New York ISO
Independent System Operator

Modeling Improvements for Capacity Accreditation: Firm Fuel

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Management Committee

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Agenda

- Summary of Proposal
- Background
- Firm Fuel Characteristic Elections
- Firm Fuel Requirements
- Firm Fuel Sanctions and Settlement Adjustments
- Proposed Tariff and ICAP Manual Updates Applicable to Firm Fuel Proposal
- Next Steps

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Summary of Proposal

- The NYISO is proposing tariff revisions to support the Gas Constraints track of Modeling Improvements for Capacity Accreditation

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Background

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Background

- **On July 23, 2024, FERC accepted the tariff revisions for the Modeling Improvements for Capacity Accreditation project**
  - As part of its acceptance, FERC directed the NYISO to submit a compliance filing that delayed the implementation of the firm fuel election process to the 2026-2027 Capability Year
    - On October 24, 2024, FERC accepted the NYISO compliance filing
- **Throughout 2024 and early 2025, the NYISO has worked with stakeholders to develop changes to the approved tariff related to the firm fuel election process and requirements**

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Firm Fuel Characteristic Election

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Firm Fuel Characteristic Election

- **ICAP Suppliers making a Firm Fuel Characteristic Election will no longer be required to submit supporting documentation composed of firm fuel contracts or liquid fuel inventory documentation to validate their firm fuel election**
  - Relevant dates related to data submission and NYISO review will be removed from the FERC-accepted tariff language
  - Based on this change, there will be no ex-ante review of documentation prior to firm fuel elections
- **Further, the NYISO proposes that ICAP Suppliers not be required to submit an attestation with their firm fuel election**
- **Elections will be made with the understanding that the ICAP Supplier can meet the criteria that will be set forth in the ICAP manual for its elected MWs to be considered firm for capacity accreditation**
  - Elections will be made by August 1 of the calendar year preceding a subject Capability Year (Aug. 1, 2026, for the 2027/2028 CY) and will need to include the Firm Fuel Characteristic Election Excel Spreadsheet (See Slide 33).
  - For initial implementation elections will be made by November 1, 2025

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Firm Fuel Characteristic Election (Cont'd)

- **ICAP Suppliers making a Firm Fuel Characteristic Election will be required to have an effective operating plan and related supply, transportation, and/or replenishment agreements in place by Dec. 1 of the Subject Capability Year through the end of the Winter Performance Period. The Winter Performance Period includes the months of December, January, and February of the subject Capability Year.**
  - The expectation is that the ICAP Supplier will have in place and maintain throughout the Winter Performance Period, an operating plan that details how the ICAP Supplier will meet the firm fuel performance requirements
  - If the ICAP Supplier is not able to establish the applicable operating plan(s), Agreement(s), and/or replenishment plans by December 1 of a subject Capability Year, it must notify the NYISO by December 1 of that year
  - If the ICAP Supplier modifies its operating plan or any agreement(s) and/or replenishment strategies, it must notify the NYISO within five (5) business days.
  - If through its monitoring and compliance program, the NYISO identifies that the ICAP Supplier failed to provide proper notice, the matter will be referred to the Commission consistent with the NYISO's Market Monitoring Plan
    - The NYISO monitoring and compliance program includes but is not limited to performance, fuel surveys, audits, site visits, etc.
  - If the ICAP Supplier fails to meet its firm fuel performance obligation this operating plan (and any other relevant information) will be subject to audit and review by the NYISO as a part of its Firm Fuel Sanction/Settlement Adjustment Evaluation

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Firm Fuel Characteristic Election (Cont'd)

- **All ICAP Suppliers that elect to provide firm fuel capacity will need to submit a Firm Fuel Characteristic Election, regardless of whether their geographic location is subject to the fuel constraints in the IRM model**
  - ICAP Suppliers will not need to submit a fuel election if they will provide non-firm fuel capacity; their Unforced Capacity (UCAP) will be considered non-firm, unless they submit a Firm Fuel Characteristic Election.
- **The ICAP Suppliers in Load Zones F through K that elect firm fuel MW will receive the firm fuel Capacity Accreditation Resource Class and Capacity Accreditation Factor (CAF)**
  - The fuel constraints in the New York State Reliability Council's (NYSRC) IRM model currently only apply to Load Zones F through K
  - Thus, based on the NYSRC's current IRM modeling methodology, there will be no distinction in CAF values between firm and non-firm fuel in areas that are not subject to the fuel constraints in the IRM model (i.e., Load Zones A-E)
- **Since fuel constraints in External Control Areas are not reflected in the IRM model, there will be no distinction in CAF values between firm and non-firm fuel for External Resources (i.e., Resources that are not modeled as part of the New York Control Area (NYCA))**
  - External Resources will receive the applicable CAF for the location in which they are located (e.g., a non-firm External Resource that sells capacity in Zone K will receive a CAF value that is equal to the firm CAF value for Zone K)

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Firm Fuel Characteristic Election (Cont'd)

