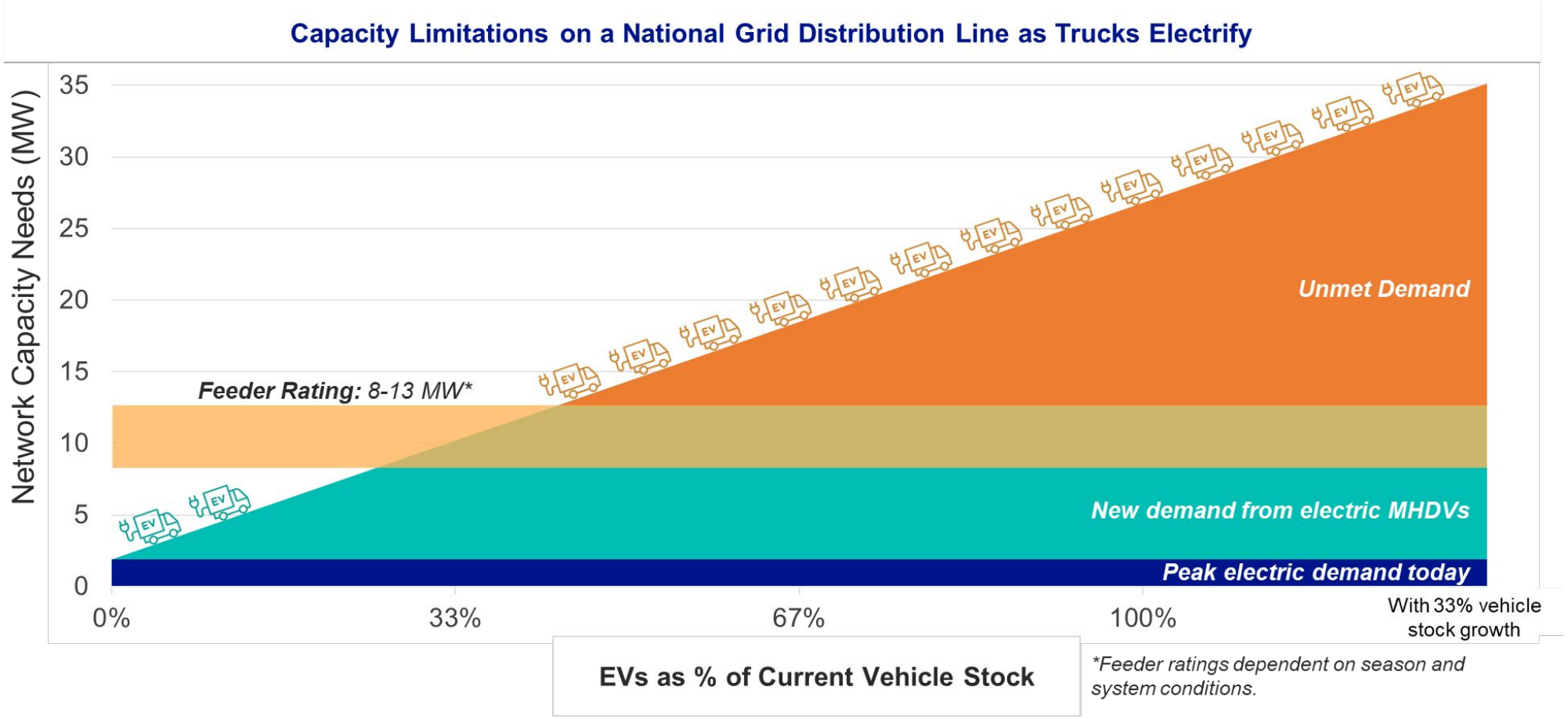
Life Cycle GHG Emissions Reduction of Electric Delivery Trucks vs. Diesel[3]



Sources: 1) CALSTART, The Advanced Technology Truck Index: A US ZET Inventory Report, January 2022.
2) MA CECP for 2025 and 2030 https://www.mass.gov/doc/clean-energy-and-climate-plan-for-2025-and-2030/download.
3) Union of Concerned Scientists, Ready For Work, December 2019.
*Savings / vehicle **as compared to** passenger EVs

The Problem

MHDV charging at depots is expected to introduce substantial new "spot loads" on the grid.



