

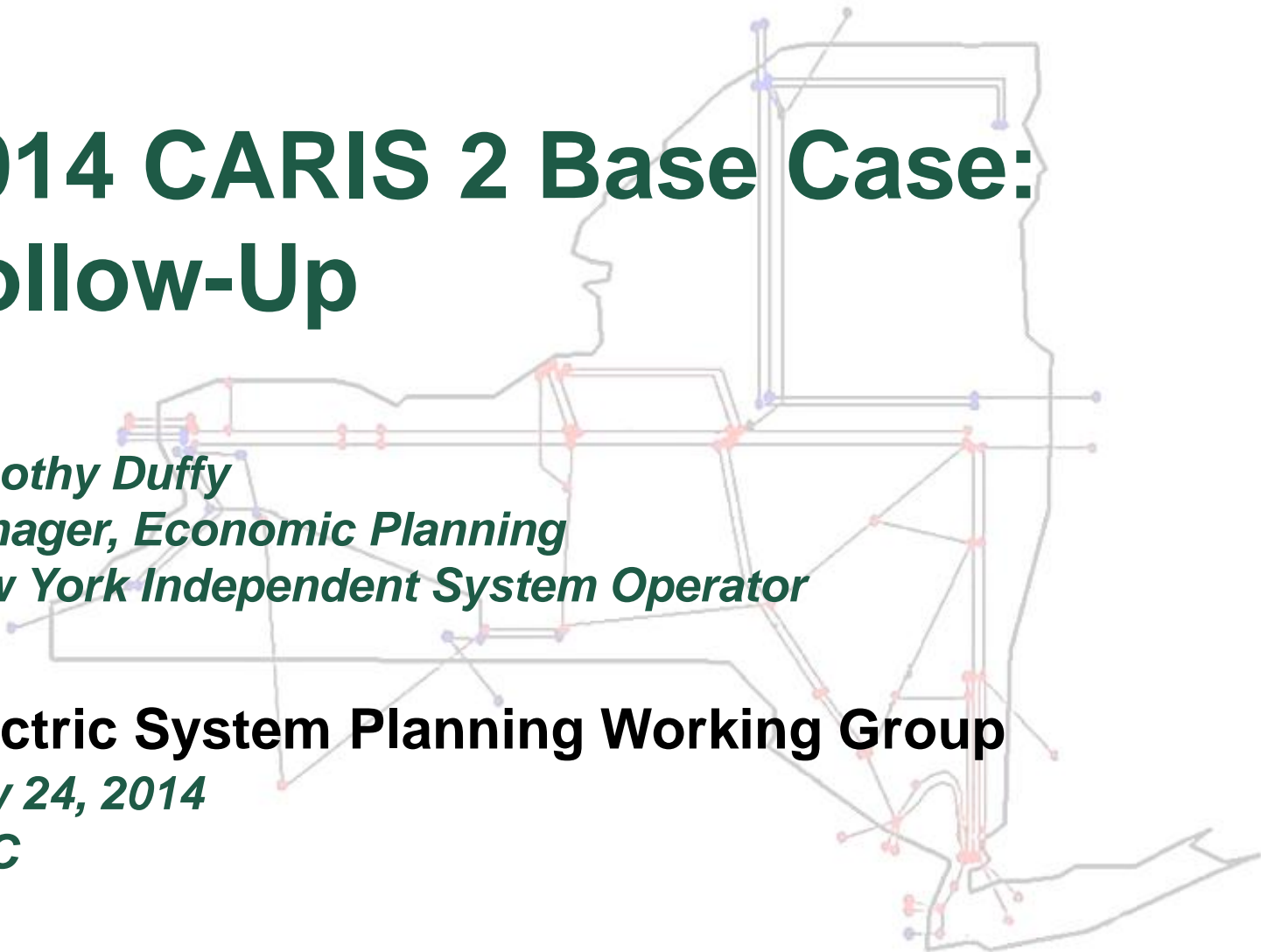
2014 CARIS 2 Base Case: Follow-Up

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KCC



Background

- ◆ **Presentation on Preliminary CARIS 2 assumptions and results given at June 30th ESPWG**
- ◆ **Several comments received at the meeting and following via e-mail**
- ◆ **Following review of comments, NYISO has determined to make no changes at this time to base case assumptions presented at the June 30th ESPWG**

