

Internal Controllable Lines Market Design

Michael Swider

Senior Market Design Specialist

Business Issues Committee

November 15, 2023

Agenda

- **Project Review**
- **Proposed Energy Market Tariff**
- **Proposed Mitigation Tariff**
- **Proposed Capacity Tariff**
- **Next Steps**

Project Review

Previous Energy Market Discussions

Date	Working Group	Discussion Points and Links to Materials
February 21, 2023	ICAPWG/MIWG	Internal Controllable Lines: 2023 Kickoff: https://www.nyiso.com/documents/20142/36339783/ICL_MIWG_022123.pdf/3859d78e-68aa-e5fc-3a7a-fba6f1ed552d
June 27, 2023	ICAPWG/MIWG	Internal Controllable Lines: Proposed Energy Market Tariff Revisions https://www.nyiso.com/documents/20142/38423065/7%20ICL_Energy%20MarketTariff%20Revisions_ICAPWG_MIWG_6.27.23.pdf/c97ff397-07d3-7897-99f1-d7817688623a
August 9, 2023	ICAPWG/MIWG	Internal Controllable Lines: Proposed Energy Market Tariff Revisions 2 https://www.nyiso.com/documents/20142/39257338/ICL_Energy%20MarketTariff%20Revisions_ICAPWG_MIWG_8.9.23.pdf/92824fa6-cfdb-52da-71cf-b1828791e1
September 18, 2023	ICAPWG/MIWG	Internal Controllable Lines: Proposed Energy Market Tariff Revisions 3 https://www.nyiso.com/documents/20142/40044890/4%20ICL_Energy%20MarketTariff%20Revisions_ICAPWG_MIWG_9.18.23_final.pdf/ef3f459f-ffc6-31f7-9e14-d7674931edda
October 12, 2023	ICAPWG/MIWG	Internal Controllable Lines: Proposed Energy Market Tariff Revisions 4 https://www.nyiso.com/documents/20142/40559142/ICL_Energy%20Market%20Tariff%20Revisions%20final.pdf/effe6135-aacd-d15d-ccf8-9fbcf0ef2d34
October 19, 2023	ICAPWG/MIWG	Internal Controllable Lines: TCC Market Considerations https://www.nyiso.com/documents/20142/40696384/ICL%20TCC%20Market%20Considerations%20-%2010192023%20MIWG.pdf/3ab9f868-b8ce-1093-9048-ba8223975547
November 8, 2013	ICAPWG/MIWG	Internal Controllable Lines: Energy Market Tariff https://www.nyiso.com/documents/20142/41049783/ICL_Energy%20MarketTariff_ICAPWG_MIWG_11.08.23_final.pdf/c212da8e-c295-612b-5b4d-d43246ebab6d

Previous Capacity Tariff Discussions

Date	Working Group	Discussion Points and Links to Materials
February 21, 2023	ICAPWG/MIWG	Internal Controllable Lines: 2023 Kickoff: https://www.nyiso.com/documents/20142/36339783/ICL_MIWG_022123.pdf/3859d78e-68aa-e5fc-3a7a-fba6f1ed552d
June 27, 2023	ICAPWG/MIWG	Internal Controllable Lines: Proposed Capacity Market Tariff Revisions: https://www.nyiso.com/documents/20142/38423065/6%20Internal%20Controllable%20Lines_Capacity%20Tariff%20Revisions_062723_ICAPWG_MIWG_final.pdf/66465cbe-4e23-088b-d888-da24dfdb240c
August 9, 2023	ICAPWG/MIWG	Reposted select capacity-market tariff sections based on stakeholder feedback: https://www.nyiso.com/documents/20142/39257338/ICL_Energy%20MarketTariff%20Revisions_ICAPWG_MIWG_8.9.23.pdf/92824fa6-cfdb-52da-71cf-b1828791ece1