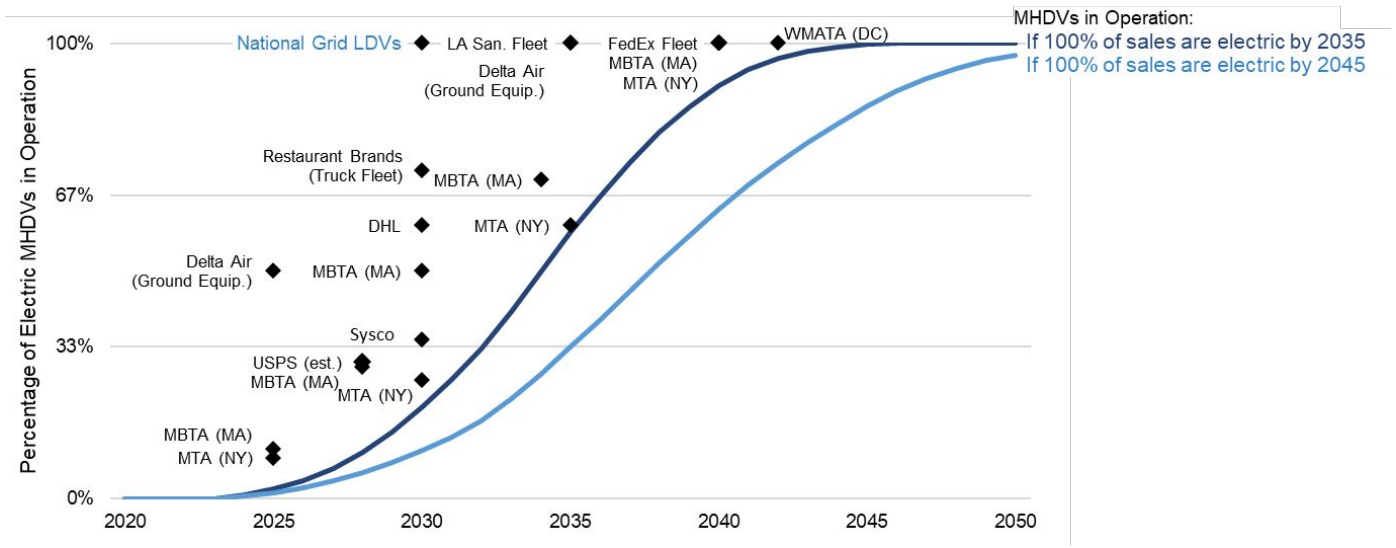
Utilities will have to optimize existing capacity, use managed charging and energy storage, and/or upgrade the grid infrastructure as necessary to provide the required power.

The Key Obstacle/Challenge to Solving the Problem

Under the current process, utilities don't have visibility into future EV spot loads early enough to design and deploy the solution to provide sufficient power.

- **Current Process –** Utilities require a level of certainty to prudently build new infrastructure to address spot loads and therefore only begin work after they receive an application or load letter from the customer.
- **Time Line Misalignment -** Building grid infrastructure takes significantly longer than building EV infrastructure. Therefore, utilities would need to forecast where additional power will be needed and begin the process before receiving a load letter or application from the customer.
- **Forecasting -** Forecasting the exact location, timing, magnitude and load curve for EV spot loads is a new challenge.

EV Adoption Scenarios and Fleet Commitments



Benefits

Reaching consensus on a methodology that allows utilities to proactively address EV spot loads without the certainty of a customer load letter will facilitate fleet electrification and meeting MHDV adoption goals.

- Achieve **climate goals and improved air quality** in Boston and across the state.
- **Lower total system costs** by planning long-term, eliminating duplicative investments, and identifying where large-scale charging infrastructure can be most easily deployed.
- **Seamlessly enable the EV transition** for commercial vehicles.

Final Statement

Regarding Mobility & Clean Transportation, to achieve Greater Boston's carbon and equity goals, a critical obstacle to collectively overcome in 12 months is…….

Defining an approved forecasting methodology that enables anticipatory planning for EV spot loads.

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