

Incorporating State Energy Policy Goals into Regional Electricity Market

CERF IV November 9, 2012

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PJM – Focus on Just 3 Things

Reliability

- Grid Operations
- Supply/Demand Balance
- Transmission monitoring

Regional Planning

• 15-Year Outlook

Market Operation

Ancillary Services

- Energy
- Capacity

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Public Policy Requirements

- Generation Retirement Drivers
 - EPA Regulations
 - HEDD Regulations
 - Other Environmental Regulations
- Generation Addition Drivers
 - Renewable Portfolio Standards
 - Wind Generation Development
 - Solar Generation Development
 - Marcellus Shale
- Demand Response / Energy Efficiency Programs



Fuel Mix of Existing PJM Installed Generating Capacity (MW) as of January 1, 2012



Interconnection Queue



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- Continuing trend of a major shift in generation from coal to natural gas
- Natural gas accounts for 95% of new generation participation
- Procured a record amount of new generation consisting of 4,900 MW of new generation and 447 MW of existing generation uprates
- Demand Resources cleared 714 MW more than 2014/15 (5% increase)
 - 588 MW fewer cleared in MAAC LDA
 - 1,303 MW more cleared outside of MAAC LDA
- Capacity offered and cleared from resources located in regions west of PJM RTO increased by 8% from last year to 4,335 MW



Evolving Capacity Resource Mix





Demand Side Participation in Capacity Market





Significant Outcomes of 2015/2016 BRA

 Announced retirements sent a strong signal for new resources and record levels of new generation, demand-side and energy efficiency resources offered and cleared in auction

	Offered MW*			Cleared MW*		
Resource Type	2014/2015	2015/2016	Increase in Offered MW	2014/2015	2015/2016	Increase in Cleared MW
New Generation**	777.7	3,326.6	2,548.9	156.9	2,478.4	2,321.5
Demand Resource	3,466.6	3,874.9	408.3	2,866.8	2,610.4	(256.4)
Energy Efficiency	25.1	50.5	25.4	20.9	42.2	21.3
EMAAC Sub Total	4,269.4	7,252.0	2,982.6	3,044.6	5,131.0	2,086.4
New Generation**	1,129.3	4,326.2	3,196.9	439.1	3,180.2	2,741.1
Demand Resource	8,413.8	9,163.3	749.5	7,236.8	6,648.7	(588.1)
Energy Efficiency	207.6	237.2	29.6	199.6	222.6	23.0
MAAC** Sub Total	9,750.7	13,726.7	3,976.0	7,875.5	10,051.5	2,176.0
New Generation**	1,446.8	7,322.3	5,875.5	756.6	5,346.3	4,589.7
Demand Resource	15,545.6	19,956.3	4,410.7	14,118.4	14,832.8	714.4
Energy Efficiency	831.9	940.3	108.4	822.1	922.5	100.4
Grand Total	17,824.3	28,218.9	10,394.6	15,697.1	21,101.6	5,404.5

*All MW values are expressed in UCAP

**includes new units and uprates

***MAAC sub-total includes all MAAC Zones

Retirements and Queued Generation Requests, (distinguishing units that cleared RPM Auctions)





Efficiently Maintaining Resource Adequacy



The capacity market has fairly consistently maintained resource adequacy at a price below the cost of new entry.