

Carbon Pricing

Tariff Revisions

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Revised to incorporate stakeholder tariff language feedback –
revisions in green font.

Market Issues Working Group (MIWG)

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Background

Tariff Revision Presentations

Date	Working Group	Link to presentation
01-22-19	Market Issues Working Group (MIWG)	https://www.nyiso.com/documents/20142/4582875/01222019%20Carbon%20Pricing%20Tariff%20Overview.pdf/9f58ee00-93b9-71f9-226e-473165b3409e
01-31-19	Market Issues Working Group (MIWG)	https://www.nyiso.com/documents/20142/4779557/1.31.2019_MIWG_Carbon_Pricing_Tariff_FINAL.pdf/9aa5b7e0-5566-5d2b-25dc-b28db05e4b4d
02-28-19	Market Issues Working Group (MIWG)	https://www.nyiso.com/documents/20142/5256593/2.28.2019_MIWG_Carbon_Pricing_Tariff.pdf/fc24fdfd-9e10-909a-f08a-021fd67d8268
05-22-19	Market Issues Working Group (MIWG)	https://www.nyiso.com/documents/20142/6665211/5.22.2019_MIWG_Carbon_Pricing_Tariff_FINAL.pdf/2bccd144-d98e-8458-d28d-267c7aba7960

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Additional OATT Tariff Revisions

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OATT Tariff Revisions

- **Certain OATT tariff revisions will mirror the previously discussed MST tariff language:**
 - OATT Sections 1.3 and 1.19 to reflect the new MST definitions
 - OATT Section 2.7.4.2.1 will incorporate the same revisions as those proposed in MST Section 7.4.1.1

Carbon Charges for Suppliers – MST Rate Schedule 9, Section 15.9.1

Carbon Charges for Suppliers

- **All Suppliers, electrically located in the NYCA, with Carbon Emissions shall be subject to the Supplier Carbon Charge except Demand Side Resources participating as an SCR or EDRP and Suppliers that came into operation after January 1, 2015 and meet the eligibility criteria set forth in Appendix A to the NYPSC Order Adopting a Clean Energy Standard.***
 - NYISO is considering stakeholder feedback to describe potential future revisions to eligibility criteria.
- **The ISO shall calculate a Supplier Carbon Charge based on the Supplier's reported Carbon Emissions data; however, if the Supplier has not provided hourly Carbon Emissions data to the ISO, the ISO shall calculate the Supplier Carbon Charge based on its estimate of the Carbon Emissions.**

**NYPSC Case No. 15-E-0302 – Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard – Order Adopting a Clean Energy Standard (August 1, 2015).*



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Carbon Charges for Suppliers

■ Section 15.9.1 Carbon Charges

- The NYISO shall charge each applicable Supplier for Carbon Emissions (“Supplier Carbon Charge”).

Supplier Carbon Charge for Supplier u in hour $h = CE_{uh} * CC_{uh}$

Where:

CE_{uh} = Carbon Emissions by Supplier u in hour h

CC_{uh} = The Cost of Carbon Emissions for Supplier u in hour h

Social Cost of Carbon

Social Cost of Carbon – MST Section 2.19

- **Social Cost of Carbon (“SCC”):** A value, in dollars per short ton of carbon dioxide, established by the PSC in accordance with the New York State Administrative Procedure Act.

Social Cost of Carbon – MST Section 15.9.3

- The ISO shall utilize the Social Cost of Carbon in the ISO Administered Markets.
- The ISO Services Tariff will reference the PSC order setting the initial Social Cost of Carbon.
- The ISO shall maintain a posting on its website that sets forth the effective Social Cost of Carbon.
 - To the extent revised Social Cost of Carbon value(s) are established by the PSC, such revised values will be utilized.
 - The revised Social Cost of Carbon will become effective on the first day of a calendar month following the posting of such revised values to the ISO's website.
- In the event the PSC establishes Social Cost of Carbon value(s) through only a specified date and has not established a revised value(s) beyond such specified date, the ISO shall continue using the last value set by the PSC.

