BSM Renewable Exemption Cap Proposal

NYISO

March 18, 2020, NYISO

Agenda

- Background

- Proposal Concept

- Next Steps

Background

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Background on Renewable Exemption Cap

- In April 2016, NYISO filed a compliance plan with FERC that, amongst other things, proposed an exemption for intermittent resources from Buyer Side Mitigation (BSM), up to 1000 MWs per year, measured in ICAP.

- On February 20, 2020, FERC ruled on the NYISO compliance filing. FERC generally accepted the NYISO's compliance filing; however, FERC rejected NYISO's proposed cap and ordered the NYISO to propose a new cap.

  - The NYISO's response is due March 23, 2020.

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Definitions

- ## Unforced Reliability Margin (URM)
  - UCAP equivalent of the locational ICAP requirement
    - i.e. URM% = LCR * (1 – Locality derating factor)
      - The weighted average derating factor determined is consistent with Resource Adequacy studies

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Proposal Concept

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Proposal Concept

- **Per the FERC order, the Renewable Exemption MW cap (RE Cap) will be:**
  - Narrowly tailored for mitigated capacity Localities;
  - Based on UCAP MWs; and
  - Designed to limit the risk that the RE significantly impacts market prices
- **The NYISO's proposed RE Cap for each mitigated Locality will consider:**
  - Load forecast changes (Based on existing BSM process)
  - A subset of resource retirements from existing BSM exclusion rules
  - Impacts of additional renewable resources on the URM (New process that requires a few MARS runs to determine)
  - A market pricing impact threshold (a MW threshold intended to represent a $0.50/kW-month threshold to be consistent with Supply-Side Mitigation thresholds), to be recalculated each CY

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Proposal Concept Details

- **First BSM study Cap Determination of RE Cap for each mitigated Locality =**

$$Greater\ of\ (Load\ Forecast\ Changes + Regulatory\ UCAP\ Retirements + URM\ Impact\ due\ to\ Renewable\ Entry)\ or\ Market\ Price\ Impact$$

- **Subsequent BSM study Cap Determination for RE Cap for each mitigated Locality =**

$$Greater\ of\ [(Bank + Load\ Forecast\ Changes + Regulatory\ UCAP\ Retirements + URM\ Impact\ due\ to\ Renewable\ Entry)\ or\ Market\ Price\ Impact]$$

- **NYISO expects to apply the new formula starting with CY 2019 and would not be applied to the upcoming EDS**

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The Renewable Cap for Expedited Deliverability Studies (EDS)

- **The NYISO had previously filed that all Renewables using the same mitigation study period would share the same 1000 MW exemption cap.**

- **This construct no longer works under the modified cap proposal as the actual cap is a function of the units in the study itself (CY or EDS) and is not known ahead of time.**

  - NYISO proposes to post the calculation and assumptions as part of the Assumptions & References material posted for each BSM study.

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Proposal Concept Details: Equation Components

- Load Forecast (LF) Changes = (LF from Last Capability Year of MSPCurrentCY – LF from Current Market) adjusted for URM%
  - For subsequent Class Years, LF Changes = LF from Last Capability Year of MSPPrevCY – LF from Last Capability Year of MSPCurrentCY
- Regulatory UCAP Retirements = Incremental retirements from direct Regulatory action since previous CY/EDS
- URM Impact due to Renewable Entry = Change in URM adjusted Load Forecast to capture New Renewable entry contribution to LOLE
- Insignificant Market Price Impact = Quantity of Renewable UCAP MWs that is equivalent to a $0.50/kW-month reduction in market prices
- "Bank" = Carryover from previous study's RE Cap + adjustments

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Load Forecast Changes example

- **Assume a Mitigation Study Period for three years with a Starting Capability Period of May 2022**
  - The last Capability Year of the Mitigation Study Period is 2024/2025
- **Cap calculation will use the Locality's Non-Coincident Summer Load Forecast that is used to administer the ICAP Market**
  - Example for J
    - 2019 peak: 11,608 MW
    - 2024 peak: 11,598 MW
    - Raw Load delta: -10 MW
- **Contribution to RE Cap, converted to UCAP using URM%**
  - URM% = LCR * (1 – Locality derating factor)
  - Example for J (continued from above)
    - -10 MW * URM%
    - ~-8 MW UCAP

