

## **Tailored Availability Metric**

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#### ICAPWG/MIWG

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## Agenda

- Background and Recap
- Additional Analysis Requested
- NYISO's Final Proposal
- Next Steps
- Appendix



# Background and Recap



## A Grid in Transition – The Plan

- Carbon Pricing
- Comprehensive Mitigation Review
- DER Participation Model
- Energy Storage
  Participation Model

Aligning Competitive Markets and New York State Clean Energy Objectives



• Enhancing Energy & Shortage Pricing

- Ancillary Services Shortage
  Pricing
- Constraint Specific Transmission Shortage Pricing
- Enhanced Fast Start Pricing
- Review Energy & Ancillary Services Product Design
  - More Granular Operating Reserves
  - Reserve Enhancements for Constrained Areas
  - Reserves for Resource Flexibility

Valuing Resource & Grid Flexibility

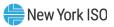


#### • Enhancements to Resource Adequacy Models

- Revise Resource Capacity Ratings to Reflect Reliability Contribution
  - Expanding Capacity Eligibility
  - Tailored Availability Metric
- Capacity Demand Curve Adjustments

Improving Capacity Market Valuation





#### Recap

 2020 Deliverable: Q2 Market Design Complete for a May 1, 2021 Implementation

- For availability based resources, the NYISO is proposing to change the structure of the EFORd calculation to take the average of the previous 2 like-Capability Periods
- For wind and solar resources, the NYISO is proposing to conduct a reoccurring study every 4 years that will result it hourly capacity value weightings within the Peak Load Window



# Additional Analysis Requested



### **Additional Analysis Requested**

- At the previous working group meeting on February 26<sup>th</sup>, stakeholders had requested additional analysis for availability-based resources that use the EFORd calculation
- The analysis included a hypothetical CC and GT unit and shows the change in the AEFORd with a full month outage in a peak month versus a full month outage in a non-peak month
  - Peak months, as defined by the stakeholder request, included months June, July, August, and September
  - The data of the nonpeak months (May and October) were requested to be weighted 25%
  - See Appendix for detailed data



## **Additional Analysis Requested**

#### • For the hypothetical CC unit:

- Service Hours for peak months ranged within 500-600 hours
- Service Hours for nonpeak months ranged within 200-300 hours
- For the Non-peak Outage case, a full month forced outage was recorded for the whole month of May
- For the Peak Outage case, a full month forced outage was recorded for the whole month of July
- For a full peak month outage, the AEFORd increased 4.8%
- For a full nonpeak month outage, the AEFORd decreased 11.3%

		СС						
	EFORd							
Month	Baseline	Baseline Non-peak Outage Pea						
May	8%	100%	8%					
June	4%	4%	4%					
July	4%	4%	100%					
August	4%	4%	4%					
September	4%	4%	4%					
October	9%	9%	9%					
6 Month EFORd	4.3%	20.6%	21.1%					
6 Month Weighted EFORd	3.8%	9.3%	26.0%					

	Delta	-0.5%	-11.3%	4.8%
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## **Additional Analysis Requested**

#### • For the hypothetical GT unit:

- Service Hours for peak months ranged within 200-300 hours
- Service Hours for nonpeak months ranged within 100-150 hours
- For the Non-peak Outage case, a full month forced outage was recorded for the whole month of May
- For the Peak Outage case, a full month forced outage was recorded for the whole month of July
- For a full peak month outage, the AEFORd increased 4.15%
- For a full nonpeak month outage, the AEFORd decreased 10.9%

		GT							
		EFORd							
Month	Baseline	Non-peak Outage	Peak Outage						
May	17%	100%	17%						
June	9%	9%	9%						
July	8%	8%	<b>100%</b>						
August	9%	9%	9%						
September	9%	9%	9%						
October	21%	21%	21%						
6 Month EFORd	9.9%	25.2%	26.3%						
6 Month Weighted EFORd	9.0%	14.3%	30.4%						

