



# Planning for the Interconnection of Large EV Charging Stations in NYC

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Con Edison of New York, Inc.

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# Agenda

01

Con Edison Overview

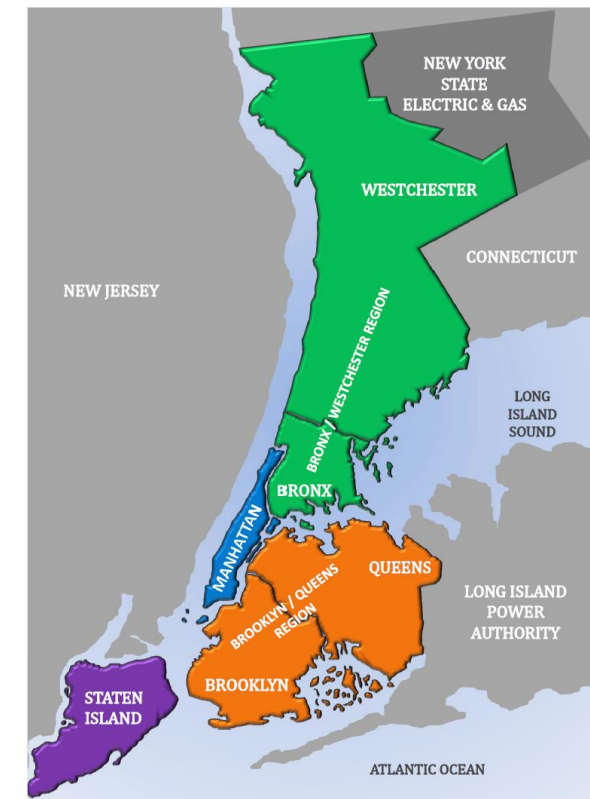
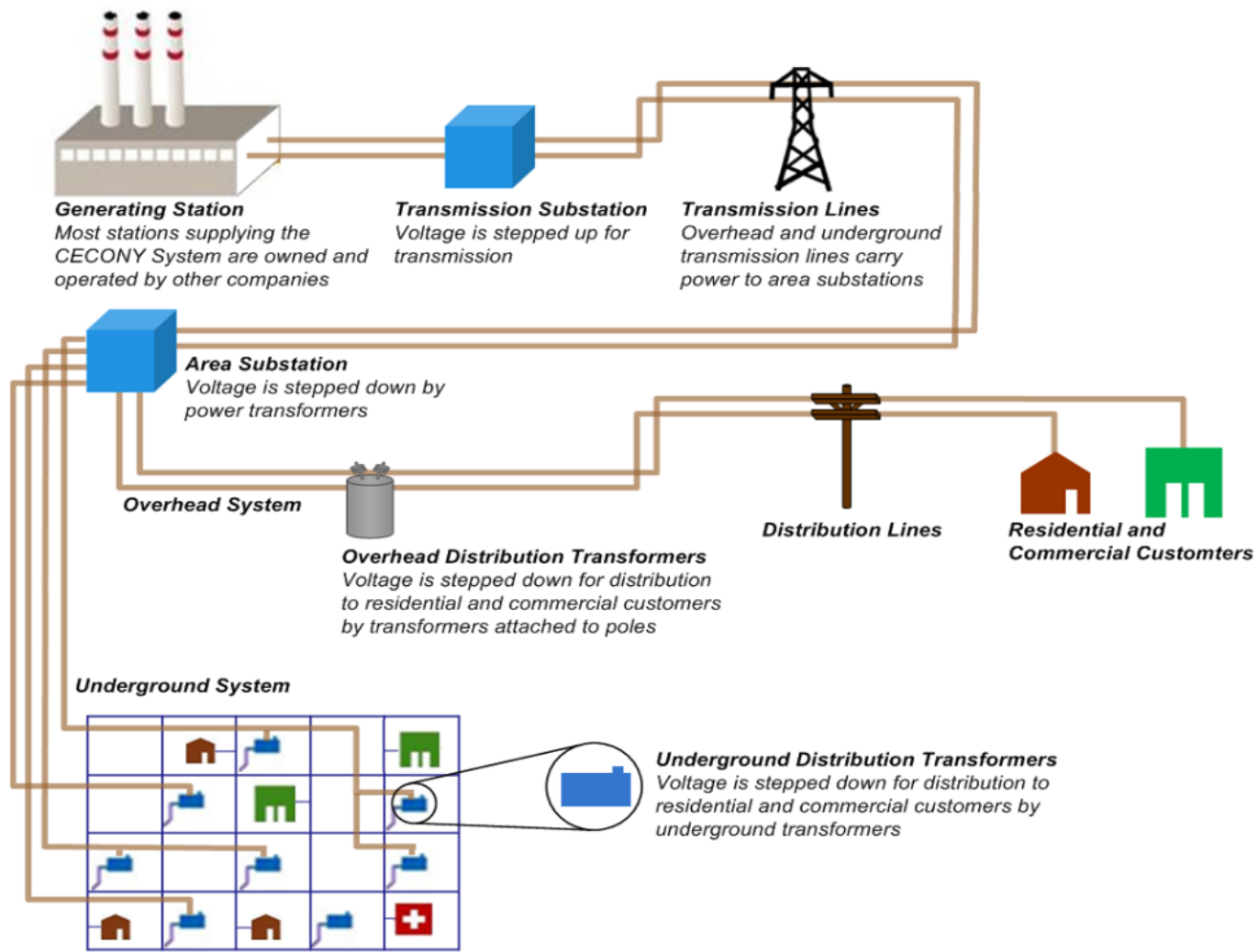
02

