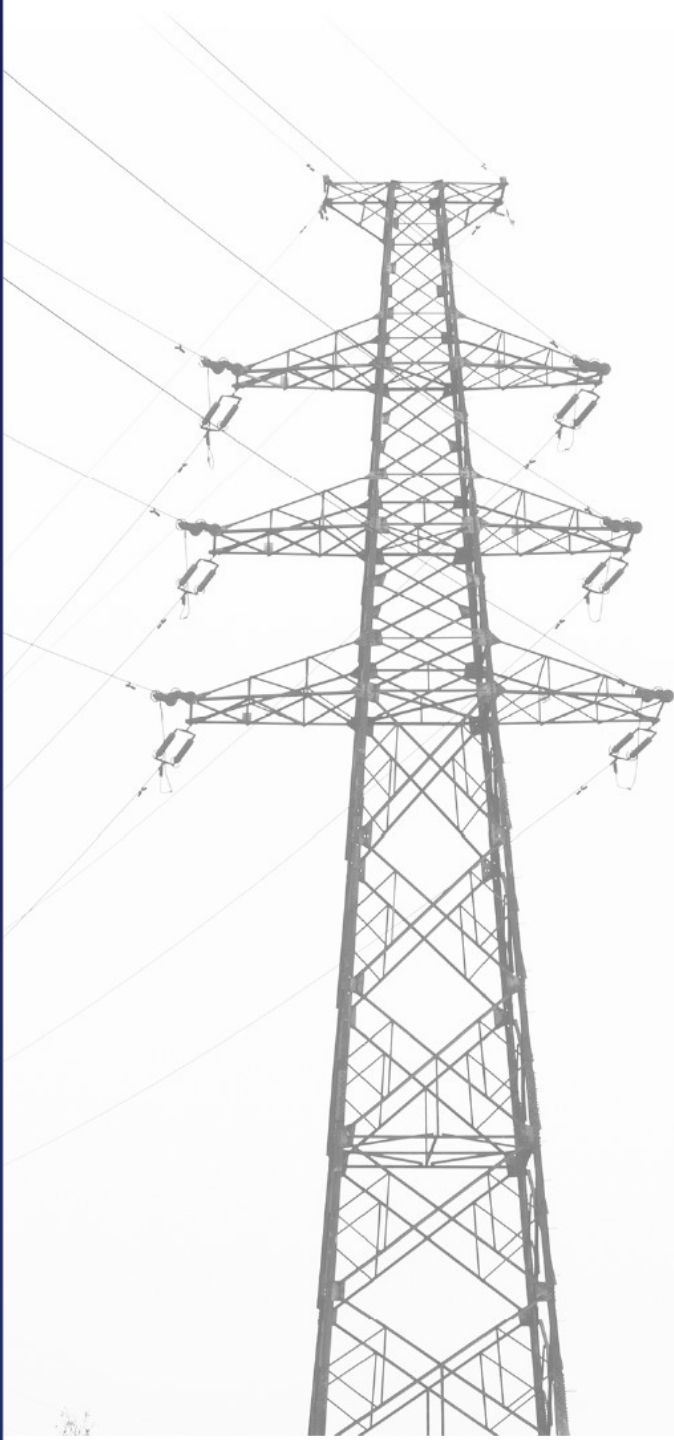




Forecasting Load Growth

A PROJECT OF





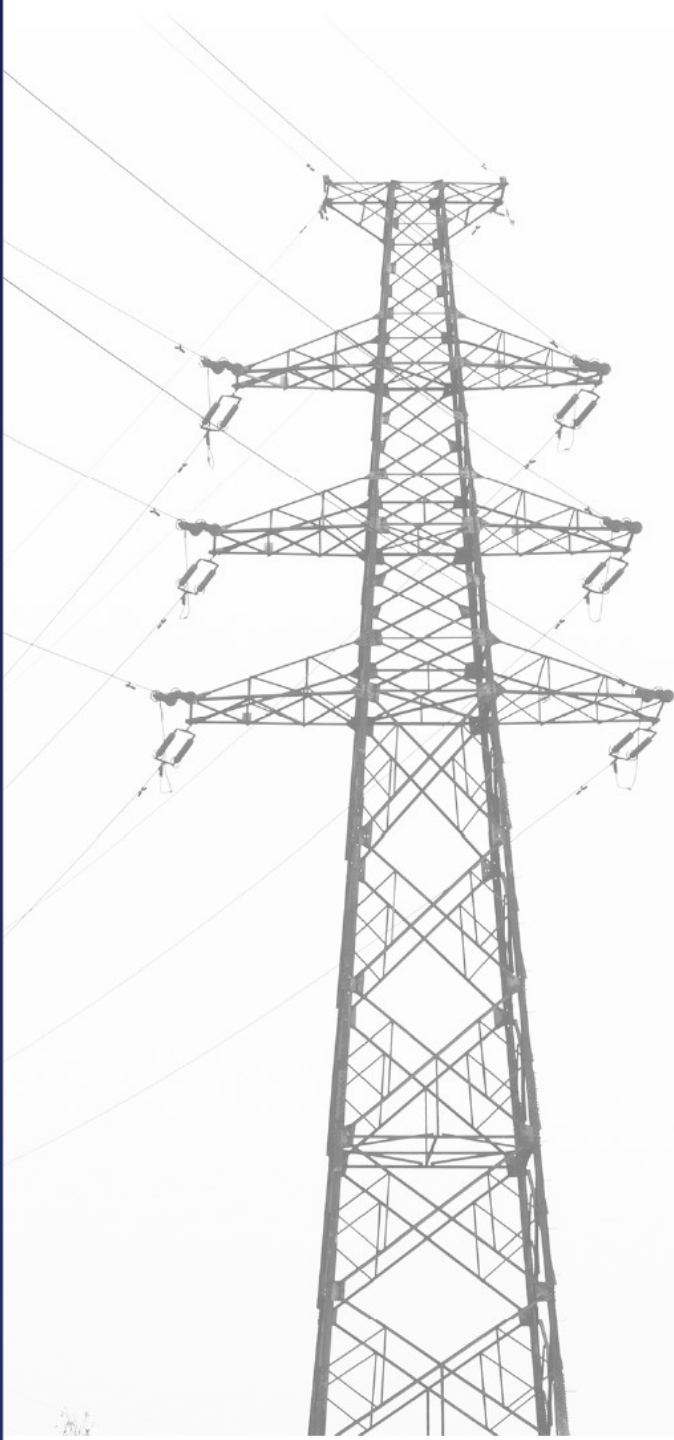
Future Power Markets Forum investigates proposals for market designs that maintain system efficiency and reliability with a high penetration of variable generation.