Delta	-0.9%	-10.9%	4.15%



## **NYISO** Responses to Requested Analysis

- At this time the NYISO believes the proposal made to change the structure to the average of the previous 2-like Capability Period EFORds is an incremental improvement to the EFORd calculation because it aligns seasonal payments with seasonal performance
  - Currently, the Capacity Market does not calculate monthly availability factors
  - Additionally, the Capacity Market does not adjust its demand curves monthly, but rather uses a Summer and Winter Capability Period translation to adjust the demand curves used in the Summer and the Winter
- The NYISO acknowledges that there may be merit to placing a weighting on some months of the calculation
  - The NYISO still believes it is important that resources are available in every month
  - Given the uncertainties that the New York grid faces with the potentially rapid changes to the resource mix, the NYISO is also not confident that discounting current non-peak months will be representative of the resource availability needs in the future
- Therefore, the NYISO proposes to move forward with the current proposal and bring the project to a BIC vote in April, 2020
  - The NYISO is committed to remaining responsive to stakeholders desire to move more quickly
  - If stakeholders would like to further assess availability-based resources, it could be addressed in the future if it is prioritized in the project prioritization process



# NYISO's Final Proposal



#### **Availability-based Resources**

- For availability-based resources that use the EFORd or UOL calculation for their derating factor, the NYISO is proposing to take the average of the previous 2-like Capability Period EFORds
- For new resources the class average will be used
  - For example:
    - If a resource has recorded data for 1 Capability Period, the AEFORd will take the average of the calculated EFORd of the unit's actual data for 1 Capability Period and the class average for the missing Capability Period
- For a resource that is in an ICAP ineligible state (e.g., Mothball, IIFO) the NYISO will look-back until historic "like" data is available
  - For example:
    - For a Summer 2018 Capability Period AEFORd, if historic data was unavailable for months August October 2016, the NYISO would replace the missing data from the next available historic year, *i.e.* August October 2015
    - MST 5.12 has been updated to reflect this change



## Wind and Solar Resources

- The NYISO is proposing a reoccurring study every 4 years, that would result in hourly capacity value weightings across the Peak Load Window
  - Weightings would be applied to the respective hourly production data
  - The study would run concurrently with the study for Expanding Capacity Eligibility
  - Each study could reset the top 4 hours within the Peak Load Window and percentages based on the percentages for Expanding Capacity Eligibility
- The duration of the Peak Load Window is dependent on resources with duration limitations
  - When the system reaches 1000 MW of duration limited resources and the window shifts from 6 hours to 8 hours, the PLW for wind and solar will also shift



#### Proposal

- At this time, the NYISO is proposing the following weightings across the 8-hour and 6-hour PLW
- For a 6-hour PLW, the top 4 hours will receive a 75% weighting
  - Weightings of the shoulder 2 hours will be equally weighted at 12.5% each
- For an 8-hour PLW, the top 4 hours will receive a 70% weighting
  - Weightings of the shoulder hours will be 3-tiered
    - In other words, the next top 2 hours will be weighted 20%, and the last 2 hours will be weighted 10%



#### Proposal

- Summer and Winter Capability Period months will receive the following set of weightings as shown in Table 1
  - For the Winter PLW, the top 4 hours will remain consistent with methodology used today, and the top load hours from Expanding Capacity Eligibility (HB 16 – HB 19)
- Under this construct, wind and solar resources will still have the opportunity to receive 100% performance factors if they perform in all hours of the Peak Load Window

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	Summer Peak	Load Window	Winter Peak Load Window		
HB	6 Hour	8 Hour	6 Hour	8 Hour	
12		5.0%			
13	12.5%	10.0%			
14	18.75%	17.5%		5.00%	
15	18.75%	17.5%		5.00%	
16	18.75%	17.5%	18.75%	17.50%	
17	18.75%	17.5%	18.75%	17.50%	
18	12.5%	10.0%	18.75%	17.50%	
19		5.0%	18.75%	17.50%	
20			12.5%	10.0%	
21			12.5%	10.0%	
Top 4 Hours	75%	70%	75%	70%	



