

2015 and 2017 CARIS Base Case Assumptions Matrix Comparison
 For Discussion at the June 22, 2017 ESPWG
 (updates in **RED**)

Parameter	Modeling for 2015 CARIS Base Cases	Modeling for 2017 CARIS Base Cases
Peak Load	Based on 2015 Load & Capacity Data Report (“Gold Book”) Baseline Forecast of Non-Coincident Peak Demand , including impacts of statewide Energy Efficiency programs (Table 1-2b)	Based on 2017 Load & Capacity Data Report (“Gold Book”) Baseline Forecast of Non-Coincident Peak Demand , including impacts of statewide Energy Efficiency programs (Table TBD)
Load Shape Model Energy Forecast	2002 Load Shape. Energy Forecast Baseline Forecast of Annual Energy, including impacts of statewide Energy Efficiency programs (Table 1-2a)	2002 Load Shape. Energy Forecast Baseline Forecast of Annual Energy, including impacts of statewide Energy Efficiency programs (Table TBD)
Load Uncertainty Model	Only Base Level Forecast utilized; the impact of energy or peak forecasts may be utilized in scenarios	Only Base Level Forecast utilized; the impact of energy or peak forecasts may be utilized in scenarios
Generating Unit Capacities	Updated to reflect 2015 Gold Book winter and summer DMNC values	Updated to reflect 2017 Gold Book winter and summer DMNC values
New Units	Updated as per 2015 Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.1.1 and procedures)	Updated as per 2017 Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.1.1 and procedures)
Wind Resource Modeling	Units and capacities updated as per 2015 Gold Book. Wind resources are modeled based on unit capacities and synthesized wind shapes developed as part of 2010 Wind Study.	Units and capacities updated as per 2017 Gold Book. Existing wind resources are modeled based on unit capacities and actual 2015 shapes. New units modeled based on proximate existing units.

Parameter	Modeling for 2015 CARIS Base Cases	Modeling for 2017 CARIS Base Cases
Non-NYPA Hydro Capacity Modeling	Updated as per 2015 Gold Book; unit output is modeled consistent with historic levels.	Updated as per 2017 Gold Book; unit output is modeled consistent with historic levels.
Special Case Resources	Not utilized in MAPS production cost modeling; incorporated in ICAP Metric calculation	Not utilized in MAPS production cost modeling; incorporated in ICAP Metric calculation
EDRP Resources	N/A for production cost modeling	N/A for production cost modeling
External Capacity – Purchases and Wheel-Throughs	Flows across schedulable and non-schedulable transmission lines are based on economics.	Flows across schedulable and non-schedulable transmission lines are based on economics.
Retirements	Updated as per 2015 Gold Book (Application of inclusion rules; specific assumptions concerning mothball announcement post-CRP; units with completed studies indicating that the unit is required for reliability are retained in the Base Case; units whose studies are pending are retained in the Base Case; others are excluded from the Base Case)	Updated as per 2017 Gold Book (Application of inclusion rules; specific assumptions concerning mothball announcement post-CRP; units with completed studies indicating that the unit is required for reliability are retained in the Base Case; units whose studies are pending are retained in the Base Case; others are excluded from the Base Case)
Generator Outages	Scheduled to levelize reserves; as per the maintenance schedules in long term adequacy studies.	Scheduled to levelize reserves; as per the maintenance schedules in long term adequacy studies.
Gas Turbines Ambient Derate	Modeling utilizes summer and winter DMNC ratings for all units.	Modeling utilizes summer and winter DMNC ratings for all units.

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Fuel Price Forecast	<p>Annual bases updated to more heavily weight recent trends (2012-0.100, 2013-0.325, 2014-0.575).</p> <p>Seasonality and spikes based on five-year history (2010-2014). Fuel oil and coal price forecasts are developed utilizing the EIA's annual forecast of national delivered prices. Regional bases are derived using EIA Form 923 data. The seasonality for fuel oils is based on an analysis of New York Harbor Ultra-Low Sulfur Diesel (ULSD) prices. Coal has no seasonality.</p> <p>Illustrative fuel costs are presented in the 5/4/15 ESPWG meeting materials.</p>	<p>TBD. Under review with ESPWG (as of 6/22/2017).</p>
Cost Curve Development (including heat rates and emission rates)	<p>Unit heat rates (and emission rates) developed from vendor supplied data, USEPA CAMD fuel input and emissions data matched with NYISO production data for NYCA and USEIA production data for non NYCA units.</p>	<p>Unit heat rates (and emission rates) developed from vendor supplied data, USEPA CAMD fuel input and emissions data matched with NYISO production data for NYCA and USEIA production data for non NYCA units.</p>
Local Reliability Rules	<p>List and develop appropriate nomograms. Fuel burn restrictions, operating restrictions and exceptions, commitment/dispatch limits</p>	<p>List and develop appropriate nomograms. Fuel burn restrictions, operating restrictions and exceptions, commitment/dispatch limits</p>
Energy Storage Gilboa PSH Lewiston PSH	<p>Scheduling checked to conform to historical operations.</p>	<p>Scheduling checked to conform to historical operations.</p>