What

- Meetings of practitioners, experts and regulators
- Website and digital resource library to share the the research under discussion and the participant perspectives

How

- To encourage participation, there is no explicit or implied value judgment about whether we SHOULD have a high renewable penetration scenario
- To encourage candid discussions, Chatham House Rule will be followed (no attribution to individual speakers outside the meeting)
- To provide a high-quality resource to stakeholders and policy makers, presentations will be posted publicly if authorized by the speaker
- To ensure balance and quality, a diverse advisory committee will provide input on content and speakers



Thank You

Advanced Energy Economy

Alberta Electric System Operator

Amazon Web Services

American Council on Renewable Energy

BP

California ISO

Calpine

Clean Energy Buyers Association

ClearPath

Constellation

Electric Power Supply Association

Electric Power Research Institute

Electricity Consumers
Resource Council

Enel Foundation

Energy Foundation

Equinor

GE Power

Google

Gridlab

ISO New England

LS Power

Meta

Microsoft

Midcontinent Independent
System Operator

National Hydropower Association

Natural Gas Supply Association

New York Independent
System Operator

New York Power Authority

NextEra

Niskanen Center

NRG Energy

National Hydropower Association

Nuclear Energy Institute

PJM Interconnection

Rocky Mountain Institute

Sustainable FERC

Tenaska

Vistra



Moderator and Featured Experts



Katie Southworth, J.D.
Clean Energy Buyers Association



Jeff Bladen
Meta



Ivan Kimball
Consolidated Edison (ConEd)