- **UCAP Calculations**
  - When an ICAP Supplier makes a Firm Fuel Characteristic Election, the election will be for a MW value that will not change for the duration of the subject Capability Year
  - However, consistent with existing market rules, the amount of capacity that the ICAP Supplier is permitted to sell may change depending upon its seasonal DMNC testing results, for example:
    - If an ICAP Supplier elects 100 MW of firm supply but has a summer DMNC test result of 97 MW, the ICAP Supplier would only be permitted to sell 97 MW as firm for the Summer Capability Period
    - If an ICAP Supplier elects 100 MW of firm supply but has a winter DMNC test result of 105 MW, the ICAP Supplier would be permitted to sell 100 MW as firm and 5 MW as non-firm for the Winter Capability Period
      - The evaluation of whether the firm fuel performance requirements were met would be based on the ICAP Supplier's election of 100 MW of firm supply; any firm fuel that was supplied beyond 100 MW would be counted towards the satisfaction of the firm fuel performance requirements

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Firm Fuel Requirements

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Firm Fuel Requirements

- **By selling UCAP based on a Firm Fuel Characteristic Election, ICAP Suppliers are committing to have fuel available to run for 56 hours over any consecutive seven-day period from December through February of the subject Capability Year**
  - Firm supply must be able to, at a minimum, allow the ICAP Supplier to operate its unit for eight hours a day for seven consecutive days at the elected MW value (e.g., 100 MW firm election = 5600 MWh)
    - ICAP Suppliers will be evaluated based on the ability to operate for a minimum of eight hours on any given day if not having sufficient performance over the previous six days at the elected firm MW
      - Example 1: If a 100MW unit has run for 5600 MWh over Days 1-6, the ICAP Supplier **will not** need to perform eight hours on Day 7 to satisfy its firm fuel obligation
      - Example 2: If a 100 MW unit has run 5400 MW over Days 1-6, the ICAP Supplier would only need to perform two hours on Day 7 to satisfy its firm fuel obligation
    - A Firm Fuel Sanction/Settlement Adjustment Evaluation is triggered when:
      - An ICAP Supplier is unavailable in Day-Ahead Market (DAM) or in real--time due to insufficient fuel supply and has not run for its MWh commitment (5600 MWh in this example) over the previous seven consecutive days
      - In the DAM, the ICAP Supplier fails to Bid or schedule a Bilateral Transaction for the elected firm MW capacity due to insufficient fuel supply
      - ICAP Supplier fails to respond to an SRE due to insufficient fuel supply
      - ICAP Supplier fails to establish or maintain an operating plan and related supply, transportation, and/or replenishment agreements
- **Important Notes:**
  - Outages unrelated to fuel status will be accounted for in individual EFORd calculations
  - Ramping intervals will be counted towards the MWh balance within the seven-day period
  - The NYISO will consider expectations of fuel usage from DAM schedules when evaluating if Generators met their firm fuel performance requirements

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Firm Fuel Requirements (Cont'd)

- **Partial Firm**
  - An ICAP Supplier can make a Firm Fuel Characteristic Election for any portion of its UCAP based on its firm fuel supply arrangement
    - For example, a 100 MW unit can make 50 MW Firm Fuel Characteristic Election if the firm fuel supply arrangement is able to allow 50% of the plant meeting the firm fuel requirements described on Slide 12
  - Note that an ICAP Supplier cannot elect to be partially firm if a Generator's fuel supply arrangement does not allow it to meet the 8 hour/day, 56-hour run-time requirements
    - For example, a 100 MW unit has a firm fuel supply arrangement with a 6 hours/day limitation. This unit is not permitted to make a Firm Fuel Characteristic Election because it is not able to meet the firm fuel requirements described on Slide 12

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Firm Fuel Requirements (Cont'd)

- **For initial implementation, ICAP Suppliers with dual fuel capability electing any amount of firm fuel capacity via the use of onsite fuel will not need to demonstrate operability through the successful completion of a one-hour test on their onsite fuel**
  - ICAP Suppliers will have discretion to elect the firm fuel MW value consistent with satisfying the firm fuel performance requirements or be at risk of a Firm Fuel Sanction/Settlement Adjustment
- **The NYISO may reevaluate in the future the need for a testing requirement based on the elections and performance of units utilizing onsite fuel arrangements**

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Firm Fuel Sanctions and Settlement Adjustments

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Firm Fuel Sanctions and Settlement Adjustments

- To mitigate against ICAP Suppliers making Firm Fuel Characteristic Elections that do not align with their ability to perform during the Winter Performance Period, under the Firm Fuel Sanction/Settlement Adjustment structure, revenues generated by electing firm fuel and failing to perform should not exceed those of being a non-firm fuel ICAP Supplier
- The NYISO's Firm Fuel Sanction/Settlement Adjustment proposal seeks to provide a strong incentive for making Firm Fuel Characteristic Elections that align an ICAP Supplier's fuel arrangements with the firm fuel performance requirements

