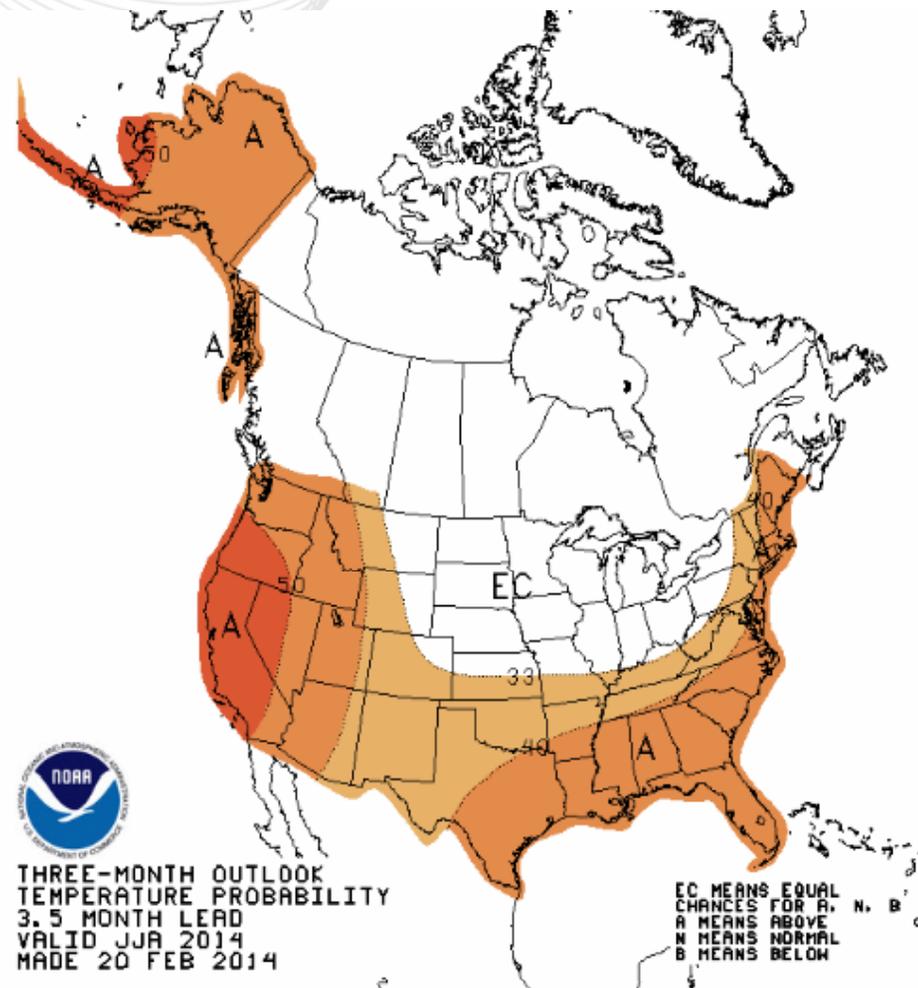




Summer 2014 Outlook

Michael Bryson
Executive Director – System Operations

- Climate Forecast for June, July and August 2014: a chance of above average temps. for the southern and western US and the eastern seaboard.
 - Darker shading indicates a greater probability of higher than normal temperatures.
- Current model forecast suggest an El Niño will develop which would result in below average hurricane development in the Atlantic.



2014 forecast summer conditions similar to 2013.

2013 Temperatures in the western part of the RTO were several degrees above average for the three summer months; with warmer than normal weather in parts of the Northeast.

30 year average

2013 average

2013 average (record)

	June		July		August	
	Avg	2013	Avg	2013	Avg	2013
Philadelphia	82.7	83.6	87.1	88.0	85.3	82.0
Richmond	85.9	86.3	89.4	88.9	87.4	84.6
Columbus	81.6	82.0	84.9	83.2	83.7	83.4
Chicago	79.7	78.2	84.1	81.8	81.9	82.7



PJM Load and Capacity Comparison: 2014 vs. 2013

2013 (with EKPC)