Electrification of Medium and Heavy Duty Vehicles

03

Southeast Bronx Case Study

# Con Edison Electric System Overview



## System Characteristics

- 600 square miles
- Population of 9.2 million
- 3.6 million of electric customers

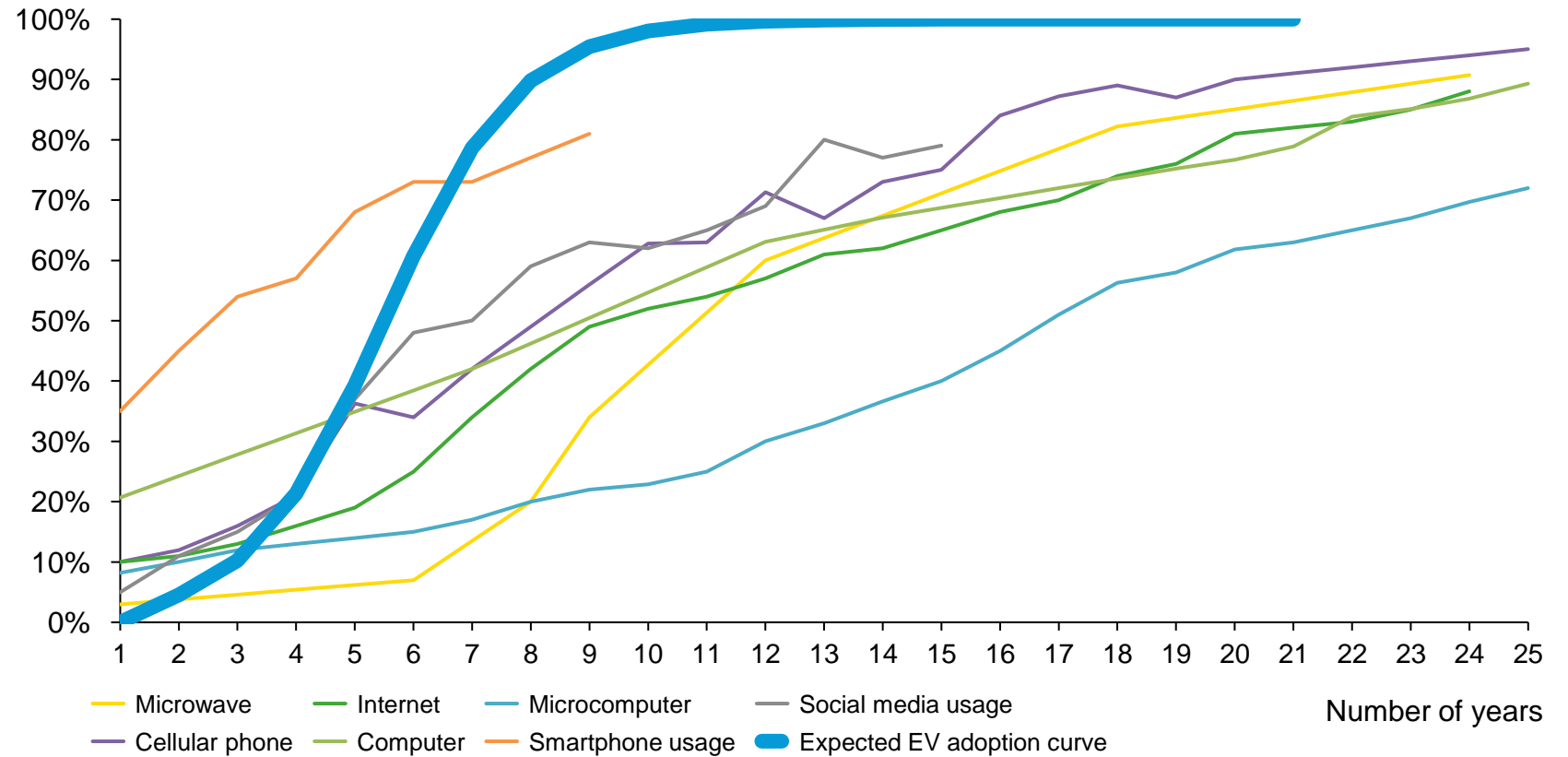
# EVs are expected to have a steep growth curve, achieving mass market adoption rapidly