LBMPc

LBMPc – OATT Section 6.18

- The NYISO shall calculate the LBMPc for each Load Zone and Proxy Generator Bus in Real-Time for each RTC and RTD interval, as well as look-ahead intervals.
- The following values shall be set in accordance with ISO procedures:
 - Variable operations and maintenance cost (\$/MWh)
 - Fuel indices (\$/mmBTU)
 - Emissions (tons/mmBTU)
 - Minimum Implied Heat Rate (mmBTU/MWh)
 - Maximum Implied Heat Rate (mmBTU/MWh)
- If the LBMP for an interval is corrected, then the LBMPc shall also be corrected using the revised LBMP values from the price correction.

$$Emissions\ Cost_{ip} = (Emissions_{ip} * SCC_i)$$

$$\left(\frac{LBMP_{ip} - VOM_{ip}}{Fuel\ Cost_{ip} + Emissions\ Cost_{ip}} \right) = IHR_{ip}$$

$$LBMPc_{ip} = Max \left((IHR_{ip} * Net\ SCC_i * Emissions_{ip}), 0 \right)$$

Carbon Pricing Timeline

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Carbon Pricing Timeline

MIWG Meeting Date	Topic/ Deliverable
Tuesday, January 15, 2019	Import/ Export Transaction Examples
Tuesday, January 22, 2019	Overview of Impacted Tariff Sections
Thursday, January 31, 2019	Credit Overview
	Tariff Revisions Discussion
Monday, February 4, 2019	Carbon Residual Allocation
Thursday, February 28, 2019	Tariff Revisions Discussion
Thursday, March 28, 2019	Analysis Group: Carbon Pricing Supplemental Analysis
Monday, April 8, 2019	LBMPe Calculation & Opportunity Cost Resources
Tuesday, April 30, 2019	Additional Design Topics as Necessary (LBMPe)
Wednesday, May 22, 2019	Tariff Revisions Discussion
Thursday, May 30, 2019	Additional LBMPe Discussion & Tariff Revisions Discussion
Tuesday, June 11, 2019	Tariff Revisions Review

Appendix I: Select Tariff Sections that will not Require Revisions

Tariff Sections without Revisions

- **MST sections 4.2 and 4.5 describe DA and RT Energy settlements, respectively.**
 - No revisions are expected for these sections.
 - Suppliers will submit their bids, including an adjustment to account for the carbon charge.
 - These bids will be used by the market software to establish prices and schedules.

Tariff Sections without Revisions

- No tariff revisions are anticipated for guarantee payments such as BPCG, DAMAP, and import curtailment guarantee payments.
 - The NYISO's current guarantee payment practices will continue under carbon pricing.

Appendix II: Example - Potential Penalties during Emissions Data Submission

Please Note: This appendix expands upon tariff revisions in MST 15.9.

Example 1 Assumptions

- **Assume for purposes of example 1:**
 - The NYISO estimates for the initial invoice that the generator's emissions are 9 tons.
 - The cost of carbon emissions is \$40/ton.
 - The generator has 10 tons of actual carbon emissions.
 - The generator does not report emissions by the 60 day deadline.
 - The generator does not report emissions by the 170 day deadline.
- **Invoice charges in this example show the generator's final position as of the invoice version.**
 - No addition or subtraction between invoice versions are necessary in this example

Example 1

- **Initial Invoice Version 1 (before 60 day deadline)**
 - Supplier Carbon Charge = \$360
 - Failure to report by 60 day deadline penalty = Not Applicable
 - Failure to report by 170 day deadline penalty = Not Applicable
 - Failure to report accurate final carbon emissions penalty = Not Applicable
- **Total = \$360**

Example 1

- **Settlement Adjustment Invoice Version 2 (after 60 day deadline, before 170 day deadline)**
 - Supplier Carbon Charge = \$360
 - Failure to report by 60 day deadline penalty = \$180
 - Failure to report by 170 day deadline penalty = Not Applicable
 - Failure to report accurate final carbon emissions penalty = Not Applicable
- **Total = \$540**