Forecast Load (MW) Total	Demand Response (DR) and Energy Efficiency (EE) (MW)	Forecast Load Less DR and EE (MW)	Installed Generation Capacity (MW)	Reserve Margin (MW)	Reserve Margin	Required Reserve Margin
155,553	11,175 (est.)	144,378	186,884	42,506	29.4%	15.9%

¹Includes 651MW of Energy Efficiency

2014

Forecast Load (MW) Total	Demand Response (DR) and Energy Efficiency (EE) (MW)	Forecast Load Less DR and EE (MW)	Installed Generation Capacity (MW)	Reserve Margin (MW)	Reserve Margin	Required Reserve Margin
157,279	11,160 ¹ (est.)	146,119	183,220	37,101	25.4%	16.2%

2013 Actual Peak Load: 157,141 MW on 7/18/13 at HE 17)

¹Includes 522 MW of Energy Efficiency



Glossary for Load and Capacity Summary Slide

Forecast Load

Expected peak demand, based on normal weather

Installed Generation Capacity

Total MW output of all of the generators that cleared in RPM and are committed to serve PJM load (Installed Capacity)

Demand Response

Contractually interruptible load and other customer load willing to be interrupted at the direction of PJM. Compliance check is performed at end of summer.

Reserve (MW) –

Installed Generation Capacity minus Net Internal Demand

Forecast Load Less Load Management

Expected peak demand after demand response has been implemented (Net Internal Demand-NID)

Required Reserve Margin

PJM required planning reserve, as determined by the RPM process (Installed Reserve Margin-IRM) -