Today there are over 500 MHD EVs in Con Edison's territory, making up only 0.5% of the nearly 80k vehicles territory-wide

## Policies driving EV adoption

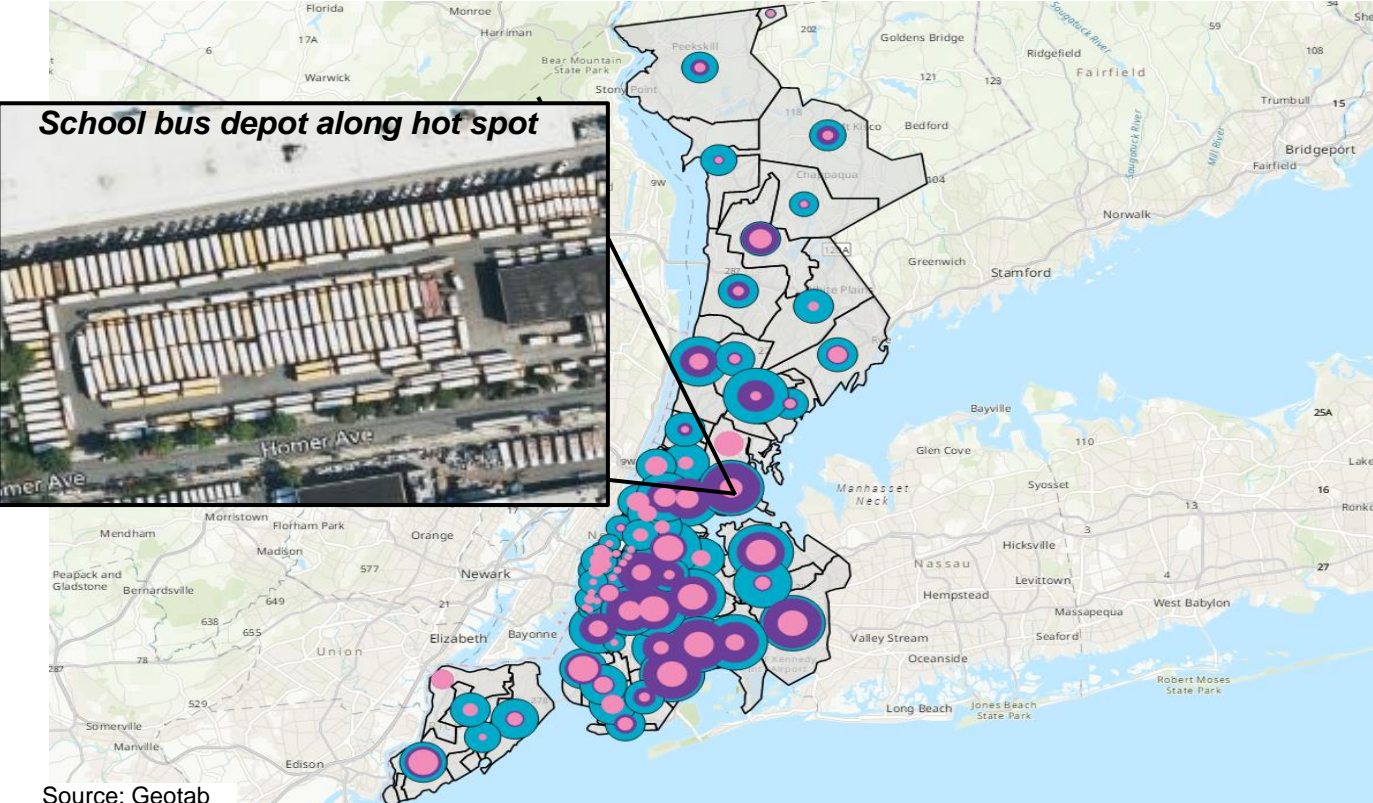
- Advanced Clean Cars II:
  - 35% of sales in 2025
  - 100% of sales by 2035
- Advanced Clean Trucks:
  - % of sales by class in 2025
  - 100% of sales by 2045
- NY Zero Emissions School Bus Mandate:
  - 100% of sales by 2027
  - 100% of fleet by 2035

