Purpose of this Presentation

- Update the OC on PJM design review of implementing Combined Cycle Modeling
  - Large impact on CC owners & PJM
- New estimated cost of ~$750K to $1M
- Next steps
  - Cost benefit for implementation
  - Implementation schedule - Target 2015?
Internal PJM Combined Cycle Modeling meetings were held with:

- Dispatch
- Day Ahead Markets
- Real Time Markets
- Markets Coordination
- Reliability Eng
- Generation
- Real Time Data Mgmt
- Settlements
PJM has identified the following systems will be impacted by implementation:

- Day Ahead
- Dispatch (IT/RT SCED)
- Ancillary Services (ASO)
- Automatic Generation Control (AGC)
- Perfect Dispatch
- Data Management Tool (DMT)
- eDART
- Settlements
Issues for Other Committees

• MIC/EMUSTF – Make Whole/Lost Opportunity Cost rules for Combined Cycle configurations
• MIC – multiple price offers
• MSS – settlement of intra-hour configuration changes
• CDS – calculation of cost based offers
• All combined cycles will be **REQUIRED** to use the new Combined Cycle Model.
  
  – Currently units can offer as a steam unit or a combustion turbine
  
  – Market sellers must transition existing schedules to CC configuration offers (i.e. 1X1, 2X1, etc.)
  
  – Configurations must be offered for a minimum of three months
• All combined cycle units **MUST BE** aggregated under one unit ID.
  – No simple cycle CT IDs
  – Will require modeling change for some units in the markets and settlements databases
  – PJM will provide one economic base point for the aggregated unit
Telemetry may be necessary for **ALL** CT and steam components

- Needed for State Estimator
- Needed for settlements and testing
- However, eMTR submittals will be on an aggregated plant basis
• Each CC will receive two new ICCP points
  – Units will receive current and future desired configuration
  – Configuration changes will be considered dispatch instructions
• CC units picked up in Day Ahead start like steam units with 20 minutes notice to Generation Dispatcher.

• CC units not picked up in Day Ahead will be put on the CT Call List.

• PJM will provide CC units with an Economic Base Point for the current configuration via ICCP Link.
System Limitations

- Real Time configuration transition times are limited to 2 hours or less.
- CC units that have a configuration transition time greater than 2 hours must follow their Day Ahead commitment.
Next Steps

• Continue to work through Special OC Meetings
  – Develop cost benefit
  – Develop rules
  – Develop implementation timeline – 2015?
  – Request funding
  – Kick Off Discussions at other Committees