

# Electric Power Resource Adequacy: Criteria, Constructs, Emerging Issues

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# Topics

## 1. Resource Adequacy – what’s the problem?

- Having enough generation to keep the lights on – except “one day in ten years”
- Why this was always very conservative – and why it didn’t matter
- Resource adequacy today under RTOs – what has changed really?
- Resource adequacy for the smart grid – are we getting there?

## 2. Resource adequacy in restructured power markets

- Do we still need this? Theories justifying “capacity markets”
- FERC and state policies all over the map – bilateral market areas, ERCOT, CA, NY, MISO, New England, PJM

# Topics (continued)

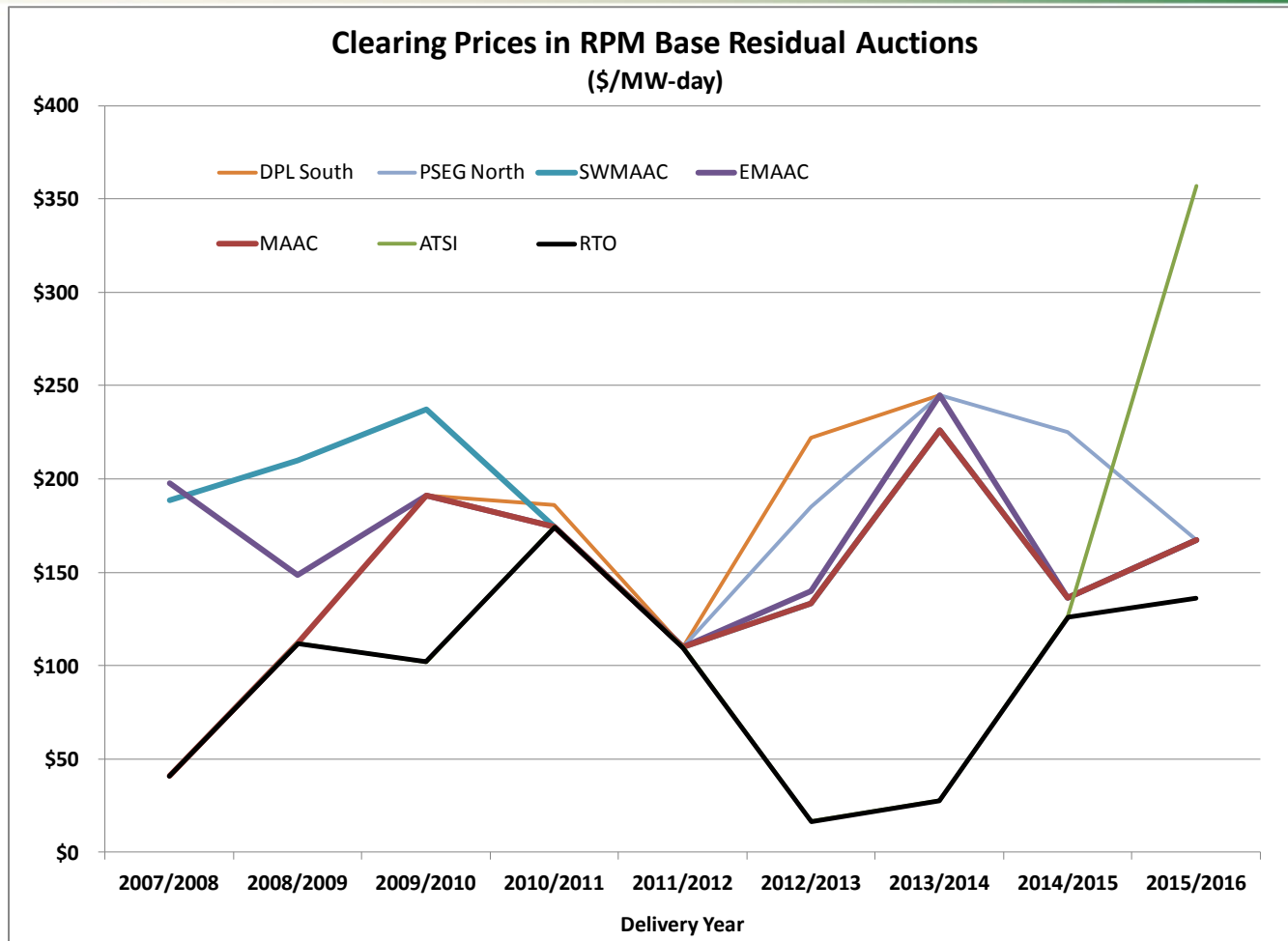
## 3. PJM's Reliability Pricing Model – the gold (plated) standard

- What – capacity obligations based on load forecast, “one in ten”
- How – three year forward auctions; one-year commitments; locational pricing
- Results – volatile prices attracting mainly low-investment increment resources
- Why RPM chronically overprices capacity
- Why RPM is so controversial

## 4. Resource adequacy, capacity markets and coal generation

- Treatment of traditional generation, renewables, and demand response in RPM
- Impact on coal generation

