



Forecast Enhancements in the Buyer-side Mitigation Rules

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Background and Objective

- **Stakeholder meetings:**
 - *December 12, 2014, March 18, 2015, May 18, 2016, July 6, 2016, August 10, 2016*
- **Continue discussion on developing rules to enhance to forecasts used in the Buyer-Side Mitigation (BSM) determinations**
- **Today's presentation provides**
 - *Proposal Overview*
 - *Illustration of the process*
 - *Responses to Stakeholders questions*
- **Next steps**

Proposal: overview

<u>Include</u>	<u>Do not include</u>	<u>Include if "inclusion test"*** passed</u>
<ul style="list-style-type: none"> ■ Currently operating units (i.e., GoldBook) <ul style="list-style-type: none"> • Including Forced Outage and Inactive Reserve • unless there is publicly available information, definitively indicating a unit will permanently cease operation* ■ Units with "positive indicators"*** of repair and return to service: <ul style="list-style-type: none"> • ICAP Ineligible Forced Outage ("IIFO"), including Catastrophic Failure units • Mothball Outage ("MO") • Retired and Partial long-term derate <p>***"positive indicators" are described in the appendix</p>	<ul style="list-style-type: none"> ■ Retired ■ Relinquishing/Transferring CRIS ■ Other publicly available information definitively indicating a unit will permanently cease operation* <p><i>*This provision will require documentation from the unit, and NYISO notice of decision to include/not include</i></p>	<ul style="list-style-type: none"> ■ Units without "positive indicators" of repair and return to service: <ul style="list-style-type: none"> • Any of the existing and noticed (as applicable) IIFO, MO, and Retired ■ RMR (RSSA) with an expiration date before or during Mitigation Study Period <p>*** Performed for resources that have ability to re-enter the market, or remain in the market (as applicable), under "favorable conditions" Performed over a given time period (spans from the beginning of CY to the end of Mitigation Study Period) Performed solely for purposes of the BSM determination, to determine whether the resources examined in the inclusion test should be assumed "in-service"</p>

Inclusion Test

- For each unit, that requires **significant* capital investment(s) and/or a long lead time to return:**

* “significant” and “small” are discussed later in the presentation

- **The analysis is based on the estimated net present value (“NPV”) under predicted market conditions and it is performed for the period from the CY determination point through the end of the assumed horizon**
 - **“estimated revenues needed to be recovered” required to support a return to service based on (NYISO will request updated cost information as it is required):**
 - *Projected unit-specific “return to service costs”*
 - Operating costs, including required capital expenditures
 - Mobilization costs (*i.e.*, additional expenses needed to bring the unit back to service, including testing costs)
 - Costs associated with RMR contract (*i.e.*, “claw-back” payment (anti-toggling provision))
 - *Any other additional relevant lost opportunity costs based on publicly available and verifiable information*
 - **estimated value of net revenues associated with the production and sale of Energy, Ancillary Services and capacity**
 - *including expected lost revenue on the rest of the unit owner’s portfolio due to reduction in ICAP prices*
- **If NPV is positive, the unit is modeled as “in-service” in the forecasts for the purpose of the BSM evaluation**
- **Otherwise, the unit is excluded from the forecasts for the purpose of the BSM evaluation**