Future Power Markets Forum

Forecasting Load Growth

November 16, 2023

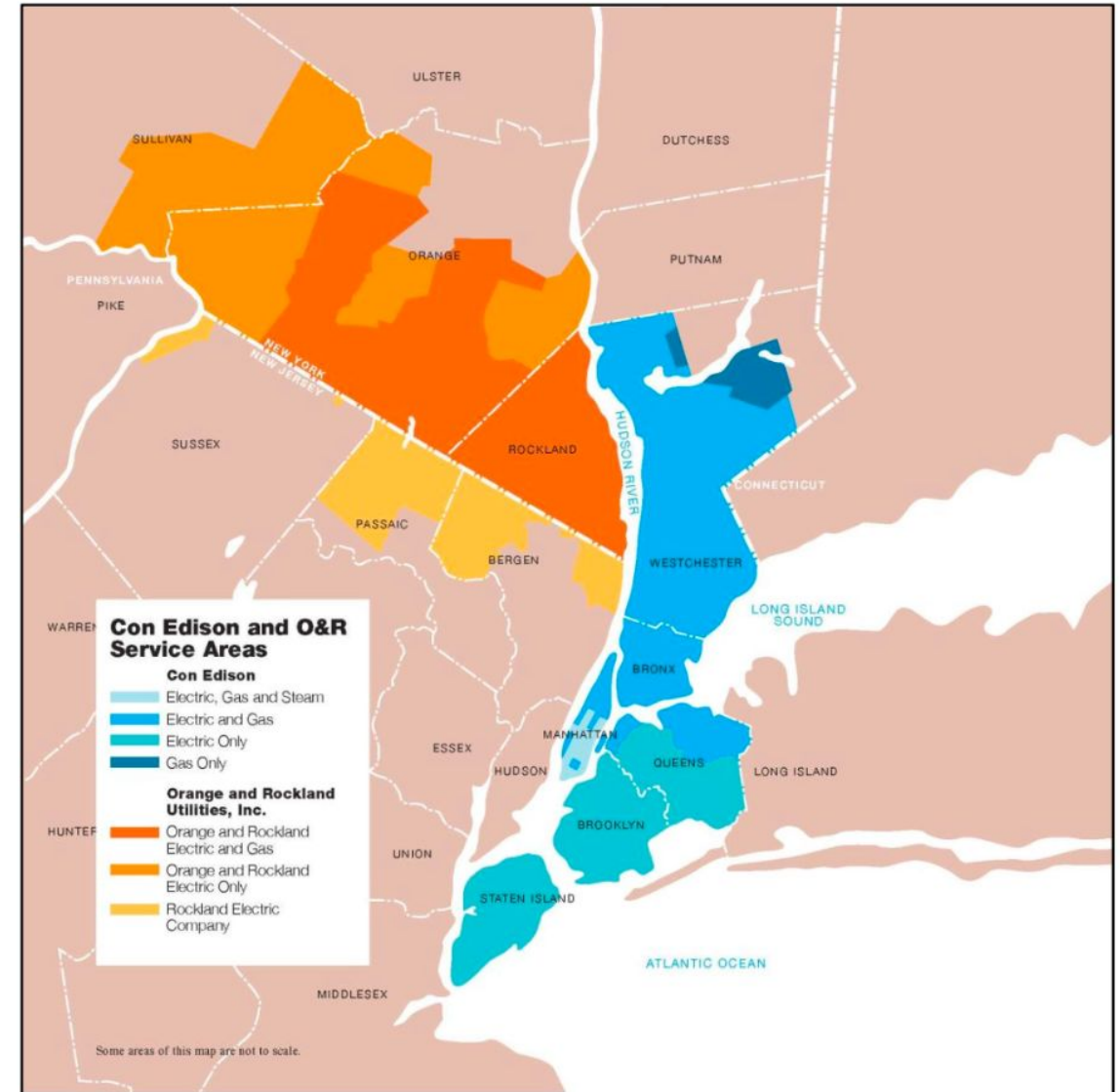
Service Territory

Con Edison

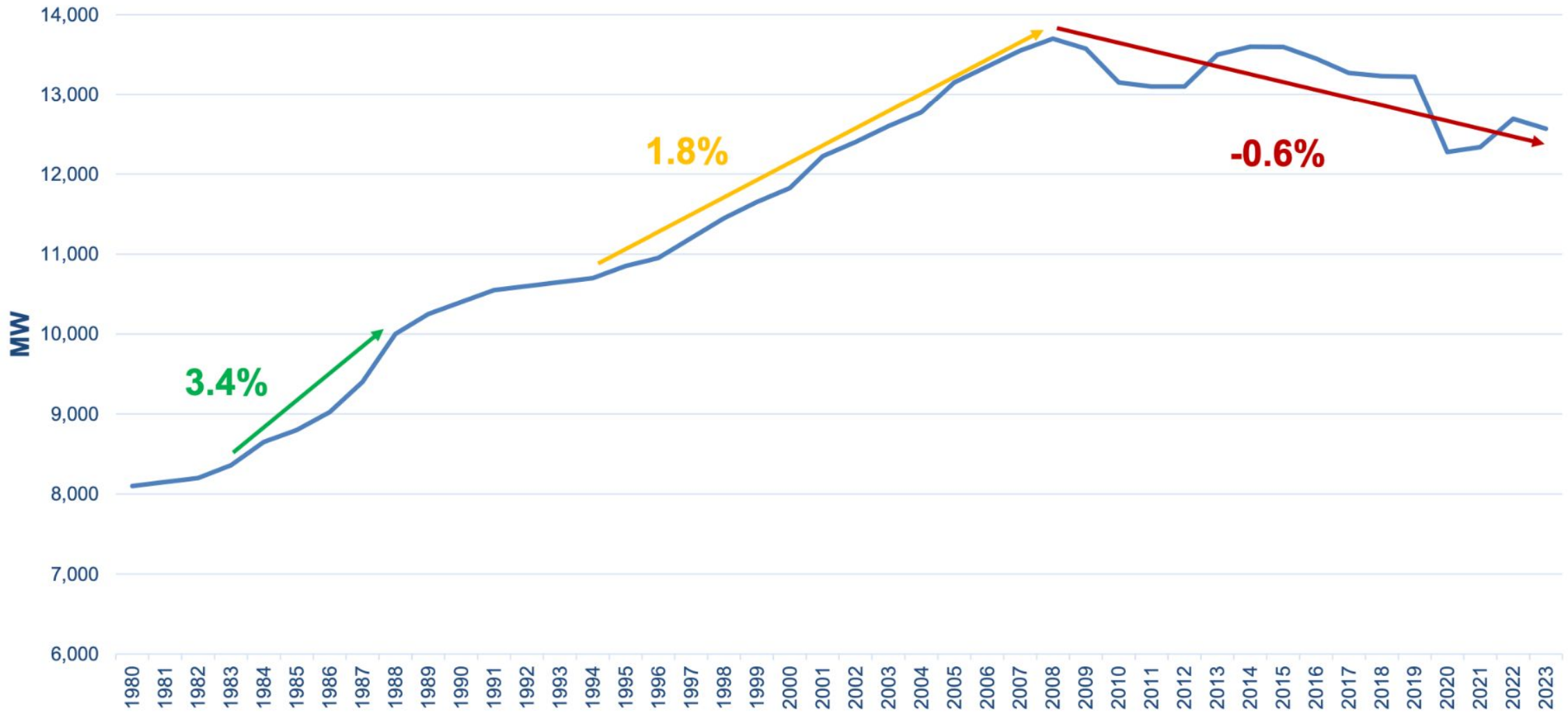
- Provides electric service to ~3.6M customers in all of NYC (except a part of Queens) and most of Westchester County (~ 660 sq. mi. service area with a population of more than 9M)
- Delivers gas to ~1.1M customers in Manhattan, the Bronx, parts of Queens and most of Westchester County
- Operates the largest steam distribution system in the United States by producing and delivering ~17,000 MMlb of steam annually to ~1,500 customers in parts of Manhattan

