

Economic Planning Process Manual – Congestion Assessment and Resource Integration Studies (CARIS) Appendices

Appendix A **Typical CARIS Base Case Assumptions Matrix**
mm/dd/2014

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Appendix A. Typical CARIS Base Case Assumptions Matrix

Assumption Parameters Category

Parameter	Modeling for CARIS Base Cases	Basis for Recommended Assumptions for CARIS	Category
Peak Load	Forecast as per <u>XXXX</u> RNA Base. Scenarios for other forecasts.	Based on CRP Peak Forecast Use <u>XXXX</u> Base Case Energy Forecast	Trajectory
Load Shape Model	<u>XXXX</u> Load Shape, constant over ten year period.	<u>XXXX</u> load shape is an appropriate representation for this analysis. For base year, use <u>XXXX</u> Load Shape. Adjusted for Energy Forecast if needed., Evaluate alternative in future	Fixed
Energy Forecast	<u>XXXX</u> RNA Base Case Forecast		Trajectory
Load Uncertainty Model	Statewide and zonal model updated to reflect current data., constant over ten year period	Base Level Forecast will be used. Other load uncertainty levels not evaluated.	Fixed
Generating Unit Capacities	Same as CRP - Per <u>XXXX</u> CRP, updated DMNC test values plus units	Any changes in CRP capacities through time to be represented in CARIS.	Fixed
New Units	As per the CRP and scaled back according to procedure (Tariff Attachment Y: Section 31.3.1.3.2)	N/A	Discrete System Change
Wind Resource Modeling	Existing units derived from hourly wind data with average Summer Peak Hour capacity factor of approximately 11 %. New units from wind shapes from wind study.	Typical shape for location as per MARS and wind studies.	Fixed
Non-NYPA Hydro Capacity Modeling	Pondage Run of River(Hourly)	N/A	Fixed

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Special Case Resources	Those sold for the program, discounted to historic availability and distributed according to zonal performance. Assume 15% growth rate for all zones. Modify load SCR/EOP to proportion available SCR by load amount by zone. See SCR determinations in Attachment G.	N/A	Fixed
EDRP Resources	Those registered for the program, discounted to historic availability (45 % overall). July & August values calculated from XXXX July and August registrations.	Need to define costs associated, firm modifiers vs. price responsive.	Fixed
External Capacity – Purchases	Based on NYISO forecast.	N/A	Other
Retirements	XXXX Gold Book over ten year period.	As per the CRP.	Discrete System Change
Planned Outages	Per XXXX CRP, based on schedules received by NYISO & adjusted for history. constant over ten year period.	As per the CRP.	Fixed
Outage Scheduling	Continue with approximately XXXX MW after reviewing last year's data.	As per the maintenance schedules in long term adequacy studies.	Fixed
Gas Turbines Ambient Derate	Continue with approximately XXXX MW after reviewing last year's data, constant over ten year period.	Reflected only in summer/winter ratings.	Fixed
Environmental Modeling	Included in the Base Case and modified in the scenarios	Any impacts assumed in CRP carried forward.	Fixed
Externalities	Built into the development of cost curves of resources. Optimization is cost driven.	Limits on emissions done through allowances, not hard limits.	
Allowances		Allowance cost from Chicago Climate Futures Exchange.	
Commitment and Dispatch Options	Each Balancing Authority Commits separately Hurdle Rates are employed for commitment and dispatch...	N/A	Other
Operating Reserves	Operating Reserves as per NYCA requirements.		

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Fuel Price Forecast	EIA data obtained quarterly, adjusted for seasonality on monthly basis, monthly volatility based on historical patterns.	NYISO to calibrate forecast based on public information and historical data.	Trajectory
Cost Curve Development	Developed from Heat Rate Curve, Fuel Price forecast, environmental adders, penalty factors.	Allowances from Chicago Climate Futures Exchange, Heat Rate development under discussion. Unit specific heat rates are confidential and not disclosed.	Other
Heat Rates NYCA External Systems	Developed from vendor supplied data and fuel input data matched with MWh data for NYCA.		Fixed
Local Reliability Rules	List and develop appropriate nomograms.	Fuel burn restrictions, operating restrictions and exceptions, commitment/dispatch limits.	Operating Rules/Criteria
Energy Storage Gilboa PSH Lewiston PSH	Gilboa and Lewiston scheduled against NYCA.	N/A	Other
Transmission System Model			
Power Flow Cases	As per CRP.	N/A	
Interface Limits Monitored/contingency pairs Nomograms Joint, Grouping Unit Sensitive Voltage	Transfer limit analysis done in RNA/CRP for critical interfaces. External system limits from input from neighboring systems.	Based on historical congestion, planning study results, NERC book of flowgates, PROBE/SCUC list of active/potential constraints, Special Protections Systems	Calculated
New Transmission Capability	As per CRP.	N/A	Discrete System Change
Internal Controllable Lines (PARs,DC,VFT)	Optimized in simulation consistent with operating protocols and agreements, as appropriate	N/A	Other
Neighboring Systems			

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<p>Outside World Area Models</p> <p>Fuel Forecast</p>	<p>Power flow data from CRP, “production” data developed by NYISO with vendor and neighbor input.</p> <p>Linked with NYCA forecast.</p>	<p>N/A</p>	<p>Trajectory</p>
<p>External Capacity</p> <p>Load Forecast</p>	<p>Firm and grandfathered are included.</p> <p>Neighboring systems data reviewed and held at required reserve margin.</p>	<p>Neighboring systems modeled consistent with reserve margins in the RNA/CRP analysis.</p>	<p>Discrete System Change</p> <p>Trajectory</p>
<p>System representation in Simulation</p>	<p>HQ modeled as load/generation pair.</p> <p>Full Representation/Participation</p> <p>NYISO</p> <p>NE-ISO</p> <p>IESO</p> <p>PJM Classic &</p> <p>Full Representation: NYISO,NEISO,IESO,PJM (PJM Classic, AP,AEP,CE,DLCO,DAY,VP)</p> <p>Proxy Bus:</p> <p>HQ-NYISO, HQ-NEISO</p> <p>Transmission Only/Zeroed Out: MECS,FE,SPP, MAR, NIPS,OVEC,TVA, FRCC,SERC,ERCOT,WECC</p>	<p>N/A</p>	<p>Fixed</p>
<p>External Controllable Lines (PARs,DC,VFT, Radial lines)</p>	<p>A,B,C and J,K “wheel”</p> <p>Both sets set at XXXX min, 1200 max, imbalance monitored</p> <p>Ramapo +/- XXXX MW</p> <p>Norwalk +/- XXXX MW</p> <p>L33,34 - +/- XXXX MW</p> <p>PV20 – XXXX MW</p> <p>Neptune and CSC as per CRP firm X 24 hrs, economy remainder</p>	<p>N/A</p>	<p>Other</p>