Adoption curve for different technologies in the United States



1) From Recurrent Auto Report that analyzed BCG articles published in 2018 (BCG: The Electric Car Tipping Point), 2020 (University of California Berkely: Plummeting Costs and Dramatic Improvements in Batteries can Accelerate our Clean Transportation Future), and 2022 (Electric Cars Are Finding Their Next Gear):  
 Source: Our World in Data, Bloomberg, Desk research

# There are roughly 80,000 highly clustered MHD and fleet vehicles across the CECONY service territory, with a variation in concentration by network



### Legend

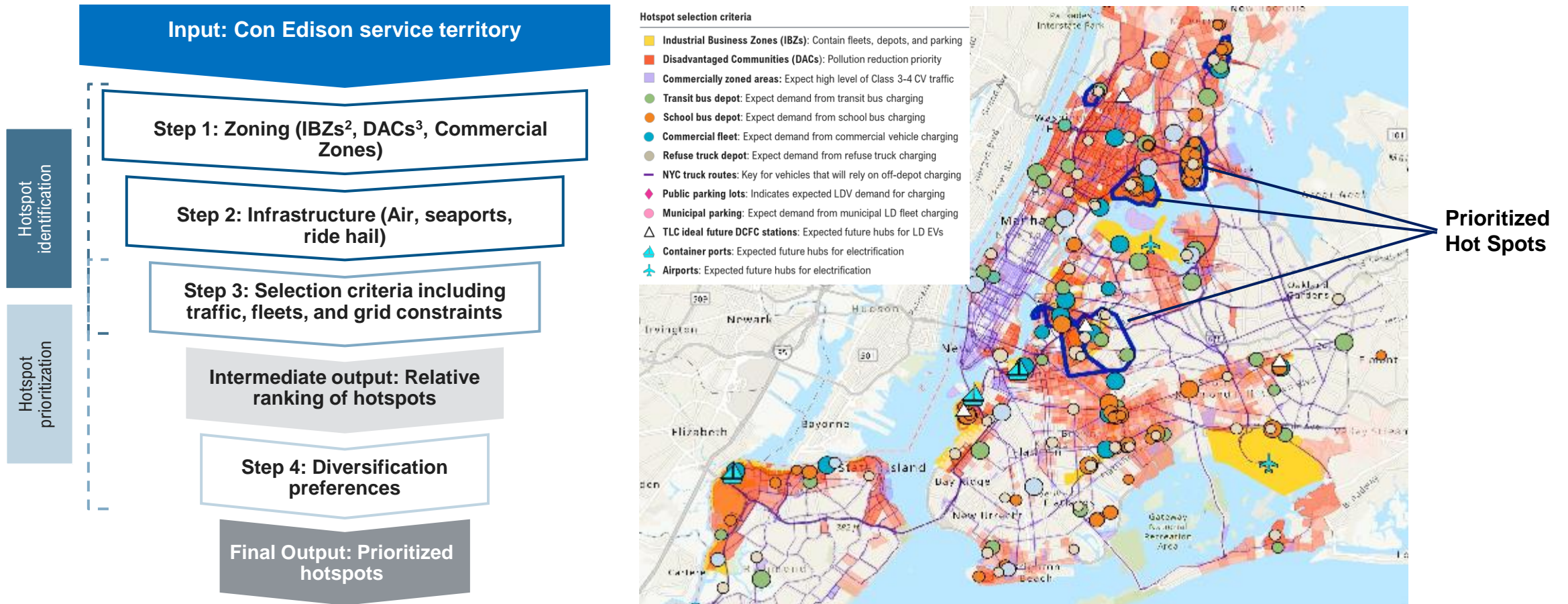
- Number of fleet HDVs
- Number of fleet MDVs
- Number of fleet LDVs
- CECONY Networks
- 1 – 88 vehicles
- 600 – 1,000 vehicles
- 1,000 – 2,000 vehicles
- > 8,000 vehicles

Source: Geotab



# Several characteristics were used to identify 14 hotspots across our service area and assess EV load impact

Hotspot identification and prioritization process<sup>1</sup>



1) Only known depots shown on map 2) IBZs = Industrial Business Zones 3) DACs: Disadvantaged Communities 4) Hotspot refers to preliminary areas of interest with EV charging concentration  
 Source: S&P Global, NYCEDC, US DOT, US DOE, Port Authority of New York and New Jersey, NYC DOT

# We completed a robust bottom-up study of vehicle count and charging demand to support proactive planning study objectives



**Total number of vehicles per site and use case**  
(Static with time)

- Registration data
- Geospatial review
- Fleet Size
- Weight Class



**Electrification rate per use case (2023 – 2040)**  
(Evolves over time)

- Project **rates of electrification** for each vehicle use case based on **policy** mandates and **economic benefits** of electrification



