

Session 4: What's With the PJM Load Forecast??

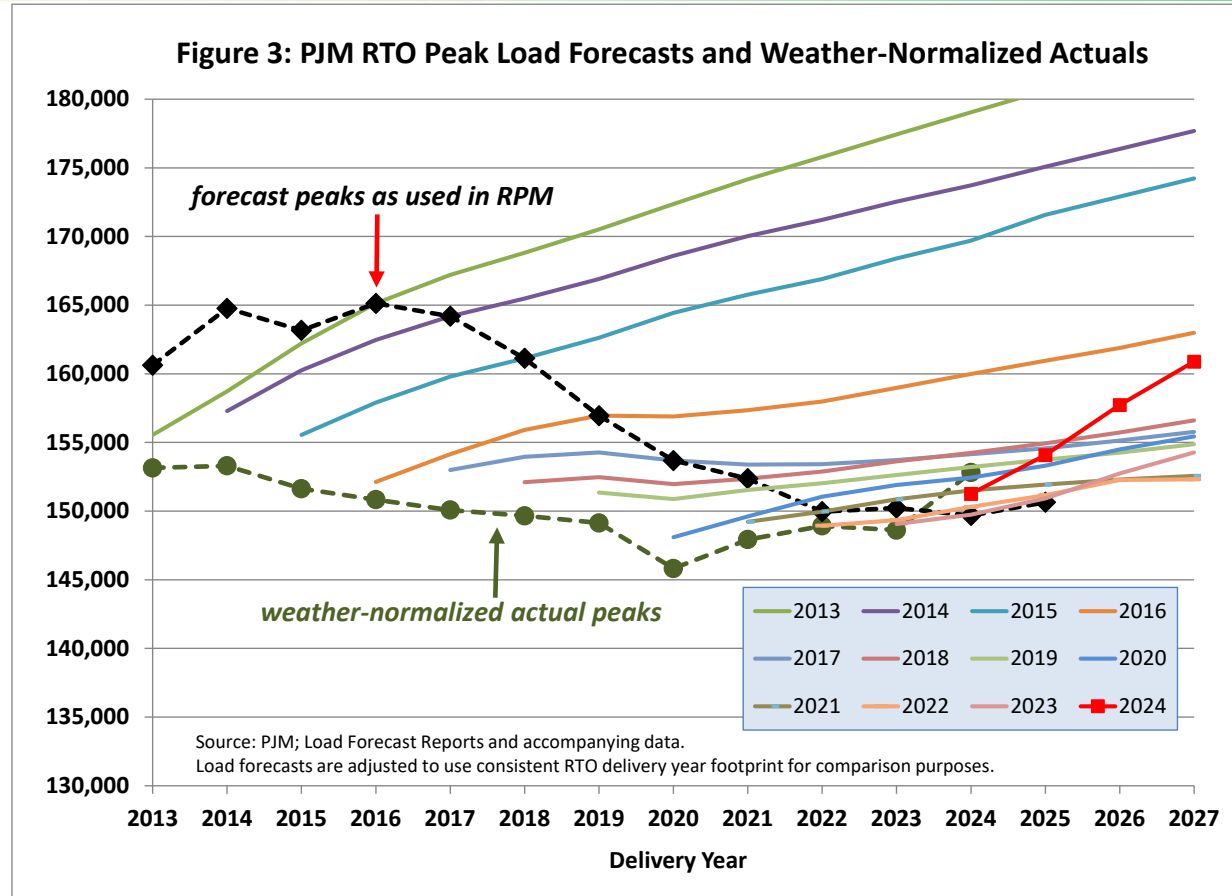
James F. Wilson
Principal, Wilson Energy Economics

Organization of PJM States Annual Meeting
October 22, 2024

Views expressed are my own and not necessarily those of any client

History and Most Recent Forecast

- The RTO weather-normalized peak was declining or flat for well over a decade (fell 2022 to 2023, rose in 2024)
- PJM over-forecasted the next summer weather-normal peak 17 years in a row (before 2024)
- Risk (or just worry?) now in winter? Forecast winter 90/10 peaks > 5% below summer 90/10.