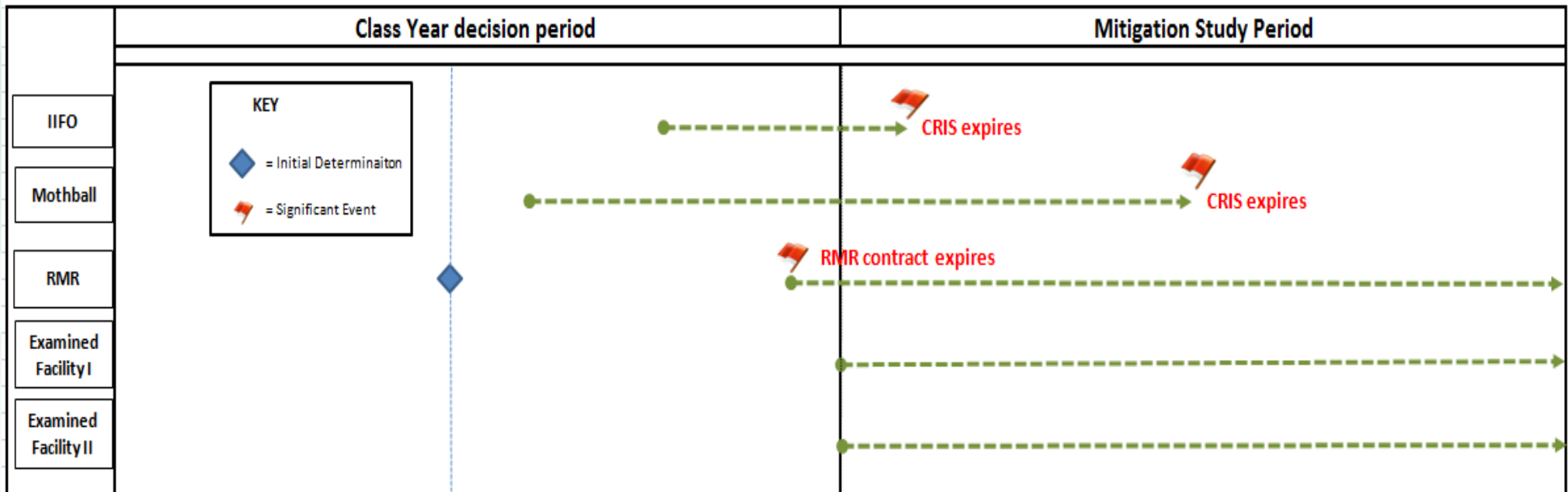
Inclusion Test cont'd

- Each unit requiring **small capital expenses and/or a short time to return**, or if costs cannot be timely verified:
 - ***include in the forecasts for the purpose of the BSM evaluation at (seasonally shaped) “in-service price” which is based on***
 - **“Departure price”**
 - *market revenues at the time the unit had exited or signaled its intent to exit (which were not enough to support continued operation)*
 - **“Forgone price”**
 - *market revenues that the unit could have been earning if it have stayed in the market (which were not enough to trigger its return)*
 - **“Return to service price”**
 - *Projected unit-specific “return to service costs”*
 - including needed expenses such as mobilization/testing, avoidable costs, and costs associated with RMR contract (aka “claw-back” payments (anti-toggling cost provision))
 - any other additional relevant lost opportunity based on publicly available and verifiable information
 - *Net of estimated value of net revenues associated with the production and sale of Energy and Ancillary Services*
 - including Portfolio Effect** (“portfolio hurdle price”) that is expected lost revenue on the rest of the unit owner’s portfolio due to reduction in ICAP prices

**** applicable to units that are not in the market at the time of the CY determination**

Process: illustration

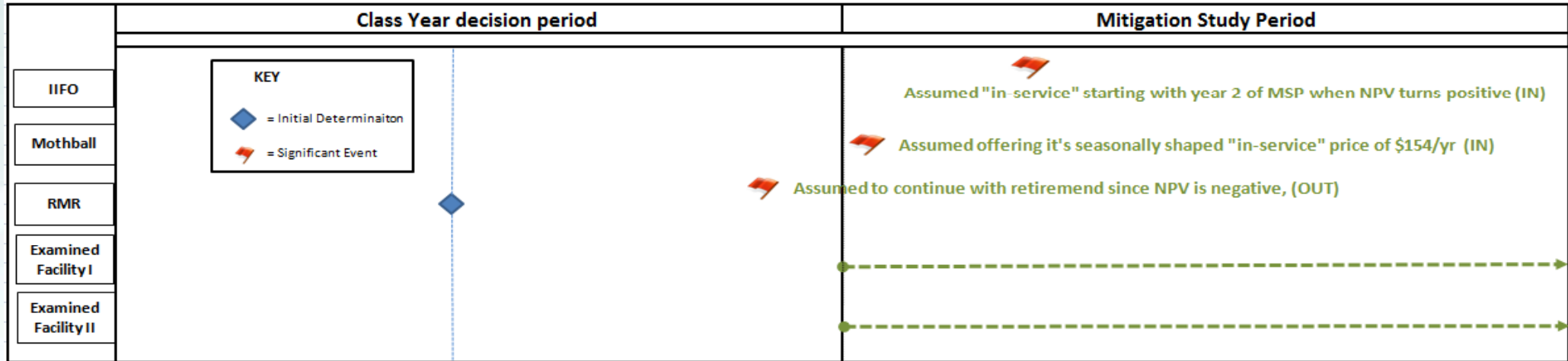
- Units with first-mover advantage and small capital expenses and/or short lead time to return to the market will be included at (seasonally shaped) “in-service price”
- Units with first-mover advantage but significant capital expenses and/or long lead time to return to the market will be “tested” with all current CY units modeled as “in-service”
 - *In case inclusion test is passed, then included in the BSM evaluation for current CY*
 - *Otherwise, the analysis will be performed iteratively in order to efficiently account for competition with proposed new units (from both prior CYs (that have not yet entered service) and current CY)*