Example 1

- **Final Invoice (after 170 day deadline)**
 - Supplier Carbon Charge = \$360
 - Failure to report by 60 day deadline penalty = \$180
 - Failure to report by 170 day deadline penalty = \$540
 - Failure to report accurate final carbon emissions penalty = Not Applicable
- **Total = \$1,080**

Example 2 Assumptions

- Assume that at day 165, the generator in example 1 reports emissions of 6 tons, when the generator emissions are actually 10 tons.
- Assume for purposes of example 2:
 - The NYISO estimates for the initial invoice that the generator's emissions are 9 tons.
 - The cost of carbon emissions is \$40/ton.
 - The generator does not report emissions by the 60 day deadline.
 - The generator reports emissions of 6 tons at day 165.
 - The generator has 10 tons of actual carbon emissions.

Example 2

- **Initial Invoice Version 1 and Settlement Adjustment Invoice Version 2 would be the same as in example 1.**
- **Final Invoice**
 - Supplier Carbon Charge = \$240
 - Failure to report by 60 day deadline penalty = \$180
 - Failure to report by 170 day deadline penalty = Not Applicable
- **Invoice issued after final bill closeout**
 - Failure to report accurate final carbon emissions penalty = \$320
- **Total = \$740**

Appendix III: Select Definitions

Please note that the tariff revisions relevant to this appendix section are posted with the 5/22/2019 MIWG meeting materials.

Select Definitions

- **New defined tariff terms are necessary to effectuate carbon pricing.**
 - Carbon Emissions: Point-of-production carbon dioxide (“CO2”) emissions, in short tons, that result from Energy injected, or start-up to inject Energy, in connection with participation in the ISO Administered Markets.
 - Cost of Carbon Emissions: For purposes of the ISO Administered Markets, a dollar per short ton value of Carbon Emissions equal to the Social Cost of Carbon minus the value of any other state, multi-state, or federal charges for Carbon Emissions that the Supplier is required to pay, as set forth in ISO Procedures, including but not limited to carbon dioxide emission allowance costs. If the calculated Cost of Carbon Emissions is negative, the ISO shall set the value to zero.

Appendix IV: Annual Updates for Net Energy and Ancillary Revenue Offset (MST 5.14.1.2.2.2)

Please note that the tariff revisions relevant to this appendix section are posted with the 5/22/2019 MIWG meeting materials.



Annual Updates for Net Energy and Ancillary Revenue Offset

- For purposes of the annual updates to the ICAP Demand Curves, the NYISO determines updated values for the net Energy and Ancillary Services revenue offset associated with each peaking plant.
- **The Cost of Carbon Emissions under the carbon pricing proposal is included within the variable cost of the applicable peaking plant.**
 - The NYISO has also noted that this cost shall be zero prior to the effective date of the carbon pricing proposal.

Appendix V: Carbon Charges for Suppliers – MST Rate Schedule 9, Section 15.9.2

Please note that the tariff revisions relevant to this appendix section are posted with today's MIWG meeting materials.

Carbon Charges for Suppliers

■ Section 15.9.2 Reporting Carbon Emissions

- This section refers to the timeframes for emissions reporting outlined in MST Section 7.4.1.1, as well as discusses penalties. Appendix II of this presentation includes examples of potential penalties.
 - Section 15.9.2.1 notes that if Carbon Emissions are not reported timely by day 60, then the Supplier will be charged 0.5 times the applicable Carbon Emissions.
 - This penalty is in addition to the charge for Carbon Emissions on the initial invoice.
 - Section 15.9.2.1 further notes that if Carbon Emissions are not reported timely by day 170, then the Supplier will be charged 1.5 times the applicable Carbon Emissions.
 - This penalty is in addition to the charge for Carbon Emissions on the initial invoice.
 - This penalty is in addition to the charge if Carbon Emissions are not reported timely by day 60.
 - Section 15.9.2.2 notes that if Carbon Emissions are underreported, then the Supplier will be charged 2 times the applicable Carbon Emissions
 - This penalty is in addition to the charge for Carbon Emissions on the initial invoice.
 - This penalty is in addition to the failure to report by day 60 penalty outlined in section 15.9.2.1, if applicable.

