

CARIS Phase 2 Base Case Update

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Topics

- 1. CARIS 2 Modeling Update**
- 2. Preliminary Basecase Results**

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CARIS 2 Modeling Update

- ◆ **The CARIS Phase 1 database and assumption matrix was updated and extended for 2014-2023 study period**
 - *Load and fuel forecasts*
 - *New additions and retirements*
 - *Other Updates*
- ◆ **GE Database Validation**

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Load Forecast

◆ **NYCA**

- *Load forecast was updated for the first ten years based on the 2010 NYISO Load and Capacity Data Report*
- *Load forecast (Years 2020-2023) was extended based on the same trajectory as the first ten years reaching 36,501 MW in 2023*

◆ **External Areas**

- *Load forecast was updated based on data from the most current reports*
- *Load forecast was frozen to maintain reserve margin*

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Fuel Forecast and Hurdle Rates

- ◆ **The NYCA fuel price forecast was updated based on most recent economic parameters in November 2010**
- ◆ **Presentation in ESPWG 8/27/10 outlined CARIS fuel-price forecast methodology**
- ◆ **Hurdle Rates adjusted to maintain historic imports levels**

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New additions and retirements

- ◆ **Astoria SCS II and Bayonne are modeled**

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Other Updates

- ◆ **Modified Combined Cycle logic to more closely align with historic operation**
- ◆ **NYC minimum downtime adjustments on large units to more closely align with actual operation**
- ◆ **(As per discussion with ESPWG, Athens SPS not modeled after 2011)**

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GE Database Validation

- ◆ **GE Energy Application and Systems Engineering reviewed the CARIS Phase II database in December 2010. The review was based on the data received from the NYISO on December 20, 2010**
- ◆ **Based on the review of the database, GE believes that the CARIS baseline database represents a reasonable representation of the NYISO system**

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Production Costs (M\$) for three Basecases

Production Costs (M\$)	2014	2017	2022
WEST	546	631	770
GENESSEE	30	31	34
CENTRAL	619	768	1,019
NORTH	88	116	165
MOHAWKVA	12	11	16
CAPITAL	1,141	1,287	1,590
HUDSONVA	315	372	475
MILLWOOD	132	136	147
DUNWOODI	0	0	0
NYCITY	1,995	2,322	2,997
LONGISLA	545	664	893
Total NYCA (M\$)	5,425	6,338	8,105
Total Imports (M\$)	838	910	1,210
Total NYCA + Imports (M\$)	6,263	7,247	9,315

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Load Payments (M\$) for three Basecases

Load Payments (M\$)	2014	2017	2022
WEST	860	982	1,213
GENESSEE	617	707	888
CENTRAL	1,000	1,137	1,408
NORTH	364	417	517
MOHAWKVA	477	542	673
CAPITAL	742	838	1,031
HUDSONVA	750	857	1,087
MILLWOOD	211	247	316
DUNWOODI	486	552	667
NYCITY	4,005	4,625	5,796
LONGISLA	1,679	1,948	2,502
Total NYCA (M\$)	11,191	12,852	16,097

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Generation (GWh) for three Basecases

Generation (GWh)	2014	2017	2022
WEST	26,242	25,993	25,919
GENESSEE	4,674	4,677	4,693
CENTRAL	28,909	30,148	31,836
NORTH	9,578	9,848	10,221
MOHAWKVA	3,042	2,987	3,009
CAPITAL	19,604	20,078	21,275
HUDSONVA	4,801	4,911	5,128
MILLWOOD	17,150	17,151	17,151
DUNWOODI	6	6	6
NYCITY	27,900	29,384	32,236
LONGISLA	8,027	8,747	9,973
Total NYCA (GWh)	149,932	153,930	161,447
Total Imports (GWh)	14,268	13,291	14,824
Total NYCA +Imports (GWh)	164,200	167,221	176,272

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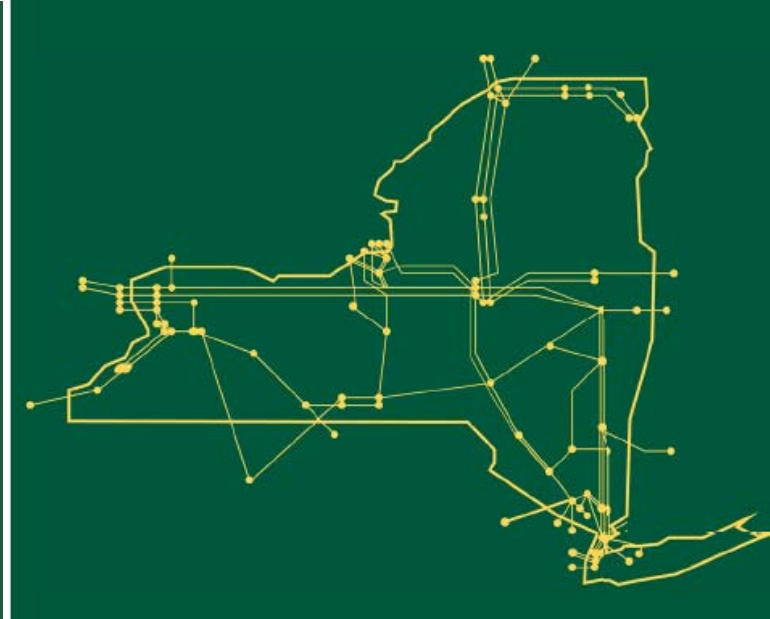
Congestion (M\$) for three Basecases

Demand Congestion M\$	2014	2017	2022
Leeds_PV	176	229	295

Congestion (M\$)	2014	2017	2022
WEST	13.8	8.5	9.6
GENESSEE	7.1	4.2	4.4
CENTRAL	2.4	1.1	1.3
NORTH	5.6	4.7	4.4
MOHAWKVA	0.1	0.5	0.8
CAPITAL	9.2	7.9	8.7
HUDSONVA	25.3	29.1	37.7
MILLWOOD	8.5	9.9	12.7
DUNWOODI	18.4	21.1	25.6
NYCITY	217.8	257.2	357.8
LONGISLA	104.1	119.0	152.8
Total NYCA	412	463	616

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