

2019-2028 CRP

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Operating Committee

May 16, 2019, KCC

Management Committee

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Overview

- 2018-2019 Reliability Planning Process (RPP) Overview
- 2019-2028 Comprehensive Reliability Plan (CRP)

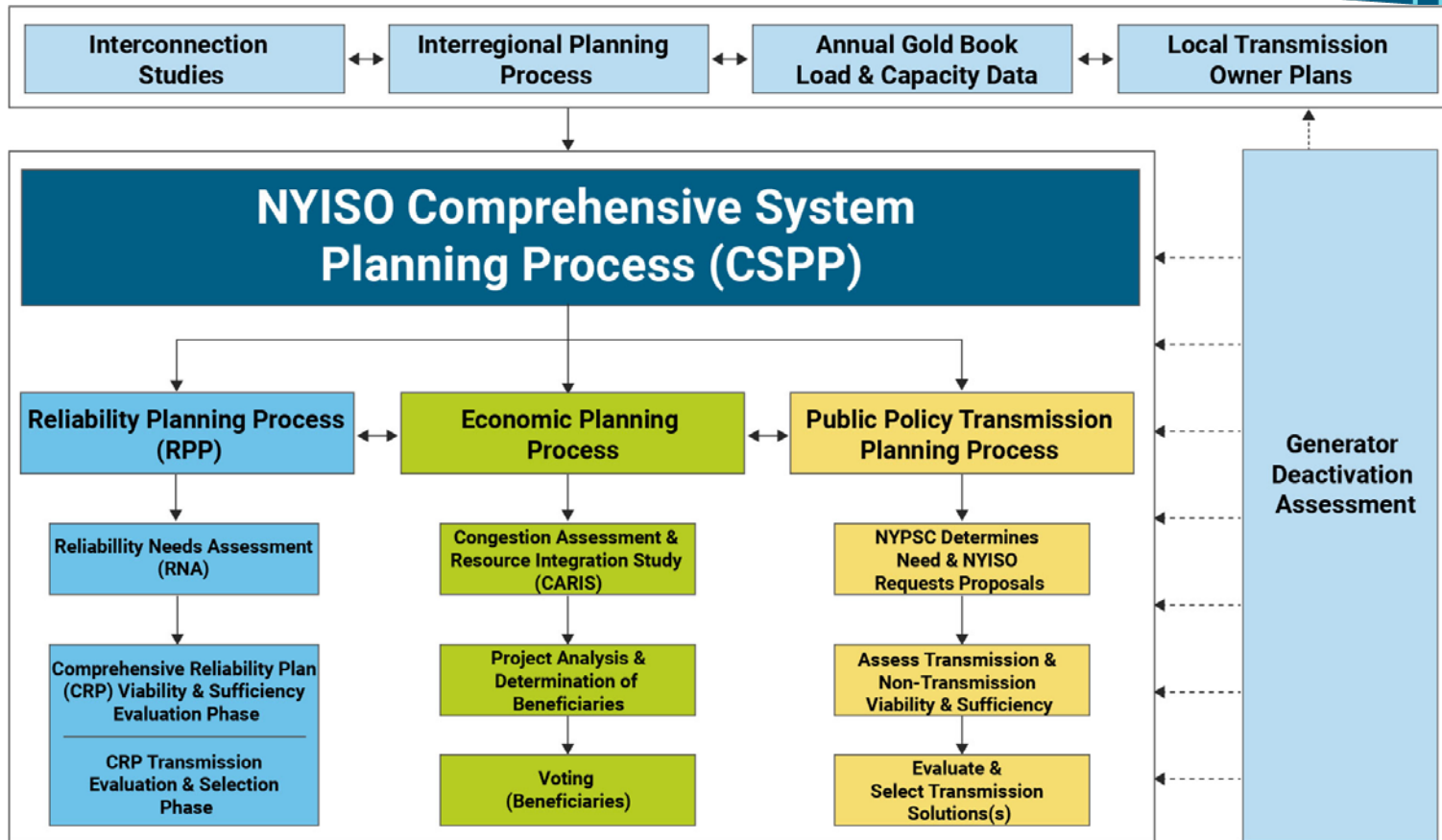
Findings

- Base Case findings
- Peaker scenario findings
- Goal: obtain OC and MC concurrence on the CRP report

