

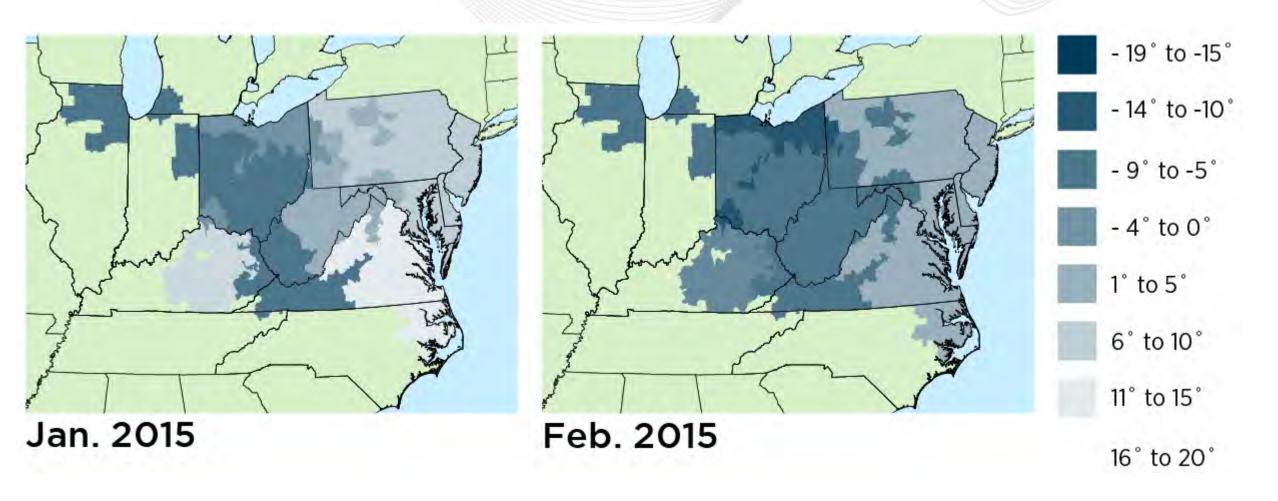
2015 Cold Weather Performance

Chantal Hendrzak, Operations Support

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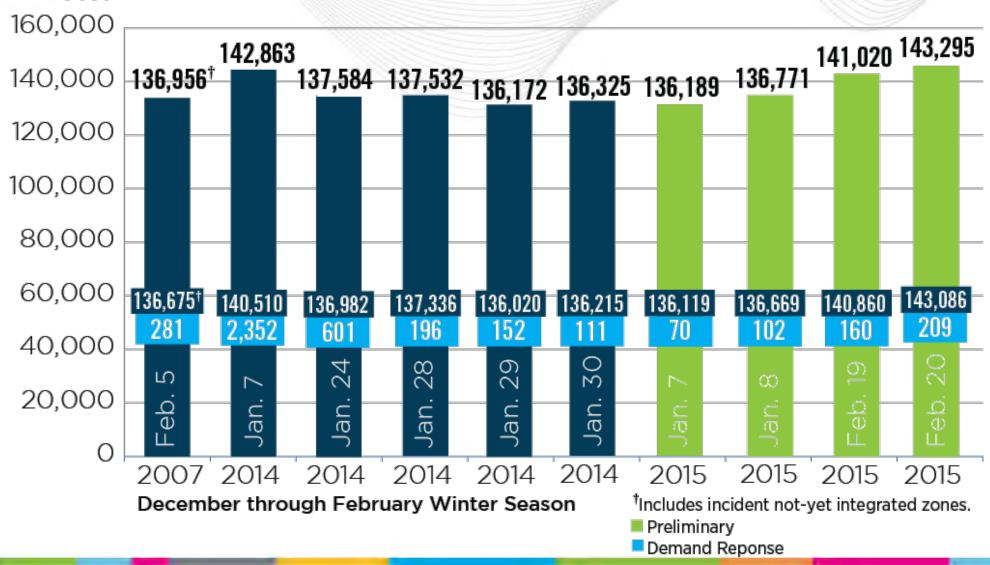