Project Review

- **NYSERDA's Tier 4 REC initiative has driven the prioritization of this project to develop market participation rules for an Internal Controllable Line (ICL)**
- **The 2022 project reached Market Design Concept Proposed (MDCP)**
 - [ICL MDCP Presentation](#)
- **The 2023 project milestone is Market Design Complete (MDC)**
 - Today's presentation summarizes additional energy market-related Tariff revisions

Review of Proposed Energy Market Tariff Revisions

Summary of Market Design Concept

- **The NYISO will optimize ICL flows based on economic dispatch, meeting New York State load at least as-bid cost, taking account of the incremental bids and incremental losses of ICL operation**
 - The amount of power delivered at the point of injection will be less than the amount of power withdrawn at the source due to line losses
 - The ICL owner retains congestion rents (the LBMP differential) created by the operation of the line, which could include losses
 - Any Renewable Energy Credit (REC) payments will occur outside of the NYISO settlement system

Summary of Definitions (MST 2)

- **2.1 - Actual Energy Withdrawals**
 - Simultaneous withdrawals and injections will be accounted for as Injection Billing Units for purposes of assessing fees in accordance with Section 6 of the OATT
- **2.2 – Basepoint Signals, Bid Price, Bilateral Transactions**
 - Energy market bilateral transactions are not permitted to source to or sink from and ICL
- **2.3 – Controllable Transmission**
- **2.4 – Dispatchable**
- **2.9 – Internal Controllable Line, Incremental Energy Bid, ISO-Committed Flexible**
 - An Internal Controllable Line is required to use the ISO-Committed Flexible bidding mode
- **2.12 – Lower Operating Limit**
- **2.13 – Marginal Losses**
- **2.14 – Marginal Losses, Minimum Generation**
- **2.15 – Out-of-Merit**
- **2.19 – Start-up, Supplier**

Market Services Tariff Section 3 - 4

- **3.5 – ISO Procedures**
 - Suppliers will provide data on ICL status and capabilities in accordance with ISO Procedures
- **4.1 – General Rules**
 - ICLs to be included in uplift reports
- **4.2 – Day-Ahead Markets and Schedules**
 - ICL bidding rules and parameters defined in MST 32
- **4.4 – Real-Time Bids**
 - Defined in MST 32
- **4.5 – Real-Time Settlements**
 - Defined in MST 32
- **4.6 – Payments**
 - ICL may be eligible for Day-Ahead Bid Production Cost Guarantee Payments

Market Services Tariff Sections 5 – 17

- **5.2 – Independent System Operator Authority**
 - Suspension of ICL ability to Increase Bids in Real-Time
- **13 – Metering**
 - ICL required to have revenue quality meters at each terminal
- **15.2 – Payments for Voltage Support Service**
- **17.1 – Real-Time LBMP Calculation Procedures**

Market Services Tariff Sections 18 – 25

■ 18 – Bid Production Cost Guarantee Payments

- Internal Controllable Lines are eligible for Day-Ahead BPCG
- ICLs only eligible for real-time BPCG if dispatched out-of-merit for reliability

■ 21.4 – Bid Restrictions

- ICLs restricted to a maximum Bid Price of \$1,000/MWh and a minimum Bid Price of -\$1,000/MWh

■ 25 – Day-Ahead Margin Assurance Payments

- ICLs eligible for DAMAP when (i) scheduled out-of-merit for system security, or (ii) derated for system security or to permit the ISO to produce additional Operating Reserves

Market Services Tariff Section 32

■ Operating Parameters

- An ICL must specify whether it is unidirectional or bidirectional (the NYISO's market design may accommodate either)
- An ICL's operating range is expressed in injection MW, and must be continuous and include a 0 MW operating point (an ICL is "dispatch only")
- An ICL's ramp rate may be subject to a ramp limit to protect system stability
- ICL must provide a single, uniform percentage loss factor

■ Bidding Requirements

- ICL required to submit Bids in the Day-Ahead and Real-Time markets consistent with physical transfer capability
- ICL Bids consist of an operating range and up to eleven-step dollar/MWh curve that reflects an ICL's willingness to be paid or to pay to transmit Energy between its two terminals

■ Settlements

- Both Day-Ahead and Real-Time Settlements based on the price differentials between the injection and withdrawal busses, and losses

■ Deviation Charges

- When an ICL does not follow its Real-Time basepoint signal it may be subject to a deviation charge
- The deviation tolerance shall initially be set at 3% of the ICL's upper operating limit.