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

- **ICAP Suppliers that elect any amount of firm MW but thereafter are not available (outage, derate, etc.) at any time during the months of December, January and February due to lack of fuel and have not run for 56 hours over the past seven consecutive days will be subject to a 1.5 Firm Fuel Sanction multiplier or 1.0 Settlement Adjustment multiplier**
  - The Firm Fuel Sanction/Settlement Adjustment will be based on the ratio of the total firm/non-firm MW difference of the unit to what the unit sold in each month of the subject Capability Year
    - e.g., If the unit's full firm fuel value is 100MW but would otherwise be 90MW non-firm, and it sold 75 MW in December, the base deficiency MW for that month would be 10MW * .75 = 7.5MW
  - The Firm Fuel Sanction/Settlement Adjustment will be further prorated by the ratio of months within the Winter Performance Period in which the ICAP Supplier demonstrated successful performance (e.g., did not have a fuel related outage, derate, etc. during a given month)
    - e.g., If a supplier fails to perform in December but successfully performs in January and February, 1/3 of the MW difference will be subject to a Firm Fuel Sanction or Settlement Adjustment (7.5MW*(1/3) = 2.5MW)
- **Whether an ICAP Supplier is assessed a 1.5 Firm Fuel Sanction multiplier or 1.0 Settlement Adjustment multiplier for a derating/outage due to lack of fuel will depend on the reason the firm fuel supply was not available (i.e., whether the loss of firm fuel was within or outside ICAP Supplier's control. See Slides 20-22)**

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

Failure to Respond to a Supplemental Resource Evaluation request (SRE)

- MST Section 5.12.1.10 provides that, when the ISO issues an SRE, NYCA Resources must Bid into the in-day market unless (and only to the extent) the entity has a bid pending in the Real-Time Market when the SRE request is made or is unable to bid in response to the SRE request due to an outage as defined in the ISO Procedures, or due to other operational issues, or due to temperature related deratings.
- Failure to respond to an SRE event *after* 1300 the day before an operating day due to insufficient fuel supply
  - If the NYISO through its monitoring and compliance program determines that the ICAP Supplier made a reasonable attempt to comply with the MST Section 5.12.1.10 requirements, the ICAP Supplier will not be subject to a Firm Fuel Sanction or a Settlement Adjustment
  - If the NYISO determines that the ICAP Supplier did not make a reasonable attempt to comply with the MST Section 5.12.1.10 requirements, the ICAP Supplier shall be subject to a Firm Fuel Sanction with the 1.5x Firm Fuel Sanction multiplier
- Failure to respond to an SRE event *before* 1300 the day before an operating day due to insufficient fuel supply
  - The ICAP Supplier will be subject to a Firm Fuel Sanction/Settlement Adjustment Evaluation, as described on Slide 12

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

- **Settlement Adjustments for failure to establish or maintain an operating plan and related supply, transportation, and/or replenishment agreements**

1. For ICAP Suppliers that notify NYISO of failure to contract by Dec. 1:
   - The NYISO shall apply a Firm Fuel Sanction Multiplier of 1.5 in any Winter Performance Month with a lack of fuel event that was within the supplier's control (consistent with current proposal).
   - In addition, the NYISO shall apply a Settlement Adjustment Multiplier of 1.0 in any other Winter Performance Month unless there was a lack of fuel event within the ICAP Suppliers control in which case the multiplier would be 1.5. This would address the incentive to make a risky election
2. For ICAP Suppliers that do not notify NYISO of a failure to contract by Dec. 1 or maintain such contracts for which failure is later determined by the NYISO/MMU:
   - Utilize the same Firm Fuel Sanction Multiplier as in (1) but also refer to the FERC Office of Enforcement for tariff violation and violation of 18 CFR 35.41(b)
3. Consistent with the existing proposal, ICAP Suppliers will not receive a Firm Fuel Sanction or Settlement Adjustment for any Winter Performance Month in which the firm fuel performance requirements were satisfied pursuant to an effective operating plan and related supply, transportation, and/or replenishment agreements in place by Dec. 1 of the Subject Capability Year through the end of the Winter Performance Period (see Slide 8)
   - However, regardless of satisfaction of the firm fuel performance requirements in a given Winter Performance Month, for any months in the Winter Performance Period in which the ICAP Supplier loses firm-fuel supply and is unable to reestablish firm fuel supply at the elected MW level, the NYISO shall apply a 1.0 Settlement Adjustment Multiplier unless a performance failure also occurs in that Winter Performance Month/s. If a performance failure also occurred in that Winter Performance Month/s, the NYISO shall apply a Firm Fuel Sanction Multiplier of 1.5

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

- The NYISO proposes to utilize NERC guidance on "Outside Management Control" (OMC) to determine whether a loss or reduction in firm fuel supply was within or outside of the ICAP Supplier's control
- The NERC guidance contained in the following slides is not an exhaustive list, and the NYISO may consider other factors when determining if loss of firm fuel was outside an ICAP Supplier's control

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

- NERC guidance specifies that *outside of management control* includes failure of a fuel supplier to fulfill contractual obligations or a pre-arranged deal due to physical fuel disruptions or operational impairments (e.g., force majeure on a pipeline or compressor down; making the pipeline incapable of making its firm deliveries.) More detailed examples include:
  - Firm pipeline gas transportation segment interrupted causing disruption or reduction in the flow of natural gas
  - Physical damage to pipeline or cyber disruption
  - Routine pipeline maintenance (e.g., pigging)
  - Commodity supplier fails to deliver firm gas to primary pipeline receipt point
- Examples of factors that the NYISO may consider when determining if loss of firm fuel was outside an ICAP Supplier's control:
  - Weather