Weather and Temperature





Top Ten RTO Winter Peaks





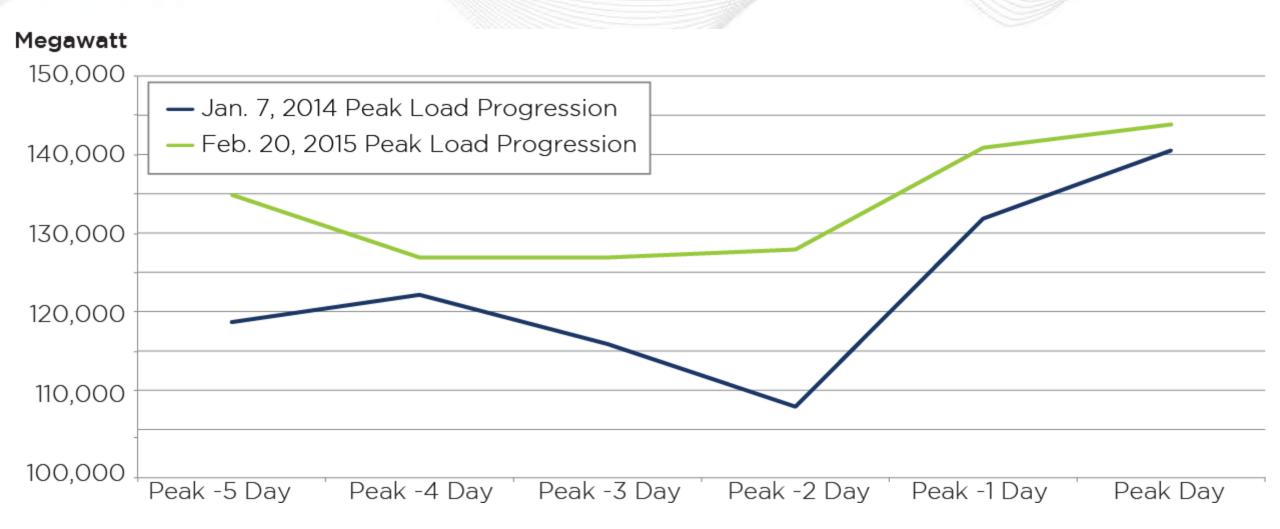
Wind Chill Comparison 2014 and 2015 (Fahrenheit)

| | January 2014 | | February 2015 | | |
|----------------|---------------------------|---|---------------|---|--|
| | Lowest Temp Fahrenheit | Lowest Effective Temperature (wind chill) | Lowest Temp | Lowest Effective Temperature (wind chill) | Effective Degrees warmer(+)/colder (-) in Feb 2015 vs Jan 2014 |
| Philadelphia | 4 | -10 | 2 | -8 | 2 |
| Washington, DC | 7 | -2 | 6 | -3 | -1 |
| Richmond | 4 | 0 | 5 | 0 | 0 |
| Cleveland | -11 | -30 | -13 | -14 | 16 |
| Columbus | -11 | -24 | -10 | -10 | 14 |
| Lexington | -5 | -14 | -13 | -18 | -4 |
| Chicago | -16 | -31 | -8 | -17 | 14 |

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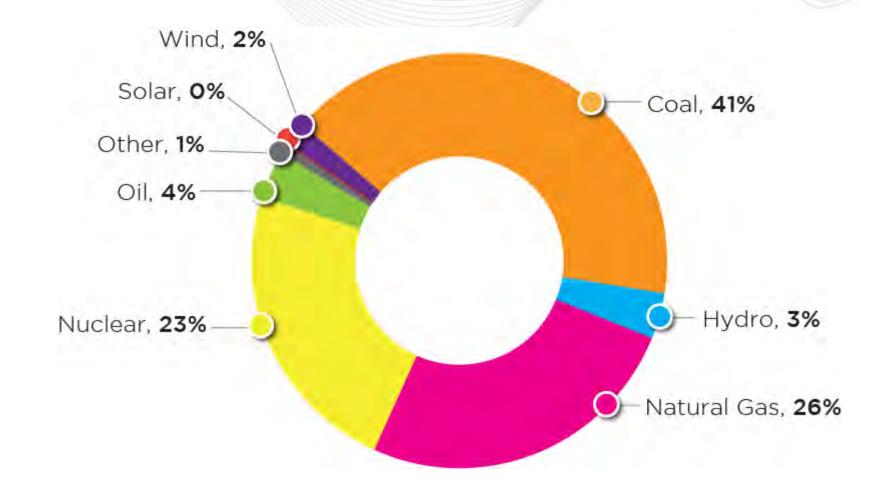


