

2020-2021 Reliability Planning Process: Post-RNA Base Case Updates

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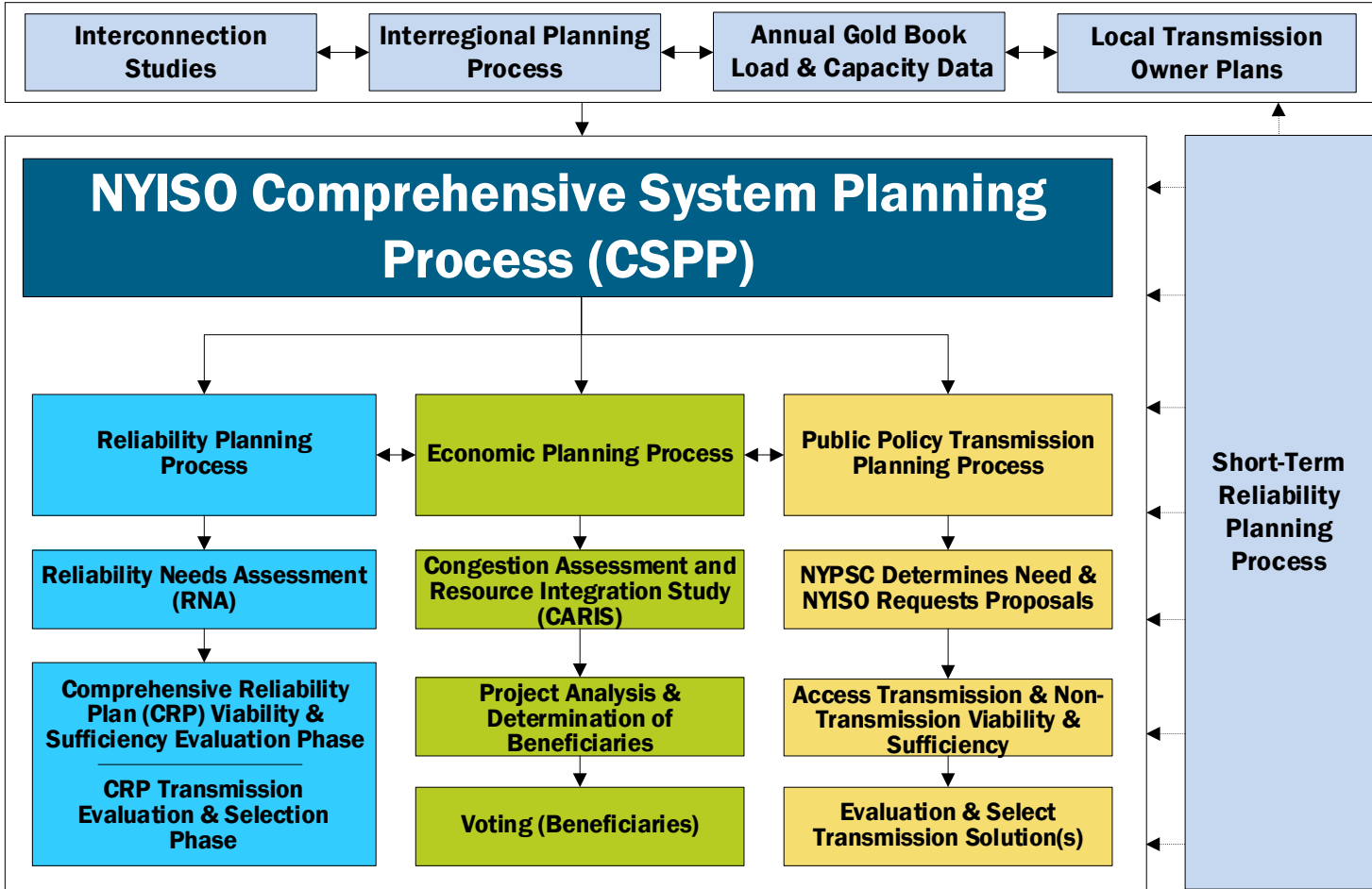
ESPWG/TPAS

February 23, 2021, Webex

Agenda

- **The 2020-2021 Reliability Planning Process (RPP)**
- **The post-RNA Base Case updates**
- **Next Steps**

2020-2021 RPP Background



2020-2021 RPP Background

- **The RPP is part of the Comprehensive System Planning Process (CSPP) and is performed pursuant to the Attachment Y of the NYISO OATT; Section 31.1 and 31.2.**
 - Additional implementation details, including recently updated RNA Base Case inclusion rules, are captured in the Reliability Planning Process Manual
- **The 2020-2021 Reliability Planning Process (RPP) started with the 2020 Reliability Needs Assessment (2020 RNA)**
 - 2020 RNA Study Period: year 4 (2024) through year 10 (2030)
- **Effective May 1, 2020, the Short Term Reliability Process (STRP) addresses short term reliability needs through a quarterly Short Term Assessment of Reliability (STAR). The first quarterly STAR, i.e., 2020 Q3 STAR, commenced on July 15, 2020**
 - STAR Study Period: year 1 (2021) through year 5 (2025), with a focus on needs arising in the first three years
- **The 2021-2030 Comprehensive Reliability Plan (CRP) will summarize system plans, and if necessary address solutions for 2024-2030**

