

# Appendix: DCR Level of Excess – Adjustment Factors: Results of Additional MAPS Runs

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## Capacity Market Design

ICAPWG/MIWG

July 22, 2020

# Agenda

- **Background**
- **Modeling Database Modifications**
  - Peak Load Modifications
  - Capacity Supply Modifications
  - Load Scaling Impact
- **Updated Level of Excess Adjustment Factors (LOE-AFs)**

# Background

# Background

- **The DCR requires that net Energy and Ancillary Services revenue earnings for each peaking plant reflect the tariff prescribed level of excess conditions (i.e., applicable minimum requirement, plus the MW value of the peaking plant)**
  - Adjustments to historic market prices to account for the tariff prescribed level of excess conditions for the DCR are addressed through the use of LOE-AFs
  - LOE-AFs are established as part of the DCR and remain fixed for the four year reset period

# Background

- **Consistent with prior resets, GE Energy Consulting (GE) was contracted to perform a series of MAPS runs to simulate market clearing prices under various levels of excess to assist in developing the LOE-AFs**
  - For the purposes of the DCR, GE performs two sets of MAPS runs: one run was modeled on the as-found system and one run modeled the system at the prescribed level of excess
    - Preliminary results were produced using a placeholder size of 300 MW for the peaking plant in all locations
      - The preliminary results were presented at the April 22, 2020 ICAPWG meeting
    - Preliminary modeling runs were conducted using the 2019 Congestion Assessment and Resource Integration Studies (CARIS) Phase 1 base case
      - The as-found case models the CARIS Phase 1 base case without any modifications
      - The “level of excess” case models the CARIS Phase 1 base case with load scaled to arrive at the prescribed level of excess (more information on load scaling methodology was posted with the material for the June 10, 2020 ICAPWG meeting)
    - The result of MAPS runs are hourly energy clearing prices by zone
  - Using the two MAPS runs, the independent consultant develops a series of ratios that reflect the price differences between the system at the prescribed level of excess and as-found (i.e., the ratios are the LOE-AFs)
  - The LOE-AFs are used to scale historic hourly market clearing prices in the net EAS revenue model to estimate the net EAS revenue that hypothetical peaking plants could earn under prescribed level of excess conditions

# Background

- **At the April 22, 2020 ICAPWG meeting, Analysis Group (AG) presented preliminary LOE-AFs used to calculate net EAS revenues for each peaking plant under consideration in the their draft report**
  - Consistent with prior resets, preliminary LOE-AFs were calculated using the most currently available CARIS base case (i.e., the 2019 CARIS Phase 1 base case)
  - This process is consistent with prior resets in which updated adjustment factors are calculated after issuing the independent consultant's draft report using more recently available information
    - In prior DCRs, the CARIS Phase 1 base case was used to calculate preliminary LOE-AFs, and an updated calculation was performed using the relevant CARIS Phase 2 base case once available
    - For this DCR, the CARIS Phase 2 base case will not be available in time for use in determining updated LOE-AF values

# Background

- **In an effort to remain consistent with prior DCRs, an updated set of LOE-AFs have been developed using MAPS runs that capture certain updates to capacity supply and peak demand information**
  - The updates to supply and load were made manually by GE to the 2019 CARIS Phase 1 base case
  - All changes made to the 2019 CARIS Phase 1 base case are consistent with the current 2020 Reliability Needs Assessment (RNA) base case
  - Peak demand levels have been updated to match the [2020 Load & Capacity Data Report](#) (Gold Book)
  - Capacity supply updates reflect information made available at the June 19, 2020 ESPWG meeting regarding the “1<sup>st</sup> pass” results for the 2020 RNA
    - No adjustments were included to address the potential impacts of the NYSDEC “peaker rule” based on compliance plans submitted by affected resources (see next slide for additional information)
  - Updated results were produced using the actual MW size of the peaking plant proposed by the independent consultant in all locations (i.e., the H-class frame turbine)

# Background

- **As previously mentioned, the effect of impacted capacity identified in NYSDEC “peaker rule” compliance plans was not captured in manual modifications to the 2019 CARIS 1 base case for the purpose of calculating LOE-AFs**
  - The compliance plans did not include formal generator deactivation notices submitted to the NYISO that trigger the commencement of a resource specific deactivation study
  - Deactivation studies for resources impacted by the “peaker rule” may find that certain resources must remain operational beyond the deactivation date stated in compliance plans in order to avoid reliability issues
  - Additionally, if the 2020 RNA identifies resource adequacy needs that have not yet been resolved, such as one that may arise as a result of resource compliance with the NYSDEC “peaker rule”, adjustments would need to be made to the CARIS base case as the study is not intended to model an unreliable system



# Modeling Database Modifications

# Peak Load Modifications

# Peak Load Modifications

- In order to calculate updated LOE-AFs, peak load levels used in the analysis were updated from the 2019 Gold Book to the 2020 Gold Book:

**Peak Load - 2019 Gold Book**

Year	Load Zones A-F	Load Zones G-J	Load Zone J	Load Zone K	NYCA
2021	11,187	15,959	11,695	5,056	32,202
2022	11,110	15,966	11,704	5,035	32,112
2023	11,028	15,863	11,608	4,969	31,860
2024	10,950	15,848	11,598	4,894	31,692
2025	10,884	15,865	11,616	4,823	31,572