Day to Day Peak Load Progress for 2014 and 2015



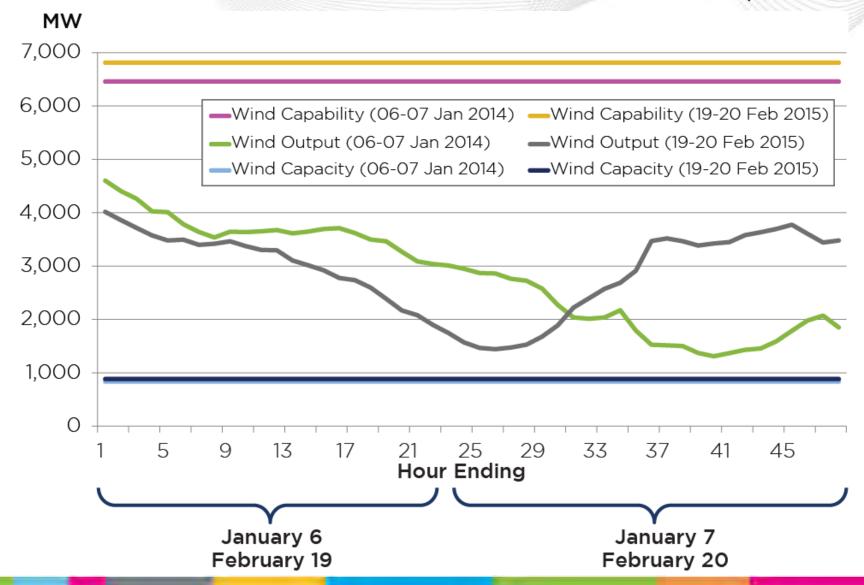


Breakdown of generation online for all fuel types during the Feb. 20, 2015 peak





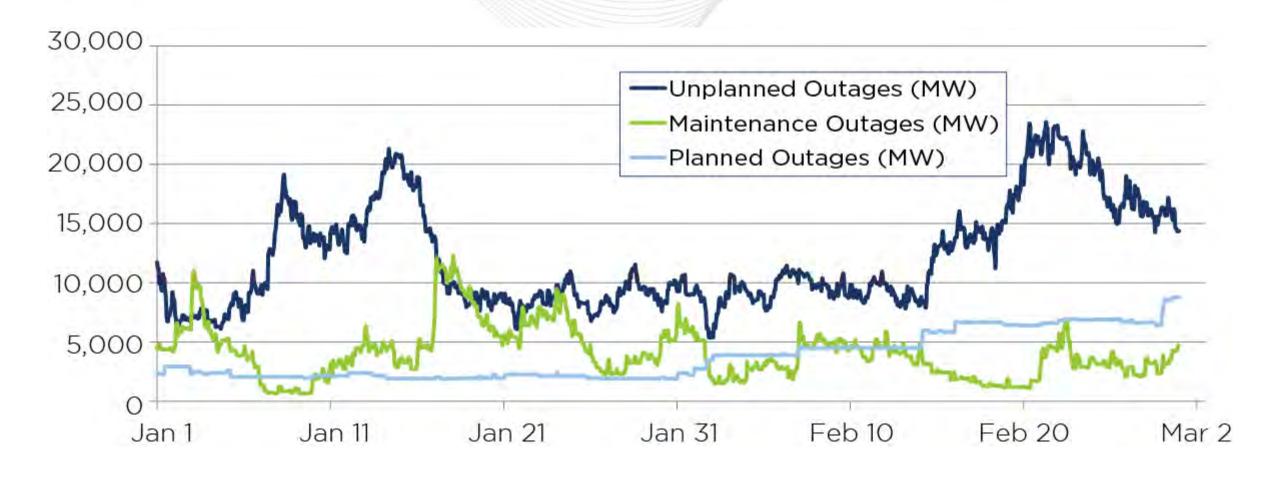
Wind Generation Performance at Peaks (2014 Vs 2015)