Orange & Rockland

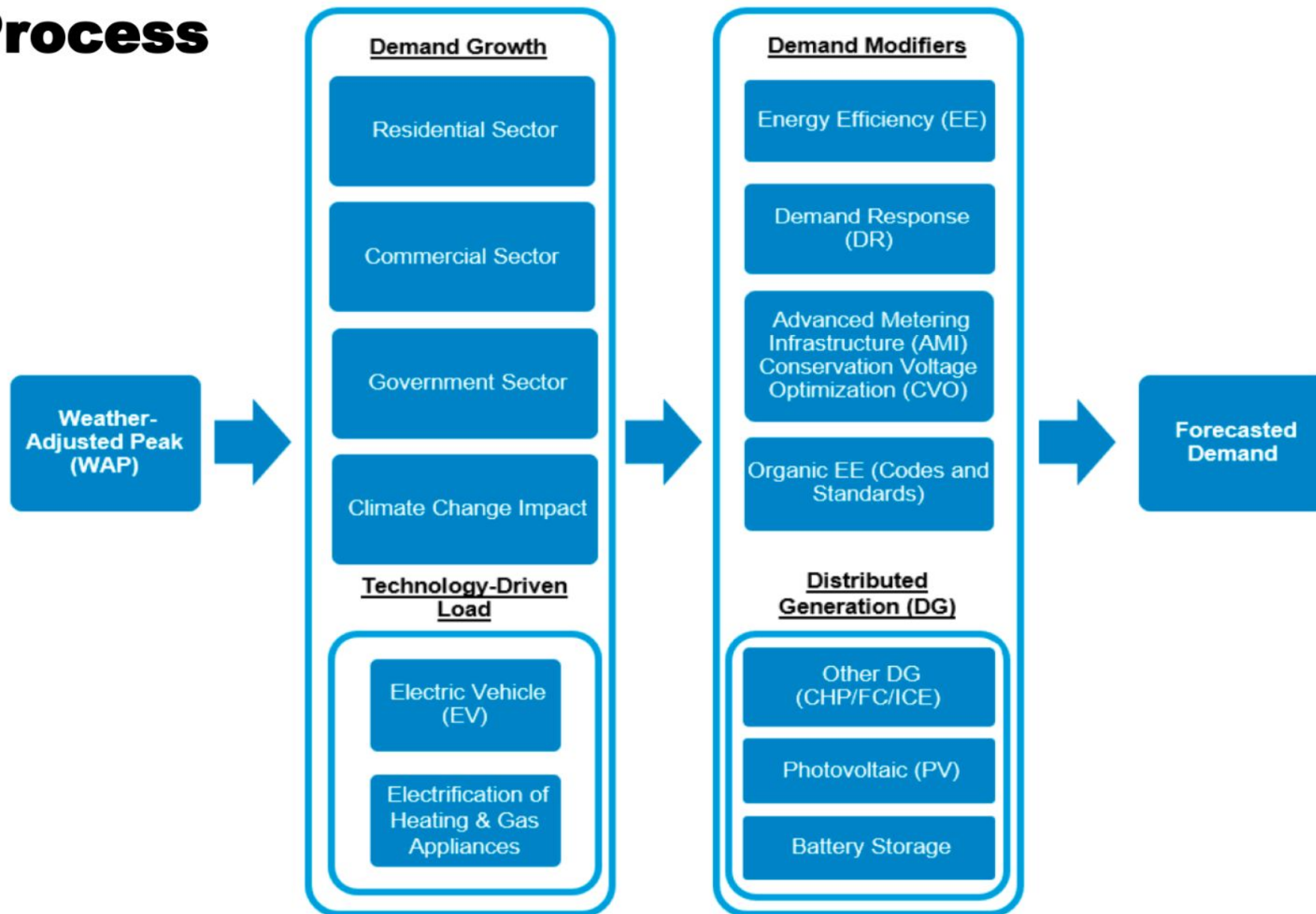
- With its subsidiary, Rockland Electric Company, provides electric service to ~300,000 customers in southeastern New York and northern New Jersey (~1,300 sq. mi. service area)
- Delivers gas to over 100,000 customers in southeastern New York



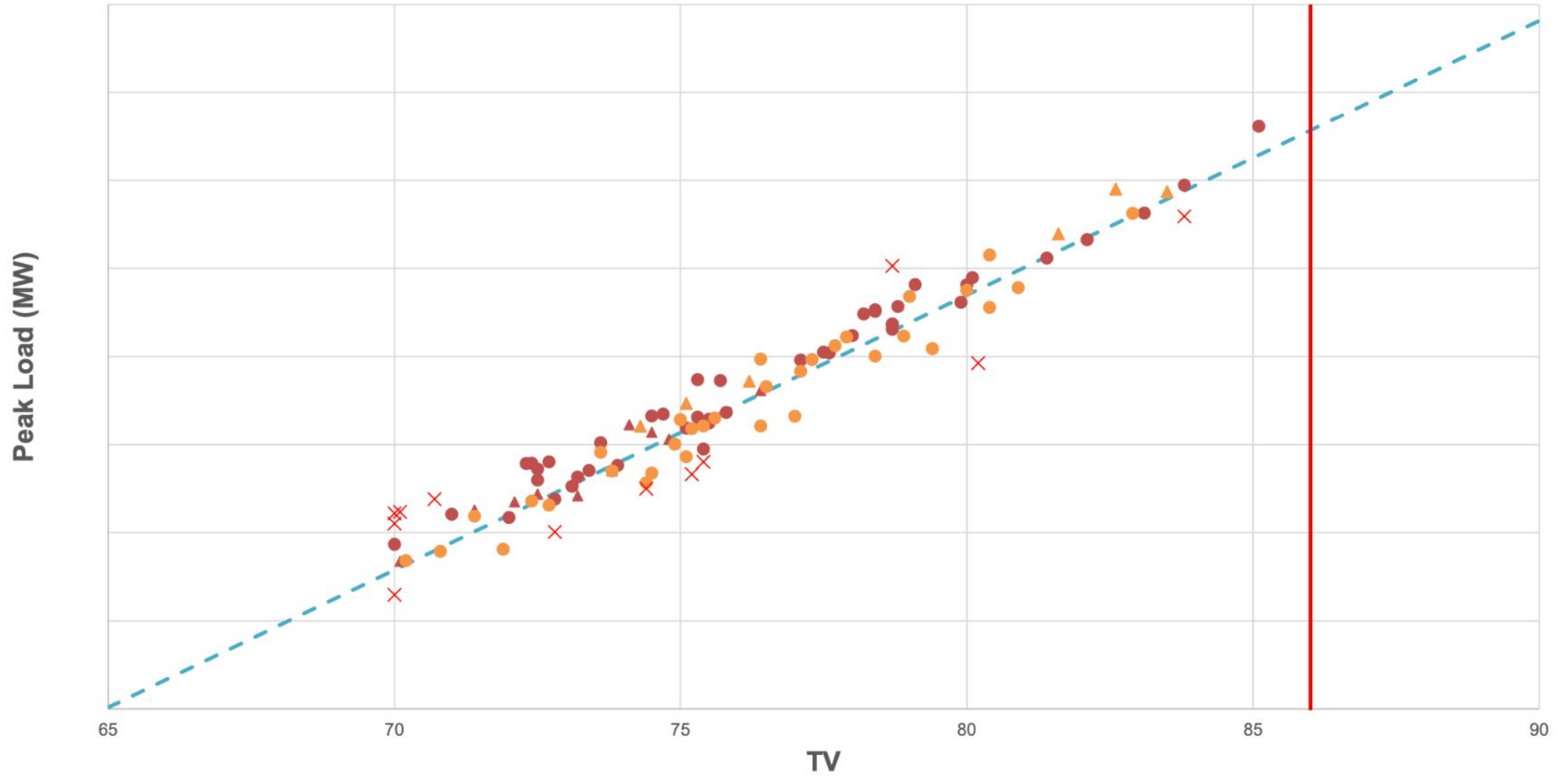
Electric System Weather Adjusted Peak History



