Load Forecast Development & Use in PJM

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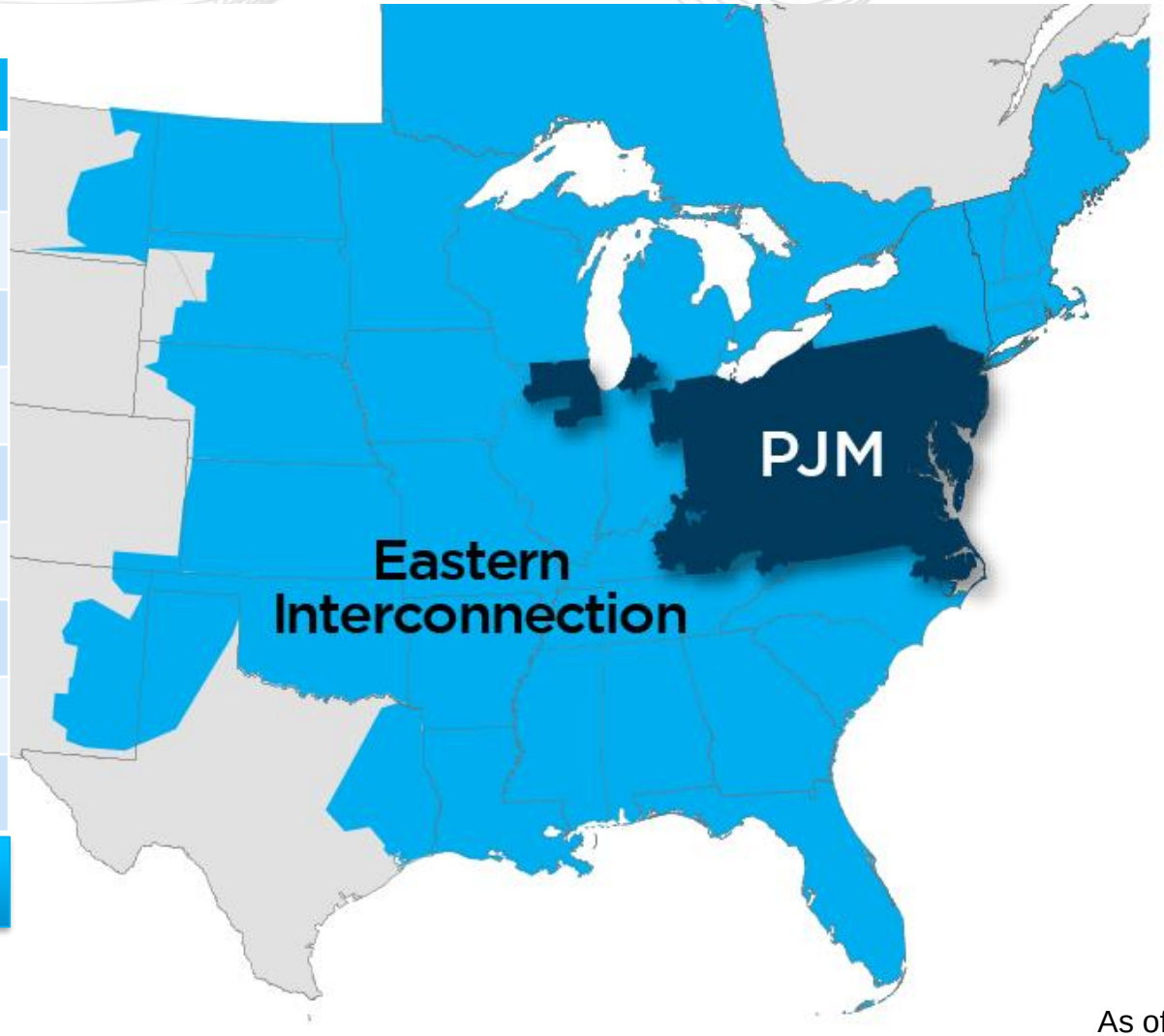
PJM as Part of the Eastern Interconnection

Key Statistics	
Member companies	1,090
Millions of people served	65+
Peak load in megawatts	165,563
Megawatts of generating capacity	180,785
Miles of transmission lines	88,185
Gigawatt hours of annual energy	770
Generation sources	1,419
Square miles of territory	368,906
States served	13 + DC

21% of U.S. GDP produced in PJM



As of 2/2024

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Load Forecast Process

PJM independently produces an annual load forecast that is used in transmission planning and markets analysis.