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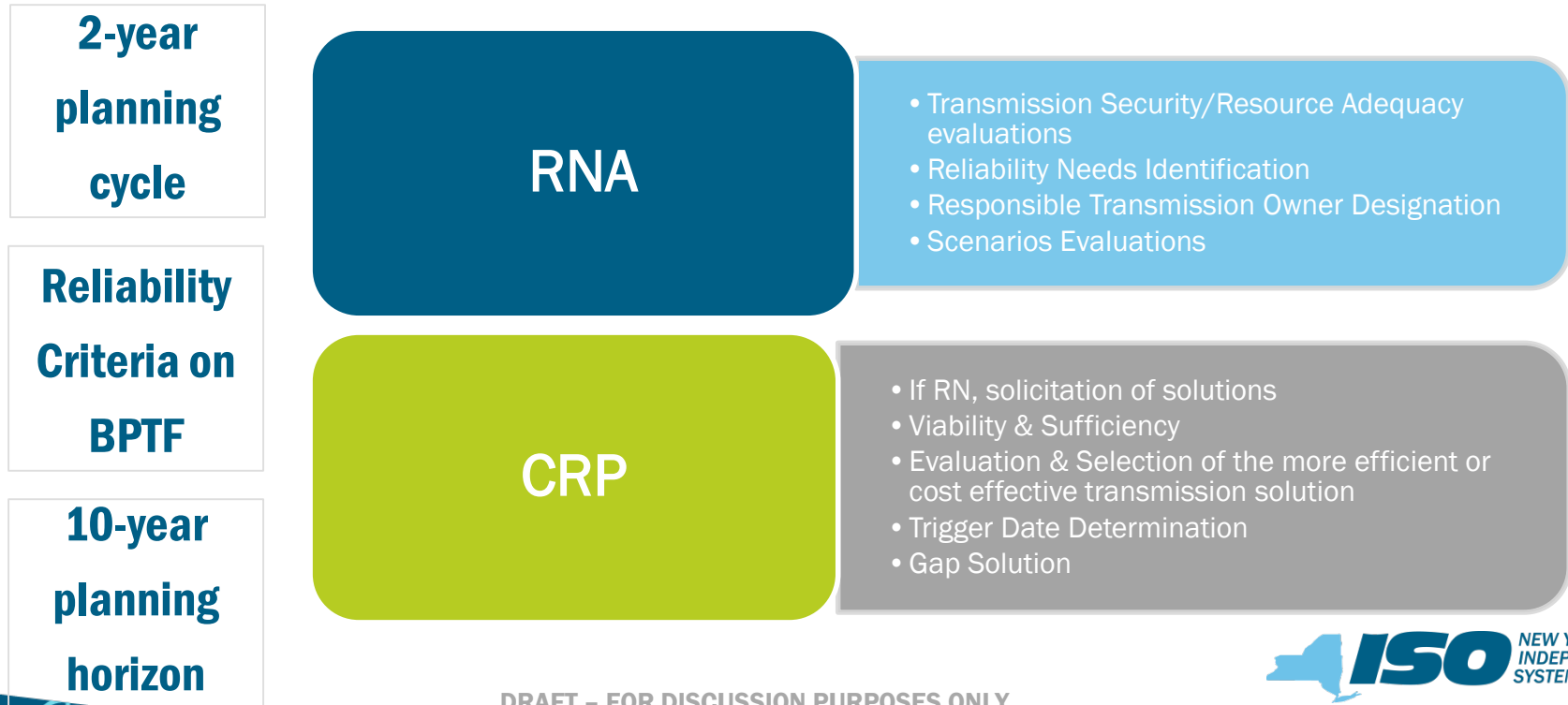
Reliability Planning Process

$RPP = RNA + CRP$



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RPP = Reliability Needs Assessment (RNA)+ Comprehensive Reliability Plan (CRP)



