



Economic Planning Process Manual – Appendices

**Appendix A Example System & Resource Outlook Reference Case
Assumptions Matrix**

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DRAFT – FOR DISCUSSION PURPOSES ONLY

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Appendix A Example System & Resource Outlook Reference Case Assumptions Matrix

	Reference Case Modeling		
Parameter	Base Case	Contract Case	Policy Case
Assumption Lock Down Date	TBD	TBD	TBD
Peak Load	Based on <u>YYYY</u> Load & Capacity Data Report (“Gold Book”) Baseline Forecast of Non-Coincident Peak Demand, including impacts of statewide Energy Efficiency programs	Based on <u>YYYY</u> Load & Capacity Data Report (“Gold Book”) Baseline Forecast of Non-Coincident Peak Demand, including impacts of statewide Energy Efficiency programs.	Based on <u>YYYY</u> Load & Capacity Data Report (“Gold Book”) Forecast. Impacts of statewide policy programs that impact load included.
Energy Forecast	Energy Forecast based on <u>YYYY</u> Load & Capacity Data Report (“Gold Book”) Baseline Forecast of Annual Energy, including impacts of statewide Energy Efficiency programs	Energy Forecast based on <u>YYYY</u> Load & Capacity Data Report (“Gold Book”) Baseline Forecast of Annual Energy, including impacts of statewide Energy Efficiency programs	Energy Forecast based on <u>YYYY</u> Load & Capacity Data Report (“Gold Book”) Baseline Forecast of Annual Energy, including impacts of statewide Energy Efficiency programs
Load Shape Model	<u>YYYY</u> Load Shape.	<u>YYYY</u> Load Shape.	<u>YYYY</u> Load Shape.
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	Only Base Level Forecast utilized; the impact of energy or peak forecasts may be utilized in scenarios
Generating Unit Capacities	Updated to reflect <u>YYYY</u> Gold Book winter and summer DMNC values	Updated to reflect <u>YYYY</u> Gold Book winter and summer DMNC values	Updated to reflect <u>YYYY</u> Gold Book winter and summer DMNC values

New Resources	Updated as per YYYY Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.2 and NYISO procedures)	Updated as per YYYY Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.2 and NYISO procedures) Units with financial contract, including state sponsored programs, included.	Updated as per YYYY Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.2 and NYISO procedures) Units with financial contract, including state sponsored programs, included. Units to support achievement of state and federal policies included.
Wind Resource Modeling	Units and capacities updated as per YYYY Gold Book. Existing wind resources are modeled based on unit capacities and actual YYYY shapes. New units modeled based on proximate existing units.	Units and capacities updated as per YYYY Gold Book. Existing wind resources are modeled based on unit capacities and actual YYYY shapes. New units modeled based on proximate existing units or using calculated shapes.	Units and capacities updated as per YYYY Gold Book. Existing wind resources are modeled based on unit capacities and actual YYYY shapes. New units modeled based on proximate existing units or using calculated shapes.
Non-NYPA Hydro Capacity Modeling	Updated as per YYYY Gold Book; unit output is modeled consistent with historic levels.	Updated as per YYYY Gold Book; unit output is modeled consistent with historic levels.	Updated as per YYYY Gold Book; unit output is modeled consistent with historic levels.
Special Case Resources	Not utilized in MAPS production cost modeling; may be incorporated in ICAP Metric calculation	Not utilized in MAPS production cost modeling; may be incorporated in ICAP Metric calculation	Not utilized in MAPS production cost modeling; may be incorporated in ICAP Metric calculation
EDRP Resources	N/A for production cost modeling	N/A for production cost modeling	N/A for production cost modeling
External Capacity – Purchases and Wheel-Through	Flows across schedulable and non-schedulable transmission lines are based on economics.	Flows across schedulable and non-schedulable transmission lines are based on economics.	Flows across schedulable and non-schedulable transmission lines are based on economics.
Facility Deactivation and Retirements	Updated as per YYYY Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.2 and NYISO procedures)	Updated as per YYYY Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.2 and NYISO procedures)	Updated as per YYYY Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.2 and NYISO procedures) Policy based unit deactivation may be considered.
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.	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.	Modeling utilizes summer and winter DMNC ratings for all units.
Environmental Modeling and allowance	Allowance costs based on projected RGGI costs and New York Department of Environmental Conservation guidance. SO2 and NOx Allowance Prices reflect CSAPR markets.	Allowance costs based on projected RGGI costs and New York Department of Environmental Conservation guidance.. SO2 and NOx Allowance Prices reflect CSAPR markets.	Allowance costs based on projected RGGI costs and New York Department of Environmental Conservation guidance.. SO2 and NOx Allowance Prices reflect CSAPR markets. Additional policy based environmental programs may be modeled.
Commitment and Dispatch Options Operating Reserves	Each Balancing Authority Commits separately Hurdle Rates are employed for commitment and dispatch... Operating Reserves as per NYCA requirements.	Each Balancing Authority Commits separately Hurdle Rates are employed for commitment and dispatch... Operating Reserves as per NYCA requirements.	Each Balancing Authority Commits separately Hurdle Rates are employed for commitment and dispatch... Operating Reserves as per NYCA requirements.
Fuel Price Forecast	Annual bases updated to more heavily weighted recent trends. Utilized unit capacities and reported pricing hubs to weight price forecasts. 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.	Annual bases updated to more heavily weighted recent trends. Utilized unit capacities and reported pricing hubs to weight price forecasts. 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.	Annual bases updated to more heavily weighted recent trends. Utilized unit capacities and reported pricing hubs to weight price forecasts. 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.

