



High Renewable Whitepaper Supplemental Analysis: Varying Penetrations of Intermittent Resources

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Background

- The NYSRC recently completed the High Renewable Whitepaper, which addressed the addition of 4,000 MW of each on-shore wind, off-shore wind, and solar PV to the NYCA
 - NYSRC EC Approved Whitepaper is located here: <http://nysrc.org/PDF/Reports/HR%20White%20Paper%20-%20Final%204-9-20.pdf>
- The NYSRC expressed interest in further analysis of how the reliability value of intermittent resources changes as penetration increases

Proposed analysis

- **Create two additional scenarios**
 - 2020 IRM PBC + 2,000 MW each of on-shore wind, off-shore wind, and solar PV
 - 2020 IRM PBC + 6,000 MW each of on-shore wind, off-shore wind, and solar PV
 - To highlight the reliability value of renewables and enable the analysis to be completed in 2020, the cases will have all transmission constraints removed (*i.e.*, the cases will start with the 2020 IRM no transmission constraints sensitivity case)
- **The renewable resources will be modeled in the same way as the original High Renewable Resources study**
- **Calculate the amount of UCAP removed from the system using the “sensitivity analysis” method of achieving the system-wide reliability target of 0.1 LOLE**
- **Report the IRM, URM, and amount of UCAP removed (total and incremental) from the system for a total of four cases**
 1. 2020 IRM PBC No Transmission Constraints Case (“Base Case”)
 2. Base Case + 2,000 MW of each renewable resource type
 3. Base Case + 4,000 MW of each renewable resource type
 4. Base Case + 6,000 MW of each renewable resource type

Potential Concerns

- The results of this analysis are likely sensitive to parameters that ICS is currently reviewing (*e.g.*, Load Forecast Uncertainty, externals, load shapes, Tan 45 method)
- While these results can inform the ICS' understanding of the reliability value of renewable resources in today's context, this level of renewable penetration is not expected to occur for several years, at which point the system is likely going to be different than the one modeled for this study
- This model does not have a substantial build out of energy storage, which is expected to occur alongside increased renewable penetration

Timeline

- **Build cases in Q3 2020**
- **Perform analysis in Q4 2020**
- **Present to NYSRC ICS and EC in Q4 2020**

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



Questions?