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

- **NERC guidance specifies that lack of fuel due to contractual or tariff provisions that allow for service interruption or price fluctuations during peak demand periods are *not considered outside of management control*. Examples include:**
  - Company's fuel supply group allocates limited firm fuel to other fleet sites
  - Interruptible pipeline transportation interrupted
  - Pipeline issues Operational Flow Order
  - Pipeline enforces ratable takes provision to tariff levels
  - Local Distribution Company confiscates or interrupts fuel scheduled for delivery to plant gate
  - Plant fuel buyer rejects gas at implied delivered price (possibly including penalties)

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

- **Based on the movement to the performance approach, the provisions in section 23.4.5.4 of the Services Tariff related to exemptions for Pivotal Suppliers offering mitigated capacity will be removed**
  - By making a Firm Fuel Characteristic Election, Pivotal Suppliers commit to being available during December, January and February or otherwise be subject to a Firm Fuel Sanction or a Settlement Adjustment

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Non-firm Elections and Physical Withholding

- **Stakeholders have requested that the NYISO clarify how it will approach the application of certain Supplier-side Mitigation rules to non-firm designations by Pivotal Suppliers**
  - Section 23.4.5.6.1 of MST Att. H provides that any proposal or decision by a Market Participant to retire or otherwise remove an ICAP Supplier from a Mitigated Capacity Zone or to de-rate the amount of ICAP available from such supplier may be subject to audit and review by the NYISO if the NYISO determines that such action could reasonably be expected to affect Market-Clearing Prices
  - In the absence of economic justification, the NYISO may seek to issue penalties on the entire portfolio of a Pivotal Supplier if capacity prices are sufficiently impacted
- **At this time, the NYISO is not proposing to perform such an *ex-ante* evaluation for Pivotal Suppliers' non-firm designations. NYISO currently believes that Pivotal Suppliers' non-firm fuel designations are unlikely to be an effective 'lever' with which to manipulate ICAP market outcomes**
  - Although not entirely beyond the realm of possibility, NYISO currently believes that a non-firm fuel designation having sufficient impact on capacity prices to prompt an audit from the NYISO may be a very low probability event

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Reporting on Firm Fuel Sanctions and Settlement Adjustments

- The NYISO is currently exploring avenues to annually report details related to Firm Fuel Sanctions and Settlement Adjustments for failures to comply with the firm fuel performance requirements
- Reporting the magnitude of Firm Fuel Sanctions and/or Settlement Adjustments on an aggregated basis will provide valuable insights into whether the proposed market design needs additional enhancements
- Potential forums for reporting Firm Fuel Sanctions and Settlement Adjustments information include:
  - MMU State of the Market Report
  - NYSRC Installed Capacity Subcommittee – For use in annual gas modeling assumptions

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Proposed Tariff and ICAP Manual Updates Applicable to Firm Fuel Proposal

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Firm Fuel and Miscellaneous Tariff Updates

- **Edits to have been made to the follow sections of the approved NYISO Market Services Tariff (MST):**
  - 5.12.1.15 – Removal of dual fuel testing requirement
  - 5.12.5 – Ministerial Edits unrelated to firm fuel
  - 5.12.6.2 – Ministerial Edits unrelated to firm fuel
  - 5.12.6.2.2 – UCAP Adjustment for partial firm units – updated reflecting performance approach
  - 5.12.7 - Ministerial Edits unrelated to firm fuel
  - 5.12.8 – Further dual fuel testing requirement deletions, Ministerial Edits unrelated to firm fuel
  - 5.12.11.1 - Ministerial Edits unrelated to firm fuel
  - 5.12.12.3 – Language on the Firm Fuel Sanctions and Settlement Adjustments to capture performance approach and new structure
  - 5.12.14 - Ministerial Edits unrelated to firm fuel
  - 5.12.14.1 - Ministerial Edits unrelated to firm fuel
  - 5.12.14.2 - Ministerial Edits unrelated to firm fuel
  - 5.12.15 – Elections – Updated to reflect performance approach, removal of second paragraph related to bidding/scheduling a bilateral
  - 5.14.2.3.5 – Language will be removed. Firm Fuel Sanction/Settlement Adjustment language now in MST section 5.12.12.3
  - 23.4.5.4 – Removal of the pivotal supplier exemption clause
  - 30.4.5..3.2 – Addition of to add the Annual Firm Fuel Reconciliation Amount for Failing to Provide Elected Firm Fuel Capacity (5.12.12.3) to the exclusion list for FERC referrals where notice was given to the ISO that an ICAP supplier failed to establish or maintain an operating plan and related supply, transportation, and/or replenishment agreements

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Miscellaneous Tariff Updates

- **The NYISO's Revisions to MST 5.12 includes ministerial updates to remove outdated market rules and other *de minimis* formatting and punctuation clean-up**
  - Example 1 – MST 5.12.7 (Availability Requirements): "~~Until the Capability Period that begins in May 2024, Installed Capacity Suppliers with Energy Duration Limitations corresponding to a Duration Adjustment Factor, as described below~~ ...."
  - Example 2 – MST 5.12.7 (Availability Requirements): "~~Starting with the Capability Year that begins in May 2024,~~ Installed Capacity Suppliers with Energy Duration Limitations ...."