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

- Vehicles were categorized by end-use and charging characteristics to determine a load profile



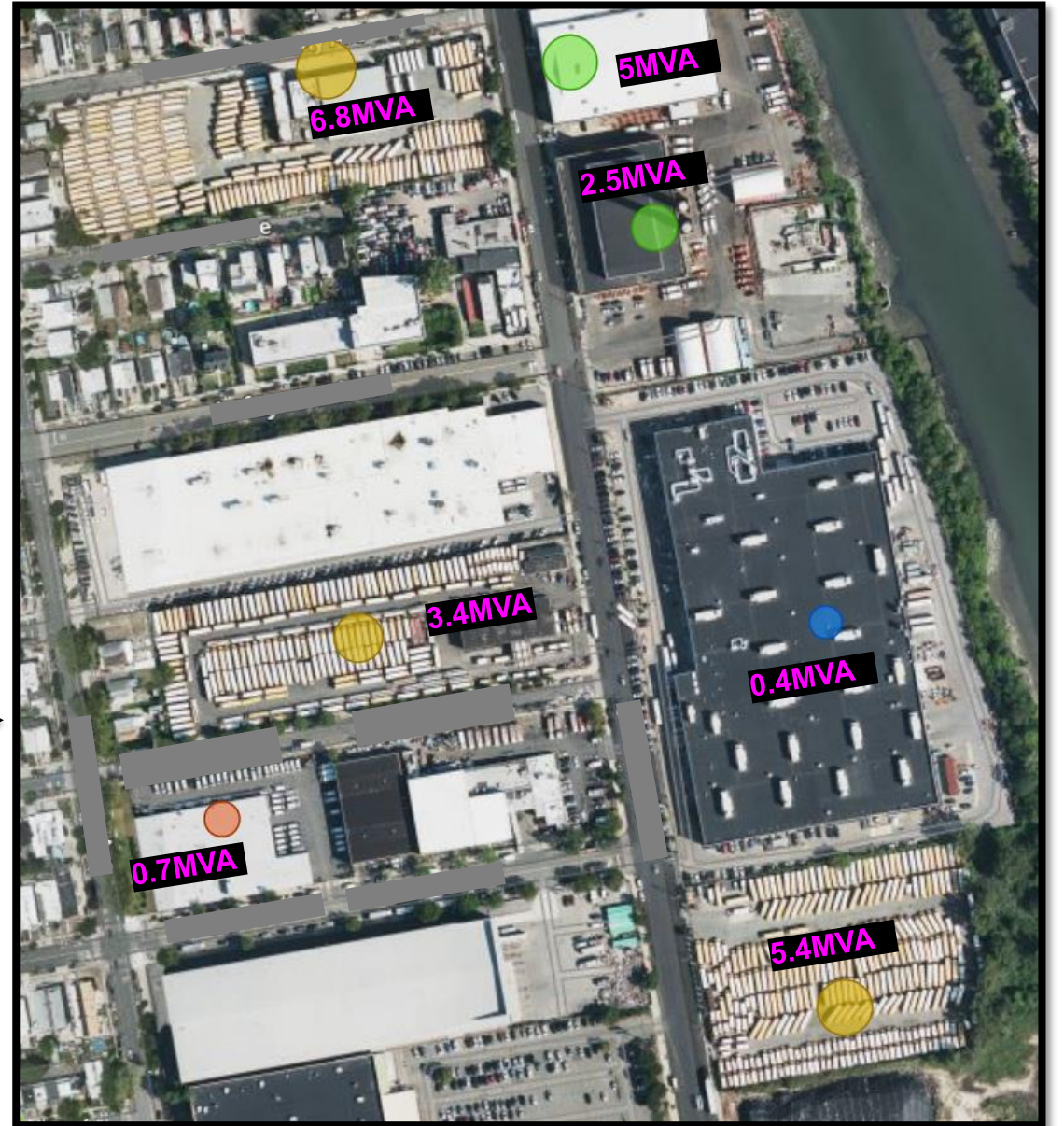
**Incremental EV load and peak demand by network**  
(Hourly, daily and yearly)

- Calculate the **incremental electricity production** attributed to vehicle electrification and its consequential effect on **load capacity** for Con Edison