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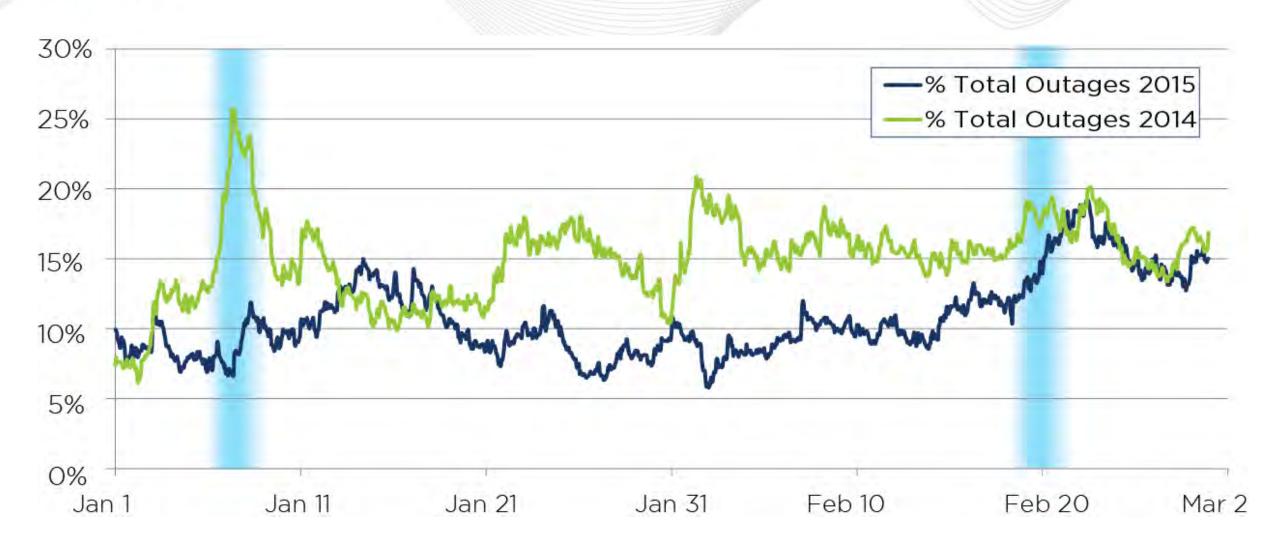
Forced Outage Peaks: January – February 2015



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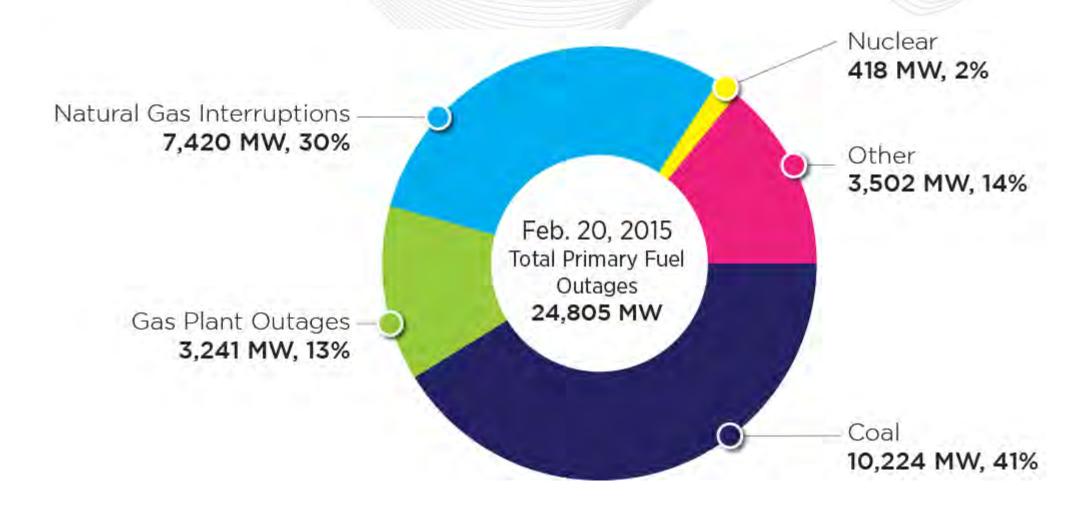