Generator Additions and Retirements

- ◆ **Comment: Taylor Biomass – anticipated extension to proposed “in-service” date to 2016**
- ◆ **Response: CARIS 2 database captures updates from 2014 “Load and Capacity Data” report which indicates proposed in-service date of 12/2015. CARIS 2 database locked-down as of 5/1/2014.**

Overall CARIS 2 Modeling

- ◆ **Comment: Need to clarify differences between 2014 CARIS 2 and 2014 RNA databases.**
- ◆ **Response: Per EPP Manual, a CARIS 2 database is derived principally from the prior CARIS database which, in turn is built off the prior CRP.**
- ◆ **As a result, there will be differences between the current CARIS 2 and RNA databases.**
- ◆ **For clarity, the NYISO will highlight in its presentation to BIC the most significant of these differences.**

Athens SPS

- ◆ **Comment: Athens Special Protection System (SPS) should be retained through study period and only removed following a permanent reinforcement.**
- ◆ **Response: As proposed, the Athens SPS would be modeled as in-service through life of contract (2014-2023) with the additional ten-year “option” not being considered.**
- ◆ **This contract “option” is insufficient to support modeling the SPS beyond the ten-year period.**
- ◆ **Continued modeling of the SPS as in-service could be requested as a scenario in evaluation of CARIS 2 projects.**

2012 RNA Findings

- ◆ **Comment: Confirm that Local Reliability Upgrades from 2012 RNA/CRP are incorporated**
- ◆ **Response: Both the Five Mile Road and Rochester Area Reinforcement Projects are incorporated**
- ◆ **Comment: Confirm that the Leeds-Pleasant Valley transmission security violation from 2012 RNA is resolved**
- ◆ **Response: As described in 2012 CRP Report, the generation additions proposed as Market-Based Solutions (which are included) address the Leeds-PV security issues**

Natural Gas Prices

- ◆ **Comment:** Forecasted gas prices are too high
- ◆ **Response:** NYISO's gas forecasts are developed through a procedure agreed upon with ESPWG that are based upon publicly available EIA forecasts for national-average prices adjusted by annual bases (averaged over the preceding 5 years) for the New York and regional hubs.
- ◆ **Alternative approaches can be considered for next CARIS cycle.**

Representative System

- ◆ **Comment: Generic thermal additions should be strictly gas turbines (per finding of most recent Demand-Curve Reset (DCR) analysis). Conversely, construction of gas turbines downstate is overstated.**
- ◆ **Response: FTI report concluded that a peaking unit or a combined-cycle could be the least-cost source of incremental capacity in the future.**
- ◆ **The choice of the peaking-unit as the proxy unit was dictated by the NYISO Services Tariff which calls for the plant with the “lowest fixed cost and highest variable cost”.**
- ◆ **As a whole, proposed capacity additions in both the NYCA and each of the localities reflect a reasonable combination of peaking and combined-cycle units.**

Economic Margin Additions by Zone

Year	A	B	C	D	E	F	G	H	I	J	K	Total		
2014														
2015														
2016											210 @ Barrett	210		
2017														
2018										500 @ Astoria *		500	MBS	
2019														
2020														
2021											210 @ Holbrook	210	Renewable	
2022							310 @ Rock Tavern					310		
2023										500 @ Astoria ** 210 @ W49th St.		710	Generic CC	
2024														Generic GT
2025	1500 ***										24 ***	201 ***	1,725	
2026										210 @ Gowanus	310 @ Ruland Road	520		
2027														
2028										210 @ Astoria		210		
2029	310 @ Dunkirk											310		
2030							310 @ Watercure					310		
2031										210 @ Astoria		210		
2032		310 @ Russell										310		
Grand Total												5,535		

* Approx. 100MWs of Astoria GTs retired.