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2018-2019 RPP

2018 RNA (covering 2019-2028)
2019-2028 CRP

2018 RNA: Conclusions

- The 2018 RNA concluded that there are no Reliability Needs throughout the 10-year Study Period (2019-2018)
 - 2018 RNA and CRP Base Cases were based on the 2018 Gold Book and FERC 715 filing
 - Based on the RNA Base Case, the NYISO evaluated whether there are Reliability Needs of the New York State Bulk Power Transmission Facilities (BPTFs) in accordance with applicable Reliability Criteria (*i.e.*, NERC, NPCC, and NYSRC)
 - Reliability evaluations consisted of resource adequacy and transmission security evaluations of the New York BPTF over a 10-year Study Period (*i.e.*, 2019-2028)
 - As an initial step to the 2018 RNA, the NYISO provided preliminary results to stakeholders and sought any material updates that could address the preliminary Reliability Needs
 - Preliminary evaluations identified transmission security Reliability Needs on BPTF which were subsequently addressed by either updated LTPs, or temporary operational means (until the permanent solution is in service)
 - Therefore, no final Reliability Needs were ultimately identified under the 2018 RNA

2018-2019 RPP: Major Assumptions

Additions

- CPV Valley, 680 MW (Zone G, 2019)
- Cricket Valley, 1020 MW (Zone G, 2020)
- Bayonne II, +120 MW (Zone J, 2019)
- Western NY PPTP (2022)

Deactivations

- Indian Point Energy Center Units 2 and 3 (2020 and 2021)

Changes from the 2018 RNA to the CRP cases

Changes from the 2018 RNA to CRP Base Case	Zone	ΔMW DMNC	Notes
Add back Pilgrim I and II	K	+90	Rescission of GDA Notice (Nov 2018)
Remove Cayuga II	C	-140	ICAP Ineligible Forced Outage as of 7/1/2018
Add back Selkirk I and II	F	+360	Rescission of GDA Notice (Dec 2018)
ConEdison's B3402 & C3403 345 kV cables out of service	J	-	Long-term unavailability
By-pass the Series Reactors on 71, 72, M 51, M52 for summer (with Y49, 41, 42, SR in service)	J	-	After Indian Point 2 and 3 Deactivations (2020 and 2021)
J to K (Jamaica ties) emergency limit represented in the MARS topology changed from 235 MW to 320 MW	J to K	+85*	Due to addition of Rainey-Corona 345/138 kV PAR; target I/S summer 2019

DMNC: Dependable Maximum Net Capability

*85 MW is the increase in the MARS transfer limit on Jamaica ties



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2019-2028 CRP: Conclusions

- **The 2019-2028 CRP re-iterates the conclusion in the RNA that there are no Reliability Needs on the BPTF over the 10-year Study Period**
 - This conclusion is based on the CRP Base Case, which was developed by updating the RNA Base Case: with the changes shown on slide 8.

2019-2028 CRP: Risks Factors

- Changes to System Resources
- Completion of Local Transmission Owner Plans
- Changes to System Performance
- Changes to System Load Level
- Natural Gas Reliance
- Federal, State, and Local Environmental Regulations

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2019-2028 CRP: Recommended Actions

- Monitor and Track Potential New Developments
- Monitor and Track Transmission Owner Plans
- Continue Coordination with the New York State Public Service Commission
- Monitor Changes That Could Impact Risk Factors

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2019-2028 CRP: Scenario

- A scenario was also performed under the CRP process, for information only
- The scenario simulated:
 - Retirement of over 3,300 MW (nameplate, total MW as compared with the CRP Base Case) peaking generation in downstate New York;
 - Additionally, the last two coal plants are also removed for the purpose of this scenario, starting 2021
- For this scenario simulation, no retrofit of existing units was assumed
- Results identified and quantified any potential reliability deficiencies on the bulk and non-bulk systems

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DEC Proposed Rule Background

