New York ISO
Independent System Operator

Enhanced BSM Mitigation Study Period

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ICAP/MIWG/PRLWG Meeting

January 21, 2020, NYISO

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Agenda

- Background
- Stakeholder Comments
- Implementation Plan for CY2019
- Complexities to be Considered for the Simplified Proposal
- Illustrative Example of Multiple MSPs
- Issues for Future Discussions
- Stakeholder Engagement Plan

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Background

Comprehensive Mitigation Review Project (CMR Project) Overview

- **The project objective is:**
  - Modify NYISO Installed Capacity market framework in a balanced manner that (i) preserves competitive price signals and economically efficient market outcomes required to maintain system reliability and (ii) enables the Climate Leadership and Community Protection Act (CLCPA) goals
- **The project goal is to complete the study Market Design Complete in 2020**
  - The Enhanced BSM Mitigation Study Period and Enhancements to the Part A Exemption Test efforts are also part of the BSM Exemption Redesign option under the CMR Project

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Enhancements to the Part A Exemption Test as part of the 2020 CMR Projects

- **Based on the MMU Proposal, the NYISO has proposed to**
  - Revise the order of the Part A Exemption Test to precede the Part B Exemption Test
    - Currently the NYISO conducts the Part B Exemption Test first to ensure that the most economic projects can qualify for an exemption
  - Order the Resources for the Part A Exemption Test by placing all PPR Examined Facilities before non-PPR Examined Facilities, even if the latter are lower cost
    - PPRs will be ordered amongst themselves by Unit Net CONE, from lowest to highest

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MMU's Proposal to Revise the Part A Exemption and Mitigation Study Period

- **Prong 1 involves changes to the Part A and Part B exemption tests such that**
  - Public Policy Resource ("PPR") Examined Facilities would be placed in the supply stack before non-PPR Examined Facilities
    - Currently projects are placed in the supply stack from lowest to highest Unit Net CONE
    - This change will allow legitimate PPR supply resources be awarded a Part A exemption before non-PPR resources that may be less expensive but do not further the State's policy objectives
- **Prong 2 involves changes to the Part A and Part B exemption tests such that**
  - The Mitigation Study Period would be revised to apply to each project based upon the characteristics of the technology that it uses
    - Currently the Mitigation Study Period is the same three year period for all Examined Facilities
  - Conduct the Part A test using each year of the Mitigation Study Period

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The current Mitigation Study Period

- **All Examined Facilities, regardless of unit technology are assumed to enter the NYISO's ICAP markets beginning with the start of the Summer Capability Period that is 3 years from the year of the Class Year**
  - Part A Test: "the two Capability Periods, beginning with the Summer Capability Period commencing three years from the start of the year of the Class Year (the "Starting Capability Period")" (MST Att. H 23.4.5.7.2 and 23.4.5.6)
  - Part B Test: "the six Capability Periods beginning with the Starting Capability Period" (MST Att. H 23.4.5.7.2 and 23.4.5.6)

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Stakeholder Comments

January 08, 2020
ICAP/MIWG/PRLWG Meeting

- **The NYISO's presentation outlined topics for stakeholder input.**
- **Stakeholder comments included the following:**
  - The proposal should not delay the class year study process
  - There are numerous complexities to be addressed
    - How to order units
    - How to represent interactions of Examined Facilities have on revenues
    - How enhancements would be applied to Expedited Deliverability Studies
  - It is very difficult for NYISO or a Developer to pinpoint an accurate entry date
    - Forecasted entry dates may also be driven by contract dates, regulatory policies and requirements, and site specific issues

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January 08, 2020
ICAP/MIWG/PRLWG Meeting

- **Stakeholder comments included the following (continued):**
  - Would there be a maximum time range for BSM evaluations?
    - Forecasts and assumptions for events further into the future are often less accurate
  - Some projects within the same technology type could have significantly different lead times based on numerous factors such as size or location
  - The current MSP only assesses 'the first' three years of the project's life, which for many projects extends beyond 20 years
  - Upcoming retirements that may not be captured under the current rules may have a large potential impact on evaluations
  - Making unit-specific adjustments to a project's MSP creates significant gaming potential but may be necessary and appropriate for some projects

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NYISO's Perspective

- **The NYISO believes there is merit in the MMU's recommendation and has recognized numerous complications and issues to be addressed with stakeholders prior to drafting a full proposal**
- **The NYISO recommends narrowing the scope of enhancements to the MSP for CY2019**
  - These enhancements would also apply to Expedited Deliverability Studies and Additional SDU Studies pending FERC approval

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Future Discussions

- **The Enhanced BSM Mitigation Study Period and Enhancements to the Part A Exemption Test efforts are part of the BSM Exemption Redesign option under the CMR Project**
- **Discussions will continue throughout the year**
  - These may include the various complexities stakeholders and the NYISO have raised
  - A comprehensive set of enhancements may be discussed for implementation in the near future

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Implementation Plan for CY2019

Implementation Plan for CY2019

- The NYISO recommends narrowing the scope of changes to be made to the MSP for CY2019
- They NYISO has identified two enhancements that it believes could be implemented for CY2019 and minimizes the risk to timely completion of the CY
  - Enhancement to reflect interconnection study time
  - Enhancement to better align the MSP (i.e., Starting Capability Period) more closely with the project's actual market entrance, compared to the current MSP
- These changes would also apply to the Expedited Deliverability Studies as well as Additional SDU Studies

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Enhancement to Reflect Study Time

Reflecting Interconnection Study Time

- "The BSM measures are intended to provide a developer with the exemption test results at an early stage in the development a new facility, since a competitive supplier might not move forward with such a large investment if it was not reasonably certain to receive capacity market revenues. In order for some of the CY17 Examined Facilities to begin operating by May 2020, construction would have had to begin before they learned their respective interconnection costs or BSM exemption test results."
  - MMU Class Year 2017 Report
- The NYISO proposes to change the starting point used to determine the Starting Capability Period in order to account for the interconnection study time and better reflect a Developer's decision point

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Developer's Decision Point

- The MMU suggests that the year of the Class Year may not be the best starting point for timing the MSP, because this does not necessarily represent the developer's decision to begin construction
- The NYISO proposes to use a starting point that is more representative of the developer's decision to begin construction

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Determining the Starting Point for Members of a Class Year

- **For each Class Year, the starting point will be, based on an estimated Initial Decision Period date, a year from the Class Year Start Date**
  - The Class Year Start Date is the first Business Day after thirty (30) Calendar Days following the completion of the prior Class Year Interconnection Facilities Study
    - NYISO noticed that Class Year 2017-2 had been completed as of July 9, 2019
    - The Class Year 2019 Start Date was August 9, 2019
      - Under this proposal, NYISO would use August 2020 as the starting point to determine a project's Starting Capability Period
  - The NYISO will post the starting point used for each Class Year on the ISO website under the BSM CY material

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Determining the Starting Point for Projects that Require Additional SDU Studies

- For projects that require Additional SDU Studies, the starting point will be, based on an estimated Initial Decision Period date for the ongoing Class Year which they rejoin
- If the Additional SDU Study has its own decision period (i.e, does not rejoin an ongoing Class Year) the starting point will be, based on an estimated Initial Decision Period date for the most recently completed Class Year
  - This would occur if the Additional SDU Studies are completed after a CY decision period but before the next CY ATBA lockdown

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Determining the Starting Point for Members of an Expedited Deliverability Study

- **For Expedited Deliverability Study, the starting point will be, based on an estimated Initial Decision Period date, three months from the study start date**
  - If an Expedited Deliverability Study starts in March 2020, the starting point would be June 2020
  - The NYISO will post the starting point used for each Class Year on the ISO website under the BSM Expedited Deliverability Study material

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Starting Capability Period

- **The NYISO proposes to keep the Starting Capability Period as a Summer Capability Period based on the Capability Year of the starting point**
- **Examples, assuming a "3-year build"**
  - The Class Year 2019 Start Date is August 2019, the estimated Initial Decision Period date is within the 2020-2021 Capability Year (May 2020 – April 2021)
    - The Starting Capability Period would be the Summer 2023
  - If next Class Year Start Date is between May 2020 and April 2021, the estimated Initial Decision Period would be within the 2021-2022 Capability Year (May 2021 – April 2022)
    - The Starting Capability Period would be the Summer 2024