** Approx. 495MWs of Astoria GTs retired.

*** Renewable capacity shown is nameplate. Summer capacity value is assumed to be 10% for wind and 30% for solar.

Representative System

- ◆ **Comment: Wind capacity factor for off-shore wind should be 30%.**
- ◆ **Response: Generic wind additions (1,500 MW upstate) are considered to be on-shore with a summer peak capacity factor of 10%, annual capacity factor of 30%.**

Representative System

- ◆ **Comment: Base case overstates amount of upstate renewable resources (1,500 MW of wind) and understates level of on-site resources, concentrated downstate**
- ◆ **Response: Base Case does not assume complete accomplishment of Renewable Portfolio Standard (as in prior CARIS 2).**
- ◆ **Base Case does incorporate the renewable MWs available in NYISO queue.**
- ◆ **Base Case assumed significant development of solar generation in J and K consistent with interconnection queue.**
- ◆ **Load forecast does reflect increasing on-site (“behind the meter”) solar installations.**

Representative System

- ◆ **Comment: 125 MW of planned Demand Response/Energy Efficiency/Combined Heat and Power projects (as submitted in the PSC’s Indian Point Retirement proceeding) should be reflected from 2016 forward.**
- ◆ **Response: Proposed DR/EE/CHP was not reflected in 2014 “Load and Capacity” load forecast or latest local transmission plans.**
- ◆ **Could be modeled as a scenario in the evaluation process.**

Representative System

- ◆ **Comment:** Should consider projected resource mix in zone K in light of LIPA RFP for new generation and the NYISO interconnection queue (136 MWs of solar and a 750 MW combined-cycle plant).
- ◆ **Response:** None of the specific projects cited meet inclusion rules. The Base Case does include generic additions in zone K, including gas turbines, combined-cycle and solar generation, to maintain the “representative system”.
- ◆ **Note that the CARIS 2 base case development does not optimize capacity expansion or retirements.**

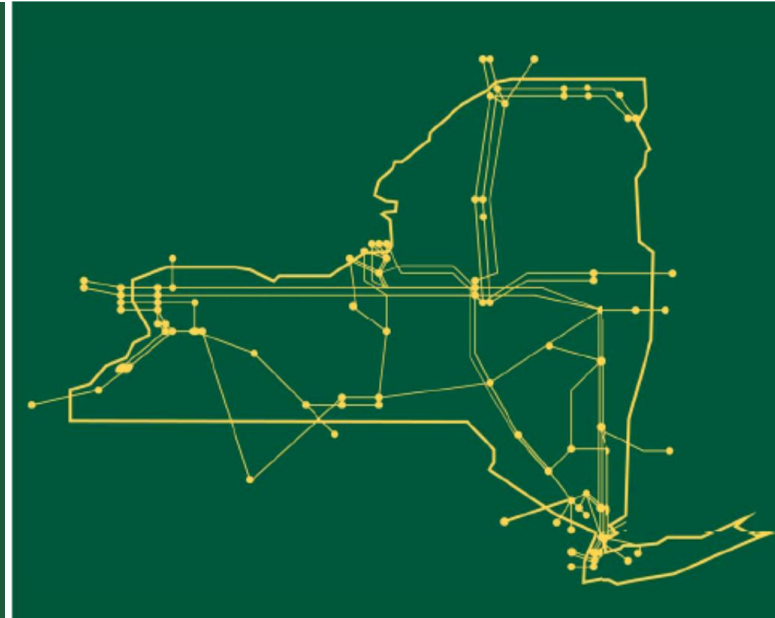
Projected NYISO/PJM Flows

- ◆ **Comment: Shift in NYISO-PJM inter-control flows in 2020 is not reasonable.**
- ◆ **Response: The shift in inter-control area flows is directly attributable to the implementation of a national CO2 program to which heretofore much of PJM had not been subject. In 2020, this is equivalent of an additional \$8/MWh for combined cycle generation. This results in an increase in flows through NY to PJM from IESO; and a reduction in flows from PJM to NE through NY.**
- ◆ **Note that the impact of the hurdle rates is decreasing through time as these are not escalated.**
- ◆ **Note also that the PJM generation mix does change through the study period with the retirement of some 7,500 MWs of coal and construction of some 9,000 MWs of combined-cycle gas units, and significant solar installations.**
- ◆ **Finally, by procedure, external loads and generation are locked beginning in 2023.**

Next Steps

- ◆ **Presentation at 8/13 Business Issues Committee**
- ◆ **NYISO will address BIC comments at subsequent ESPWG (if necessary)**
- ◆ **Finalize CARIS 2 Database**
- ◆ **Evaluate specific CARIS 2 projects (as submitted)**
 - *Keep ESPWG informed*
 - *Engage ESPWG as required*

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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