- New York State Department of Environmental Conservation (DEC) has initiated a process to develop a regulation to limit nitrogen oxide (NOx) emissions from simple cycle combustion turbines (“Peaking Units”)
- In June 2018 DEC posted a “Stakeholder Draft” outlining a proposed rule prior to initiating formal rulemaking (“the peaker rule”)
 - On February 27, 2019 DEC issued a draft regulation, with comments due on May 20, 2019
- Changes between the Stakeholder Draft and proposed regulations did not affect the NYISO’s Peaker Scenario analysis
- The draft regulation proposes new NOx emission limits for Peaking Units during the summer ozone season:
 - By May 1, 2023, Peaking Units would have to achieve 100 ppm NOx
 - By May 1, 2025, Peaking Units would have to achieve 25 ppm NOx for gaseous fuels and 42 ppm NOx for oil or other liquid fuel

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Other Draft DEC Rule Provisions

- Affected generators must file a compliance plan and may comply by deactivating prior to their applicable compliance date (*i.e.*, by May 1, 2023 or May 1, 2025) NYISO will consider generators' compliance plans in the development of the 2020 Reliability Needs Assessment base case
- The NYISO may designate certain units as needed for reliability through its deactivation process with a two-year extension (through 2025 or 2027) and a potential additional two-year extension (through 2027 or 2029) if resources or projects have been selected but not completed
 - Following a generator's submittal of a complete Generator Deactivation Notice to the NYISO, a Generator Deactivation Assessment will be performed to determine if units are needed for reliability

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CRP Scenario Background

- In anticipation of DEC's formal rulemaking, the NYISO initiated a study to assess impacts of the potential regulation in coordination with Con Edison and PSEG-LI
 - Based off the June "Stakeholder Draft"
- The CRP base cases are used as a starting point for the scenario evaluations, as follows:
 - The 2018 RNA Base Cases were updated for the CRP
 - These models are based on the 2018 Gold Book and 2018 FERC 715 filing (*i.e.*, the 2018-2019 RPP assumptions)
 - The CRP scenario study years are 2023 through 2028
- Resource adequacy and transmission security assessments were performed

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Summary of Generation Removed for this Scenario Assessment

- Approximately 3,300 MW nameplate generation could be impacted by this proposed regulation
 - As compared with the 2018-2019 RPP assumptions
- The NYISO assumed no retrofit or replacement and modeled all Peaking Units deactivated
- The table below summarizes the total MW removed from the models considering peaking and coal units (2018 GB values) that were not already in an IIFO, mothballed, or retired status in the 2018 CRP base case

		Removed in 2023 & 2024 (starting 2021 for coal)			Additional MW removed starting 2025 (throughout the study period)			Total Removed by 2025		
		Name Plate	ICAP	DMNC	Name Plate	ICAP	DMNC	Name Plate	ICAP	DMNC
Coal	Zone A & C	810	840	840	0	0	0	810	840	840
Peaking Units	Zones A-I	132	107	107	0	0	0	132	107	107
	Zone J	1,066	841	846	692	582	585	1,758	1,423	1,431
	Zone K	1,039	960	968	406	389	389	1,445	1,349	1,357
Total (including Coal)								4,145	3,719	3,735
Total Peaking Units Only								3,335	2,879	2,895

CRP Scenario Conclusions

Note: Additional details are in the presentations posted under the March 19 ESPWG/TPAS meeting materials and also in the report

Scenario Conclusions: ConEdison

■ Transmission Security around ConEdison TLAs

- Astoria East/Corona 138kV TLA
 - *Comprised of feeders from:*
 - Hell Gate – Astoria East 138 kV feeders 34051 and 34052
 - Jamaica – Corona 138 kV PAR controlled feeders 18001 and 18002
 - Astoria Annex – Astoria East 345/138 kV PAR controlled feeder 34091
 - Rainey – Corona 345/138 kV PAR controlled feeder 36187
 - *Results in a 220 MW deficiency starting in 2023*
 - Duration of the MW deficiency is 14 hours
- *East 75th Area Station*
 - Results in a 20 MW deficiency starting in 2023

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Scenario Conclusions: ConEdison

- **Transmission Security around ConEdison TLAs**
 - Greenwood/Fox Hills 138kV TLA
 - *Comprised of feeders from:*
 - Gowanus – Greenwood 345/138 kV PAR controlled feeders 42231 and 42232
 - Vernon – Greenwood 138 kV feeders 31231 and 31232
 - Fresh Kills – Willowbrook - Fox Hills 138 kV feeders 29211 and 29212
 - Results in a 420 MW deficiency starting in 2025
 - Duration of the MW deficiency is 15 hours