**Peak Load - 2020 Gold Book**

Year	Load Zones A-F	Load Zones G-J	Load Zone J	Load Zone K	NYCA
2021	11,232	15,758	11,460	5,139	32,129
2022	11,205	15,856	11,559	5,067	32,128
2023	11,178	15,802	11,523	4,938	31,918
2024	11,153	15,832	11,557	4,853	31,838
2025	11,129	15,814	11,552	4,768	31,711

# Capacity Supply Modifications

# Capacity Modifications

- In order to calculate updated LOE-AFs, the following changes to the amount of capacity available in the 2019 CARIS Phase 1 base case have been made for the period at issue for this DCR (2021-2025):

Year	Unit	Zone	MW	Notes
2021	Somerset (aka Kintigh)	A	-687	Removal (Retired)
	Ball Hill Wind	A	-100	COD moved to 2023
	Cassadaga Wind	A	-126	COD moved to 2022
	Albany LFGE	F	-4.5	Removal (LIFO)
	Taylor Biomass	G	-19	Removal (previously included in the 2019 CARIS Phase 1 base case but did not meet the inclusion rules for the 2020 RNA base case)
	HTP	J	-660	Removal as capacity supply resource for the purposes of calculating the "prescribed level of excess", but the line is physically retained in the database for Energy and emergency assistance
	Hudson Ave GT 3	J	-16	Removal (LIFO)
	West Babylon IC	K	-49	Removal (Retired)
2022	Cassadaga Wind	A	126	Addition (Updated COD)
	Eight Point Wind	B	102	Addition
	Baron Winds	C	238	Addition
	Roaring Brook Wind	E	80	Addition
	Calverton Solar EC	K	23	Addition
2023	Ball Hill Wind	A	100	Addition (Updated COD)
2024	(No changes noted)			
2025	(No changes noted)			
<b>Net Impact:</b>			<b>-992.5</b>	

# Load Scaling Impact

# Load Scaling Impact

- The table below shows the amount of load added to the as-found system in order to arrive at the prescribed level of excess:

**Load Scaling for Updated LOE-AFs (presented on July 22, 2020)**

Year	Load Zones A-F	Load Zones G-J	Load Zone J	Load Zone K	NYCA
2021	658	711	104	468	1,837
2022	1,141	613	5	562	2,316
2023	1,252	667	41	691	2,610
2024	1,277	637	7	776	2,690
2025	1,301	655	12	861	2,817

**Load Scaling for Preliminary LOE-AFs (presented on April 22, 2020)**

Year	Load Zones A-F	Load Zones G-J	Load Zone J	Load Zone K	NYCA
2021	1,280	1,282	650	598	3,161
2022	1,357	1,275	641	619	3,251
2023	1,439	1,378	737	686	3,503
2024	1,517	1,393	747	760	3,670
2025	1,583	1,376	729	831	3,791

# Updated LOE-AFs



# Updated LOE-AFs

Load Zone	Peak Period	January	February	March	April	May	June	July	August	September	October	November	December
Central (Zone C)	Off-Peak	1.088	1.114	1.085	1.025	1.037	1.050	1.037	1.044	1.033	1.035	1.030	1.050
	On-Peak	1.113	1.122	1.105	1.032	1.047	1.051	1.058	1.061	1.046	1.046	1.043	1.061
	High On-Peak	1.199	1.184	-	-	-	1.064	1.098	1.146	-	-	-	1.111
Capital (Zone F)	Off-Peak	1.015	1.011	1.005	1.016	1.014	1.024	1.027	1.033	1.025	1.027	1.014	1.025
	On-Peak	1.020	1.017	1.001	1.027	1.036	1.030	1.042	1.047	1.036	1.036	1.021	1.035
	High On-Peak	0.991	1.005	-	-	-	1.036	1.068	1.107	-	-	-	1.016
Hudson Valley (Zone G)	Off-Peak	1.029	1.026	1.018	1.017	1.016	1.026	1.026	1.034	1.024	1.029	1.017	1.026
	On-Peak	1.041	1.038	1.019	1.025	1.025	1.030	1.043	1.045	1.034	1.036	1.033	1.041
	High On-Peak	1.027	1.032	-	-	-	1.049	1.085	1.142	-	-	-	1.039
NYC (Zone J)	Off-Peak	1.027	1.023	1.016	1.016	1.015	1.022	1.022	1.028	1.020	1.026	1.014	1.024
	On-Peak	1.025	1.033	1.015	1.021	1.020	1.019	1.027	1.031	1.021	1.028	1.024	1.031
	High On-Peak	1.021	1.025	-	-	-	1.031	1.059	1.118	-	-	-	1.028
Long Island (Zone K)	Off-Peak	1.053	1.057	1.035	1.022	1.032	1.037	1.043	1.039	1.035	1.042	1.038	1.053
	On-Peak	1.083	1.073	1.033	1.025	1.021	1.035	1.070	1.073	1.038	1.045	1.048	1.065
	High On-Peak	1.071	1.066	-	-	-	1.049	1.164	1.268	-	-	-	1.063

# 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