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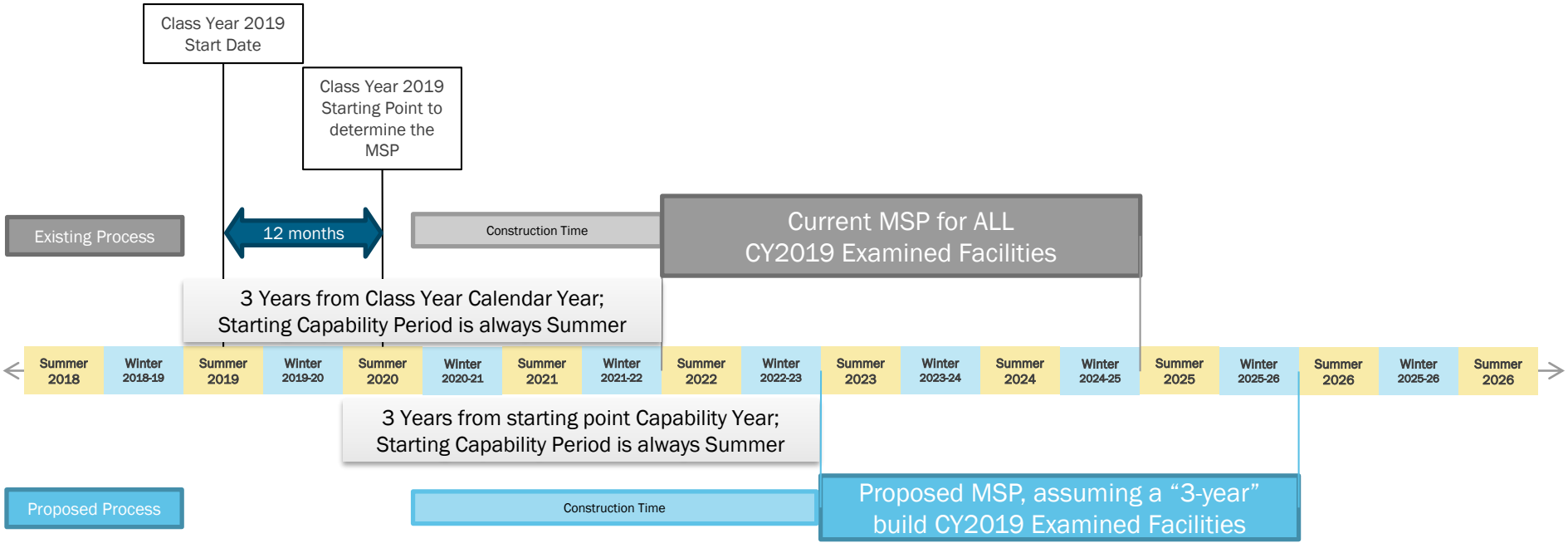
Comparison of Current Class Year MSP and Proposed MSP Enhancements for CY2019



The dates contained in this figure are for illustrative purposes only and do not necessarily reflect the timeframe of an ongoing study.

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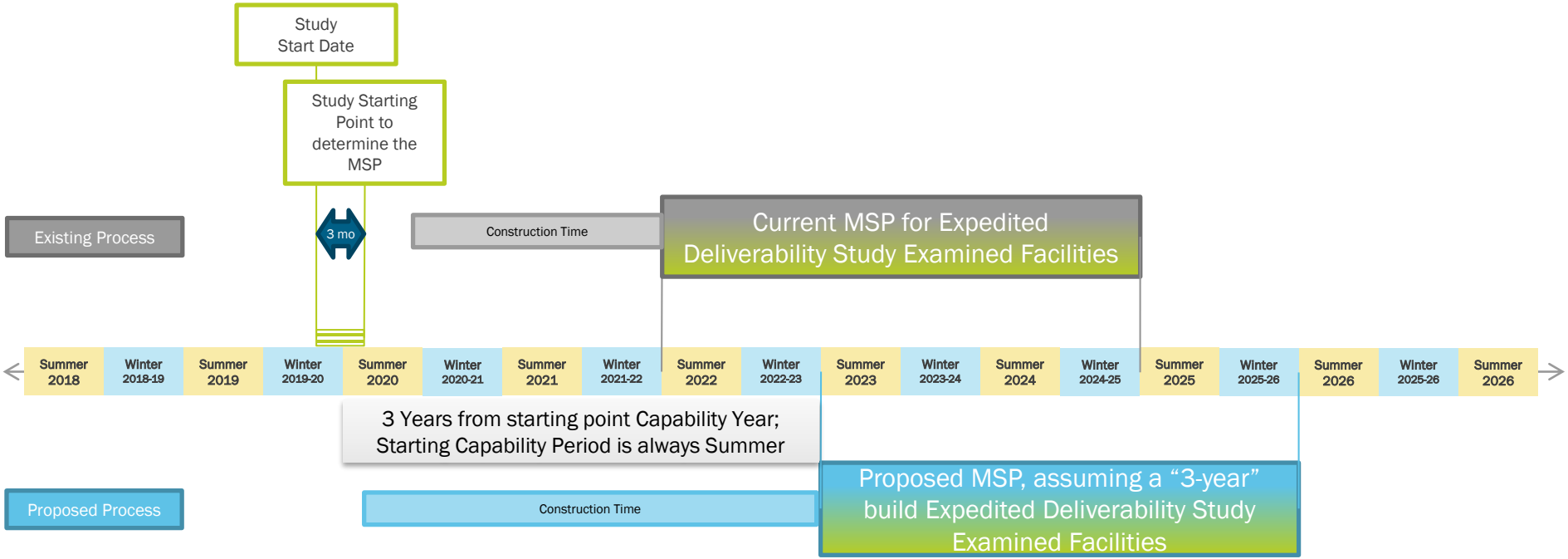
Comparison of Proposed MSP Enhancement for an Expedited Deliverability Study



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Effect of Proposed Enhancement

- The Starting Capability Period is adjusted to reflect bulk of study time expected for Class Year, Additional SDU or Expedited Deliverability Studies
- The Expedited Deliverability Study would have, and the Additional SDU Study may have, an independent Starting Capability Period that is not directly tied to the on-going or most recently completed Class Year
- Starting points within the same Capability Year have the same Starting Capability Period, rather than the calendar year

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Further Enhancement to Align the MSP

Two Mitigation Study Periods

- **The NYISO proposes to have two Mitigation Study Periods**
  - An earlier MSP for projects expected to enter the market more rapidly than has been observed in past
    - Projects that may fit into this first group could include projects already in service, small resource projects, and Additional CRIS request projects
  - A later MSP for projects expected to enter the market consistent with a 3 year construction lead time
    - Projects that may fit into this second group could include projects requiring reliability upgrades and large resource projects
- **In an effort to minimize the amount of changes required, the NYISO proposes two MSPs that do not overlap**

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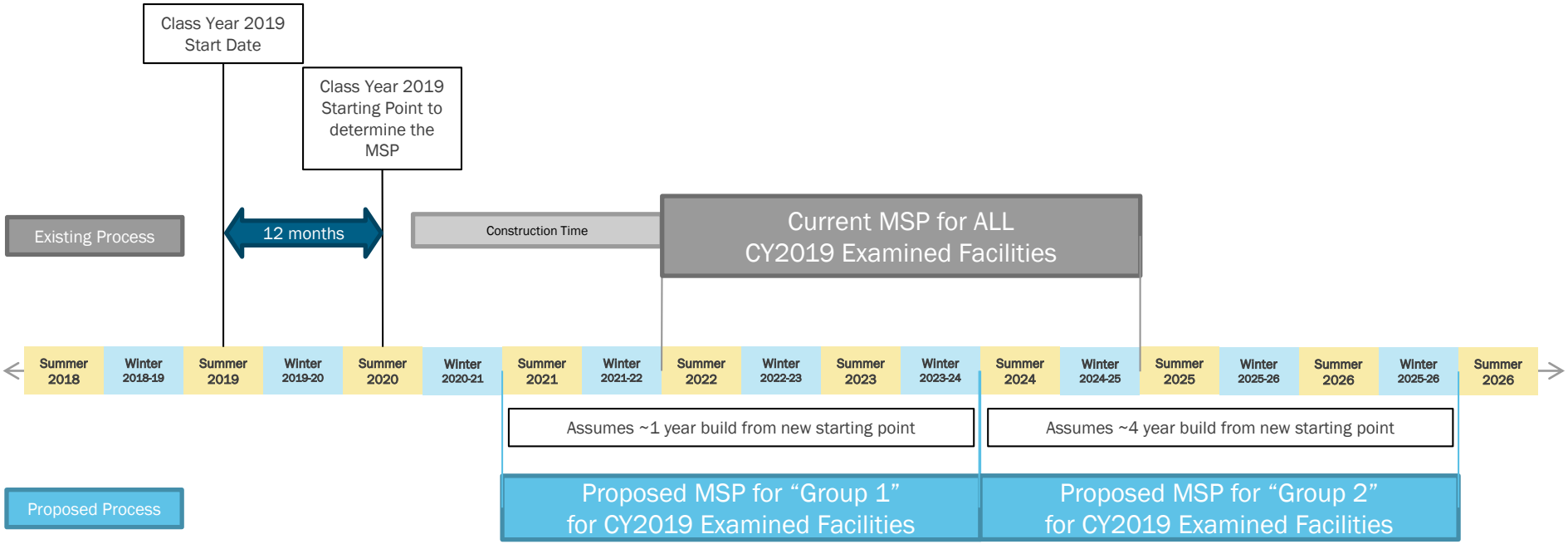
Comparison of Current Class Year MSP and Proposed MSP Enhancements for CY2019