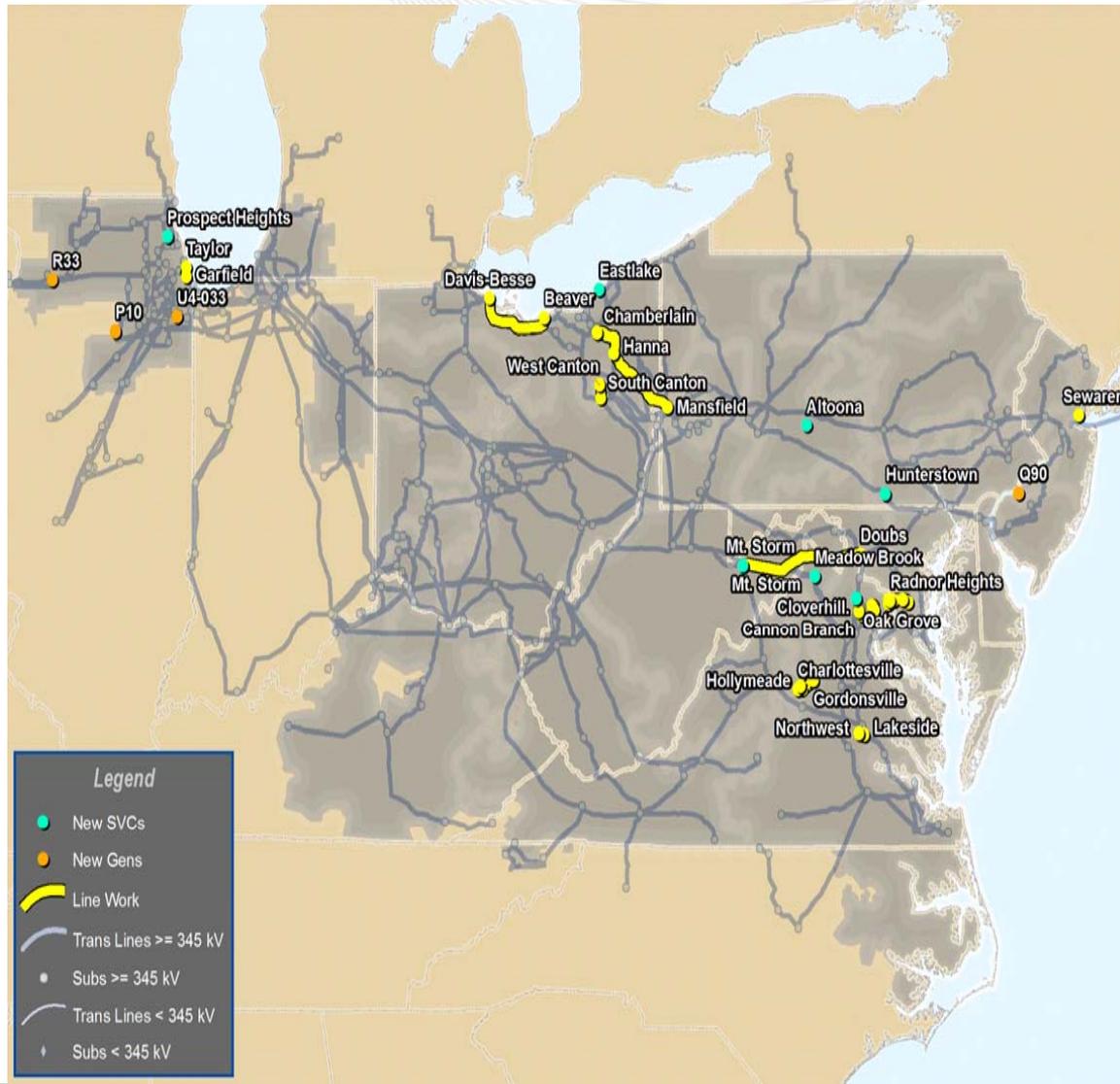
Reserve Margin

Reserve expressed as a percent of Net Internal Demand

Peak Load Case	
Case Load	164,392 MW
RTO Net Interchange	4,282 MW
PJM RTO Installed Capacity	183,220 MW
Discrete Outages	15,486 MW

Peak Load Study Results

- No reliability problems identified
- Off-cost and switching used to control local thermal and voltage violations in some TO zones