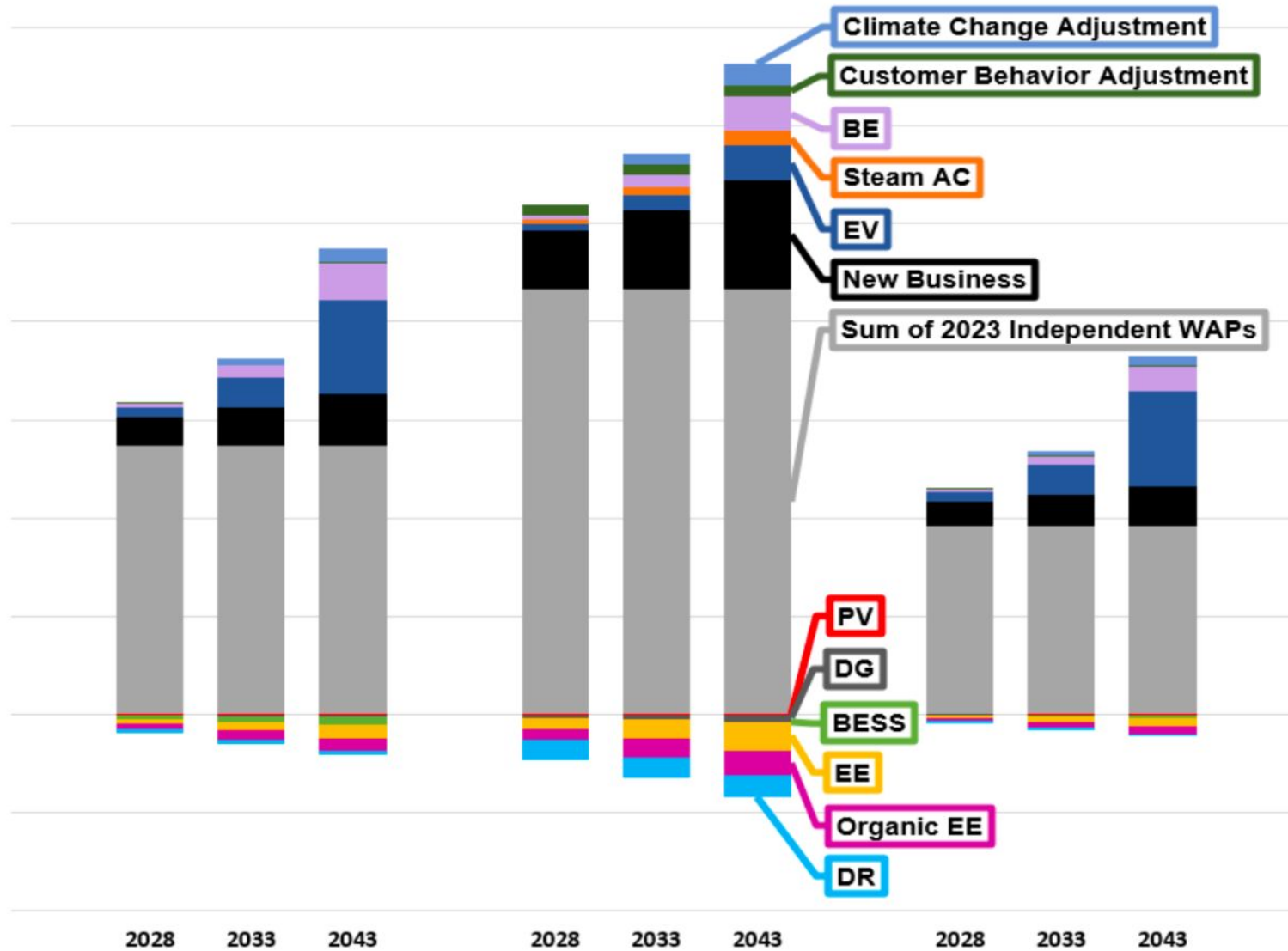
Forecasting Process



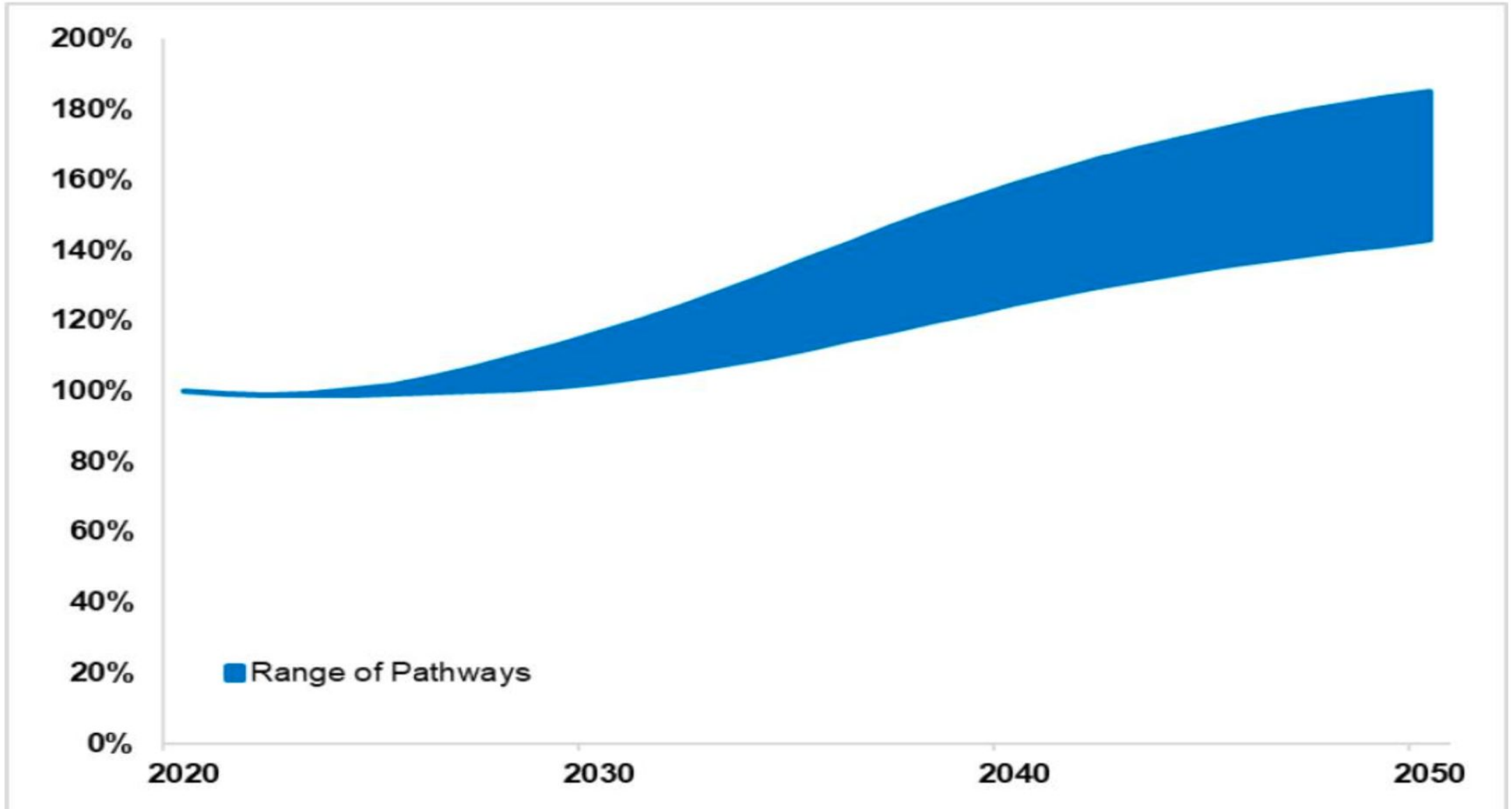
Weather Adjusted Peak (WAP) Analysis



20-Year Regional Summer Peak Impact



Future Electric Demand

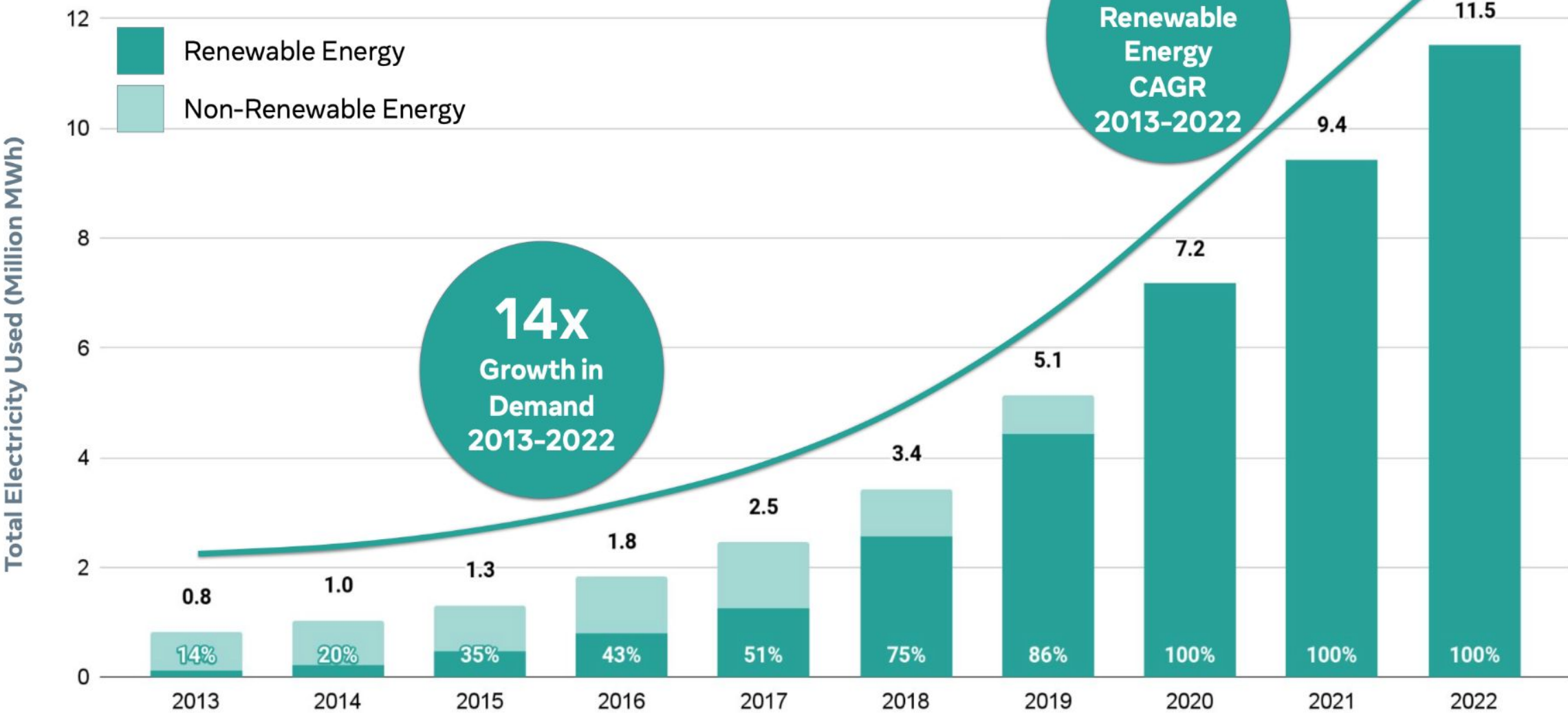


Challenges

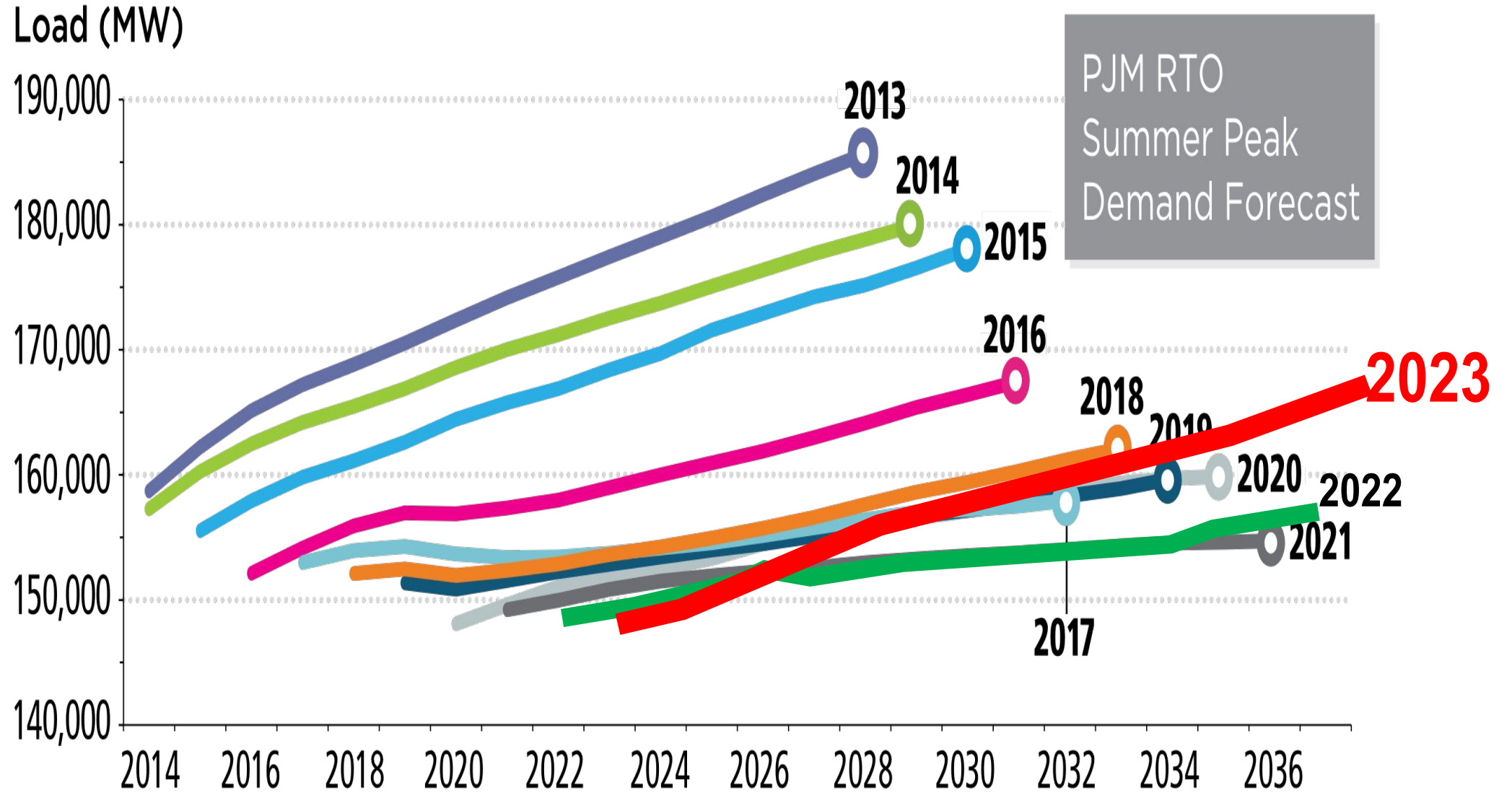
- Policy decisions
 - Incentive programs (EE, managed charging)
 - Regulatory mandates (codes and standards, appliance bans)
- Infrastructure considerations
 - Reliability and Resiliency
 - NYC construction timelines and costs
 - Outage coordination on a dual-peaking system
- Technology and customer preferences
 - Climate activism
 - Electrification options
 - AMI data integration
- Forecast 'Modifier' Line Items
 - New Business, Electric Vehicles (EV), Building Electrification (BE), Battery Energy Storage Systems (BESS), Energy Efficiency (EE), Weather Adjusted Peak (WAP)

Meta Renewable Energy Progress

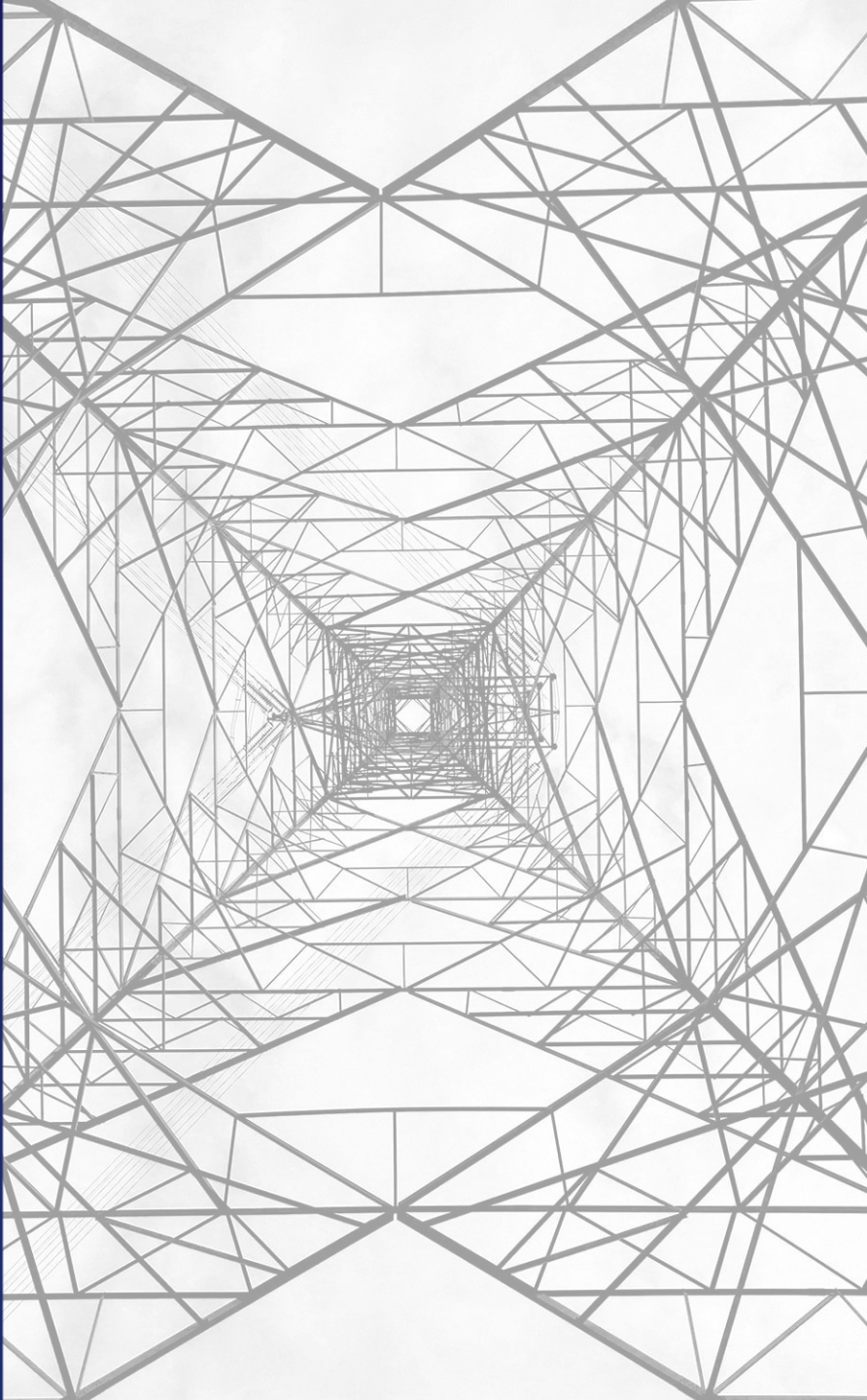
Maintaining 100% CaRE* while keeping pace with rapid DC load growth



Note chronic underforecast of PJM summer peaks **and 2023's projection of increased growth rates**



Adapted by B. Hobbs from [learn.pjm.com/three-priorities/planning-for-the-future/load-forecasting.aspx](https://www.pjm.com/learn/pjm.com/three-priorities/planning-for-the-future/load-forecasting.aspx)
with 2022 and 2023 data from www.pjm.com/-/media/library/reports-notice/load-forecast/2023-load-report.aspx

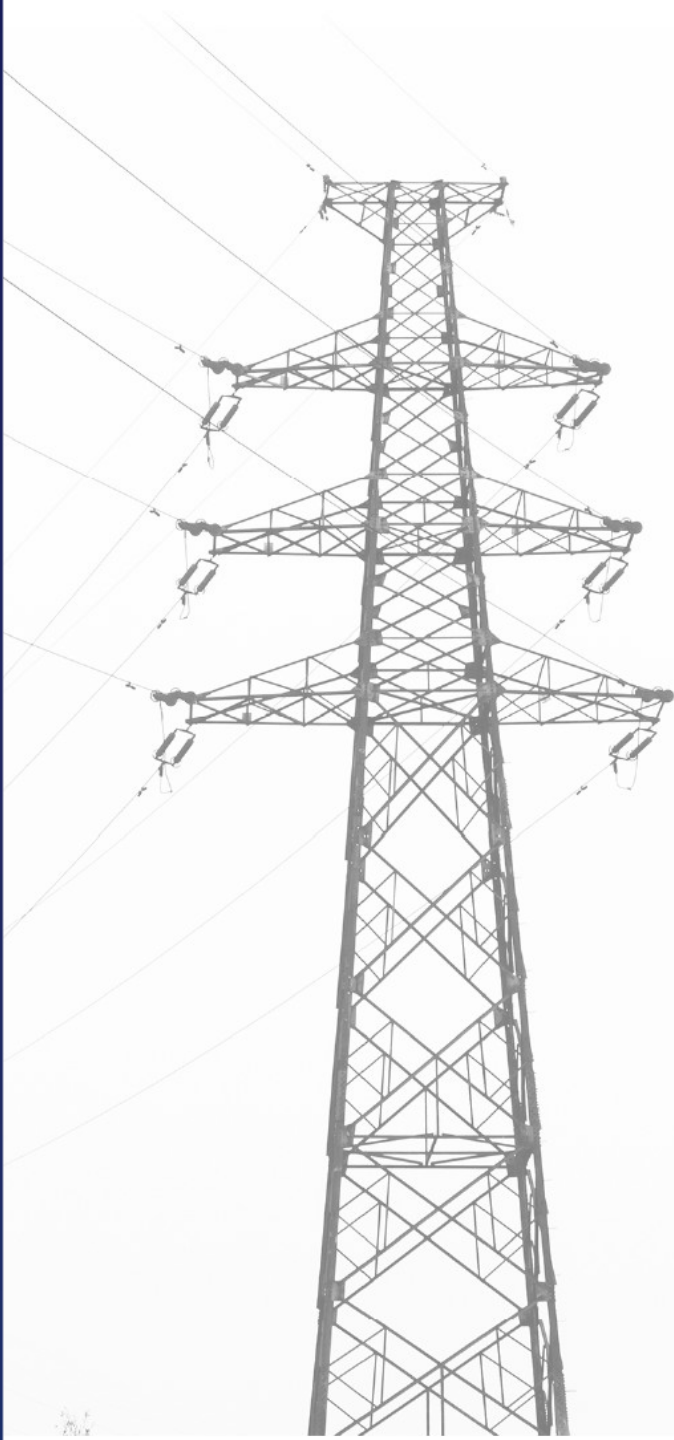


Coming up:

Forward Contracts: Hedging and Resource Adequacy

12/14, 2-3:30 pm ET

With Prof. Peter Cramton, University of Maryland and Cologne (ret.)



Thank You

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Contact team@powermarkets.org