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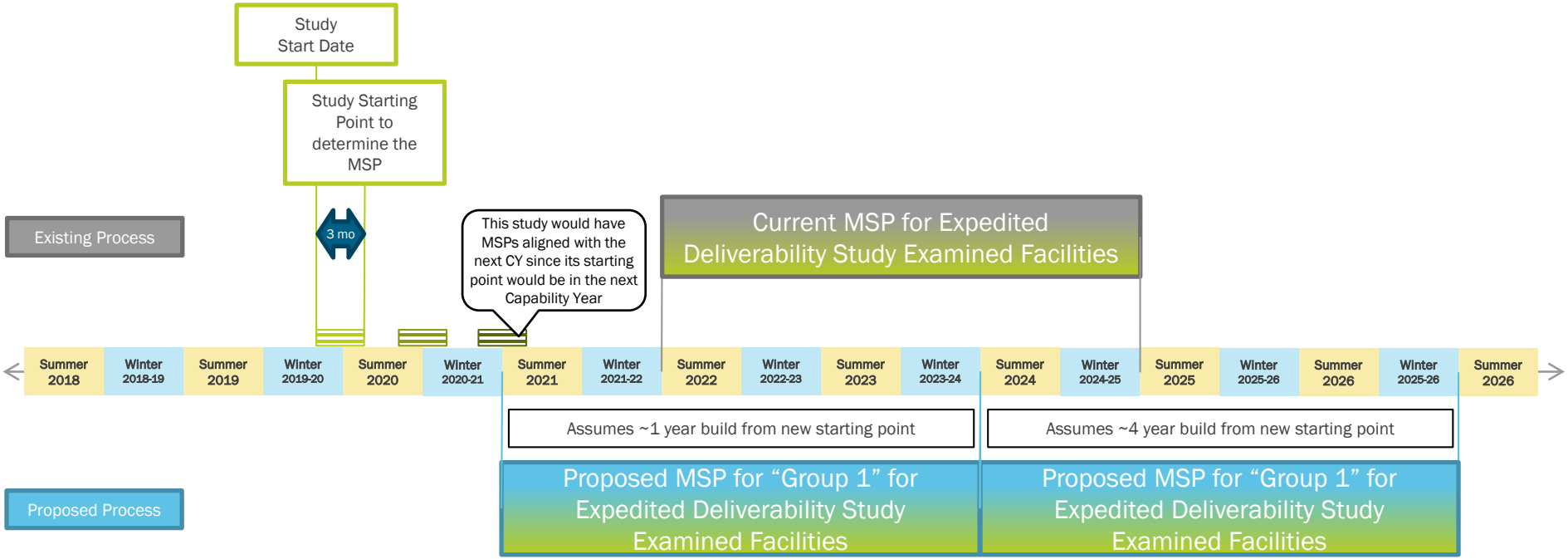
Comparison of Proposed MSP Enhancements for an Expedited Deliverability Study



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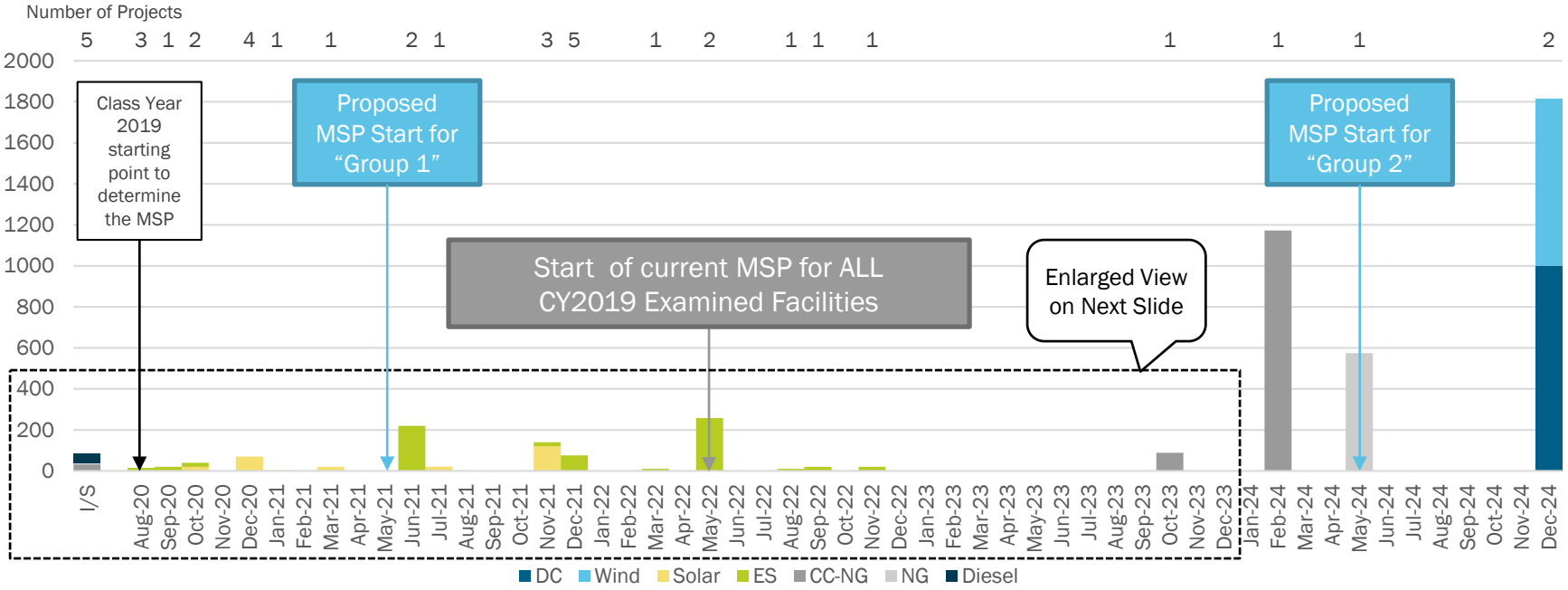
MWs of CY2019 Proposed CODs by Type



Proposed CODs are based on TPAS January 7, 2020 CY19 Status Update, posted on the NYISO website.