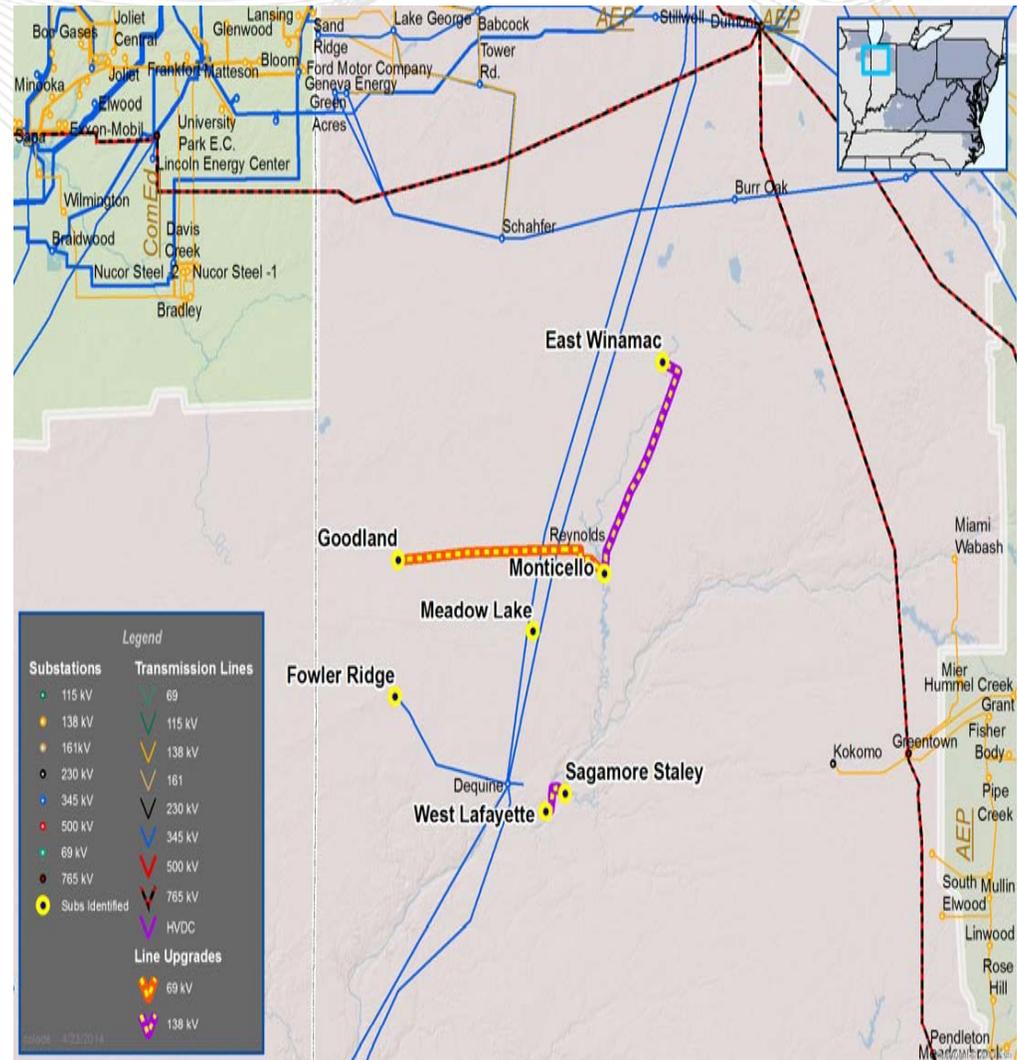


NIPSCO:

- **138 kV upgrades to L13832 (East Winamac – Monticello).** Reconductoring line and performing upgrades in subs to increase ratings. Outages are scheduled to start in July.
- **69 kV upgrade: Goodland to Monticello.** Major Reconductoring and pole replacement for this 69kV circuit and substation work to increase ratings. Work will start later this summer, it will not be completed till end of 2015.

DUKE:

- **13806 circuit (CUU facility) between the West Lafayette and Sagamore Staley Substations.** It is anticipated that Phase 1 of this 3 phase construction project will be completed by June 1, 2015.



The following two RTEP upgrades are planned for the AEP Pigeon River Region:

- Rebuild the Pokagon - Corey 69-kV line as a double circuit 138-kV line. This is Baseline B2257 - AEP is working to advance the project, however it is just beginning the engineering stage and may be advanced to 2016 at the earliest.
- String a second 138-kV circuit on the open tower position between Twin Branch and East Elkhart. This Baseline b0840. Completed by October 2013.

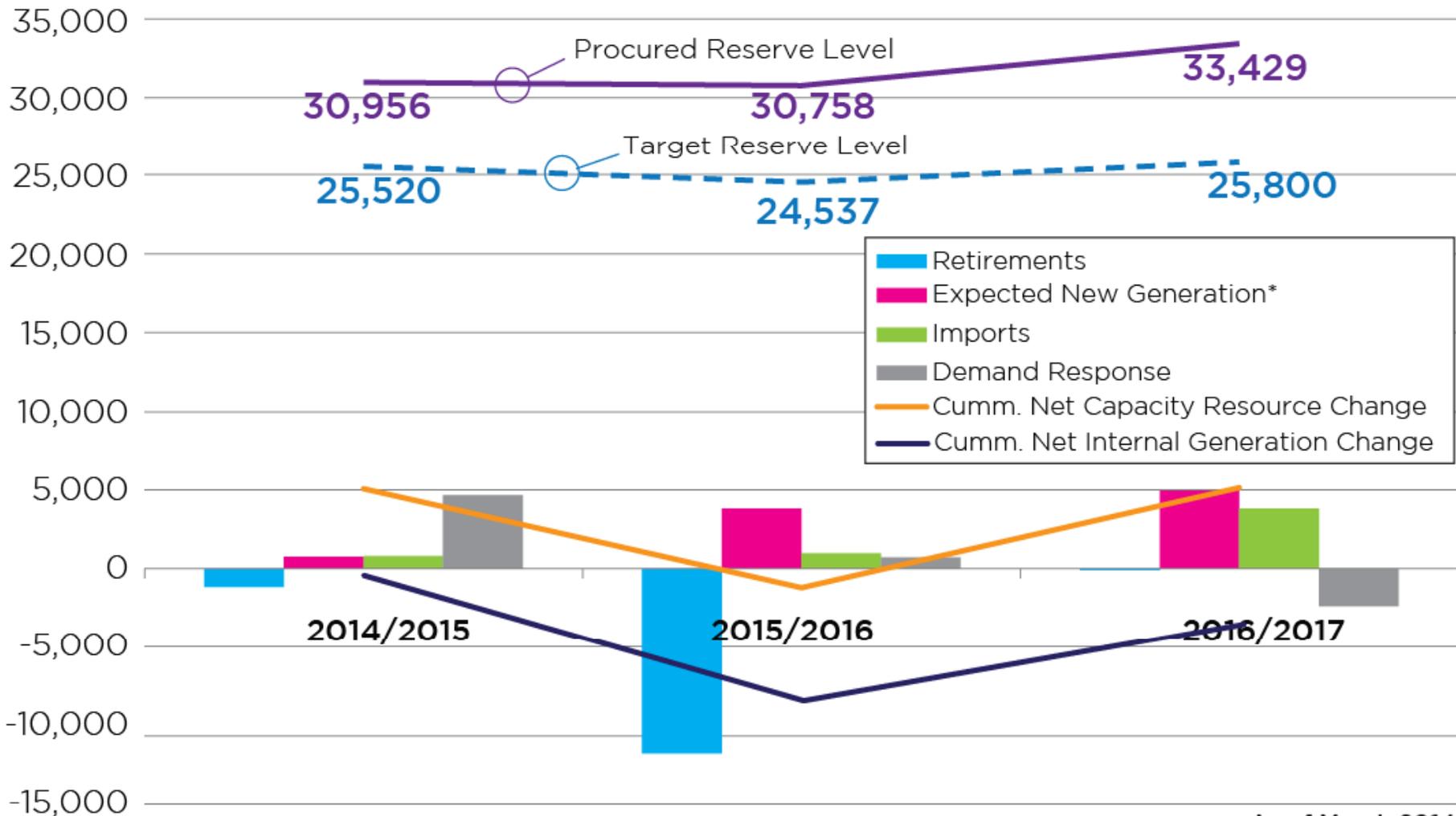
The following four RTEP upgrades are planned for AEP Summit region:

- Perform a sag study on the Lincoln - Robison Park 138 kV line^{14.15} This upgrade could increase the current rating from 167 MVA Robison Park - Lincoln 138 kV line to 244 MVA. Baseline B1878 - Sag remediation work completed this past month (4/2014). Report due back on 4/28 and ratings expected to be updated by 5/16.
- Replace the risers at Lincoln 138 kV bus. Completed in 2013; Ratings have been updated.
- Replace the breaker at Lincoln 138 kV bus. Completed in 2013; Ratings have been updated.
- Perform a sag study of the Industrial Park - Summit 138 kV line¹⁸. Baseline B1736 – Sag remediation work completed this past month (4/2014). Report due back on 5/9 and ratings expected to be updated by 5/16.



Future Capacity

Megawatts



*Numbers adjusted based on actual expected in service dates.

As of March 2014

Area	Recommendation	Status
Operation Guide	<ul style="list-style-type: none"> Update Pigeon River Operating Guide 	Complete
Communications	<ul style="list-style-type: none"> Training on Emergency Procedures Application 	Underway
Demand Response	<ul style="list-style-type: none"> Improve operational flexibility Improve DR for handling transmission constraints 	Underway New
	<ul style="list-style-type: none"> Increased visibility DR 	Underway
Training	<ul style="list-style-type: none"> Emergency Procedures application during a load shed event Reinforce load shed directive language 	New Underway



Recommendations

Area	Recommendation	Status
Behind the Meter Generation	<ul style="list-style-type: none">• Acquire behind the meter generation (size, location, etc.) data• Determine TO and PJM responsibilities• Determine how to represent behind the meter generation to Dispatch• Incorporation into Emergency Operations	New
Load Forecasting	<ul style="list-style-type: none">• Improve processes during hot and cold weather alerts• Consider sub-zonal forecasting• Modify sampling / weighting of weather data	Underway
		New
		New
System Modeling & Telemetry	<ul style="list-style-type: none">• Update model in areas of load shed events• Identify and implement approach to more modeling and telemetry across the system	Underway New
Equipment Facility Limits	<ul style="list-style-type: none">• Review facility limits with neighboring companies	Underway

- Aggressive transmission and generation maintenance to prepare for May 2015 EPA retirement deadlines
- Ongoing system maintenance and upgrades
- Gas / Electric Coordination
- Demand Response Impacts
- Load Forecasting Improvements
- Coordination and Communication
- Generation Availability
- Annual DR & operational flexibility
- Gas / Electric Coordination
- Review and update emergency procedures and tools