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Firm Fuel ICAP Manual Updates

- **Preliminary ICAP Manual updates include, but are not limited to, the following topics:**
  - UCAP Calculation for ICAP Suppliers making Firm Fuel Characteristic Elections and resource applicability
  - Firm Fuel Sanctions and Settlement Adjustments
    - Applicability
      - Performance
        - » Inside/Outside ICAP Supplier control
      - Failure to establish or maintain an operating plan and related supply, transportation, and/or replenishment agreements
    - Example Calculation
    - Audit processes
  - Elections
    - Updates to Section 7.1 and 7.1.1 to include details related to the firm fuel performance requirement rules
    - Details on timelines and materials to be submitted
  - Entry Requirements
    - Performance/Capability Expectations
    - Performance tracking example
  - Partial Firm
    - Details on how a partial firm fuel election can be obtained
    - Example Calculation

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Next Steps

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Next Steps

- May 14, 2025 Board Review and subsequent FERC filing
- April-May 2025: Begin ICAPWG discussions of ICAP Manual changes related to the firm fuel performance requirements
- For any questions or feedback, please email ntubbs@nyiso.com

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Appendix

Firm Fuel Characteristic Election Excel Spreadsheet

Firm Supply Election Excel Coversheet

PTID_____

Unit Name_____

Market Participant_____

Nameplate_____

Unit Type_____

Fuel Type_____

Subject Capability Year_____

Date of Submission_____

Main Contact (name)_____

Main Contact (email)_____

Main Contact (phone) _____

Total Firm Election (MW)_____

Single-Fuel Firm Election (MW)_____

Dual-Fuel Firm Election (MW)_____

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Firm Fuel Sanctions and Settlement Adjustments

- **Firm Fuel Sanction Example:**
  - 100 MW Unit electing fully firm assuming the following facts: 100% Firm CAF, 90% Non-firm CAF, and no individual derating factor
    - Winter MCP = $10/ KW-month
    - Summer MCP = $20/ KW-month
    - MW Sold = 100 MW = 100% of unit
    - Full Firm/Non-Firm MW delta = 100-90 = 10MW
    - MW Subject to Firm Fuel Sanction = 10MW * 100% = 10MW
    - Firm Fuel Sanction Multiplier = 1.5
  - Assuming the unit successfully performed in January and February, the full Firm Fuel Sanction amount for the capability year would equal (10MW * 1/3)*((6*$10*1000)+(6*$20*1000))*1.5 = **$900,000**
- **A more detailed Firm Fuel Sanction and Settlement Adjustment example for a full Capability Year is included in Slide 37**

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

- **Example of Performing 56 hours over any Consecutive Seven-Day Period (100MW Firm Fuel Election):**

	December									
	1	2	3	4	5	6	7	8	9	10
Expected capability (MWh)	800	800	800	800	800	0	0	0	800	800
Performance (MWh)	800	1600	1000	800	800	800	600	0	0	0
Prior 7 Day Total Performance (MWh)							6400	5600	4000	3000

*In this instance, although Day 7 performance was for less than eight hours at the elected firm MW value, the unit successfully performed 56 or more hours over the previous seven consecutive days and thus would not be subject to a Firm Fuel Sanction or Settlement Adjustment

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Firm Fuel Sanctions and Settlement Adjustments (Cont'd)

- **Example of Performing 56 hours over any Consecutive Seven-Day Period (100MW Firm Fuel Election with infrequent performance):**

	December									
	1	2	3	4	5	6	7	8	9	10
Expected capability (MWh)	800	800	800	800	800	800	800	800	800	800
Performance (MWh)							*600	0	0	0
Prior 7 Day Total Performance (MWh)							600	600	600	600

* In this example, the ICAP Supplier would be subject to a Firm Fuel Sanction or Settlement Adjustment as it was expected to perform for a minimum of eight hours on Day 7 because it had not demonstrated enough performance the previous six days to provide less than eight hours on Day 7. However, if the NYISO directs the ICAP Supplier to run for less than eight hours on Day 7, then no Firm Fuel Sanction or Settlement Adjustment would be applied

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Detailed Firm Fuel Sanction/Settlement Adjustment Examples (Based on Capability Year)