Total Outage Rate





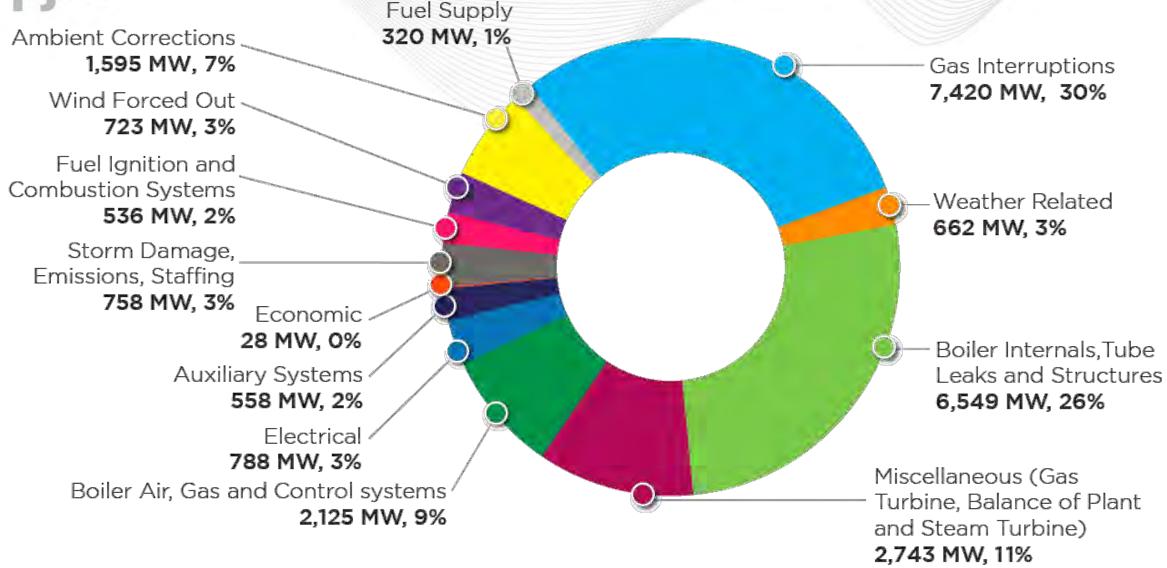
Outages by Primary Fuel Feb. 20, 2015



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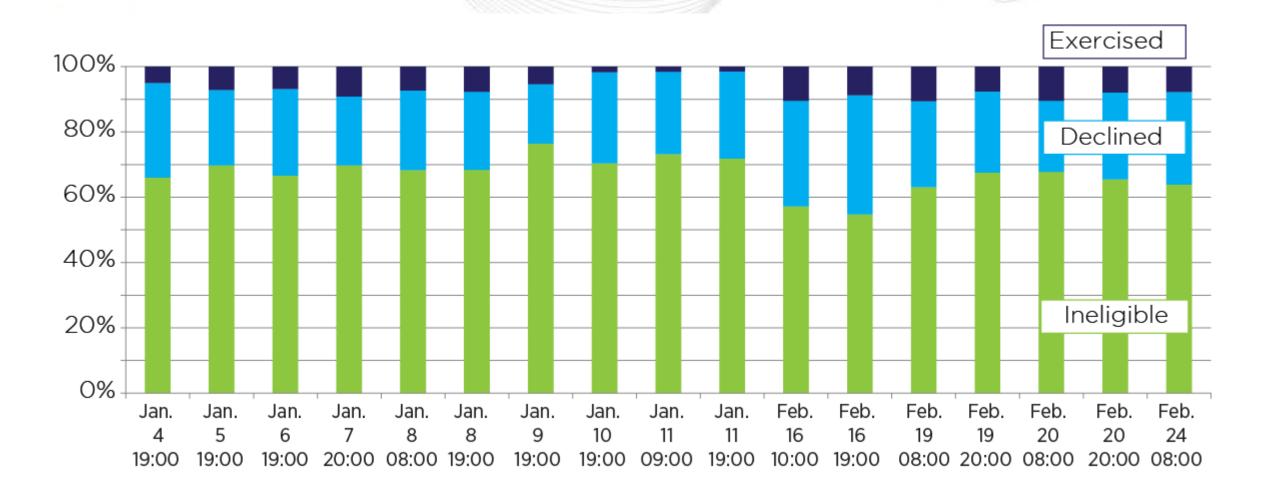
Causes of Forced Outages (Feb. 20, 2015, 8:00)



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Percentage Breakdown of Forced Outages (Jan. & Feb. 2015)