2020 RNA and 2020 STARs

2020 RNA Conclusions

- Reliability evaluations consisted of resource adequacy and transmission security evaluations of the New York Bulk Power Transmission Facilities (BPTFs) over the RNA Study Period (*i.e.*, 2024 through 2030)
- The 2020 RNA is based on the information from the 2020 Gold Book, the 2020 FERC 715 filing (*i.e.*, power flow cases and auxiliary files), historical data, and market participant data
- The 2020 RNA identified both resource adequacy Reliability Needs (starting 2027) and transmission security Reliability Needs starting as early as 2024

Short-Term Reliability Process (STRP)

Short-Term Assessment of Reliability (STAR)

- **The 2020 Q3 STAR, commenced on July 15, 2020 and the first STAR Report was issued on October 13, 2020**
 - Assessment looked at years 1 – 5 (2021-2025), but focuses on years 1 – 3 (2021-2023) and found needs as early as 2023
 - Solicitation for market-based solutions and the Con Edison regulated backstop solution was issued December 3, 2020 and responses were due February 1, 2021
 - February 11, 2021 ESPWG/TPAS: Preliminary written determination on solutions was presented
 - A Short-Term Reliability Report will document the final determination of solutions
- **2020 Q4 STAR commenced on October 15, 2020, and the report was posted on January 13, 2021**
 - The findings are consistent with the 2020 Q3 STAR
- **2021 Q1 STAR commenced on January 15, 2021, due April 15, 2021**

2020 RNA Background

2020 RNA Major Milestones (Completed)

- **June 19, 2020 ESPWG/TPAS: presented preliminary RNA results**
 - No major update to the final RNA Base Case
- **October 2020 OC & MC: Market Monitoring Unit review and OC and MC votes**
- **November 2020: NYISO's Board of Directors approval and publishing of final RNA Report**
 - <https://www.nyiso.com/documents/20142/2248793/2020-RNAREport-Nov2020.pdf>

Post-RNA Base Case Updates

Post- RNA Base Case Updates Process

- **The NYISO considered updated Local Transmission Owner Plans (LTPs), and other status updates relevant to reducing, or eliminating, the Reliability Needs**
 - as timely received from Market Participants, Developers, TOs, and other parties
- **Any such update must meet, in NYISO's determination, the RNA Base Case inclusion rules,**
 - as defined in Section 3 of the RPP Manual
- **The NYISO also considered the STRP solutions received February 1, 2021**

Post-RNA Base Case Key Updates


- **The load forecast update, as presented at the November 19, 2020 ESPWG/TPAS/LFTF meeting [\[link\]](#)**
 - Specifically, Zone J peak load forecast decreased by 392 MW in 2030
- **LTP updates as presented by Con Edison at the January 25, 2021 ESPWG/TPAS [\[link\]](#):**
 - A new 345/138 kV PAR controlled 138 kV Rainey – Corona feeder
 - A new 345/138 kV PAR controlled 138 kV Gowanus – Greenwood feeder
 - A new 345/138 kV PAR controlled 138 kV Goethals – Fox Hills feeder
- **STRP solution for addressing the 2023 short-term need [\[link\]](#)**
 - Series Reactors status changes, starting summer 2023, through 2030:
 - Placing in service the SR on the following 345 kV cables: 71, 72, M51, M52
 - Bypassing the SR on the following 345 kV cables: 41, 42, Y49

MARS Topology Impacts of the Changes

- The ConEd series reactors status change impacts, throughout the entire RNA Study Period (2024-2030):
 - G to H (UPNY-ConEd interface) limit decrease by 750 MW (to 6625 MW)
 - I to J (Dunwoodie South interface, and also its grouping) limit increase by 50 MW (to 4400 MW)
- ConEdison's LTPs unbundle Staten Island capacity, reflected in the MARS topology as increase in the corresponding dynamic limits table

Final RNA					
Staten Island Import Limits, Arthur Kill and Linden CoGen Units					
Unit Availability				J_to_J3	
AK02	AK03	LINCOG1	LINCOG2	Fwd	Rev
A	A	A	A	315	200
U	A	A	A	315	500
A	U	A	A	315	700
A	A	U	A	315	500
A	A	A	U	315	500
Otherwise				315	815