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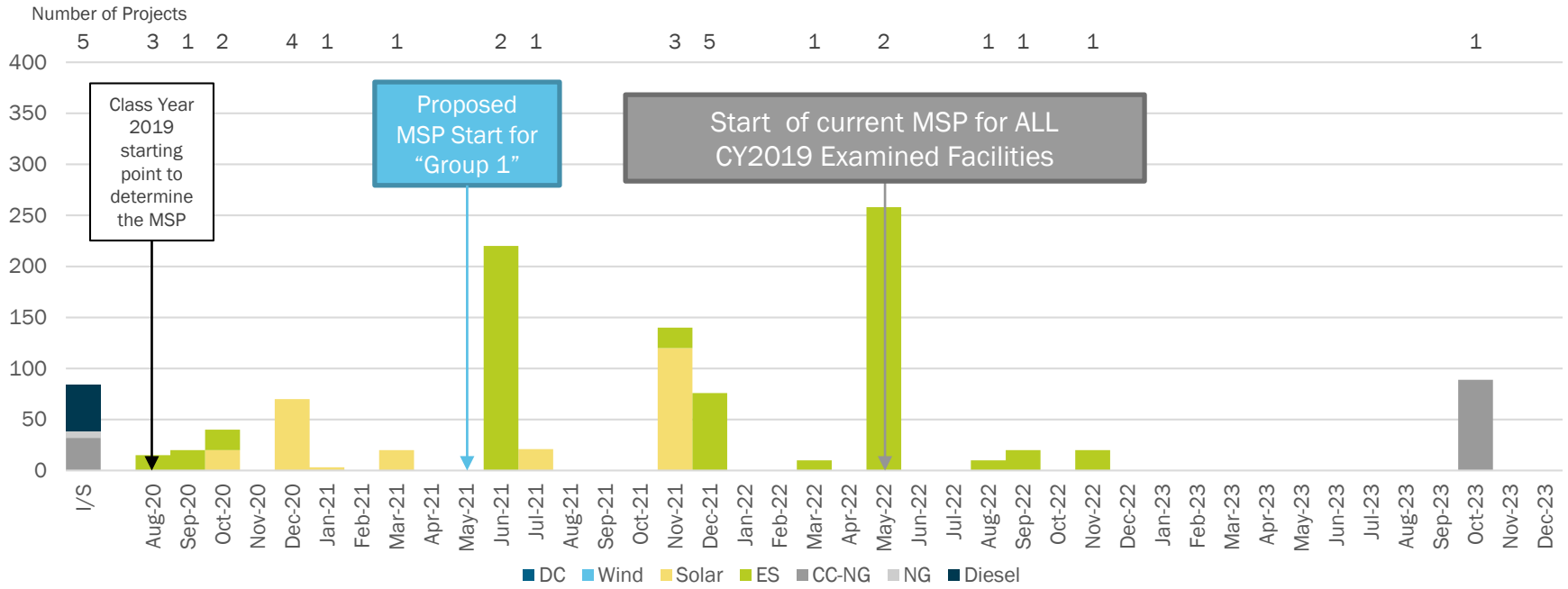
MWs of CY2019 Proposed CODs by Type



Proposed CODs are based on TPAS January 7, 2020 CY19 Status Update, posted on the NYISO website.

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Effect of Proposed Change

- **Creates an opportunity to better align the MSP used for each projects BSM determinations with their anticipated entry date**
  - Does not align all projects
- **Creates complications and increased analysis**
  - More forecasting data and assumptions required
  - More complexity in interactions of projects to consider
- **For simplicity and administration purposes, the MSPs would be start three years apart to avoid overlap**

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Two Proposed Enhancements

Assessment of the Simplified Proposal and Next Steps

- **The proposed enhancements are steps towards more aligned MSPs**
  - The enhancements factor in time taken for the interconnection studies
  - The enhancements allow for two groups rather than applying a blanket assumption for all Examined Facilities
  - The MSPs are fairly transparent and reasonably predictable
- **The NYISO is still discussing how to assign Examined Facilities to their appropriate MSP group**
  - The methodology should be objective and recognize the physical realities of power plant construction schedules for different technologies
- **The enhancements do not capture market changes outside of the MSP**

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Complexities to be Considered for the Simplified Proposal

Creation of Multiple MSPs

- **How would Examined Facilities be evaluated concurrently in offset MSPs?**
  - Is it necessary to capture interactions between Examined Facility and Examined Facility Revenues?
- **How to determine appropriate MSPs for individual Examined Facilities?**
  - Would there be a potential for gaming

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Concurrent Evaluation

Current Testing Order

- **From lowest to highest Unit Net Cone**
  - MST Section 23.4.5.7.3.2
    - from lowest to highest, using for each Examined Facility the lower of
      - (i) the first year value of its Unit Net CONE, or
      - (ii) the numerical value equal to 75 percent of the Mitigation Net Cone, then inflated in accordance with 23.4.5.7 for each of the year two and year three of the Mitigation Study Period.
- **Units are included in the capacity supply for the subsequent tests if they receive an exemption based on Part B, regardless of CEE or Renewable Exemption**

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Testing Order with Multiple MSPs

- Would the NYISO rank Examined Facilities by their Unit Net CONE within the same MSP, with the same Starting Capability Period or among all Examined regardless of their Starting Capability Period?
- How would projects with a later MSP affect previous MSP determinations?
- How many iterations would be appropriate/feasible to representatively capture interactions and impacts?

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Simplified, Three Unit Example 1

- Method 1 – This example ranks Examined Facilities by their Unit Net CONE among all Examined regardless of their Starting Capability Period
- Unit X – is tested third
  - 50 MW
  - Enters in “Year 1”
  - Unit Net CONE = $125/kW-yr
- Unit Y – is tested second
  - 100 MW
  - Enters in “Year 1”
  - Unit Net CONE = $100/kW-yr
- Unit Z – is tested first
  - 500 MW
  - Enters in “Year 3”
  - Unit Net CONE = $90/kW-yr

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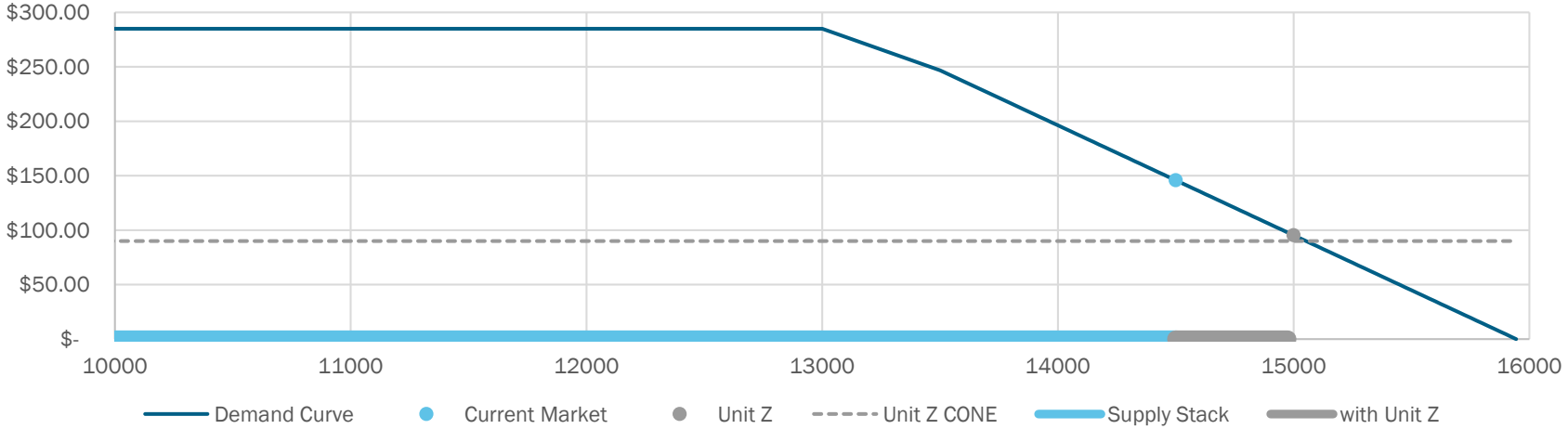
Testing Unit Z in Years



Method 1 - 1	Year 3	Year 4	Year 5	Average
ICAP Forecast	$93/kW-yr	$95/kW-yr	$97/kW-yr	**$95/kW-yr**
Unit Net CONE	$88/kW-yr	$90/kW-yr	$92/kW-yr	**$90/kW-yr**
Determination				**PASS**

