



High Renewable Whitepaper *–Phase 2*

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ICS Discussion

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Background

- NYSRC kicked off the whitepaper on high renewable resource impact in 2019, with the finalized whitepaper approved in April 2020
 - Finalized whitepaper: *The Impacts of High Intermittent Renewable Resources*
- In this whitepaper, 4,000 MW of renewable resources (on-shore wind, off-shore wind and solar PV) were added to the NYCA system
 - The detailed assumptions were discussed at the ICS: *High Renewable Assumptions*
- The finalized whitepaper was considered as Phase 1 of the high renewable sensitivity study. The scope of Phase 2 study includes two additional renewable resources scenarios with transmission constraints removed (*Phase 2 Scope*):
 - Base Case = 2020 IRM PBC No Transmission Constraints Case
 - Scenario A: Base Case + 2,000 MW of each renewable resource type
 - Scenario B: Base Case + 6,000 MW of each renewable resource type

Assumed Location of Added Renewable Resources (ICAP MW)

Zone	Base Case + 2,000 MW				Base Case + 6,000 MW			
	Solar	On-Shore	Off-Shore	Total	Solar	On-Shore	Off-Shore	Total
A	437	515		952	1,311	1,545		2,856
C	203	497		700	609	1,491		2,100
D		447		447		1,341		1,341
E		541		541		1,623		1,623
F	941			941	2,823			2,823
G	224			224	672			672
J			1,000	1,000			3,000	3,000
K	144		1,000	1,144	432		3,000	3,432
Total	2,000	2,000	2,000	6,000	6,000	6,000	6,000	18,000

All other modeling assumptions, including renewable locations, production profiles and EOFRDs are consistent with Phase 1 study

Preliminary Results:

Reserve Margin Comparison

	Phase 1 Results	Phase 1 Results Adjusted	Phase 2 Scenario A	Phase 2 Scenario B
Renewable Resources Added	4,000 MW	4,000 MW	2,000 MW	6,000 MW
Transmission Constraints	Included	Removed	Removed	Removed
NYCA	42.9%	40.8%	28.1%	54.4%
Zone J	97.9%	96.5%	91.8%	101.9%
Zone K	131.6%	129.5%	112.2%	147.5%

- Phase 1 results and Phase 1 adjusted results are both Tan 45 results
- Phase 2 results for Scenario A and B are *parametric* results

Next Steps

- **Finalize the results from the Phase 2 study**
 - Complete the Tan 45 process for Phase 2 results
 - Calculate the final IRM, URM ($UCAP_{@ 0.1 LOLE}$ / Peak Load) and amount of UCAP removed (total and incremental) for both Phase 2 scenarios
- **Closeout presentation with the Phase 2 final results**

Questions?

Roles of the NYISO

- **Reliable operation of the bulk electricity grid**
 - Managing the flow of power on 11,000 circuit-miles of transmission lines from hundreds of generating units
- **Administration of open and competitive wholesale electricity markets**
 - Bringing together buyers and sellers of energy and related products and services
- **Planning for New York's energy future**
 - Assessing needs over a 10-year horizon and evaluating projects proposed to meet those needs
- **Advancing the technological infrastructure of the electric system**
 - Developing and deploying information technology and tools to make the grid smarter

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