Planning horizon is 15 years.

Forecast is based on a multivariable regression model.

Forecast is reviewed with stakeholders and published each December/January.

Model changes and requested load adjustments are reviewed throughout the year with PJM's stakeholder groups – Load Analysis Subcommittee and Planning Committee.

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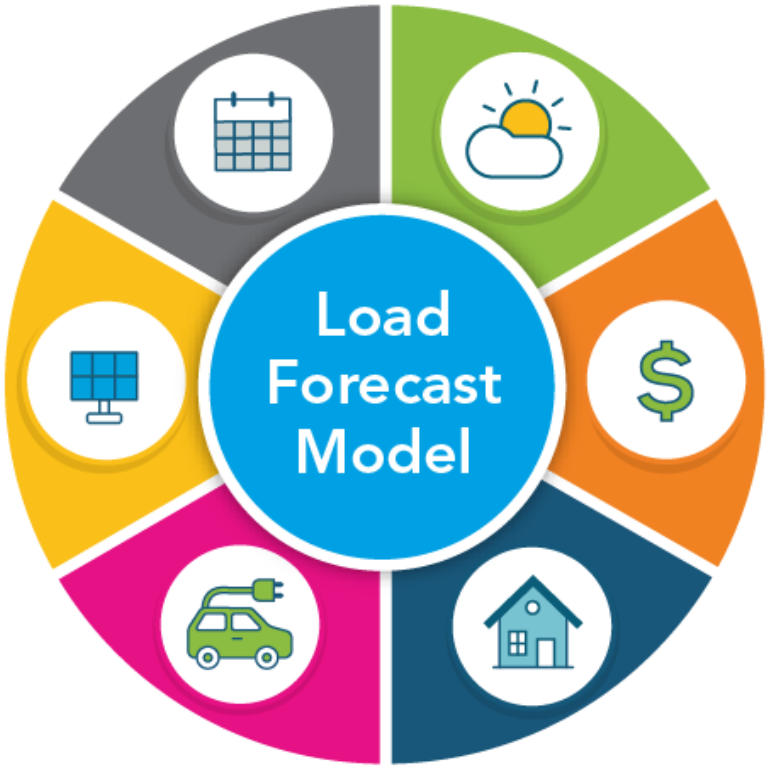
PJM Load Forecasting



Weather Conditions

- Weighted-average temperature, humidity and wind speed
- Cooling and heating degree days
- 30+ weather stations across PJM

Energy Efficiency/End-Use Characteristics

- Cooling equipment saturation and efficiency
- Heating equipment saturation and efficiency
- Other equipment saturation and efficiency

Economic

- Real personal income
- Households
- Employment
- Working age population
- Real industrial output

Calendar/Solar Data & Electric Vehicles

- Day of week
- Month
- Weekends/ holidays
- Distributed solar generation
- Plug-in electric vehicles

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Forecast Adjustments

Electric Distribution Companies (EDCs) and Load Serving Entities (LSEs) are encouraged to provide PJM with information about large changes that may not be captured in the forecast process.

We view requests through the lens of:

Is the request significant?

PJM reviews the magnitude or percentage of a zone's load.

Is there risk of double counting?

- PJM reviews economic forecast to determine if load shift is captured.
- PJM obtains hourly load history to isolate impact and avoid double counting.