A New Type of Load; Growth is Highly Uncertain

- PJM and other regions are now seeing a new kind of load growth
 - No longer “organic”: mostly very large, new “point” loads
 - Three main types: Data Centers, Electrified Industrial, Crypto
 - Some represent economic development; others do not (data centers, crypto)
 - These new loads have substantial flexibility as to location: region, state, county; PJM and Virginia are overbuilt relative to any other region
 - Large fraction of the growth is proposed by a very short list of companies (tech majors Google, Amazon, Microsoft in a race for the AI future...)
- Forecasts may be reasonably solid for the coming few years, but are generally much more speculative beyond 2-3-4 years out

PJM Accepts Speculative, Inconsistent EDC Forecasts

1. PJM invites 15-year forecasts of large loads from PJM utilities
 - Different EDCs use very different approaches (more, less speculative)
2. PJM reviews, includes the EDC forecasts in its forecasts
3. The PJM forecasts drive transmission, generation investment
4. But the potential new customers, to extent they are known, have very little skin in the game and some may not show up

***Problems: 1) the forecast is speculative, especially 5-15 years out;
2) firmness of the forecast varies widely EDC zone to EDC zone;
3) there is risk of stranded cost if the load doesn't show up.***

Very Large but Uncertain New Loads: What to Do?

Must move away from the “passive load” model (EPRI report)

1. Encourage large loads to be active participants, minimize impact on grid: load flexibility, on-site or contracted generation and storage, etc. (ERCOT)
2. If new customers unwilling to go that way, require long-term take-or-pay contracts (AEP approach)
3. Only include the apparently firm, high-likelihood loads in forecasts
4. Prioritize requests that meet these criteria, represent economic development

Those measures would help to firm up the load projections. PJM should also hire an outside forecaster to prepare multiple load forecast scenarios.

Key is for regulatory authorities to make it clear *who will bear the cost if large investments are undertaken to serve loads that do not show up* (existing residential, commercial and industrial customers should not bear this risk).

References re: Load Forecasting, Data Centers, etc.

Electric Power Research Institute: *Powering Intelligence: Analyzing Artificial Intelligence and Data Center Energy Consumption*: <https://www.epri.com/research/products/000000003002028905>

U.S. D.O.E *Recommendations on Powering Artificial Intelligence and Data Center Infrastructure*: <https://www.energy.gov/sites/default/files/2024-08/Powering%20AI%20and%20Data%20Center%20Infrastructure%20Recommendations%20July%202024.pdf>

Maryland Office of People's Counsel letter re: PJM load forecast, and Board response: <https://pjm.com/-/media/about-pjm/who-we-are/public-disclosures/2024/20240718-med-opc-letter-to-pjm-board.ashx>; <https://pjm.com/-/media/about-pjm/who-we-are/public-disclosures/2024/20240809-pjm-board-response-to-md-opc-letter-re-robustness-consistency-of-pjm-long-term-load-forecasts.ashx>

S&P Global re: Moody's, Fitch on credit risks due to data center loads: <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/credit-risks-loom-for-utilities-that-overestimate-datacenter-demand-82567534>

ERCOT Large Load and Large Flexible Load process and rules: <https://www.ercot.com/committees/tac/lfltf>

My most recent testimony on load forecasts and data centers (see also www.wilsonenec.com):

AEP data center tariff proceeding, 8/29/24: <https://dis.puc.state.oh.us/ViewImage.aspx?CMID=A1001001A24H29B55744I02145>

Duke Energy IRP, 5/28/24: <https://starw1.ncuc.gov/NCUC/ViewFile.aspx?Id=a9c142ae-ef93-48b4-ab4e-fd03ab313dc3>

James F. Wilson

Principal, Wilson Energy Economics

James F. Wilson is an economist and independent consultant with forty years of consulting experience in the electric power and natural gas industries. Many of his past assignments have focused on the economic and policy issues arising from the introduction of competition into these industries, including restructuring policies, market design, market analysis and market power. With regard to the PJM region, he has been involved in a broad range of market design, planning, load forecasting, and capacity market issues over many years.

Mr. Wilson has a B.A. from Oberlin College and M.S. in Engineering-Economic Systems from Stanford University. Prior to founding Wilson Energy Economics, he was a principal at LECG, LLC. Additional information and Mr. Wilson's CV are available at www.wilsonenec.com.