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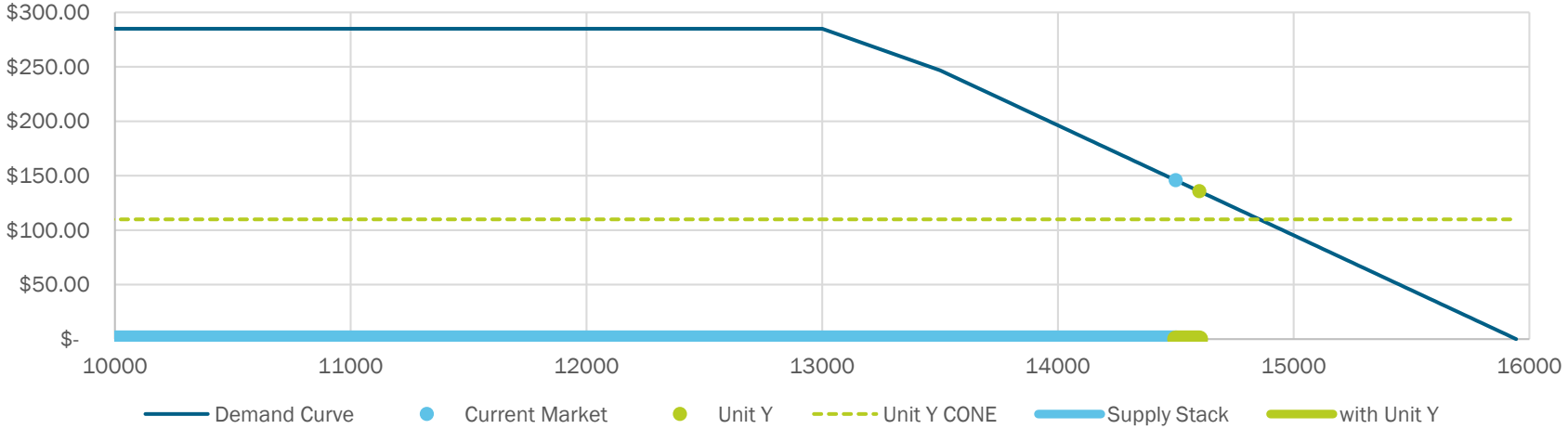
Test Unit Y in Years 1-2



Method 1 - 1	Year 1	Year 2	Year 3	Average
ICAP Forecast	$134/kW-yr	$137/kW-yr		**$136/kW-yr**
Unit Net CONE	$98/kW-yr	$100/kW-yr		**$99/kW-yr**
Determination				

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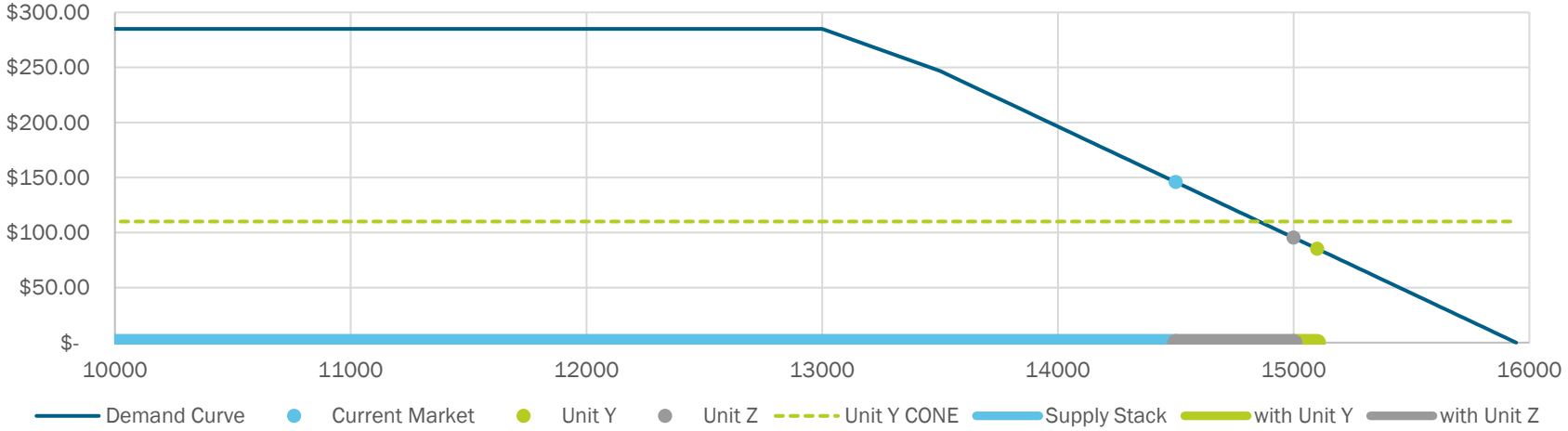
Test Unit Y in Year 3

*Year 1 and Year 2 values from previous slide



Method 1 - 1	Year 1*	Year 2*	Year 3	Average
ICAP Forecast	$134/kW-yr	$137/kW-yr	$85/kW-yr	**$119/kW-yr**
Unit Net CONE	$98/kW-yr	$100/kW-yr	$102/kW-yr	**$100/kW-yr**
Determination				**PASS**

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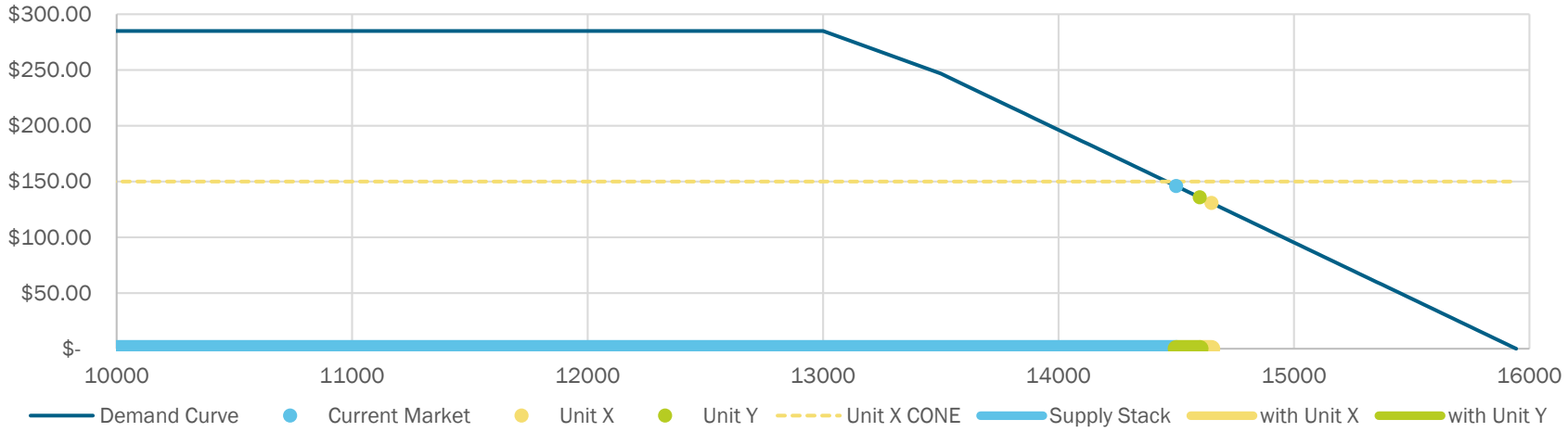
Test Unit X in Years 1-2



Method 1 - 1	Year 1	Year 2	Year 3	Average
ICAP Forecast	$130/kW-yr	$133/kW-yr		**$132/kW-yr**
Unit Net CONE	$123/kW-yr	$125/kW-yr		**$124/kW-yr**
Determination				

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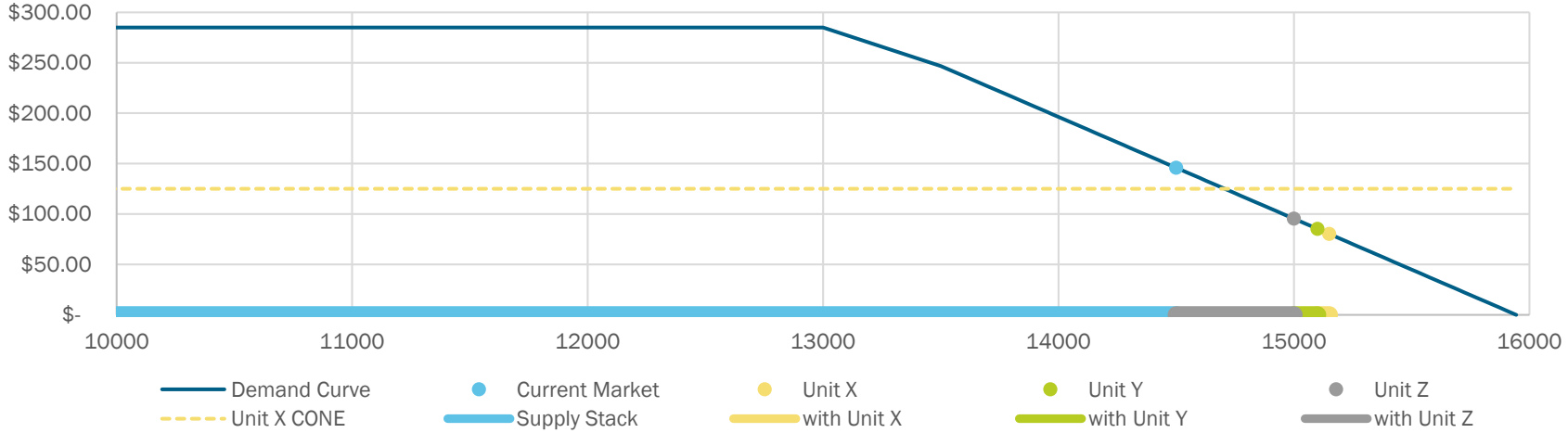
Test Unit X in Year 3