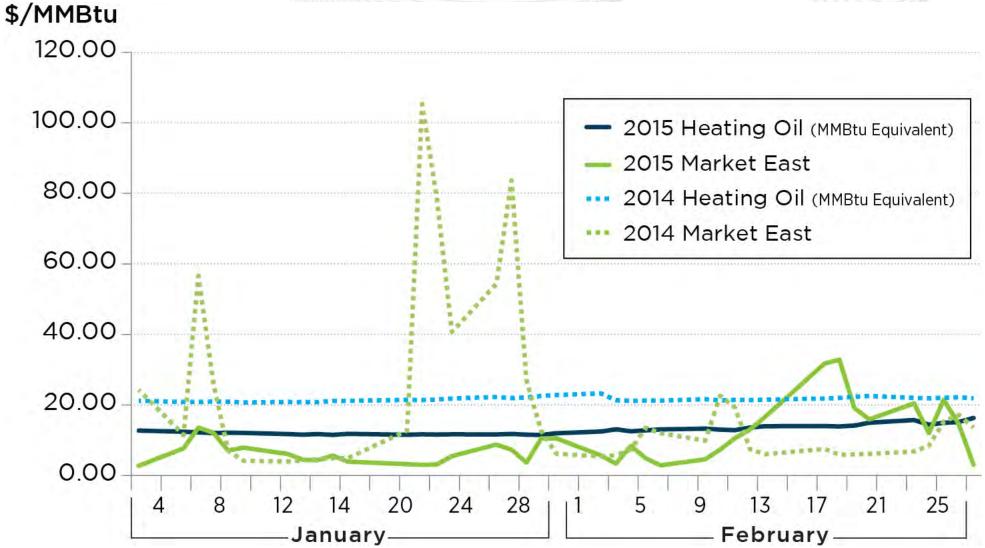
Number of Effective Operational Flow Orders in PJM

| Pipeline | # of Effective OFOs (or Force Majeure) in PJM | | | | |
|----------|---|--------|--------|--------|--|
| | Jan-14 | Jan-15 | Feb-14 | Feb-15 | |
| Transco | 4 | 3 | 1 | 2 | |
| TCO | 0 | 1 | 0 | 0 | |
| ANR | 0 | 0 | 0 | 0 | |
| NGPL | 2 | 1 | 0 | 1 | |
| TETCO | 3 | 1 | 0 | 2 | |
| TGP | 0 | 4 | 0 | 2 | |
| DTI | 4 | 3 | 0 | 1 | |
| Total | 13 | 13 | 1 | 8 | |

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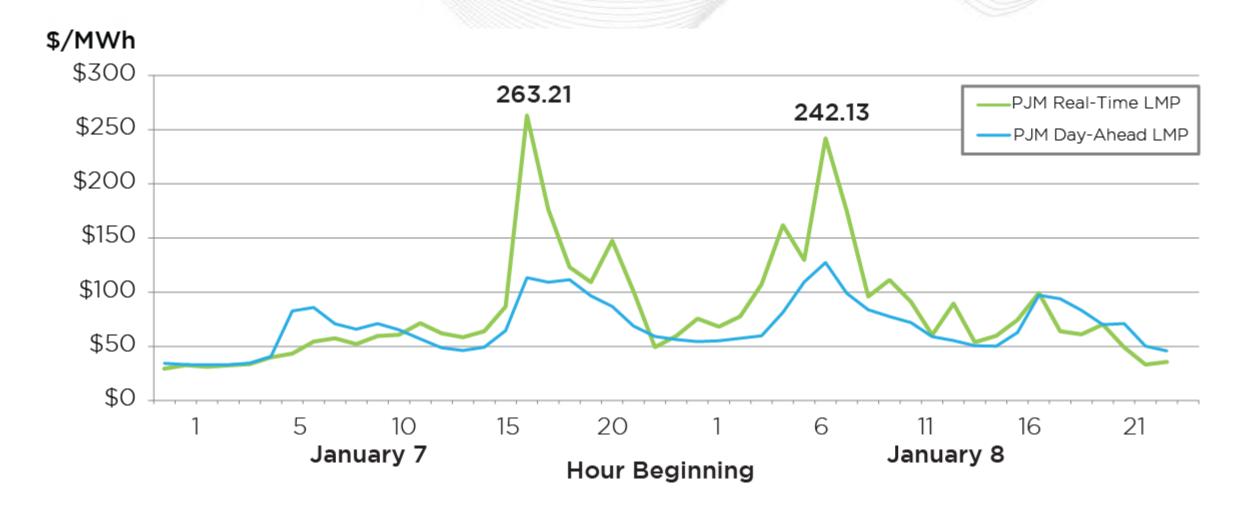