# **Southeast Bronx Case Study**

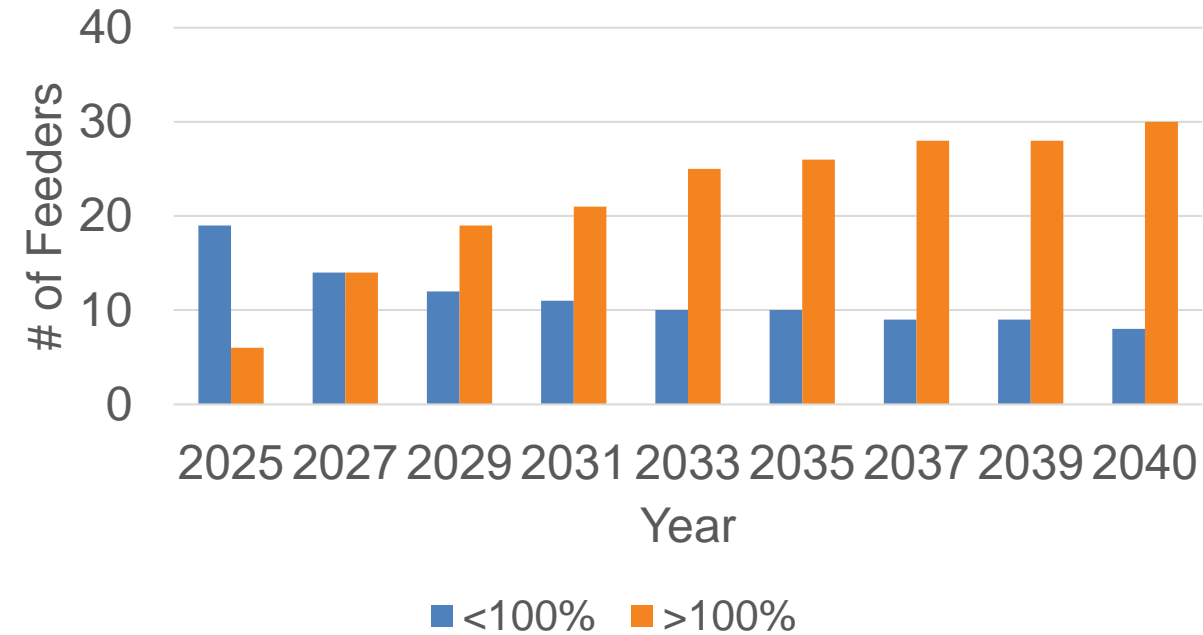


● Sanitation ● Transportation Bus ● School Bus ● Private Commercial

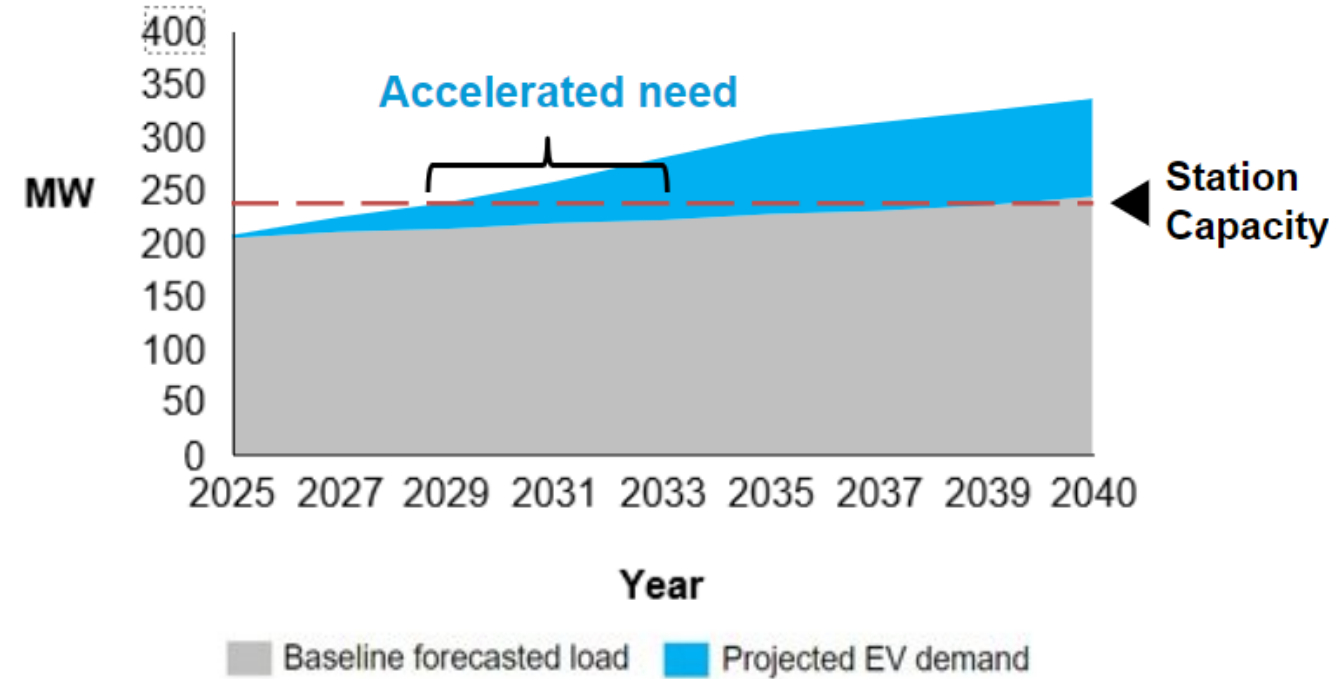


# Capacity analysis shows constraints at various level of the grid from primary feeders up through the substation

Feeder Loading by Year



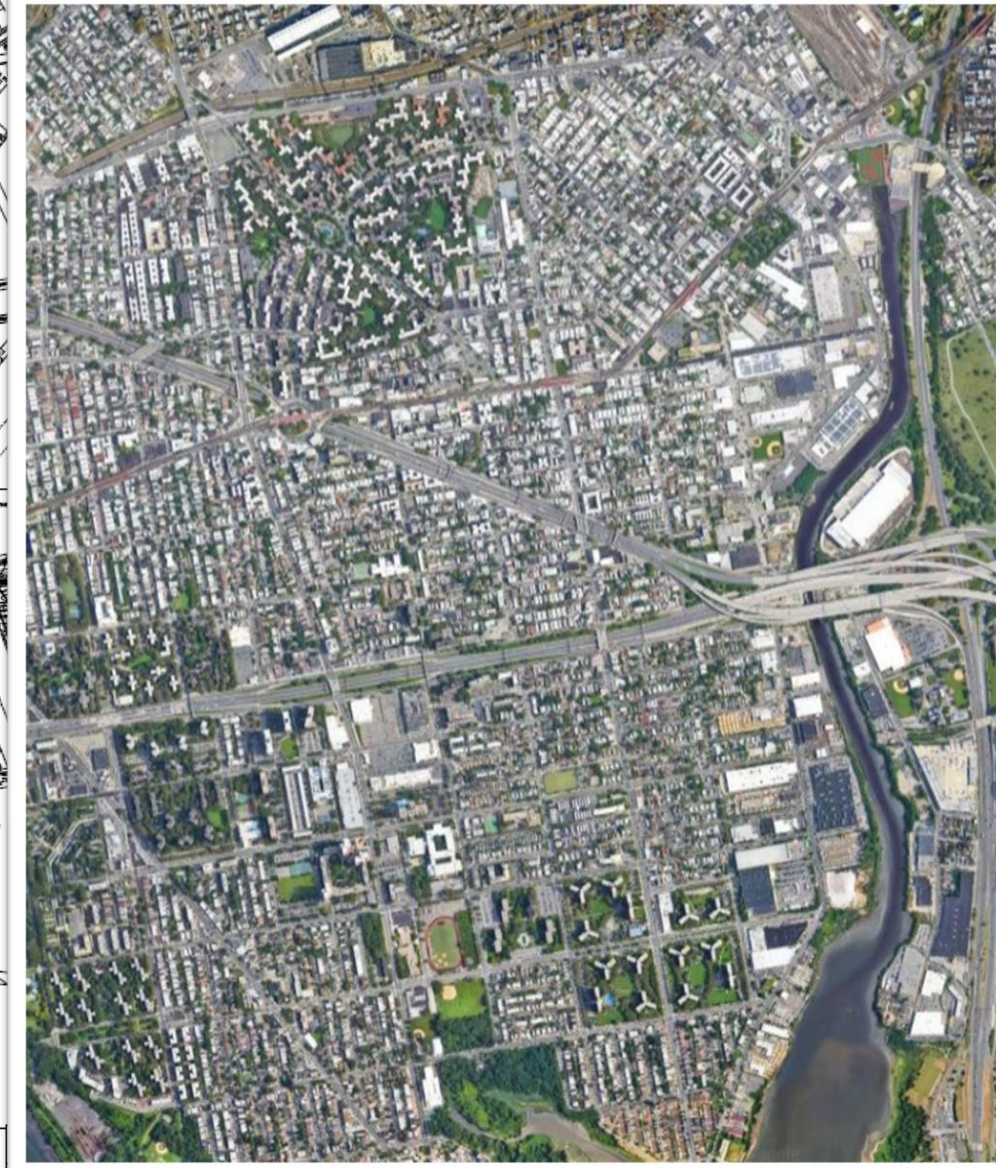
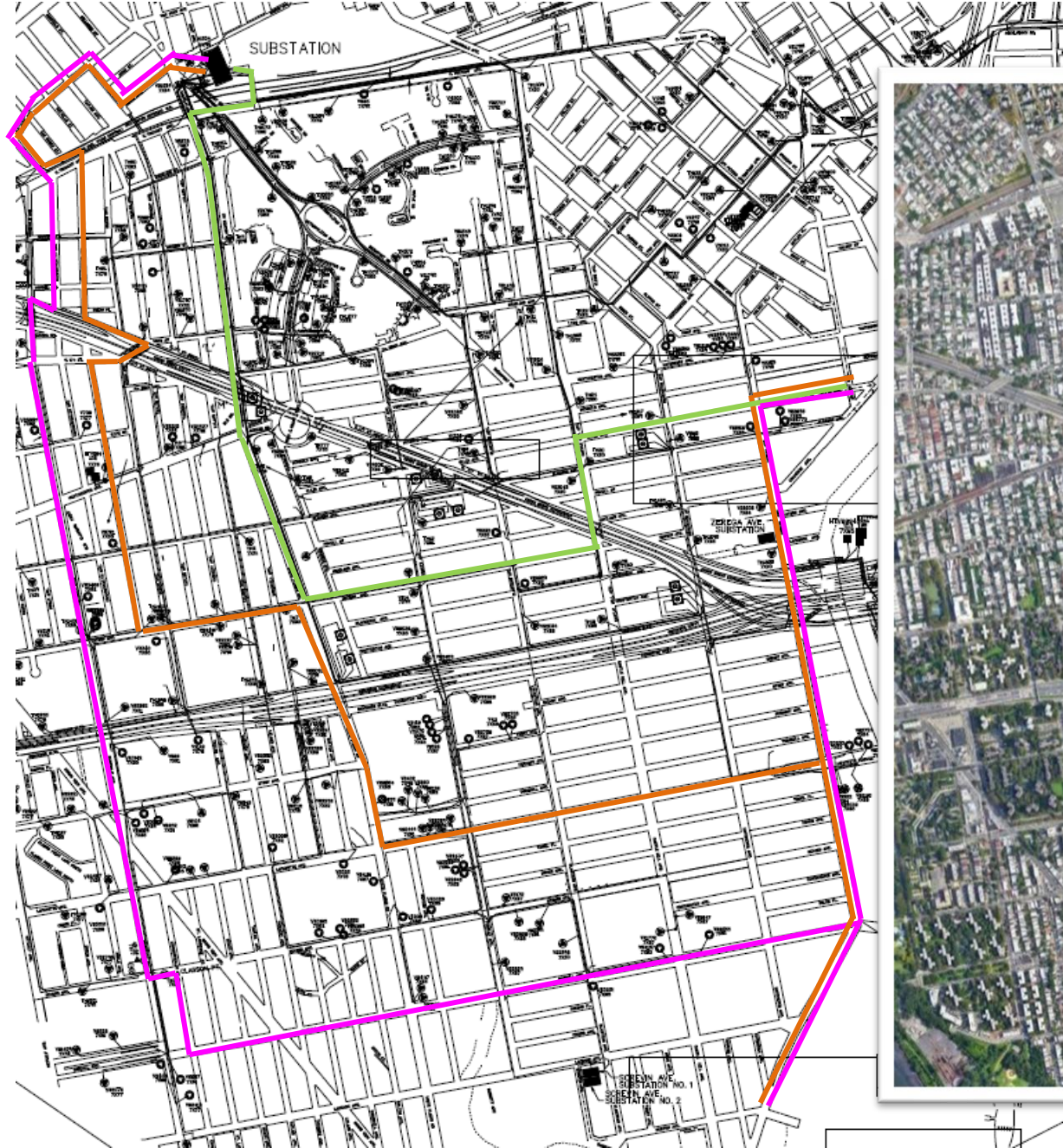
Station Loading by Year



*\*Baseline forecasted load: Projected and planned load independent of the EV fleet load identified in the case study*

# Preliminary Solution

- 3 Feeder Bands
- 12.3 Miles of feeder extensions
- 166 Structures
- 326 Cable Sections
- Area station load relief



# Key Takeaways

## Planning

- High MHDV concentrations will be in industrial and commercial areas, often in network fringe areas, bringing online rapidly increasing loads
- Early identification of fleet clusters, along with public fast-charging, provides an opportunity to identify areas with capacity needs
- Need to prepare for resource, equipment, and cable forecasting to execute successfully on an increased volume of grid investments

## Policy

- Ambitious clean transportation policy goals means the distribution and transmission systems need to grow in advance of load materialization
- The utility can play a critical support role in clean transportation progress through proactive planning