*Year 1 and Year 2 values from previous slide



Method 1 - 1	Year 1*	Year 2*	Year 3	Average
ICAP Forecast	$130/kW-yr	$133/kW-yr	$80/kW-yr	**$114/kW-yr**
Unit Net CONE	$123/kW-yr	$125/kW-yr	$127/kW-yr	**$125/kW-yr**
Determination				**FAIL**

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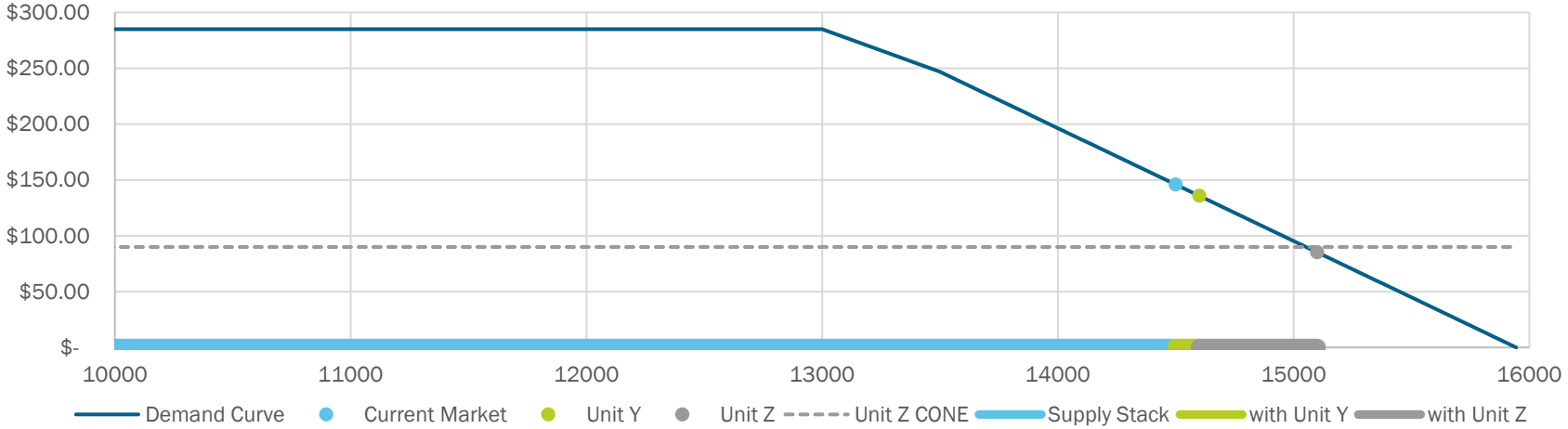
Testing Unit Z in Years 3-5



Method 1 - 2	Year 3	Year 4	Year 5	Average
ICAP Forecast	$83/kW-yr	$85/kW-yr	$87/kW-yr	**$85/kW-yr**
Unit Net CONE	$88/kW-yr	$90/kW-yr	$92/kW-yr	**$90/kW-yr**
Determination				**FAIL**

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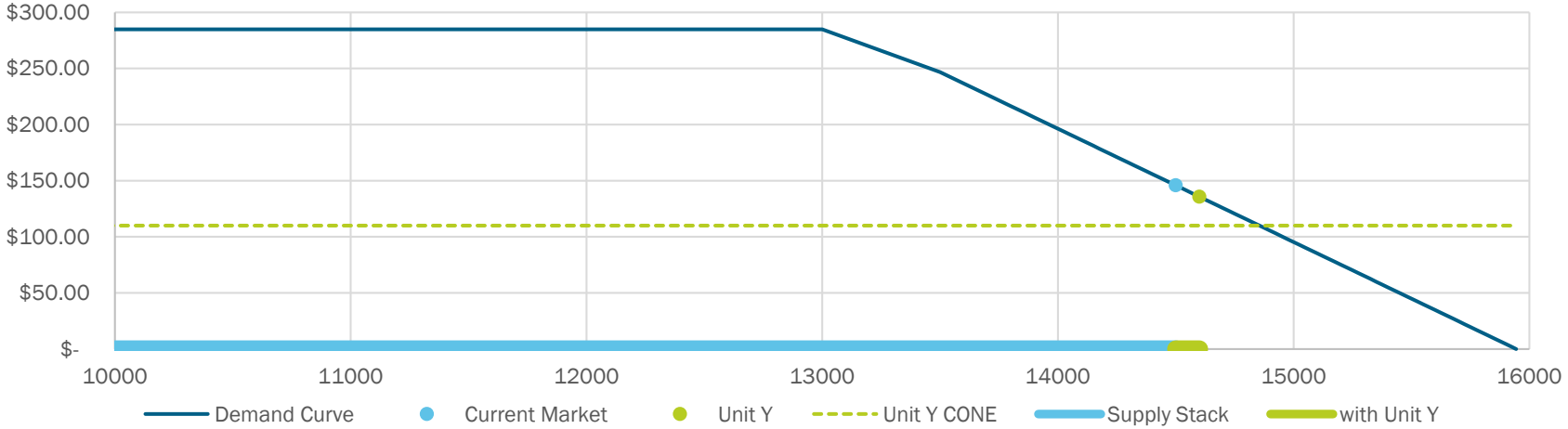
Test Unit Y in Years 1-3



Method 1 - 2	Year 1	Year 2	Year 3	Average
ICAP Forecast	$134/kW-yr	$137/kW-yr	$140/kW-yr	**$137/kW-yr**
Unit Net CONE	$98/kW-yr	$100/kW-yr	$102/kW-yr	**$100/kW-yr**
Determination				**PASS**

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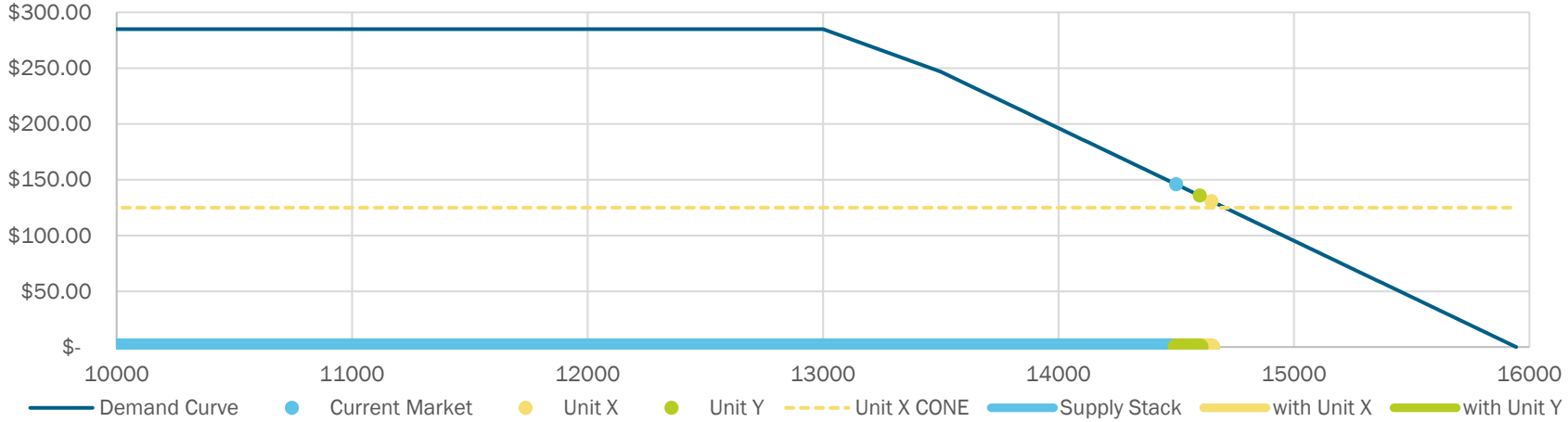
Test Unit X in Years 1-3