2019 Load & Capacity Data Report

Table I-4a: Baseline Summer Non-Coincident Peak Demand, Historical and Forecast
Reflects Impacts of Energy Saving Programs & Behind-the-Meter Generation

Non-Coincident Summer Peak Demand by Zone - MW

Year	A	B	C	D	E	F	G	H	I	J	K
2009	2,608	1,939	2,780	721	1,420	2,188	2,178	600	1,323	10,661	5,194
2010	2,768	2,075	2,932	566	1,469	2,379	2,407	700	1,492	11,213	5,832
2011	2,921	2,199	3,042	811	1,519	2,425	2,415	730	1,512	11,424	5,935
2012	2,746	2,113	2,889	809	1,433	2,388	2,273	681	1,414	11,112	5,516
2013	2,821	2,103	2,998	822	1,559	2,423	2,367	721	1,517	11,456	5,747
2014	2,620	1,898	2,832	552	1,410	2,300	2,052	590	1,348	10,572	5,035
2015	2,728	1,954	2,815	595	1,403	2,306	2,204	632	1,398	10,586	5,236
2016	2,800	2,023	2,830	704	1,397	2,342	2,198	652	1,392	10,990	5,394
2017	2,494	1,828	2,649	736	1,362	2,192	2,125	633	1,395	10,671	5,121
2018	2,769	2,073	3,021	620	1,409	2,424	2,251	642	1,399	11,070	5,394
2019	2,732	1,983	2,847	569	1,351	2,425	2,249	640	1,407	11,608	5,240
2020	2,691	1,959	2,801	666	1,320	2,367	2,232	637	1,412	11,651	5,134
2021	2,672	1,953	2,779	663	1,301	2,342	2,210	637	1,417	11,695	5,056
2022	2,653	1,953	2,759	663	1,284	2,317	2,207	637	1,418	11,704	5,035
2023	2,625	1,947	2,735	662	1,264	2,291	2,213	635	1,407	11,608	4,969
2024	2,602	1,944	2,714	661	1,246	2,264	2,209	634	1,406	11,598	4,894
2025	2,582	1,940	2,695	658	1,229	2,242	2,206	635	1,408	11,616	4,823
2026	2,565	1,937	2,678	657	1,214	2,225	2,196	636	1,408	11,616	4,758
2027	2,548	1,937	2,666	654	1,203	2,208	2,184	636	1,406	11,598	4,719
2028	2,537	1,937	2,653	654	1,193	2,197	2,174	637	1,405	11,589	4,730
2029	2,530	1,941	2,646	652	1,184	2,191	2,170	639	1,404	11,580	4,815
2030	2,520	1,941	2,633	651	1,177	2,174	2,159	639	1,403	11,572	4,833
2031	2,513	1,942	2,623	651	1,169	2,162	2,151	641	1,404	11,580	4,857
2032	2,510	1,945	2,618	650	1,166	2,154	2,150	645	1,413	11,660	4,876
2033	2,508	1,949	2,614	650	1,164	2,147	2,161	649	1,424	11,749	4,902
2034	2,509	1,955	2,610	650	1,161	2,143	2,163	654	1,437	11,863	4,928
2035	2,512	1,962	2,613	650	1,161	2,142	2,169	661	1,456	12,013	4,966
2036	2,518	1,973	2,615	650	1,165	2,145	2,175	667	1,473	12,155	5,003
2037	2,526	1,981	2,622	652	1,168	2,149	2,182	676	1,492	12,313	5,051
2038	2,536	1,993	2,632	652	1,173	2,157	2,188	684	1,511	12,472	5,096
2039	2,549	2,006	2,641	653	1,181	2,168	2,207	691	1,524	12,581	5,152

Note: Historical values reflect actual experienced weather conditions. Forecasted values assume normal weather conditions.