Process: Example based on excel workbook posted with Aug 10, 2016 ICAPWG meeting materials

- **Mothball Outage**
 - *Status changed right before the BSM determination/Class Year Initial Decision Period commences*
 - *Depending on market outlook, the unit may return to service any time during the MO 36 month CRIS expiration period*
- **IIFO:**
 - *There are no "positive indicators" at the time of the determination/Class Year Initial Decision Period commences*
 - *Depending on market outlook, the unit may return to service right before or at the very beginning of the Mitigation Study Period (MSP)*
 - *Requires significant capital expenditure (first 2-year NPV is not positive)*
 - *Net Present Value analysis based on the predicted market conditions and unit specific characteristics*
 - Assuming all Class Year Examined Facilities are in-service and price-takers
- **RMR**
 - *Was based on retirement notice*
 - *Depending on market outlook, the unit may stay in service after end of RMR*
 - *No mobilization cost or additional CapEx in order to return to service*
 - *"Claw-back" payments*

For illustrative purposes only and not an attempt to provide any forecasts and/or future analysis outcome



Responses to Stakeholder questions

- **NYISO received feedback at the August 10, 2016 presentation**
- **The following slides are for further discussion**

“Significant” capital investment(s) and “long lead time to return”

- **“Small” capital investments are to be defined as investments that will be expected to be recouped over the course of short-term period, *i.e.*, up to 2 years**
 - *Based on economic theory and investment principles*
- **If it is expected that capital investment(s) be paid-off by reasonably estimated net revenues from sales of Energy, Ancillary Services and capacity over time period longer than 2 years then it will be considered “significant”**
- **A unit with estimated repair time of 6 months or longer will be deemed a unit with “long lead time to return”.**
 - *Consistent with outage state rules*

Positive Net Present Value

- **Net Present Value (NPV):**
 - *is a present value of uneven cash in-flows (revenues) and out-flows (costs)*
 - *It is used to evaluate whether a project is likely to make a positive return and, therefore, is a screening tool.*
 - *combined with the “required” hurdle rate^{***}, it is a reasonable selection tool*
- **NYISO propose to model units as “in-service” in the forecasts for the purpose of the BSM evaluation if NPV is positive at ROE rate as a discount factor**
 - *ROE will be used as an approximation of the “required” hurdle rate*

^{***} to satisfy shareholders' expected gain

Next Steps

- **The NYISO will consider input received during today's ICAPWG meeting**
- **Stakeholders can also provide additional comments in writing to deckels@nyiso.com by September 23, 2016**
- **Further review of the proposal at a future ICAPWG meeting**

The Mission of the New York Independent System Operator, in collaboration with its 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 policy makers, stakeholders and investors in the power system*

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Appendix

- **Positive indicators that a unit will be returning to service may include**
 - ***(A) indications of repair evidenced by items such as:***
 - ***A repair plan including schedule (e.g., “Credible Repair Plan”)***
 - ***Steps that it has commenced repair(s)***
 - ***Or (B) indications of return-to-service including such items as:***
 - ***visible site activity***
 - ***labor arrangements***
 - ***fuel supply arrangements***
 - ***unit testing***