Method 1 - 2	Year 1	Year 2	Year 3	Average
ICAP Forecast	$130/kW-yr	$133/kW-yr	$135/kW-yr	**$133/kW-yr**
Unit Net CONE	$123/kW-yr	$125/kW-yr	$127/kW-yr	**$125/kW-yr**
Determination				**PASS**

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Summary of Determinations

	Unit X	Unit Y	Unit Z
Unit Net CONE	$125/kW-yr	$100/kW-yr	$90/kW-yr
Current MSP rules	FAIL	FAIL	PASS
Method 1 - Iteration 1	FAIL	PASS	PASS
Method 1 - Iteration 2	PASS	PASS	FAIL

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Simplified, Three Unit Example 2

- Method 2 – This example ranks Examined Facilities by their Unit Net CONE within the same MSP, with the same Starting Capability Period
- Unit X – is tested second
  - 50 MW
  - Enters in “Year 1”
  - Unit Net CONE = $125/kW-yr
- Unit Y – is tested first
  - 100 MW
  - Enters in “Year 1”
  - Unit Net CONE = $100/kW-yr
- Unit Z – is tested third
  - 500 MW
  - Enters in “Year 3”
  - Unit Net CONE = $90/kW-yr

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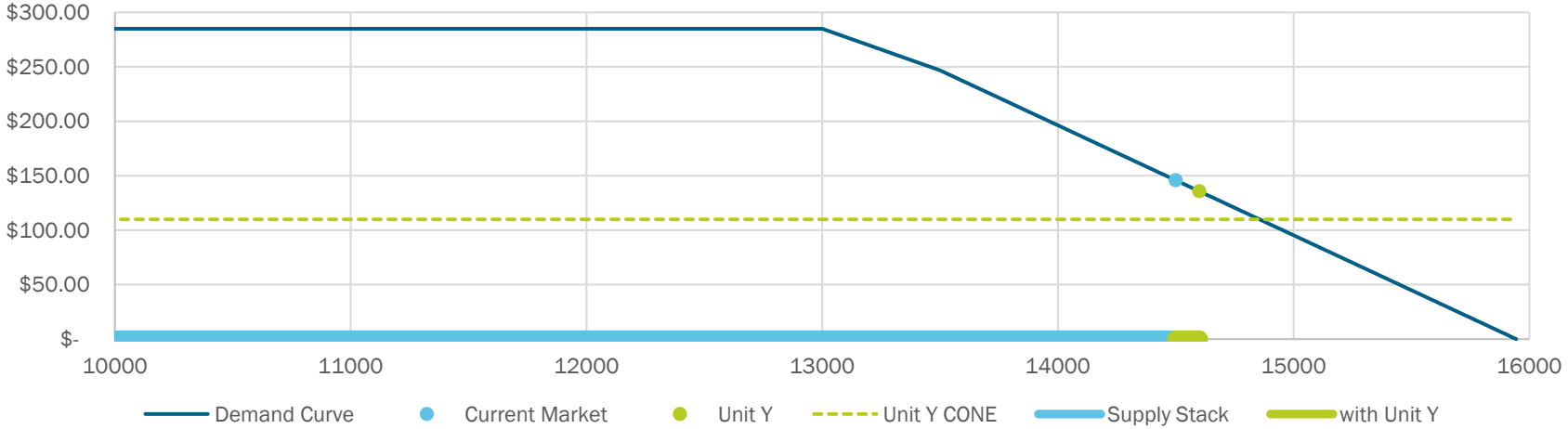
Test Unit Y in Years 1-3



Method 2	Year 1	Year 2	Year 3	Average
ICAP Forecast	$134/kW-yr	$137/kW-yr	$140/kW-yr	**$137/kW-yr**
Unit Net CONE	$98/kW-yr	$100/kW-yr	$102/kW-yr	**$100/kW-yr**
Determination				**PASS**

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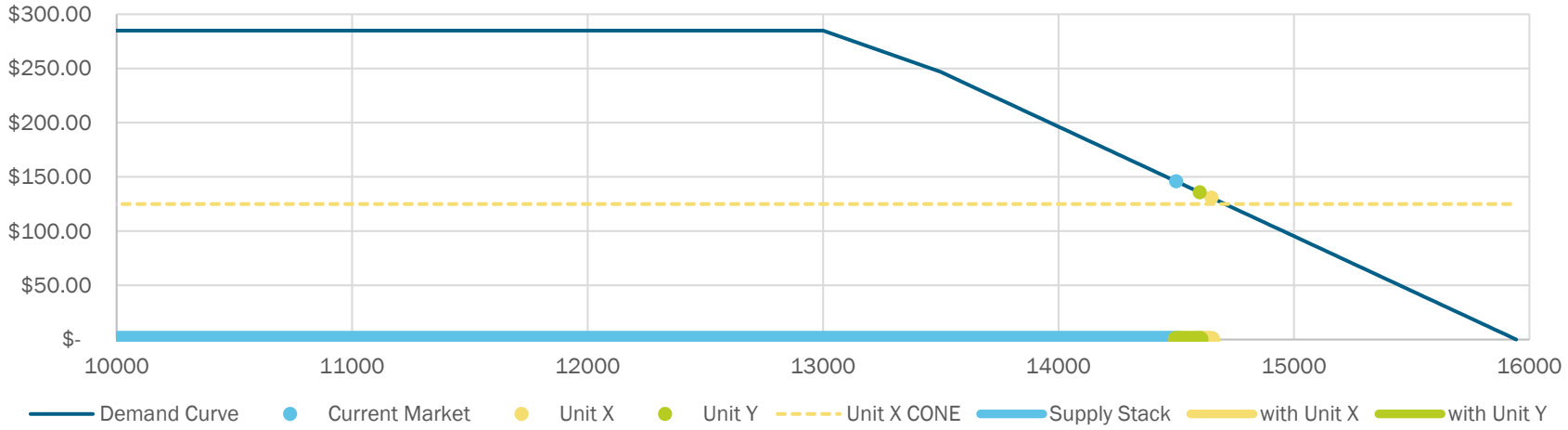
Test Unit X in Years 1-3



Method 2	Year 1	Year 2	Year 3	Average
ICAP Forecast	$130/kW-yr	$133/kW-yr	$135/kW-yr	**$133/kW-yr**
Unit Net CONE	$123/kW-yr	$125/kW-yr	$127/kW-yr	**$125/kW-yr**
Determination				**PASS**

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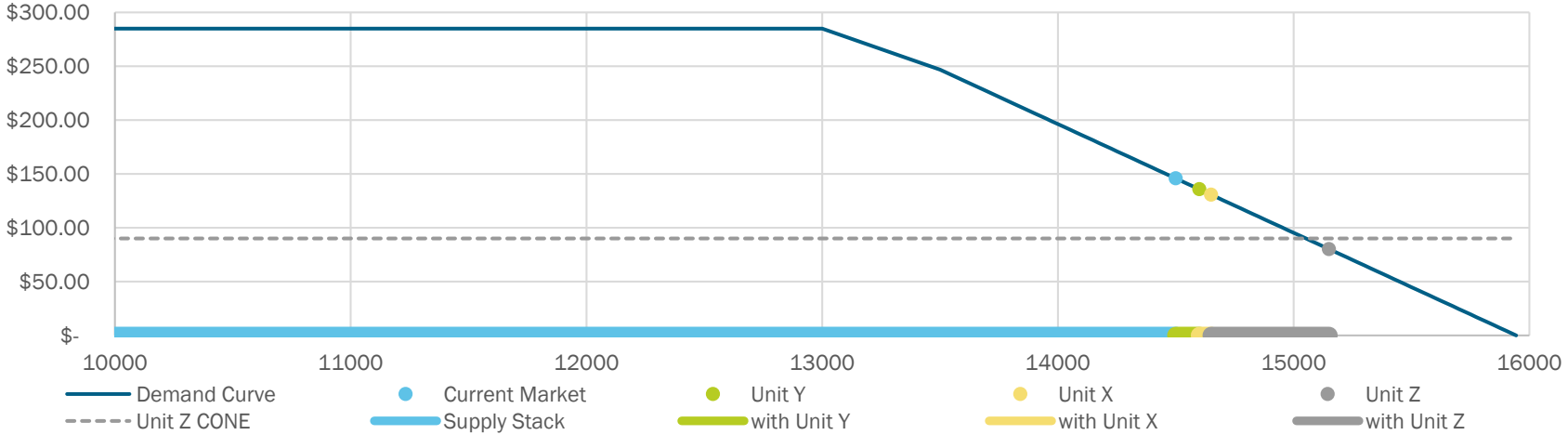
Testing Unit Z in Years 3-5