Scenario Conclusions: PSEG-LI

- **Transmission Security around Long Island Load Pockets**
 - East End and South Western Suffolk Load Pockets
 - Results in a 320 MW deficiency starting in 2023
 - Results in a 560 MW deficiency starting in 2025
 - Duration of the MW deficiency is 15 hours
 - Barrett Load Pocket
 - Results in a 60 MW deficiency starting in 2025
 - Duration of the MW deficiency is 6 hours

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Scenario Conclusions: Other Transmission Security Violations

- Additional overloads in SENY were observed in the NYISO analysis
 - All violations are resolved with the addition of the AC Transmission projects

Additional SENY N-1-1 Violations

Element	Year
Buchanan 345/138 kV (TA5)	2025
Lovett 345/115 kV	2025
Lovett – Buchanan South (Y88) 345 kV	2025
Ladentown – Lovett (Y88) 345 kV	2025
Athens – Pleasant Valley (91) 345 kV	2025
Leeds – Pleasant Valley (92) 345k kV	2025

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Resource Adequacy Conclusions

- 2023: LOLE increased from 0.01 to 0.09 days/year; *i.e.*, less than 50 MW away from the 0.1 days/year criterion violation
- 2025: Criterion violation observed through 2028
- AC Transmission (T027+T019, in-service by January 2024) lowered the NYCA LOLE, but did not bring it below the criterion
- If generation additions and/or load reductions are used to fully address load pocket issues, the LOLE criterion would be met
- There are various zonal combinations of resources that could bring the NYCA LOLE below the 0.1 days/year criterion

NYCA Coincident Peak Load	Study Year	CRP Base	Peaker Scenario	Peaker Scenario + AC Transmission (Jan 2024)	Peaker Case + ConEd and LIPA's TS CompMW addition (tested 640/620 MW)
32,857	2019	0.01	0.01	0.01	0.01
32,629	2020	0.00	0.00	0.00	0.00
32,451	2021	0.01	0.01	0.01	0.01
32,339	2022	0.01	0.01	0.01	0.01
32,284	2023	0.01	0.09	0.09	0.04
32,276	2024	0.01	0.09	0.07	0.04
32,299	2025	0.01	0.33	0.21	0.04
32,343	2026	0.01	0.36	0.23	0.04
32,403	2027	0.01	0.36	0.24	0.04
32,469	2028	0.01	0.38	0.26	0.06

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Scenario Conclusions: Compensatory MW

- **The needs could potentially be met by combinations of solutions including generation, transmission, and load reduction (energy efficiency, demand response, etc.) measures**
 - At least 700 MW of compensatory MW necessary between J and K to meet the LOLE criterion, assuming the AC Transmission projects are completed on schedule
 - Approx. 660 MW (240 MW in 2023, 420 MW in 2025) total compensatory MW necessary in ConEdison system
 - Approx. 620 MW (320 MW in 2023, 300 MW in 2025) total compensatory MW necessary in LIPA system
- **The local needs can be addressed by a combination of local transmission, resource additions, and load reductions; however, due to the resource adequacy need, local transmission alone cannot fully solve the BPTF and non-BPTF needs**
 - Upgrading the transmission path from UPNY-SENY all the way into Zones J and K would most likely only marginally bring the NYCA LOLE at or below the LOLE criterion, and would still not address the local transmission constraints identified in J and K

Operational Considerations*

- Off-Peak Maintenance conditions
- Operating Reserve
- System Restoration/Black Start
- Auxiliary Power
- Emergency Generation
- Transient Voltage Recovery

**As described in ConEdison's and PSEG-LI's presentations posted under the March 19, 2019 ESPWG/TPAS meeting materials*

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CRP Next Steps:

May 20, 2019 Management Committee – Obtain Recommendation for NYISO Board's Approval

July – NYISO's Board of Directors Approval (concludes the 2018-2019 RPP)



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 policy makers, stakeholders and investors in the power system



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