

Updating and Extending the CARIS Database for Specific Project Evaluation

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Draft – For Discussion Only

Methodology to Update the Database

- ◆ The most recently approved CARIS Phase 1 database and assumption matrix was updated for the first ten years
 - *New load and fuel forecasts*
 - *New additions and retirements*
 - *Other additions to maintain a representative system measured against target reserve proxies*
 - *Note: Athens SPS out of service in 2011 assumption in Phase 1 not modified*
- ◆ Update procedure employs base case screening criteria for retirements and generator additions

Methodology to Extend the Database

- ◆ Extended database must be developed to include ten additional years beyond the CSPP study period (Years 11-20) in order to be able to evaluate 10-years of benefits from a specific project submittal
 - *Extend load and fuel forecasts*
 - *Add wind MWs from Queue to satisfy RPS and then add generic combined cycle (250 MW block) or peaker (100 MW block) to maintain a representative system measured against target reserve proxies when $LOLE > 0.1$*
 - *External systems frozen at year 10, hurdle rates adj*

Updated and Extended Load Forecast

- ◆ The NYCA load forecast was updated for the first ten years based on the most recent NYISO Load and Capacity Data Report (Phase 2 approximately two percent lower, 35,000 MW vs 35,800 Mw)
- ◆ Extended NYCA load forecast (Years 11-20) based on the same trajectory as the first ten years reaching 39,100 MW in 2030)
- ◆ External system load forecasts were updated from their respective current reports

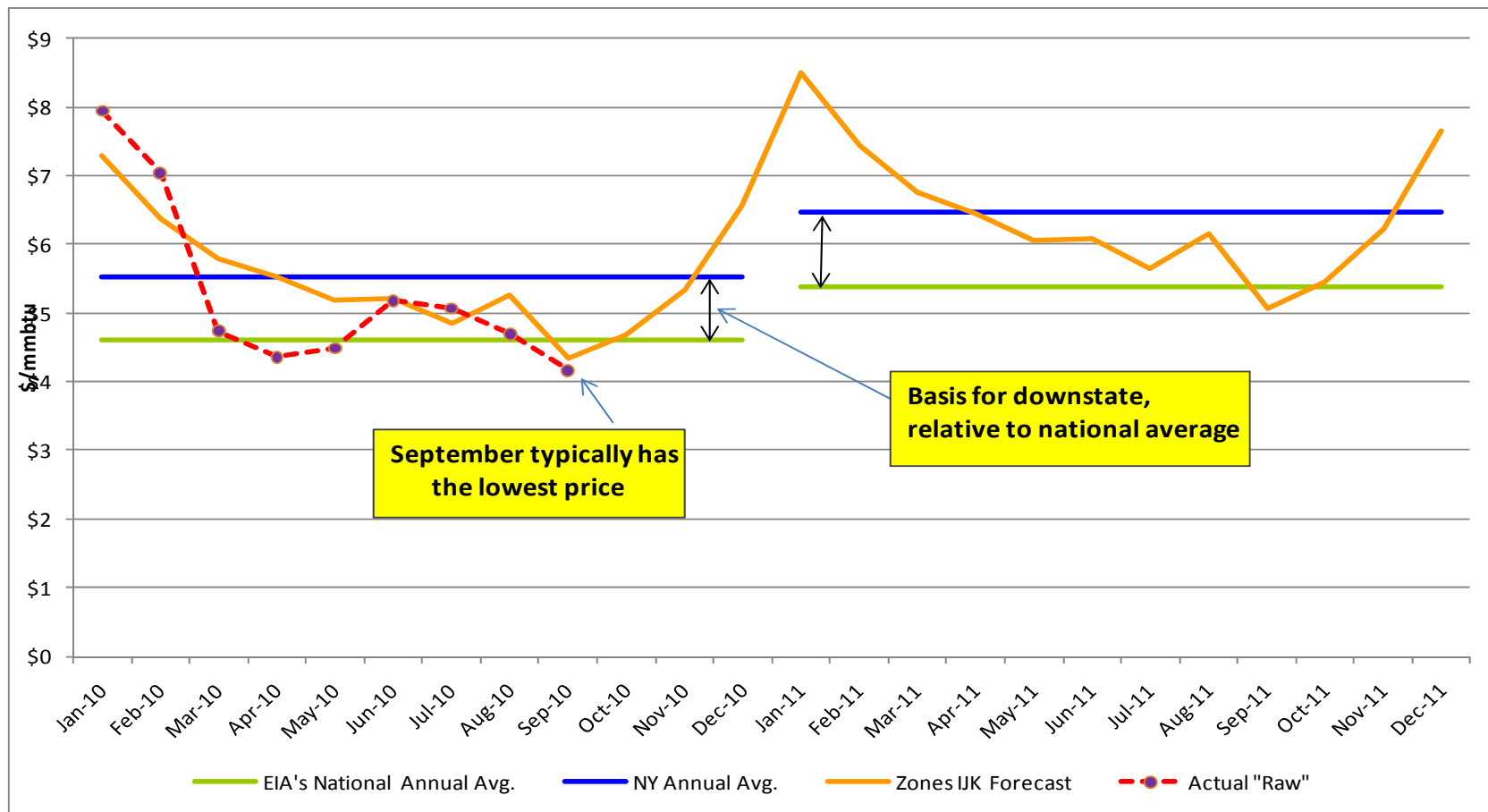
Updated and Extended Fuel Price Forecast