Method 2	Year 3	Year 4	Year 5	Average
ICAP Forecast	$78/kW-yr	$80/kW-yr	$82/kW-yr	**$80/kW-yr**
Unit Net CONE	$88/kW-yr	$90/kW-yr	$92/kW-yr	**$90/kW-yr**
Determination				**FAIL**

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Summary of Determinations

	Unit X	Unit Y	Unit Z
Unit Net CONE	$125/kW-yr	$100/kW-yr	$90/kW-yr
Current MSP rules	FAIL	FAIL	PASS
Method 1 - Iteration 1	FAIL	PASS	PASS
Method 1 - Iteration 2	PASS	PASS	FAIL
Method 2	PASS	PASS	FAIL

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Importance of Iterations

- **Iterations and interactions between Examined Facilities impact their determinations**
  - These impacts become increasing important but also exponentially time consuming as the number of Examined Facilities studied increase
- **The NYISO is discussing what assumptions to make when determining what approach would be appropriate**
  - Would later projects influence the decision of a Developer of an earlier project?
    - Is it appropriate to reflect impacts later projects would have if MSPs do not overlap?
  - How many iterations would be appropriate/feasible to representatively capture interactions and impacts?

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Determining MSP "Group"

Technology Based Entry Rule

- **The NYISO is discussing how to determine an Examined Facility's Starting Capability Period based on the technology type of the Examined Facility**
  - Default "build times" for each technology type
    - Utilize public information (e.g. EIA or NREL) in consultation with the MMU to determine these default values
    - These values may be updated between class year assessments but may not be changed while any evaluation is in progress

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Additional Considerations for a Technology Based Entry Rule

- How best to align multiple different technology types with various build timelines within two MSPs
- The size of projects of the same technology type may have significantly different development timelines
- Permitting and building processes may vary based on geographic location, project size, and technology type
- New technologies may require unit-specific adjustments

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Unit Specific Adjustments

- **The NYISO is discussing if unit specific reviews are appropriate to determine an Examined Facility's Starting Capability Period**
  - How would the Developer demonstrate to the reasonable satisfaction of the NYISO that the Examined Facility is capable of offering UCAP in an earlier Capability Period?
  - How would the NYISO treat confidential data that is submitted to determine that an Examined Facility can offer UCAP only in a later Capability Period?
  - How would the NYISO mitigate gaming potential?
  - In order to ensure transparency to the market place, would information used to demonstrate the an alternative Starting Capability Period may need to be publicly announced

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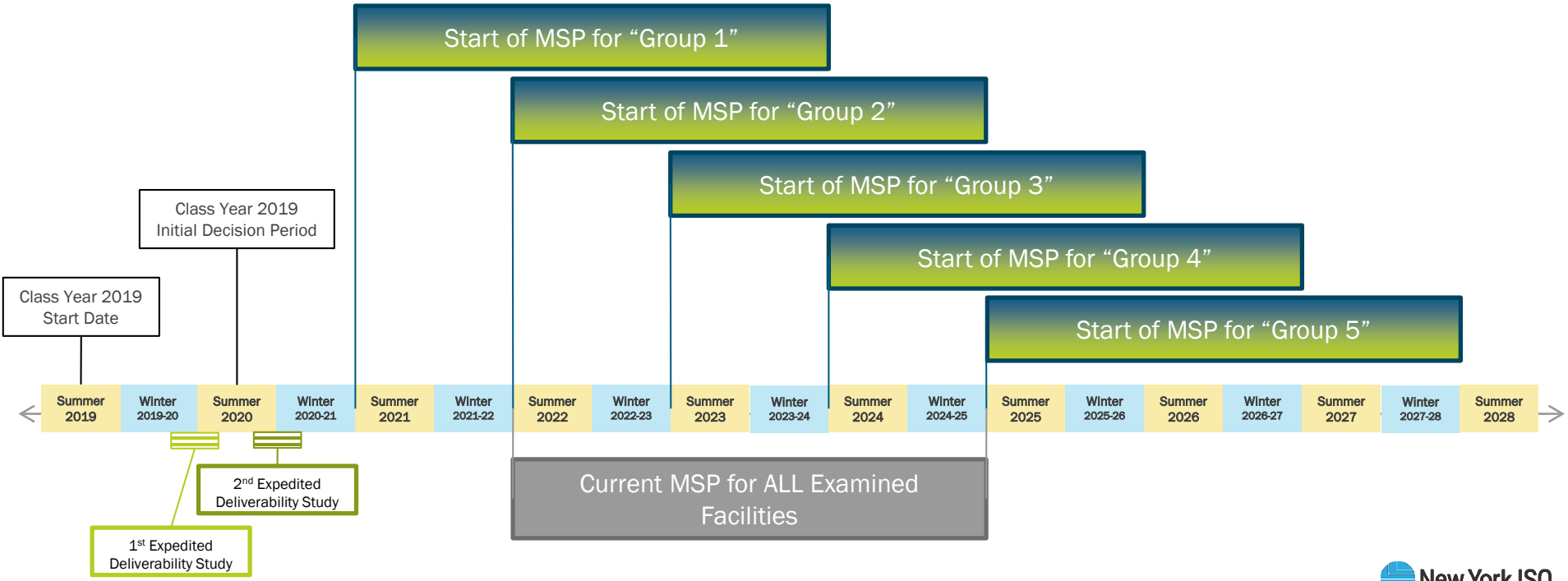
Illustrative Example of Multiple MSPs

Illustrative example of Multiple MSPs



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Complications of 5 “Groups” and 5 MSPs

- **As the number of MSPs increase, the complexities associated increase**
  - Overlaps and interactions would require numerous iterations
    - This would exponentially increase NYISO’s responsibility and require additional study time compared to the current single MSP rules
- **The NYISO would be required to forecast a total of 7 years (Summer 2021 through Winter 2027-28) based on the previous illustration**
  - This extends the forecast to eight years into the future

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Issues for Future Discussions

Length of MSP

- **Increasing the length of the MSP may reflect a better representation of the project's life**
  - Are the current periods sufficient and appropriate?
  - Due to forecasting limitations, this may be feasible by weighing the third year more heavily than the first two years

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Forecast Input Assumptions

- **The ICAP Demand Curve reference point varies by Capability Year**
  - A MSP with a start date in a later year will have a reference point that has been escalated further than a reference point in an MSP that starts in an earlier year
- **The load forecast varies by year**
  - The load forecast affects the NYCA Minimum requirement, the LCRs and the net revenue forecast
- **The ICAP Forecast requires the NYISO to identify Additional Units and Excluded Units**
  - The ISO determines if a Generator or UDR project that potentially could return to service or continue in operation would have a positive net present in accordance with ISO Procedures
- **An Examined Facility with a later MSP start date will have a Unit Net CONE that is inflated more than a similar Examined Facility whose MSP start date is earlier**

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Various Iterations

- All Examined Facilities are modeled in the ICAP and Net E&AS Forecasts with their respective entry dates (currently, all assumed entry dates are the same)
- Multiple MSPs would require additional thought of how to test interactions between Examined Facility and Examined Facility Revenues
- Assumptions of Additional Units and Excluded Units may change based on the iterative process and interactions

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Stakeholder Engagement Plan

Stakeholder Engagement Plan

- The NYISO will consider feedback received from Stakeholders and continue discussions
- The NYISO's goal is to propose a BIC and MC vote in March such that these changes could be used for the current ongoing Class Year (2019)
- Broader discussion on Comprehensive Mitigation Review will continue throughout the year
- Stakeholders may provide additional comments in writing to deckels@nyiso.com or cduong@nyiso.com

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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

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Questions?

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