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Load Forecast in the subsequent CY

- **Assume the chart on the previous slide is still valid for the following CY, which occurs 2 calendar years later.**
  - Last year of the MSP is 2026
- **Cap calculation will subtract this CY's MSP end to last year's**
  - 2024 peak: 11,598 MW
  - 2026 peak: 11,616 MW
- **Raw Load delta: 18 MW**
- **Contribution to RE Cap, converted to UCAP using URM%**
  - URM% = LCR * (1 – Locality derating factor)
  - 18 MW * URM%
  - ~14MW would be the Load Forecast Change factor for the subsequent CY

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Regulatory UCAP Retirements

- Regulatory UCAP Retirements would include only those Incremental BSM Retirements that Retired, or are planning to permanently cease operation, in response to or to comply with new or amended environmental regulations or statutes, or other regulatory action, including but not limited to those that impact any of the following:
  - Emissions (NOx, CO_2, etc.)
  - Inability to successfully renew/modify necessary permit
  - Availability of fuel, supply (pipeline construction)
  - Property Tax Assessments
- **These resources would need to meet current BSM exclusion rules**
  - Further details can be found in MST Sections 23.4.5.7.15.6 and 23.4.5.7.15.7
- **This provision is not intended to include retirements associated with policies subsidizing new entry or other non-regulatory economic factors.**
  - Not intended to include retirements directly due to wholesale market prices
- **UCAP amounts associated with units in this set that were forecasted to retire, but do not timely retire, or rescind their notice, would be subtracted from the bank for the first CY/EDS that this was known.**
- **As a transition mechanism, for the first calculation of this value (for CY 19) would be for Incremental retirements since the 2017 CY assumptions (not incremental from the March EDS).**

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Regulatory UCAP Retirements example

- **NYISO forecasts that 400 MW of ICAP will retire in NYC by 2025**
  - For example, due to the NYS DEC NOx rule

- **NYISO will convert this to UCAP using the NYISO's Initial Unforced Capacity Summer percentage for that technology; consistent with the derating factors used in the Deliverability study.**

- **Contribution to the RE Cap, converted to UCAP**
  - 400 MW ICAP * (1 – derating factor)
  - ~375 MW UCAP (assumes a 6% derating factor, actual could be different)

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URM Impact due to Renewable Entry

- **The New York State Reliability Council identified that the NYC UCAP Requirement increased by approximately 250 MW when approximately 600 MW of offshore wind UCAP were added to NYC**
  - In ratio form, NYC UCAP Requirement increases by ~0.4 MW per MW of offshore wind UCAP added
  - As discussed above, this ratio will be calculated each in each BSM study for each renewable resource type seeking a renewable exemption in each location an exemption is sought
- **In the ICAP Market, adding 1 MW of offshore wind UCAP will only decrease prices by the equivalent of 0.6 MW UCAP from traditional generation (1 MW UCAP Supply – 0.4 Requirement Increase)**
- **Renewable requests will consume the RE Cap such that capacity prices would not be suppressed**

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Insignificant Market Price Impact (MPI)

- **This value is calculated each Class Year, creating a MPI bank of MWs intended to approximate UCAP MW equivalent of a $0.50/kW-month price impact by renewables in that mitigated Locality.**
  - This MPI bank is available to the CY and any subsequent EDS until the next CY
  - This value was selected to be consistent with the market price impact thresholds used in Supply Side mitigation in the MST.

- **For example, if the summer Demand Curve slope for zone J is $1.37/kW-month per 100MW then a $0.50/kW-month price impact would result in 60 MWs of UCAP**
  - Offshore UCAP = (($0.50/$1.37)*100)/(1 - Renewable derating factor)
  - 60 = 36/(1 - 0.4)
  - This would create a 60MW MPI bank that would act as a floor for the CY and subsequent EDS. When binding any renewable exemption awarded would reduce the MPI bank, until it is recalculated at the next CY.

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"Bank" Carryover to Subsequent CY/EDS Cap

- The purpose of the bank is to ensure that any MWs derived from retirements or derived from the impact on requirements due to the entrance of renewable resources (URM Impact) remain available to renewable resources in subsequent class years.

  - *Bank = Load Forecast Changes + Regulatory UCAP Retirements + URM Impact due to Renewable Entry − Renewable Exemptions Granted − Previously Forecast UCAP Retirements Rescinded*

- The G-J bank will be offset by the J bank to avoid double counting, down to zero.

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Nested Capacity Zones and the Cap

- The NYISO will calculate a renewable cap for the J Locality and the G-J Locality using the corresponding values for those localities as previously outlined.