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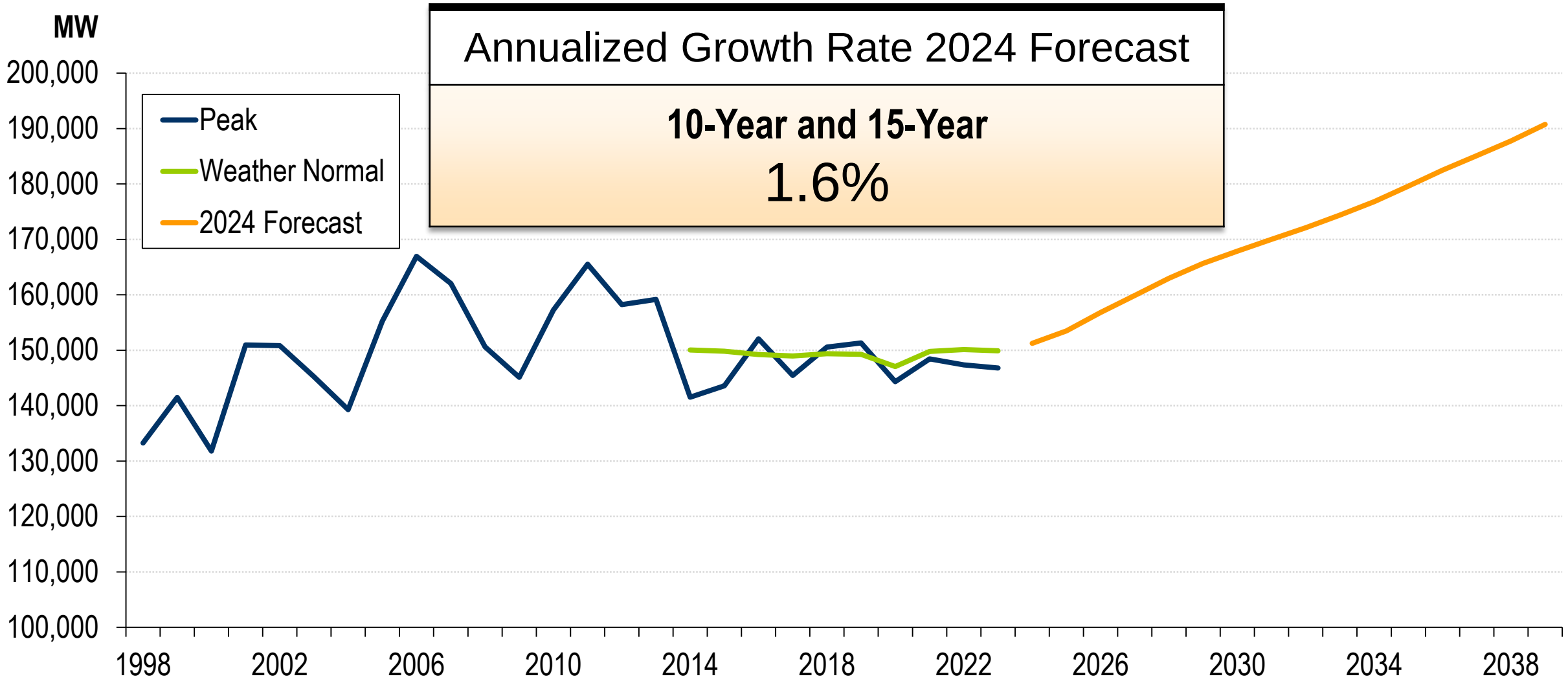
PJM RTO Summer Forecast 2024