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Transmission System Model		
Power Flow Cases	As per CRP.	As per CRP.
Interface Limits Monitored/contingency pairs Nomograms Joint, Grouping Unit Sensitive Voltage	Data from the results of internal and external planning studies; vendor-supplied data; operational voltage studies; operational limits; transfer limit analysis for critical interfaces.	Data from the results of internal and external planning studies; vendor-supplied data; operational voltage studies; operational limits; transfer limit analysis for critical interfaces.
New Transmission Capability	Updated as per 2015 Gold Book (Application of base case inclusion rules)	Updated as per 2017 Gold Book (Application of base case inclusion rules)
Internal Controllable Lines (PARs,DC,VFT)	Optimized in simulation.	Optimized in simulation.
Neighboring Systems		
Outside World Area Models Fuel Forecast	Power flow data from CRP, “production” data developed by NYISO with vendor and neighbor input. Fuel forecasts developed utilizing same methodology as NYCA fuel forecasts.	Power flow data from CRP, “production” data developed by NYISO with vendor and neighbor input. Fuel forecasts developed utilizing same methodology as NYCA fuel forecasts.
External Capacity And Load Forecast	Neighboring systems modeled consistent with reserve margins in the RNA/CRP analysis. Neighboring systems data reviewed and held at required reserve margin.	Neighboring systems modeled consistent with reserve margins in the RNA/CRP analysis. Neighboring systems data reviewed and held at required reserve margin.

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System representation in Simulation	<p>HQ modeled as fixed hourly schedule, synchronized with all other external injections.</p> <p>Full Representation/Participation: NYISO ISONE IESO PJM Classic & AP,AEP,CE,DLCO, DAY, VP Proxy Bus Injection: HQ-NYISO, HQ-NE-ISO, NB-NEISO, HQ – IESO</p> <p>Transmission Only/Zeroed Out: MECS,FE,SPP, MAR, NIPS,OVEC,TVA, FRCC,SERC,ERCOT,WECC</p>	<p>HQ modeled as fixed hourly schedule, synchronized with all other external injections.</p> <p>Full Representation/Participation: NYISO ISONE IESO PJM Classic & AP,AEP,CE,DLCO, DAY, VP, EKPC Proxy Bus Injection: HQ-NYISO, HQ-NE-ISO, NB-NEISO, HQ – IESO</p> <p>Transmission Only/Zeroed Out: MECS,FE,SPP, MAR, NIPS,OVEC,TVA, FRCC,SERC,ERCOT,WECC</p>
External Controllable Lines (PARs,DC,VFT, Radial lines)	<p>A,B,C and J,K “wheel” Both sets set at 1000 (+/- 100) imbalance monitored Ramapo “wheel” reflects current updated protocols, tariff and market operations, including NYISO Technical Bulletins and inter-control area operating agreements. 61% of Interchange Schedules across NY-PJM AC ties flow across Ramapo PARS. In addition, 80% of RECO load is served across Ramapo PARS.</p> <p>Norwalk (-200MW, +200MW) L33,34 (-300MW, +300MW) PV20 (0MW, +150MW) Neptune (0MW, +660MW) CSC (0MW, +330MW) CSC and Neptune optimized subject to “cost of use”</p> <p>HTP (0, 660) Linden VFT (-315,315)</p>	<p>PJM/NYISO AC Interface modeling modified to reflect current PJM/NYISO JOA, as reflected in 6/22/2017 ESPWG meeting materials.</p> <p>Norwalk (-200MW, +200MW) L33,34 (-300MW, +300MW) PV20 (0MW, +150MW) Neptune (0MW, +660MW) CSC (0MW, +330MW) CSC and Neptune optimized subject to “cost of use”</p> <p>HTP (0, 660) Linden VFT (-315,315)</p>