Cost Curve Development (including heat rates and emission rates)	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.	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.	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. New technology heat and emission rates developed based upon vendor or publicly available data.
Local Reliability Rules	List and develop appropriate nomograms. Fuel burn restrictions, operating restrictions and exceptions, commitment/dispatch limits	List and develop appropriate nomograms. Fuel burn restrictions, operating restrictions and exceptions, commitment/dispatch limits. Updates as the result of new resource contract may be considered.	List and develop appropriate nomograms. Fuel burn restrictions, operating restrictions and exceptions, commitment/dispatch limits. Updates as the result of policy may be considered.
Energy Storage Gilboa PSH Lewiston PSH	Gilboa and Lewiston scheduled against NYCA load profile.	Gilboa and Lewiston scheduled against NYCA load profile.	Gilboa and Lewiston scheduled against NYCA load profile.
Transmission System Model			
Power Flow Cases	As per RPP or STRP.	As per RPP or STRP	As per RPP or STRP
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.	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 YYYY Gold Book (Application of base case inclusion rules)	Updated as per YYYY Gold Book (Application of base case inclusion rules) New contracted transmission resources considered	Updated as per YYYY Gold Book (Application of base case inclusion rules) New contracted and policy transmission resources considered
Internal Controllable Lines (PARs,DC,VFT)	Optimized in simulation consistent with operating protocols and agreements, as appropriate	Optimized in simulation consistent with operating protocols and agreements, as appropriate	Optimized in simulation consistent with operating protocols and agreements, as appropriate
Neighboring Systems			
External Area Models Fuel Forecast	Power flow data from RPP and/or STRP, “production” data developed by NYISO with vendor and neighbor input. Linked with NYCA forecast.	Power flow data from RPP and/or STRP, “production” data developed by NYISO with vendor and neighbor input. Linked with NYCA forecast.	Power flow data from RPP and/or STRP, “production” data developed by NYISO with vendor and neighbor input. Linked with NYCA forecast.
External Capacity Demand Forecast	Neighboring systems modeled consistent with NYISO internal generation and load assumptions.	Neighboring systems modeled consistent with NYISO internal generation and load assumptions.	Neighboring systems modeled consistent with NYISO internal generation and load assumptions.
System representation in Simulation	HQ modeled as fixed hourly schedule, synchronized with all other external injections. 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 Transmission Only/Zeroed Out: MECS,FE,SPP, MAR, NIPS,OVEC,TVA, FRCC,SERC,ERCOT,WECC	HQ modeled as fixed hourly schedule, synchronized with all other external injections. 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 Transmission Only/Zeroed Out: MECS,FE,SPP, MAR, NIPS,OVEC,TVA, FRCC,SERC,ERCOT,WECC	HQ modeled as fixed hourly schedule, synchronized with all other external injections. 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 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>	<p>A,B,C and J,K “wheel” with current JOA modeled Ramapo +/- XXXX MW Norwalk +/- XXXX MW L33,34 - +/- XXXX MW PV20 – XXXX MW Neptune – XXXX MW CSC – XXXX MW Neptune and CSC optimized subject to “cost of use” HTP – XXXX MW Linden VFT - +/- XXXX MW</p>	<p>A,B,C and J,K “wheel” with current JOA modeled Ramapo +/- XXXX MW Norwalk +/- XXXX MW L33,34 - +/- XXXX MW PV20 – XXXX MW Neptune – XXXX MW CSC – XXXX MW Neptune and CSC optimized subject to “cost of use” HTP – XXXX MW Linden VFT - +/- XXXX MW</p> <p>New contracted transmission resources considered</p>	<p>A,B,C and J,K “wheel” with current JOA modeled Ramapo +/- XXXX MW Norwalk +/- XXXX MW L33,34 - +/- XXXX MW PV20 – XXXX MW Neptune – XXXX MW CSC – XXXX MW Neptune and CSC optimized subject to “cost of use” HTP – XXXX MW Linden VFT - +/- XXXX MW</p> <p>New contracted and policy transmission resources considered</p>
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