## MST 5.12

#### Updates have been made to 5.12.6.2 to reflect the following:

- The hourly weightings proposed for wind and solar resources within the 8-hour and 6hour Peak Load Window
  - A table has been added to show the hourly weightings
- The previous 2 like-Capability Period look-back for availability-based resources
  - For resources in an ICAP ineligible state, language has been modified to denote the previous "like-month" data will be used
- Section 5.12.14.3 has been updated to reflect the 4-year reoccurring study for wind and solar resources
- Detailed changes will be made to Section 4.5 and Attachment J of the ICAP Manual pending FERC approval

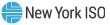


# **Next Steps**



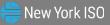
#### **Next Steps**

 At this time, the NYISO is targeting the April BIC for May 1, 2021 implementation



# Feedback/Questions?

The NYISO will consider input received during today's Working Group meeting and further input sent in writing to deckles@nyiso.com and econway@nyiso.com



# Appendix



#### Hypothetical Example – CC Data

CC Nonpeak Outage

	SH	RSH	FOH	FO Count	EFDH	Attempted Starts	Actual Starts
May	0.00	0.00	744	1	0	0	0
June	550	145	25	1	0	15	14
July	550	169	25	1	0	14	13
August	550	169	25	1	0	20	19
September	550	145	25	1	0	18	16
October	200	519	25	1	0	2	2
Total	2400	1147	869	6	0	69	64

**CC Peak Outage** 

	SH	RSH	FOH	FO Count	EFDH	Attempted Starts	Actual Starts
May	200	519	25	1	0	5	5
June	550	145	25	1	0	15	14
July	0.00	0.00	744	1	0	0	0
August	550	169	25	1	0	20	19
September	550	145	25	1	0	18	16
October	200	519	25	1	0	2	2
Total	2050	1497	869	6	0	60	56

CC Baseline

	SH	RSH	FOH	FO Count	EFDH	Attempted Starts	Actual Starts
May	200	519	25	1	0	5	5
June	550	145	25	1	0	15	14
July	550	169	25	1	0	14	13
August	550	169	25	1	0	20	19
September	550	145	25	1	0	18	16
October	200	519	25	1	0	2	2
Total	2600	1666	150	6	0	74	69



#### Hypothetical Example – GT Data

#### GT Nonpeak Outage

	SH	RSH	FOH	FO Count	EFDH	Attempted Starts	Actual Starts
Мау	0.00	0.00	744	1	0	0	0
June	250	420	50	1	0	16	15
July	300	394	50	1	0	14	14
August	300	394	50	1	0	12	12
September	250	420	50	1	0	15	14
October	100	594	50	1	0	2	2
Total	1200	2222	994	6	0	59	57

#### **GT Peak Outage**

	SH	RSH	FOH	FO Count	EFDH	Attempted Starts	Actual Starts
May	100	594	50	1	0	4	4
June	250	420	50	1	0	16	15
July	0.00	0.00	744	1	0	0	0
August	300	394	50	1	0	12	12
September	250	420	50	1	0	15	14
October	100	594	50	1	0	2	2
Total	1000	2422	994	6	0	49	47

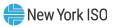
#### GT Baseline

	SH	RSH	FOH	FO Count	EFDH	Attempted Starts	Actual Starts
May	100	594	50	1	0	4	4
June	250	420	50	1	0	16	15
July	300	394	50	1	0	14	14
August	300	394	50	1	0	12	12
September	250	420	50	1	0	15	14
October	100	594	50	1	0	2	2
Total	1300	2816	300	6	0	63	61



## Wind and Solar Resources

- The relative capacity value weightings established will align with the Peak Load Windows proposed in the Expanding Capacity Eligibility project
  - 6 hour Peak Load Window:
    - Summer: HB 13 HB 18
    - Winter: HB 16 HB 21
  - 8 hour Peak Load Window:
    - Summer: HB 12 HB 19
    - Winter: HB 14 HB 21
  - The duration of the Peak Load Window is dependent on resources with duration limitations



# 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



