

# 2020 CARIS Phase 2: Representative System Assumptions

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# Agenda

- Target Schedule
- 2020 RNA Reliability Needs
- EPP Manual Process
- Representative System Proposal
- Proposal Results
- Results Comparison
- Next Steps

# Target Schedule

- **Study Kickoff**
  - August 20<sup>th</sup> ESPWG - Kickoff Presentation
- **Database Development**
  - September 24<sup>th</sup> ESPWG - Assumptions Review
  - October 5<sup>th</sup> TPAS – Reliability Assumptions Review
- **Review of Results**
  - October 23<sup>rd</sup> ESPWG – Technical Bulletin Review
  - November 19<sup>th</sup> ESPWG – Preliminary Results
  - December 11<sup>th</sup> ESPWG – Final Results
- **Final CARIS Phase 2 Database**
  - Presentation at BIC
  - “Additional CARIS Study” and “Specific Project” studies available to use 2020 CARIS Phase 2 database

\*All stakeholder meeting dates are based on preliminary estimates and are subject to change

# 2020 RNA Reliability Needs

Minimum Compensatory (Perfect) MW Needed					
BPTF			non-BPTF (for information only)		
Study year	Resource Adequacy (into/ in Zone J)	Thermal Criteria (N-1-1-0 in Zone J)	ConEdison Astoria East/ Corona 138 kV <sup>1</sup>	ConEdison Greenwood/Fox Hills 138 kV <sup>2</sup>	
2020 RNA Study Period	2024	below criterion	below criterion	115	below criterion
	2025	below criterion	700	110	360
	2026	below criterion	760	115	350
	2027	100	820	120	360
	2028	150	900	125	360
	2029	300	990	170	370
	2030	350	1,075	180	370

Source: 2020 RNA Draft Report – Figure 3

# Existing EPP Manual Language

## Section 3.1.1.3.1 - “Methodology for Maintaining a Representative System - Principles”

- For security criteria, local problems will be assumed to be mitigated by local TOs.
- The NYCA and locational Installed Capacity Levels (ICL) over the study term will on average reflect the excess capacity above minimum required capacity levels, as provided for in the NYISO Installed Capacity Demand Curve report.
- A representative generic combination of peaking units and combined cycle units will be added as needed to maintain target ICL. Appropriate adjustments will be made in areas with a demonstrated favorability for renewable resources.
- Added generic capacity will be located at known bus locations where the model can dispatch energy without undue constraints.
- Added generic capacity block sizes will reflect typical known installation sizes.

Source: [Economic Planning Manual](#)

# Existing EPP Manual Process

## Section 3.1.1.3.2 - “Methodology for Maintaining a Representative System – Procedure”

1. For NYCA and localities, set target reserve proxy to ICL “the year LOLE exceeds 0.1”
2. Include recommended percentage excess capacity as stated in the most current NYISO Installed Capacity Demand Curve report
3. If reserve proxy not met, add market-based solutions
4. If reserve proxy not met, add regulated backstop solutions
5. If reserve proxy not met, add representative MW additions comprised of a combination of generic peaking units and combined cycle units to achieve an expected mix of resources. Generic peaking units will be modeled using representative data provided in the NYISO Installed Capacity Demand Curve report. Generic combined cycle units will be modeled based on the generic generation resource developed in CARIS Phase 1

Source: [Economic Planning Manual](#)

# Tariff and Manual Interaction

- **OATT Section 31.3.1.3.2 states: “The CARIS will assume a reliable system throughout the Study Period . . . .”**
- **Requires transmission system reliability to be maintained for the 10-year Study Period**
- **Current EPP Manual does not address how to maintain resource adequacy and transmission security for CARIS Phase 2, to account for needs identified in the RNA.**
  - Manual does not address transmission security
  - Procedure begins adding “representative MW additions” in 2027 and would not address resource adequacy needs identified in RNA for 2028-2030

# Proposal

- Consider both transmission security & resource adequacy needs in representative system buildout
- Model annual “representative MW additions” defined by *max(resource adequacy need, transmission security need)* for each locality
- For years beyond RNA evaluation (2031-2038):
  - Resource Adequacy: set proxy reserve target based on final RNA year (2030), including “representative MW additions”
  - Transmission Security: develop relationship between zonal load and transmission security need, extend relationship through horizon year
- Include generic capacity additions to meet both needs



# Resource Adequacy

1.) Use capacity, load forecast, and RNA capacity additions to calculate ICL

	Zone J	Zone K	Zone G-J	NYCA
2030 Capacity + RNA Reliability Capacity (MW)	10,061	5,901	15,470	40,344
2030 Load Forecast (MW)	11,924	4,690	16,116	31,992
2030 Installed Capacity Level (ICL)	84.4%	125.8%	96.0%	126.1%
Excess Capacity in Latest DCR (MW)	360	360	360	360
Target Reserve Proxy	87.4%	133.5%	98.2%	127.2%

2.) Add excess capacity from DCR proxy unit to ICL

3.) Add capacity to maintain capacity/load target reserve proxy 2031-2038

# Transmission Security

1.) Model transmission security need from RNA from 2025-2030

Year	Zone J Load Forecast (MW)	Transmission Security Need (MW)	LF-TS (MW)	Average (MW)
2025	11,552	700	10,852	
2026	11,609	760	10,849	
2027	11,667	820	10,847	
2028	11,747	900	10,847	10,848
2029	11,836	990	10,846	
2030	11,924	1,075	10,849	

2.) Calculate average transmission security need load level

3.) Extend proxy transmission security need 2031-2038

Year	Zone J Load Forecast (MW)	Transmission Security Need Load Level (MW)	Transmission Security Need (MW)
2031	12,037	10,848	1,189
2032	12,156	10,848	1,308
2033	12,244	10,848	1,396
2034	12,337	10,848	1,489
2035	12,444	10,848	1,596
2036	12,542	10,848	1,694
2037	12,632	10,848	1,784
2038	12,710	10,848	1,862

# Proposed Method Results

MW	Proposed Method			Total
	G	J	K	
2025		720		720
2026		360		360
2027				
2028				
2029				
2030				
2031		360	720	1,080
2032				
2033		360		360
2034				
2035				
2036		360	360	720
2037				
2038				
Total	-	2,160	1,080	3,240

- 1x0 GE 7HA.02 reserve proxy unit from latest NYISO DCR Report
- No adjustments for areas with “a demonstrated favorability for renewable resources”
  - CLCPA studies are ongoing
  - Impact of renewables above and beyond RNA assumptions not evaluated for impact on resource adequacy and transmission security
- ICAP (MW) reported

Added for Transmission Security

Added for Target Reserve Proxy

# Comparison of Approaches

MW	Current EPP Manual Method				Proposed Method			
	G	J	K	Total	G	J	K	Total
2025						720		720
2026						360		360
2027		360	360	720				
2028		360	360	720				
2029								
2030								
2031		360		360		360	720	1,080
2032								
2033						360		360
2034	360			360				
2035								
2036		360	360	720		360	360	720
2037								
2038								
<b>Total</b>	<b>360</b>	<b>1,440</b>	<b>1,080</b>	<b>2,880</b>	<b>-</b>	<b>2,160</b>	<b>1,080</b>	<b>3,240</b>

# Next Steps

## ■ Draft technical bulletin in October 2020

- Discuss with stakeholders in upcoming ESPWG meetings to address 2020 CARIS Phase 2 assumptions
- Draft will be posted for stakeholder review
- Manual change in 2021 to address future CARIS cycles, and to incorporate expected economic planning process tariff changes

# 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?