- NYISO will administer the exemptions to resources in Zone J first up to the J Cap. Should the requests in J exceed the cap, the exemptions would be prorated.

- Any exemptions awarded to Examined Facilities in J will then by deducted from the G-J cap. If MWs remain in the G-J cap exemptions would be awarded to the G-J units (including units in J that may not have received a full exemption under the J cap). Should the remaining requests in G-J exceed the reduced G-J cap, the exemptions would be prorated.

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Exemption Cap – UCAP to ICAP (CRIS)

- The RE Cap will be calculated in UCAP, but Offer Floors are applied to CRIS, an ICAP equivalent value.

- NYISO plans to apply a conversion process similar to that used in the Deliverability process.

- The CRIS requested by a Renewable Examined Facility would be converted to a UCAP value consistent with the locality derating factors used in the Deliverability study for that technology. This UCAP amount would then be deducted from the cap.

- If the aggregate amount exceeds the cap such that the NYISO is required to prorate the exemptions, the prorated exemption would apply to the UCAP amount. The NYISO would then convert the prorated exempt UCAP back to an ICAP equivalent value for CRIS.

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Example: Calculation of RE Cap

- Bank + MAX[(Load Forecast Changes + Regulatory UCAP Retirements + URM Impact due to Renewable Entry), Market Price Impact]

- Assume 4 Examined Facilities:
  - 100MW Offshore Wind – Zone J
  - 50MW Solar – Zone J
  - 50MW Wind – Zone H
  - 20MW Solar – Zone G

- Assumes .4 URM for Offshore Wind and .25 URM for solar and Onshore Wind

- J RE Cap for Study =
MAX [0 + ((-8MW) + 400MW + (53MW)) ,60MW]
= 445MW UCAP

- G-J RE Cap for Study =
MAX [0 + (-57MW) + 400MW + (70MW)) , 79MW UCAP]
= 413MW UCAP

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Nested, Prorated, Conversion Numerical Example

- **Total J RE Cap = 445MW UCAP**

- **Renewable Examined Facility 1**
  - 100MW CRIS requested
  - Technology df = 50%
  - UCAP = 50MW
    - Fully awarded Renewable Exemption
  - Remaining Cap - Exempted UCAP
    = (445 - 50)MW UCAP
    = 395MW UCAP
  - Exempted CRIS
    = Exempted UCAP/(1-df)
    = 50MW/(1-50%) = 100MW

- **Renewable Examined Facility 2**
  - 50MW CRIS requested
  - Technology df = 80%
  - UCAP = 10MW
    - Fully awarded Renewable Exemption
  - Remaining Cap - Exempted UCAP
    = (395 - 10)MW UCAP
    = 385MW UCAP
  - Exempted CRIS
    = Exempted UCAP/(1-df)
    = 10MW/(1-80%) = 50MW

The values contained in this example are for illustrative purposes only.

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Nested, Prorated, Conversion Numerical Example

- **Total G-J RE Cap = 413MW UCAP**
  - Subtract the Exemptions award in J (60MW UCAP)
    - Remaining G-J Renewable Exemptions = (413-60)MW UCAP = 353MW UCAP

- **Renewable Examined Facility 3**
  - 50MW CRIS requested
  - Technology df = 50%
  - UCAP = 25MW
    - Fully awarded Renewable Exemption
  - Remaining Cap - Exempted UCAP
    = (353 - 25)MW UCAP
    = 328MW UCAP
  - Exempted CRIS
    = Exempted UCAP/(1-df)
    = 25MW/(1-50%) = 50MW

- **Renewable Examined Facility 4**
  - 20MW CRIS requested
  - Technology df = 80%
  - UCAP = 4MW
    - Fully awarded Renewable Exemption
  - Remaining Cap - Exempted UCAP
    = (328 - 4)MW UCAP
    = 324MW UCAP
  - Exempted CRIS
    = Exempted UCAP/(1-df)
    = 4MW/(1-80%) = 20MW

The values contained in this example are for illustrative purposes only.

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Next Steps

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Next Steps

- NYISO intends to file with FERC its response to the compliance Order on March 23rd.

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The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits 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

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