Firm Fuel Sanction/Settlement Adjustment Example - 100 MW Firm, 90MW Non-firm	May	June	July	August	September	October	November	December	January	February	March	April	Totals
(A) MCP $	20	20	20	20	20	20	10	10	10	10	10	10	
(B) Full Firm MW	100	100	100	100	100	100	100	100	100	100	100	100	
(C) Non-firm MW	90	90	90	90	90	90	90	90	90	90	90	90	
(D) MW Sold	80	100	100	100	70	80	80	100	100	100	80	80	
(E) % Unit Sold	80%	100%	100%	100%	70%	80%	80%	100%	100%	100%	80%	80%	
(F) Unit Revenue $ = (A)*(D)*1000	1,600,000	2,000,000	2,000,000	2,000,000	1,400,000	1,600,000	800,000	1,000,000	1,000,000	1,000,000	800,000	800,000	16,000,000
(G) Revenue Full Firm Capacity $ = (A)*(B)*1000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	18,000,000
(H) Non-firm Revenue $ (A)*(C)*1000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	900,000	900,000	900,000	900,000	900,000	900,000	16,200,000
(I) Weighted Revenue Difference $ (G)-(H)*(E)	160,000	200,000	200,000	200,000	140,000	160,000	80,000	100,000	100,000	100,000	80,000	80,000	1,600,000
(J) 1.5 Multiplier	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
(K) 1.0 Multiplier	1	1	1	1	1	1	1	1	1	1	1	1	
(L) Full 1.5 Multiplier Amount $ (I)*(J)	240,000	300,000	300,000	300,000	210,000	240,000	120,000	150,000	150,000	150,000	120,000	120,000	2,400,000
(M) Full 1.0 Multiplier Amount $ (I)*(K)	160,000	200,000	200,000	200,000	140,000	160,000	80,000	100,000	100,000	100,000	80,000	80,000	1,600,000
Scenario 1 - Fail one month $ (L)*(1/3)	80,000	100,000	100,000	100,000	70,000	80,000	40,000	50,000	50,000	50,000	40,000	40,000	800,000
Scenario 2 - Fail two months $ (L)*(2/3)	160,000	200,000	200,000	200,000	140,000	160,000	80,000	100,000	100,000	100,000	80,000	80,000	1,600,000

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Previous Discussions on Modeling Improvements for Capacity Accreditation

Date	Working Group	Discussion Points and Links to Materials
January 26, 2023	ICAPWG	Modeling Improvements for Capacity Accreditation: Project Kick Off: https://www.nyiso.com/documents/20142/35880057/2023-01-26%20ICAPWG%20Modeling%20Improvements%20-%20Kick%20Off.pdf/c7ac6b6e-c90b-54b4-832d-ec6ecfc8f7ff
February 28, 2023	ICAPWG	Correlated Derates - Overview: https://www.nyiso.com/documents/20142/36499713/Correlated_Derates_MIWG_022823_FINAL.pdf/35eaab46-740e-aed0-9e2d-2207c06a0659 Natural Gas Constraints - Overview: https://www.nyiso.com/documents/20142/36499713/Gas%20Constraints%2002_28_2023%20ICAPWG_Final.pdf/e258d867-12f9-8453-c93b-49bc94b8e803 SCR Modeling - Overview: https://www.nyiso.com/documents/20142/36499713/2023-02-28%20ICAPWG%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/c1a52495-bc30-3e7c-f5c1-61c38f30fbe4
April 27, 2023	ICAPWG	Natural Gas Constraints - Gas Availability Estimates and Classification: https://www.nyiso.com/documents/20142/37254128/Natural%20Gas%20Constraints%202023_04_27_Final.pdf/0821aba8-bdcd-b1ce-96f3-2d8a740e1356 SCR Modeling - Exploratory Testing Methodology for Existing SCRs: https://www.nyiso.com/documents/20142/37254128/2023-04%20ICAPWG%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/30382824-7468-24d2-e567-56c770d6a185 Start up Notifications - Project Overview: https://www.nyiso.com/documents/20142/37254128/Start-up%20notification%20time%20-%20ICAPWG%204.27.2023%20v0.2%20clean.pdf/b44eb773-6f7d-e895-e202-a12f2fb6e24e
May 8, 2023	ICAPWG	Correlated Derates - Ambient Adjustments and Emergency Capacity: https://www.nyiso.com/documents/20142/37431277/5%20Correlated_Derates_ICAPWG_050823.pdf/a1e9a0f4-d922-503d-06d0-682b49c46c4c

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Date	Working Group	Discussion Points and Links to Materials
June 1, 2023	ICAPWG	Natural Gas Constraints – Potential methods for quantifying firm capacity, CARC designation, and fuel election timelines: https://www.nyiso.com/documents/20142/37883690/Natural%20Gas%20Constraints%2006_01_2023_ICAPWG_Final.pdf/d479ea64-a0d0-86d1-388a-f93d01ff1e10
June 7, 2023	ICAPWG	SCR Modeling – Exploratory Testing Methodology (Continued): https://www.nyiso.com/documents/20142/38023757/2023-06-07%20ICAPWG%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/250f8f1d-9dfe-5756-640b-c1e31f3a6328
June 27, 2023	ICAPWG	Natural Gas Constraints – Addressing Stakeholder feedback and discussion on simpler framework for classifying units: https://www.nyiso.com/documents/20142/38423065/2%20Natural%20Gas%20Constraints_06_23_2023_ICAPWG_Final.pdf/177ad95e-1fa3-5c57-a626-d06182b55c9b
July 11, 2023	ICAPWG	SCR Modeling – Exploratory Testing Methodology Initial Results: https://www.nyiso.com/documents/20142/38699263/2023-07-11%20ICAPWG%20Modeling%20Improvements%20-%20SCR%20Modeling%20v2%20-%20clean.pdf/2f27473b-2292-31d4-ecb7-5d30d6b860f0
July 27, 2023	ICAPWG	Correlated Derates - Ambient Adjustments and Emergency Capacity: https://www.nyiso.com/documents/20142/39044934/Correlated_Derates_ICAPWG_072723_final.pdf/0f80f8f2-8100-b8f7-0c65-0098242634e1 Start-up Time – Long Start-up Time and Considerations: https://www.nyiso.com/documents/20142/39044934/Startup%20time%20-%20ICAPWG%207.27.2023_v2.pdf/bbf6fa0d-b45e-6b7f-1697-2c002442b1de
August 9, 2023	ICAPWG	Gas Constraints – Classification Proposal, Requirements for Firm Units, and Data Submittal Timeline: https://www.nyiso.com/documents/20142/39257338/Natural%20Gas%20Constraints_08_09_2023%20ICAPWGv4%20(002).pdf/de6053e0-030d-5520-ed59-18f2225f0f92