OATT Sections 1 – 3

■ 1.9 – Injection Billing Units

- An ICL will be charged NYISO Budget and FERC fees based on its Injection Billing Units

■ 2.7 – Billing and Payment

- ICLs will not pay TSC or NTAC for withdrawals

■ 3 – Point-to-Point Transmission Service

- ISO schedules transmission service over Internal Controllable Lines based on Bid or mitigation Bids
- ICLs are not available for direct scheduling by Transmission Customers

OATT Section 6

- **6.1 – ISO Annual Budget Charge**
 - Residual cost payments by ICLs for deviation charges
- **6.2 – Schedule 2 – Charges for Voltage Support Service**
 - ICLs included in payments for Voltage Support Service

OATT Revisions 19 - 20

■ Attachment M – Sales and Awards of TCC

- ICLs will not be awarded Incremental TCCs (19.2)
- The transmission capacity of ICLs shall be excluded when determining Residual Transmission Capacity for the Centralized TCC Auction (19.8)
- TCC Auctions shall exclude consideration of ICLs (19.9)

■ Attachment N – Congestion Settlements

- ICLs and related DAM settlements will not be considered as part of the Attachment N settlement procedures (20.1 and 20.2)

Review of Proposed Market Mitigation Tariff Revisions

Changes to Mitigation Measures for ICLs

- A review of current Energy Market Mitigation rules was conducted, and the recommendation is there are no new mitigation measures needed to incorporate ICL functionality
- Aside from changes need to align ICL with current Mitigation Measures, there are two minor changes:
 - The LBMP-based reference level development method will not apply to ICLs
 - New ICL conduct test for Uneconomic Production

MST Section 23 - ISO Market Mitigation Measures

- **23.2 – Conduct Warranting Mitigation**
 - Amending “*Electric Facility*” to include ICL
 - Establishing an ICL bid to be consistent with 32.1
- **23.3 – Criteria for Imposing Mitigation Measures**
 - Changes made to reference level development for ICLs
 - New conduct test for ICL related to Uneconomic Production
 - Changes made aligning current language with ICL functionality ensuring appropriate application of relevant mitigation measure
- **23.4 - 23.4.4 – Mitigation Measures**
 - Subsection of 23.4 include *Default Bid, Sanctions, Load Bid Measure*
 - Changes made aligning current language with ICL functionality ensuring appropriate application of relevant mitigation measure
- **23.4.6 – 23.4.8 – Virtual Bidding Measures**
 - Changes made aligning current language with ICL functionality ensuring appropriate application of relevant mitigation measure
- **23.5 – Other Mitigation Measures**
 - Requires an ICL that injects into NYC to follow RTD Base Point Signals

Review of Proposed Capacity Tariff Revisions

Summary of Proposed Capacity Market Design Concept

- **Consistent with the proposed ICL Energy Market design, the Capacity Market Design will not tie supply to specific generators**
 - This structure aims to enable the market design to work for any ICL that may seek to enter NYISO markets
 - An Internal UDR is the rights an ICL must hold in order to be an Installed Capacity Supplier
- **Internal UDRs will participate in the Capacity market as Installed Capacity (ICAP) Suppliers via an updated and revised market construct, under which they will transmit pooled capacity, sourcing in NYCA and sinking in a Locality**
 - There will be an automatic procurement in the NYISO Spot auctions from the source region, if needed, to cover the ICAP Supply Obligation in the Locality (accounting for line losses)
- **For purposes of calculating the IRM and LCRs, Internal UDRs will be counted as supply resources up to the level they elect to be considered ICAP**