# Zonal capacity prices for PJM's RPM capacity construct have consistently been volatile

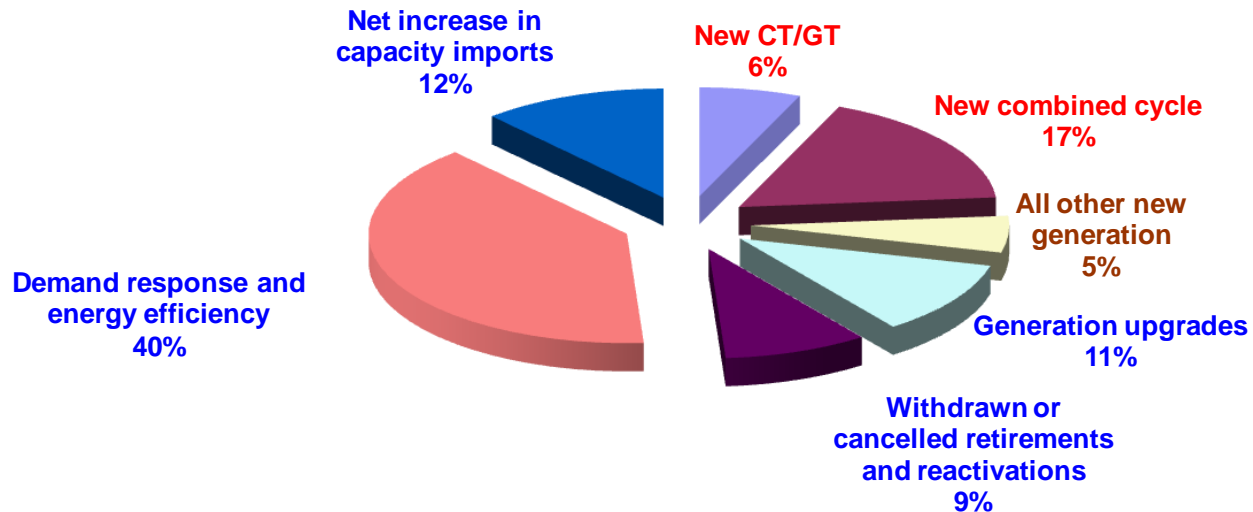


# Over nine RPM delivery years, most incremental capacity has been short lead time, low investment resources

## Incremental Capacity Resources: First Nine PJM RPM Base Residual Auctions

*Short Lead Time Resources have been 71% of the incremental resources over nine delivery years*

*(plant upgrades, reactivations, withdrawn or cancelled retirements, demand response, energy efficiency, net imports)*



Source: PJM, 2015/2016 RPM Base Residual Auction Results, Tables 8 and 10, which present offered capacity expressed in installed capacity terms.

# Related Work for Additional Reading

(this and more available at [www.wilsonenec.com](http://www.wilsonenec.com))

## **Resource Adequacy and “One Day in Ten Years”:**

*Reconsidering Resource Adequacy, Part 1: Has the one-day-in-10-years criterion outlived its usefulness?* Public Utilities Fortnightly, April 2010 [Link](#)

*Reconsidering Resource Adequacy, Part 2: Capacity planning for the smart grid*, Public Utilities Fortnightly, May 2010 [Link](#)

*Comments on Proposed Reliability Standard BAL-502-RFC-02: Planning Resource Adequacy Analysis, Assessment And Documentation*, FERC Docket No. RM10-10, December 2010 [Link](#)

*Reliability and Economics: Separate Realities?* Harvard Electricity Policy Group Sixty-Fifth Plenary Session, December 2011 [Link](#)

Peer review critique of draft of *The Economic Ramifications of Resource Adequacy*, January, 2013, prepared by Astrape Consulting for EISPC/NARUC, available by request.

## **Forward Capacity Markets:**

*Forward Capacity Market CONEfusion*, Electricity Journal, November 2010 [Link](#)

*Comments on PJM’s Reliability Pricing Model* for Maryland Public Service Commission, October 2010 [Link](#)

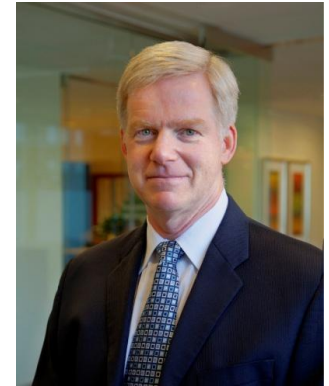
Affidavit on PJM’s Minimum Offer Price Rule, March 2011 [Link](#)

*Fundamental Capacity Market Design Choices: How Far Forward? How Locational?* EUCI Capacity Markets Conference, October, 2012 [Link](#)

# Speaker Information

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James Wilson is an economist with over 25 years of consulting experience in the electric power and natural gas industries. His work has pertained to the economic and policy issues arising from the interplay of competition and regulation in these industries, including restructuring policies, market design, market analysis and market power. Recent engagements have involved resource adequacy and capacity markets, contract litigation, rate cases, modeling of utility planning problems, and many other economic issues arising in these industries. Mr. Wilson has been involved in electricity restructuring and wholesale market design for over twenty years in PJM, New England, Ontario, California, Russia, and other regions. He also spent five years in Russia in the early 1990s advising on the reform, restructuring, and development of the Russian electricity and natural gas industries for the World Bank and other clients.

Prior to founding Wilson Energy Economics, Mr. Wilson was a Principal at LECG, LLC. He holds a B.A. in Mathematics from Oberlin College and an M.S. in Engineering-Economic Systems from Stanford University.