Post-RNA updates, 2025 through 2030					
Staten Island Import Limits, Arthur Kill and Linden CoGen Units					
				J_TO_J3	
AK02	AK03	LINCOG1	LINCOG2	Fwd	Rev
A	A	A	A	315	425
U	A	A	A	315	700
A	A	U	A	315	750
A	A	A	U	315	750
Otherwise				315	815

Note: Arthur Kill Unit 3 outage is captured in "Otherwise"  New York ISO

Post-RNA Resource Adequacy Results

- NYCA LOLE violations were eliminated by the three updates described above
- The LOLE results with each of the three updates are also provided below

Study Year	2020 RNA Base Case	2020 RNA Post-RNA Base Case NYCA LOLE <i>days/year</i>		
		With Load Forecast Update Only	With Load Update and ConEdison LTPs Only	With all three updates <i>(i.e., Load, ConEd LTP, Series Reactor status)</i>
2024	0.038	0.024	0.024	0.024
2025	0.085	0.048	0.037	0.036
2026	0.097	0.049	0.039	0.038
2027	0.118	0.054	0.041	0.040
2028	0.135	0.062	0.049	0.047
2029	0.170	0.081	0.063	0.060
2030	0.187	0.087	0.067	0.064

Zonal Resource Adequacy Margin (ZRAM)

- Identification of the maximum level of zonal MW capacity that can be removed without either causing NYCA LOLE violations, or exceeding the zonal capacity

Study Year	LOLE	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Zone G	Zone H	Zone I	Zone J	Zone K
2024	0.02	-950	EZR	-1850	-1800	EZR	-1850	-1850	EZR	EZR	-750	-1350
2025	0.04	-1000	EZR	-1550	-1550	EZR	-1550	-1550	EZR	EZR	-500	-1200
2026	0.04	-950	EZR	-1500	-1500	EZR	-1450	-1500	EZR	EZR	-500	-1250
2027	0.04	-850	EZR	-1400	-1400	EZR	-1400	-1400	EZR	EZR	-400	-1250
2028	0.05	-900	EZR	-1300	-1250	EZR	-1300	-1300	EZR	EZR	-350	-1150
2029	0.06	-750	-750	-950	-950	-950	-950	-950	EZR	EZR	-250	-1000
2030	0.06	-700	-700	-800	-800	-800	-800	-800	EZR	EZR	-200	-850

Note: EZR - exceeds zonal resources (*i.e.*, all generation from the zone can be removed without causing a violation)

Free-flow on Selected MARS Interfaces

- In order to determine whether or not a specific MARS interface impacts LOLE, free-flow simulations were also performed

- Interface limit set to a high MW value
- LOLE impact is an indication of interface ‘binding’

- The NYCA LOLE results show that:

- I_to_J (Dunwoodie South) interface has a significant LOLE impact (i.e., it is ‘binding’),
- G_to_H (UPNY-ConEd) has low LOLE impact due to the fact that most of the LOLE events are in Zone J, and the I-to-J interface ‘binds’ first

	2020 RNA Post-RNA Base Case NYCA LOLE (days/year)			
Study Year	With all three updates (i.e., Load, ConEd LTP, Series Reactor status)	Unlimited I_to_J (Dunwoodie South)	Unlimited G_to_H (UPNY-ConEd)	Unlimited G_to_H and I_to_J
2024	0.024	0.021	0.024	0.021
2025	0.036	0.027	0.035	0.025
2026	0.038	0.029	0.038	0.028
2027	0.040	0.028	0.039	0.026
2028	0.047	0.034	0.046	0.030
2029	0.060	0.043	0.059	0.037
2030	0.064	0.045	0.063	0.035

Post-RNA Transmission Security Impacts

- **The 2020 RNA observed Zone J BPTF transmission security deficiencies of 1,075 MW (transmission loading) and 1,390 MVA (dynamic instability)**
 - The reduction of 392 MW in Zone J peak load reduces the transmission security needs by an equivalent amount
 - The Con Edison LTP updates unbottle over 200 MW of generation, reducing the BPTF transmission loading by an equivalent amount
 - The change in the seven 345 kV series reactors balances the flows across the Dunwoodie South feeders and unbottles dynamic reactive power capability in Staten Island

Post-RNA Transmission Security Results

■ Steady State

- With the post-RNA base case updates, all thermal loading transmission issues are resolved
- In 2030, there is a margin of 50 MW in Zone J before thermal overloads may occur.

■ Dynamics

- The post-RNA base case updates have reduced, but not eliminated, the dynamic instability issues
- Transient voltage response violations are still observed on Con Edison's non-BPTF system from 2025 through 2030
- Starting in 2029, BPTF transient voltage response violations also occur

Next Steps

Next Steps

- **The NYISO continues to analyze the observed transient voltage response violations to further understand the interaction of the non-BPTF and BPTF systems**
- **March: The NYISO presents updated findings related to the remaining violations**
 - The NYISO also presents more details on next steps in Reliability Planning Process, depending on findings

Questions?

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