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Date	Working Group	Discussion Points and Links to Materials
September 5, 2023	ICAPWG	Correlated Derates – Ambient Adjustments: https://www.nyiso.com/documents/20142/39768278/5%20Correlated_Derates_ICAPWG_090523_final.pdf/5aa71990-e873-166b-a520-e8e6c44b42e1
September 18, 2023	ICAPWG	Startup Notification - Recommendation and Draft Tariff Revisions: https://www.nyiso.com/documents/20142/40044890/7%20Start-up%20Time%20Proposed%20Capacity%20Tariff%20Revision%20-%20ICAPWG%2009-18.pdf/9d6e8c5e-b7cd-384c-b713-be93507912ed
September 20, 2023	ICAPWG	Gas Constraints – Updated Requirement, Data Verification Timeline and Shortfall Penalty: https://www.nyiso.com/documents/20142/40085480/Natural%20Gas%20Constraints_9_20_2023_v4.pdf/8c76a250-d1e0-d30a-2c24-115f10268c65
October 3, 2023	ICAPWG	SCR Modeling – Project Update: https://www.nyiso.com/documents/20142/40342797/2023-10-03%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/e5b6faa3-7865-c92a-dbf2-39e1ea6c65e8
October 10, 2023	ICAPWG	Gas Constraints – Response to Stakeholder Feedback, Liquid Receipt Point Guidance, Additive Arrangements: https://www.nyiso.com/documents/20142/40481418/2%20Natural%20Gas%20Constraints_10_10_v3.pdf/7f39851d-f477-6a12-d7d2-52f52af87fcb
		Correlated Derates – Ambient Adjustment Procedures and CLR Tariff: https://www.nyiso.com/documents/20142/40481418/3%20Correlated_Derates_ICAPWG_101023_final.pdf/76326e11-e97f-cb93-2ca4-902d11365bda
October 19, 2023	ICAPWG	Startup Notification – Proposed Capacity Tariff Revisions: https://www.nyiso.com/documents/20142/40696384/Start-up%20Time%20Capacity%20Tariff%20Discussion-%20ICAPWG%2010-19.pdf/247ea46c-9bc3-60c5-9363-69d787bb78c9

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Date	Working Group	Discussion Points and Links to Materials
October 26, 2023	ICAPWG	SCR Modeling– Enhanced SCR Modeling Results: https://www.nyiso.com/documents/20142/40834869/2023-10-26%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/7d81b04c-e08a-0298-eaa6-cf99d92aa88c
November 8, 2023	ICAPWG	Gas Constraints – Response to Stakeholder Feedback and Market Design Summary + Tariff: https://www.nyiso.com/documents/20142/41049783/Natural%20Gas%20Constraints_11_8_w_Tariff_v5.pdf/8badbfff-06cd-3db3-46f9-c7de5107e993
November 17, 2023	ICAPWG	Gas Constraints – Response to Stakeholder Feedback: https://www.nyiso.com/documents/20142/41273741/Natural%20Gas%20Constraints_11_17_ICAPWG_v3.pdf/9e3b921a-0161-3a21-4874-21811077efb5
November 27, 2023	ICAPWG	Modeling Improvements for Capacity Accreditation – Summary: https://www.nyiso.com/documents/20142/41393553/2023-11-27%20ICAPWG%20-%20Modeling%20Improvements%20Summary.pdf/9c383992-bebf-6a4a-e660-4cb96f842ef2
December 4, 2023	ICAPWG	Modeling Improvements for Capacity Accreditation – Tariff Review: https://www.nyiso.com/documents/20142/41570800/2023-12-04%20ICAPWG%20-%20Modeling%20Improvements_v3.pdf/7d334598-46c3-23d8-3217-4bf3eeacadce
December 13, 2023	BIC	Modeling Improvements for Capacity Accreditation – BIC Presentation: https://www.nyiso.com/documents/20142/41671891/06%20Modeling%20Improvements%20for%20Capacity%20Accreditation.pdf/470bc7a0-277c-dfac-62e6-9cd439f9c813 Motion: https://www.nyiso.com/documents/20142/41671891/06%20Modeling%20Improvements%20for%20Capacity%20Accreditation%20Motion.pdf/f6afdb1e-f59a-584b-8280-b9b1cab39151