- ◆ The NYCA fuel price forecast was updated based on latest data in August 2010.
- ◆ Annual Average Natural Gas prices downstate rise from \$6.50/mmbtu in 2011 to \$10.50/mmbtu by 2030.

Updated and Extended Fuel Price Forecast

- ◆ Presentation to BIC on 10/6/10 reported the **raw** monthly average Natural Gas **spot** prices for Aug. '10 & Sep. '10 as \$4.69/mmbtu & \$4.15/mmbtu, respectively
- ◆ Observed monthly pattern is consistent with seasonality (Sep. prices are typically the lowest in the year) and trend in CARIS forecast of **delivered** fuel prices
- ◆ Presentation in ESPWG 8/27/10 outlined CARIS fuel-price forecast methodology

Downstate Natural Gas Price: Actual & Forecast



The forecast is evaluated/revised as new data becomes available

Methodology to Maintain Target Reserve Proxy

- ◆ Resources added in NYCA to maintain or exceed a target reserve proxy through the twenty year period(3400 MW added by 2030)
 - Approximately 2400 MW Nameplate wind additions
 - Approximately 3100 MW CCs and GTs
- ◆ Target Reserve Proxy based on an addition to the actual reserves at LOLE crossover to 0.1
- ◆ Added Generic resources based on a 250 MW CC, 100 MW peaker, and wind expanded to RPS targets.

Preliminary Zonal Breakdown

MWs Distributed First to Zones G and H (downstream of UPNY/SENY), then proportional to zonal capacity, Initial Presentation)

Area/Zone		2023	2024	2025	2026	2027	2028	2029	2030
AREA_A		0	100	100	200	200	300	300	400
AREA_B		0	0	0	0	0	0	0	100
AREA_C		0	100	200	300	300	400	400	500
AREA_D		0	100	100	100	100	200	200	200
AREA_E		0	0	0	0	0	100	100	100
AREA_F		0	100	100	200	200	300	300	300
AREA_G		0	100	100	100	100	200	200	200
AREA_H		0	0	100	100	100	100	100	200
AREA_I									
AREA_J			0	100	300	400	500	700	800
AREA_K			100	200	200	300	400	500	600
Total		0	600	1000	1500	1700	2500	2800	3400

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Preliminary Zonal Breakdown

MWs Distributed First to Zones G and H (downstream of UPNY/SENY), then proportional to zonal capacity, with Lumpiness and Wind, not shown)

	2023	2024	2025	2026	2027	2028	2029	2030
AREA_A	0	0	250	250	250	250	250	250
AREA_B	0	0	0	0	0	0	0	0
AREA_C	0	250	250	250	250	500	500	500
AREA_D	0	0	0	0	250	250	250	250
AREA_E	0	0	0	0	0	0	0	0
AREA_F	0	0	0	0	250	250	250	250
AREA_G	0	0	0	0	250	250	250	250
AREA_H	0	0	0	0	0	0	250	250
AREA_I								
AREA_J		0	0	250	250	500	750	750
AREA_K		0	250	250	250	500	500	500
Total	0	250	750	1000	1750	2500	3000	3000

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Highlights of the Process

- ◆ Updated profiles based on additional historic data
 - HQ – Split out Cedars and increased Chateaugay
 - St. Lawrence – Slight increase in Max Mw
 - Niagara/Lewiston – Slight increase in MW max and increased price responsiveness
- ◆ Modified Combined Cycle logic to more align with historic operation, less restrictive nomograms
- ◆ NYC minimum down time adjustments on large units to align with actual operation

The New York Independent System Operator (NYISO) is a not-for-profit corporation that began operations in 1999. The NYISO operates New York's bulk electricity grid, administers the state's wholesale electricity markets, and provides comprehensive reliability planning for state's bulk electricity system.

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