2014 vs 2015 Oil and Gas



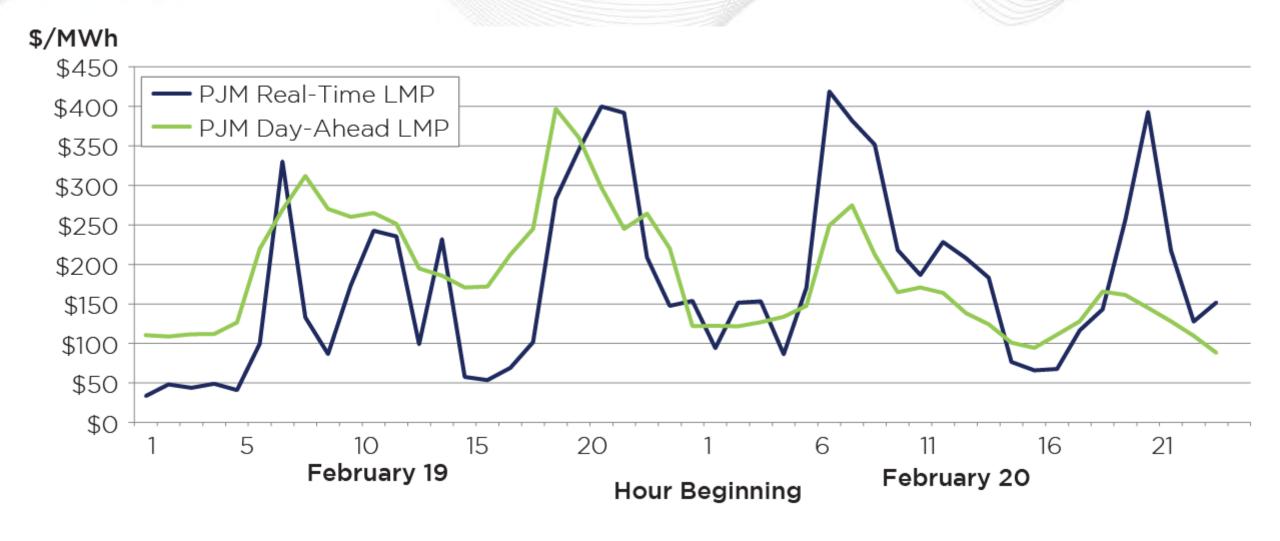


Locational Marginal Pricing Jan. 7 and Jan. 8, 2015



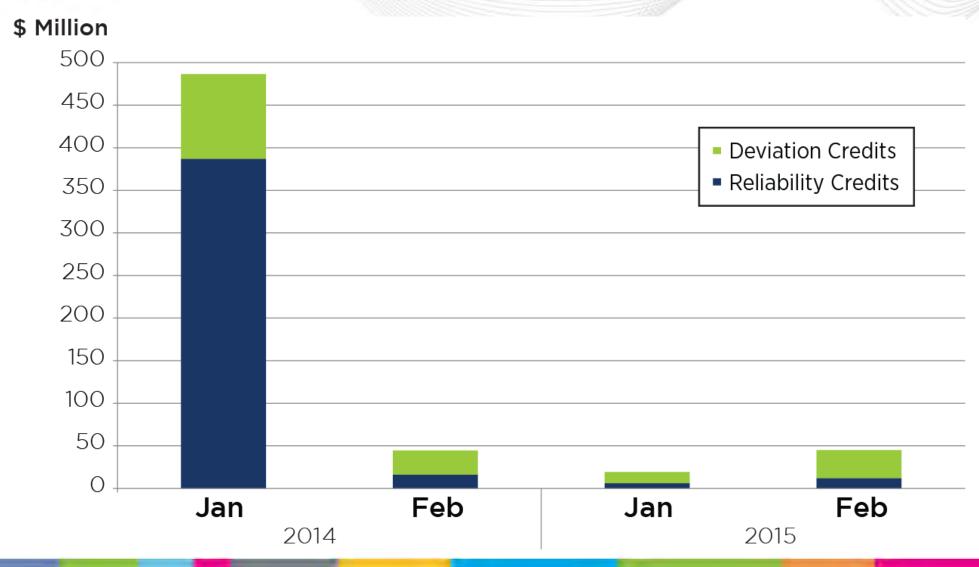


Locational Marginal Pricing Feb. 19 and 20, 2015



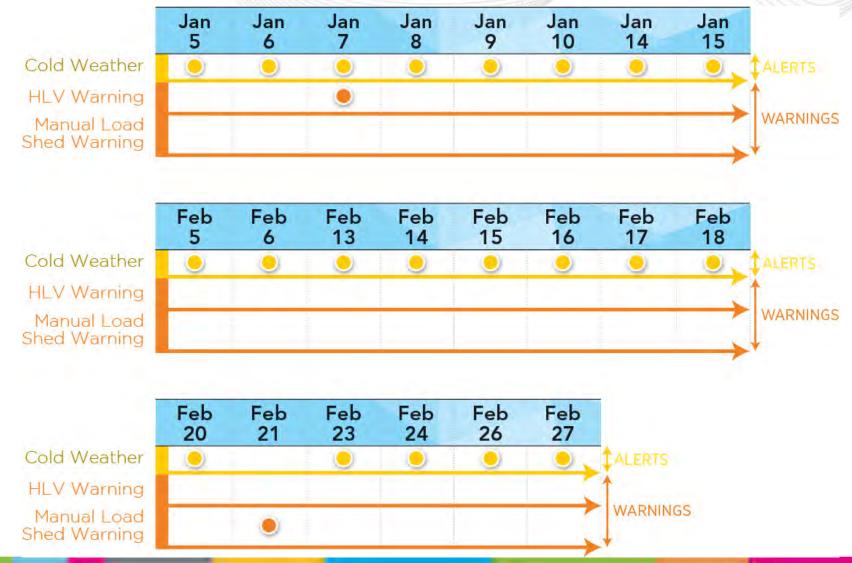


Comparison of 2014 to 2015 Operating Reserves Credits



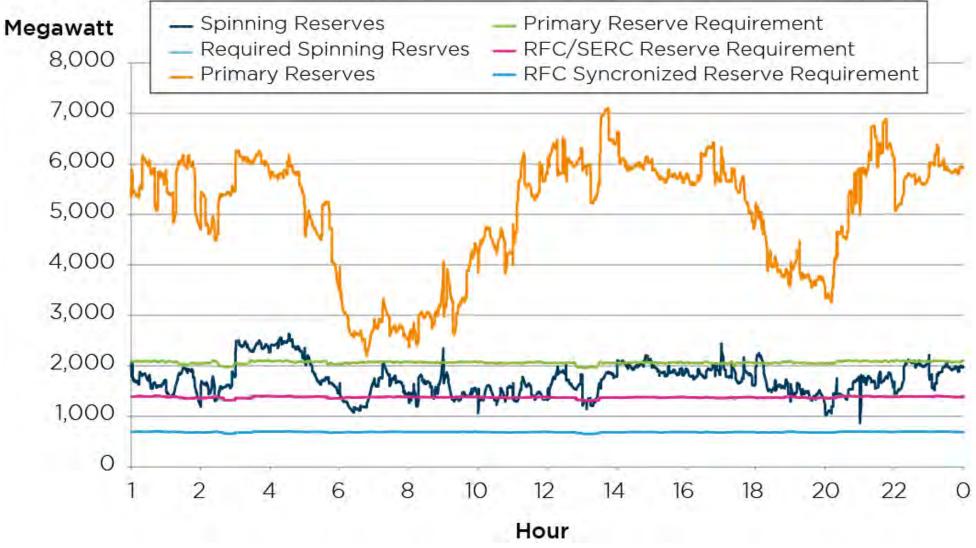


Emergency Procedures in January and February 2015





RTO Reserves





2015 Recommendations

| Category | Recommendation | Status |
|-------------------------|---|---|
| Capacity | Continue with the implementation of the Capacity Performance proposal to address resource | On May 13, 2015, PJM answers protests regarding PJM's |
| Performance | performance incentives on a sustained basis. | April 10 response to FERC's March 31 Deficiency Notice. |
| Gas / Electric | Continue to improve coordination between the gas and electric industries: | PJM has 90 days from Federal Register publication of the |
| Coordination | 1. Implement changes to better align the scheduling processes. | April 16, 2015 Final Rule to respond regarding how it intends |
| | 2. Offer even more flexibility in changing unit offers during the electric day, as discussed in the OC working group. | to meet the requirements. |
| | 3. Improve transparency of generation within gas local distribution companies. | |
| Generator | Continue to improve the ability for generators to communicate operational parameters to PJM. | PJM members recently proposed a problem statement to |
| Operational | 1. Improve the ability for PJM tools to better capture and log generator flexibility and unit status | better address generator offer flexibility. |
| Parameters | information for use in real-time operations as well as after-the-fact analysis. | |
| | 2. Improve PJM processes to review and assess generator parameters, particularly when they ma | y |
| | differ from financial or settlements parameters. | |
| Cold Weather Un | t Build upon the success of the cold weather unit exercise and preparation checklist to improve the | PJM is discussing next steps for Cold Weather Preparation |
| Preparation | value while balancing the costs. | in the Operating Committee. |
| Energy Market | Continue to investigate methods and procedures for reducing the amount of uplift to be paid. | Through the existing Energy Market Uplift Senior Task Force, |
| Uplift Reduction | | PJM and its stakeholders continue to work on solutions to |
| | | reduce uplift. |

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