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Date	Working Group	Discussion Points and Links to Materials
December 15, 2023	ICAPWG	Modeling Improvements for Capacity Accreditation – SCR Modeling: https://www.nyiso.com/documents/20142/41825507/12-15-2023%20ICAPWG%20-%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/7c754c58-381e-0532-4b13-83181677f3db
February 2, 2024	ICAPWG	Modeling Improvements for Capacity Accreditation – Gas Constraints Tariff & ICAP Supplier Bidding Requirements: https://www.nyiso.com/documents/20142/42748388/2%202024-2-2%20ICAPWG%20-%20Modeling%20Improvements.pdf/0d4f32dd-036d-0a5a-2481-cdf230d35a16
February 20, 2024	ICAPWG	Modeling Improvements for Capacity Accreditation – Gas Constraints Tariff & ICAP Supplier Bidding Requirements: https://www.nyiso.com/documents/20142/43038997/7%202024-2-20%20ICAPWG%20-%20Modeling%20Improvements.pdf/9d48164f-4617-48da-dc06-3838e0fd042f
March 4, 2024	ICAPWG	Modeling Improvements for Capacity Accreditation: https://www.nyiso.com/documents/20142/43315080/2024-3-4%20ICAPWG%20-%20Modeling%20Improvements.pdf/a6f5b52d-6adb-5cec-2e30-c362788dfc50
March 20, 2024	ICAPWG	Modeling Improvements for Capacity Accreditation: https://www.nyiso.com/documents/20142/43621521/3%202024-3-20%20ICAPWG%20-%20Modeling%20Improvements_v6.pdf/b86db27c-79af-4cdd-24ff-fb9e9d4a339f
March 27, 2024	MC	Modeling Improvements for Capacity Accreditation: https://www.nyiso.com/documents/20142/43713211/5%202024-03-27%20MC%20-%20Modeling%20Improvements_v2.pdf/0dc344f9-22e8-20a8-cda6-95c38b85a73e
May 8, 2024	ICAPWG	Modeling Improvements for Capacity Accreditation – Update: https://www.nyiso.com/documents/20142/44546131/Modeling%20Improvements%20for%20Capacity%20Accreditation%20Firm_non-firm%20Update%205_8_2024.pdf/acd199e7-dc94-2c06-02f9-bb68cec94ce4
August 1, 2024	ICAPWG	Modeling Improvements for Capacity Accreditation – Update: https://www.nyiso.com/documents/20142/46161626/4%20MICA%20Update%20August%201%20icap.pdf/c7393f29-2919-df63-82df-226de0a8537b

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Date	Working Group	Discussion Points and Links to Materials
August 29, 2024	ICAPWG	Modeling Improvements for Capacity Accreditation – ICAP Manual Changes and Firm Requirements: https://www.nyiso.com/documents/20142/46679593/August%20MICA%20Manuals%20and%20Requirements_v1.6.pdf/8335b836-1ca6-1b01-c6eb-154e7e90a3b7
November 21, 2024	ICAPWG	Modeling Improvements for Capacity Accreditation – Firm Fuel Requirements: https://www.nyiso.com/documents/20142/48151567/MICA%2011_21%20ICAPWG_v6.pdf/3901561d-5c11-db8a-b22a-3dfad962786b
February 4, 2025	ICAPWG	Modeling Improvements for Capacity Accreditation – Firm Fuel Requirements: https://www.nyiso.com/documents/20142/49572424/MICA_FFR_2_4_ICAPWG_v5_Final.pdf/76d55a2f-2776-10af-e6d2-7dc4af5557ce
February 25, 2025	ICAPWG	Modeling Improvements for Capacity Accreditation – Firm Fuel Requirements: https://www.nyiso.com/documents/20142/49964716/MICA_FFR_2_25ICAPWG_v6_clean.pdf/6b5aae49-8910-91a7-7c8e-199a995f1335
March 3, 2025	ICAPWG	Modeling Improvements for Capacity Accreditation – Firm Fuel Requirements: https://www.nyiso.com/documents/20142/50076312/MICA_FFR_3_3_ICAPWG_v3_Clean.pdf/ebb3b256-58ac-03bd-3f11-ee8bb3ae296b
March 17, 2025	ICAPWG	Modeling Improvements for Capacity Accreditation – Firm Fuel Requirements: https://www.nyiso.com/documents/20142/50337038/MICA_FFR_3_17_ICAPWG_Redline.pdf/aca0e2bf-6882-27d9-9a86-67bb7e7a2d9d
March 18, 2025	BIC	Modeling Improvements for Capacity Accreditation – Firm Fuel Requirements: https://www.nyiso.com/documents/20142/50304990/04%20MICA%20FFR%20BIC.pdf/86f9e6a1-1420-94d4-180f-453da1f7826f
April 9, 2025	ICAPWG	Modeling Improvements for Capacity Accreditation – Firm Fuel Requirements: https://www.nyiso.com/documents/20142/50769536/MICA_FFR_APRIL_ICAPWG_V3_Clean.pdf/a7d24e04-e8b6-7891-bac5-fb1ce6db4bca
April 21, 2025	ICAPWG	Modeling Improvements for Capacity Accreditation – Firm Fuel Requirements: https://www.nyiso.com/documents/20142/50991769/MICA_FFR_APRIL_4_21.pdf/4b8f7b95-dd32-1dc4-6d1b-74a7aa16d1b1

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