Appendix VI: Carbon Charges, Carbon Payments, and the Allocation of the Carbon Residual - OATT Rate Schedule 18

Please note that the tariff revisions relevant to this appendix section are posted with today's MIWG meeting materials.

Carbon Charges, Carbon Payments and Allocation of the Carbon Residual

- **Section 6.18.1 Carbon Charges for Import Transactions and Wheels Through**
 - The ISO will charge each Transmission Customer scheduling Imports and Wheels Through the LBMPc at the relevant Proxy Generator Bus (“Transmission Customer Carbon Charge”).

$$\text{Transmission Customer Carbon Charge}_{icp} = \text{InjectionUnits}_{icp} * \text{LBMP}_{c_{ip}}$$

Carbon Charges, Carbon Payments and Allocation of the Carbon Residual

- Section 6.18.2 Carbon Charges for Export Transactions and Wheels Through
 - The ISO will pay each Transmission Customer scheduling Exports and Wheels Through the LBMPc at the relevant Proxy Generator Bus (“Transmission Customer Carbon Payment”).

$$\text{Transmission Customer Carbon Payment}_{icp} = \text{WithdrawalUnits}_{icp} * \text{LBMP}_{c_{ip}}$$

Carbon Charges, Carbon Payments and Allocation of the Carbon Residual

Section 6.18.3 Calculation of Carbon Residual Payments/ Charges

- Calculation of the Carbon Residual:
 - Transmission Customer Carbon Payments for Export Transactions and Wheels Through subtracted from the sum of all Supplier Carbon Charges and Transmission Customer Carbon Charges for Import Transactions and Wheels Through
- This section defines the calculation of the Carbon Residual credit for each Transmission Customer through the proportional allocation methodology.

$$\text{Carbon Residual Credit}_{ch} = \frac{\sum_z (\text{WithdrawalUnits}_{czh} * \text{HourlyLBMPC}_{zh})}{\sum_z (\text{TotalWithdrawalUnits}_{zh} * \text{HourlyLBMPC}_{zh})} * \text{CarbonResidual}_h$$

- This section also defines the Carbon Residual charge if there is a Carbon Residual Shortfall as allocated through load ratio share.

$$\text{Carbon Residual Charge}_{ch} = (-1) * \text{CarbonResidual}_h * \frac{\text{WithdrawalUnits}_{ch}}{\text{TotalWithdrawalUnits}_h}$$

Appendix VII: Revisions to MST section 7.4.1.1 ISO Corrections or Adjustments and Customer Challenges to the Accuracy of Settlement Information

Please note that the tariff revisions relevant to this appendix section are posted with the 5/22/2019 MIWG meeting materials.



Emissions Data Submission

- **New MST Section 7.4.1.1.2**
 - A Supplier shall provide the NYISO with all Carbon Emissions data within 60 days from the date of the initial invoice for the month in which service is rendered.
 - The ISO shall post Carbon Emissions data to the Supplier's account for review as soon as practicable after it is received.
- **New MST Section 7.4.1.1.6**
 - A Supplier shall provide to the ISO any final updates or corrections to Carbon Emissions data within 170 days from the date of the initial invoice.
 - The ISO shall process final updates or corrections to Carbon Emissions data as soon as practicable after it is received, after which time it shall be finalized.
- **Revision to MST Section 7.4.1.1.7**
 - Add a reference to Carbon Emissions data in order to treat Carbon Emissions data like metering data throughout the review periods.

Appendix VIII: Mitigation & Reference Level Language (MST 23.3.1.4, 23.3.3.3.2, 30.4.5.3.2, 30.6.2.2)

Please note that the tariff revisions relevant to this appendix section are posted with the 5/22/2019 MIWG meeting materials.

Mitigation & Reference Level Language

- Emissions rates and emissions costs are included within the data that the NYISO may request from Market Parties.
- The Cost of Carbon Emissions may be included within Supplier reference levels.

The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits 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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