Annualized Growth Rate 2024 Forecast

10-Year and 15-Year

1.6%

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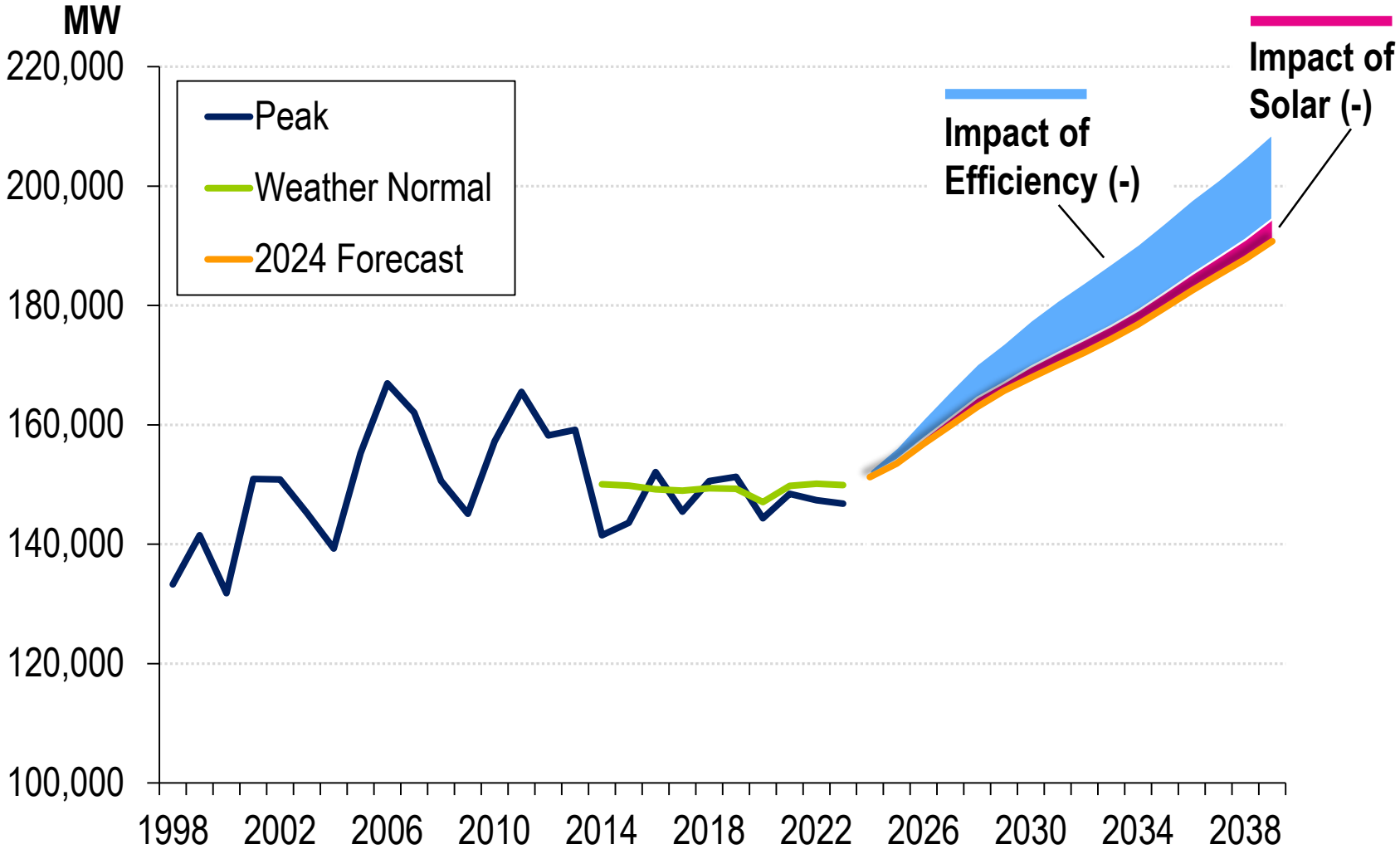
Impact to Summer Forecast (-)
Distributed Solar and Energy Efficiency



Energy efficiency and distributed solar **reduce** load growth.

- Without these trends, 15-year average load growth would be 0.5% points faster (2.1% vs 1.6%).
- The savings are split roughly 80/20 between efficiency and solar, respectively.

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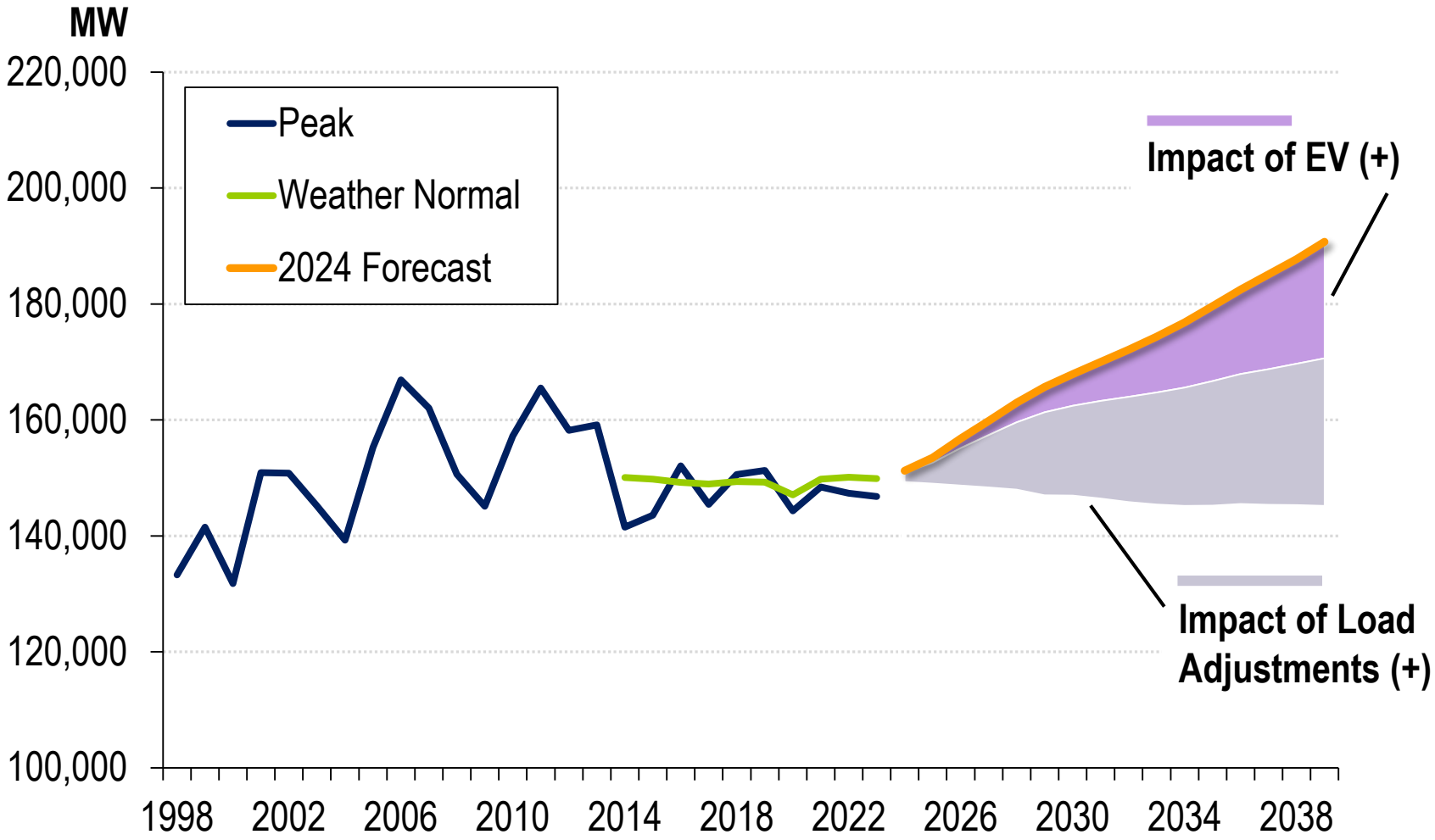
Impact to Summer Forecast (+)
Electric Vehicles and Large Load Adjustments



Electric vehicles and large load adjustments **support** load growth.

- Without these trends, 15-year average load growth would be 1.8 percentage points slower (1.6% vs -0.2%).
- The growth drivers are split roughly 60/40 between large load adjustments and electric vehicles, respectively by the end of the forecast.

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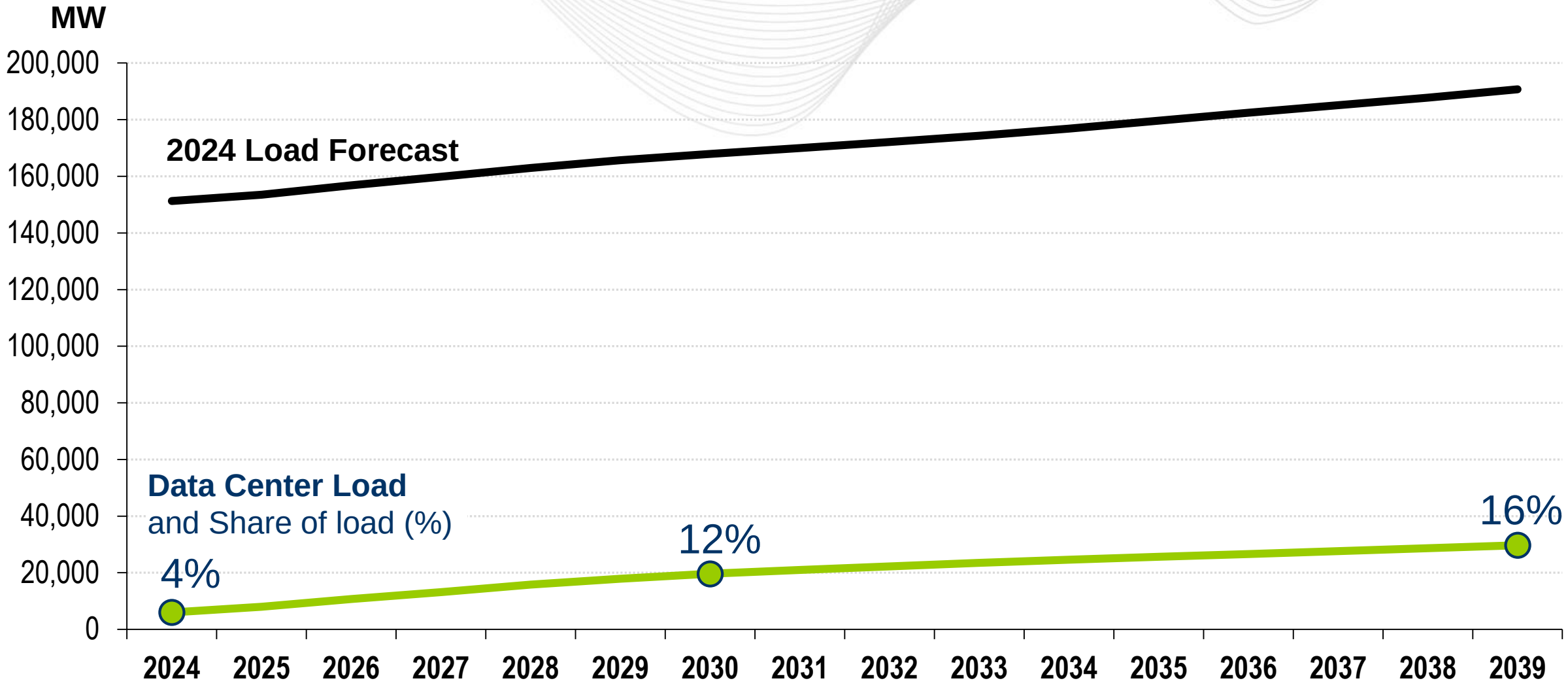
2024 Load Forecast – Summer Peak (MW)



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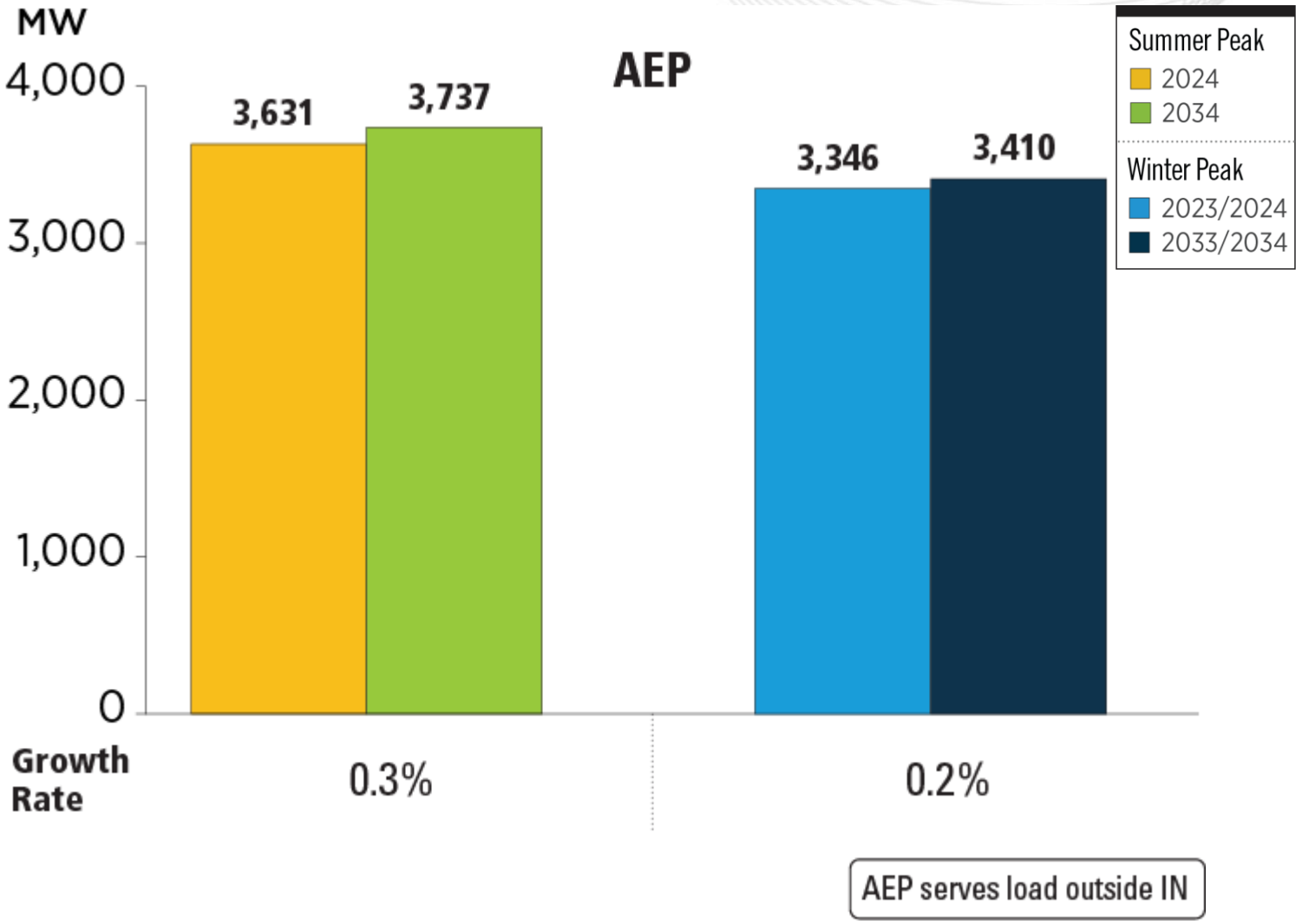
IN – 2024 Load Forecast Report



PJM RTO Summer Peak		PJM RTO Winter Peak	
2024	2034	2023/2024	2033/2034
151,247 MW	176,822 MW	134,659 MW	163,069 MW
Growth Rate 1.6%		Growth Rate 1.9%	

The summer and winter peak megawatt values reflect the estimated amount of forecast load to be served by each transmission owner in the noted state/district. Estimated amounts were calculated based on the average share of each transmission owner's real-time summer and winter peak load in those areas over the past five years.

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Links to Load Forecast Materials

- Load Forecast Development Process
  https://www.pjm.com/planning/resource-adequacy-planning/load-forecast-dev-process
- Supplement provides an overview of 2024 Load Forecast inputs and assumptions:
  https://www.pjm.com/-/media/planning/res-adeq/load-forecast/load-forecast-supplement.ashx
- Manual 19: Load Forecasting & Analysis

  https://www.pjm.com/-/media/documents/manuals/m19.ashx
- Load Analysis Subcommittee
  https://www.pjm.com/committees-and-groups/subcommittees/las

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