Summary of Substantive Capacity Tariff Revisions

■ MST 2.9 and 2.21

- Added definition of Internal Controllable Line, revised definition of UDR to include Internal UDR and External UDR, noted that ICL are required to use the ISO-Committed Flexible bidding mode, and added UDR and EDR Rights holders to the definition of ICAP Supplier
 - The ICAP Supplier definition revision will enable the existing SSM and BSM ICAP Mitigation rules to apply for UDR and EDR facilities
 - Provided an Internal UDR meets the qualifications as an Excluded Facility, it will be excluded from BSM evaluations.
 - Mirroring definition revisions will be made in the OATT

■ MST 5.9.2.2

- ICAP Suppliers utilizing UDRs are not eligible to wheel Installed Capacity through or export Installed Capacity out of the Locality where it sinks

■ MST 5.11.4.1

- Addition of requirement for Internal UDRs to annually notify the NYISO of their election prior to August 1 for the upcoming Capability Year, consistent with existing provisions for External UDRs

Summary of Substantive Capacity Tariff Revisions (cont'd)

■ MST 5.11.5

- Description of the process for counting Unforced Capacity sold in by an ICAP Supplier holding Internal UDRs towards meeting the locational component of the LSE Unforced Capacity Obligation
- The ICAP Supplier must procure the sum of the UCAP MW sold plus the UCAP MW associated with the transmission losses

■ MST 5.12.6.2

- Description that the amount of Unforced Capacity that an Internal UDR is authorized to supply in the NYCA shall account for the unavailability of the Internal UDR, in accordance with ISO Procedures

■ MST 5.12.7.2

- Bid/Notify obligation for Internal UDRs
 - The NYISO believes it is appropriate not to include the “schedule” [a Bilateral Transaction in the Energy Market] option for Internal UDRs since ICL will not have the ability to self-schedule Energy and must bid their full Energy capability flexibly, per the draft posted language in MST 32.3, which is discussed in today’s presentation on proposed energy market rules for ICL

■ MST 5.12.8

- Discussion of Internal UDR UCAP procurement obligation corresponding to the amount of UCAP sold plus applicable losses

Summary of Substantive Capacity Tariff Revisions (cont'd)

■ MST 5.14

- Shortfall provisions for Internal UDRs
 - Discussion of Internal UDR UCAP procurement obligation corresponding to the amount of UCAP sold plus applicable losses
 - If an Internal UDR has not procured sufficient Unforced Capacity to cover its Unforced Capacity Sales prior to the Spot auction, and for any Unforced Capacity Sales made in the Spot auction, the NYISO will fulfill this requirement on behalf of the ICAP Supplier
 - In the event that less than the full MW amount of an Internal UDR is awarded in the sink Locality, the NYISO will update the Spot auction Unforced Capacity procurement obligation accordingly

Review of Capacity Accreditation Factor and IRM Modeling

ICL Capacity Accreditation Factor (CAF) and IRM Modeling

- **Internal discussions are ongoing with regard to how to model ICL for purposes of NYISO Planning studies**
 - In particular, the NYISO Reliability Needs Assessment (RNA) will determine how to model ICL earlier than the IRM will need to incorporate ICL
 - The RNA modeling approach will be a starting point for IRM modeling discussions
- **As included in the 2022 MDCP presentation, ICL will have a CAF, consistent with other resource types**
 - The CAF methodology will leverage the modeling methodology decision for the IRM, increasing the ICL capacity by 100 MW to determine the CAF, consistent with other resource types
 - This methodology will be documented in the ICAP Manual, consistent with other resource types

Next Steps

Next Steps

- November MC Vote
- Target FERC filing Q1 2024

Our Mission & Vision



Mission

Ensure power system reliability and competitive markets for New York in a clean energy future



Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation