

Work Plan – Draft

Purpose

This work plan identifies the topics and timelines to further explore options to incorporate the cost of carbon dioxide into wholesale energy markets with the goal of contributing to achieving New York State’s public policies, while providing the greatest benefits at the least cost to consumers and appropriate price signals to incentivize investment and maintain grid reliability.

Deliverables

The New York Independent System Operator (NYISO) / New York State joint staff team intends to present a carbon dioxide pricing proposal by December 2018. Alternatively, the NYISO / New York State joint staff team will present a detailed schedule by the end of December 2018 leading to a firm proposal date in early 2019 unless the NYISO / New York State joint staff team concludes that a viable proposal is not achievable and notifies the IPPTF.

Executive Summary

The work plan addresses six “Issue Tracks”. Recommendations from each Issue Track will be used to develop the proposal. Each Issue Track recommendation will include the rationale for the recommendations (it is anticipated that there may be multiple recommendations).

- **Issue Track 1: Straw Proposal Development:** how to price carbon into the wholesale energy markets.
- **Issue Track 2: Wholesale Energy Market Mechanics:** includes leakage, how to measure emissions rates, etc.
- **Issue Track 3: Policy Mechanics:** includes how the carbon dioxide emissions charge is set and who sets it, and how it could be modified in the future.
- **Issue Track 4: Interaction with Other Wholesale Market Processes:** interactions with NYISO processes and markets, such as the capacity market, credit implications, etc.
- **Issue Track 5: Interaction with Other State Policies and Programs:** This includes RGGI, VDER, REC/ZECs, etc.
- **Issue Track 6: Impacts.**

The work plan also anticipates that additional analysis and data collection may be performed after the vetting of the issues.

Timeline

Review of the Issue Tracks will occur on parallel paths in the Integrating Public Policy Task Force (IPPTF). To accommodate all the work needed, the IPPTF will generally meet each week through 2018. To accommodate stakeholders who wish to participate in all the Issue Tracks but cannot attend all meetings, participation via phone and webcast will be available. Issue Track 1

(“straw proposal development”) will conclude by the end of March to inform the other Issue Tracks. All Issue Tracks, including the finalization of recommendations, will conclude by the end of November 2018. The proposal, or a plan for achieving a proposal, will be issued by the end of December 2018.

A meeting will be held in mid-June 2018 to: i) review progress to date, ii) determine the schedule through the end of 2018, and iii) determine if any refinements to the 2018 deliverables are appropriate. The schedule may be adjusted as needed once discussions are underway.

Issue Tracks

Details on each Issue Track are available below. Note that there may be analysis or data that needs to be collected as part of the review of each issue. The work plan also recognizes that additional analysis and data collection may be identified and performed after the work plan is drafted. The stakeholder processes will encourage the full participation of stakeholders, including stakeholder presentations and will not supplant or replace any existing stakeholder process.

Issue Track 1: Straw Proposal Development

This Issue Track focuses on how to incorporate the cost of carbon dioxide into wholesale energy markets with the goal of contributing to achieving New York State's public policies, while providing the greatest benefits at the least cost to consumers while also providing appropriate price signals to incentivize investment and maintain grid reliability.

Deliverable

A straw proposal and the rationale for the recommendation. The straw proposal will include an outline of the additional analysis that may be necessary to develop a full proposal.

Time line

This Issue Track will conclude and deliver a straw proposal by the end of March so that it may inform the other Issue Tracks. Initial discussions in the other issue tracks could address the pros and cons of the proposals discussed in this Issue Track.

Topic Areas

Review proposals or concepts for integrating carbon pricing into the wholesale energy market, which will further New York State's energy policy goals by harmonizing New York State policy and New York wholesale electricity markets and identify further analysis needed.

Schedule:

Week of February 5 – Stakeholder presentations of proposals and discussion and discussion of further analysis needed.

Week of February 26 – Review of and comments on the draft deliverable.

Week of March 19 – Finalized straw proposal posted.

Issue Track 2: Wholesale Energy Market Mechanics

This Issue Track covers a number of topics including, but not limited to, leakage (geographic, cross sectoral and other sources), generator emissions rates, and the carbon charge implementation.

Deliverable:

Recommendations and implications for each topic covered by the Issue Track and the rationale for the recommendations.

Time line

This Issue Track will conclude and deliver recommendations by the end of October.

Topic Areas

This issue track includes, but is not limited to, the following topics (see Appendix A for more details on each topic):

- Leakage (this includes Geographic Electric Leakage, Cross Sectoral Leakage and Other Sources of leakage)
- Emissions rates for generators
- Carbon shadow prices
- Carbon charge implementation
- Emissions rates for DER and DR
- Fuel Blends

Schedule:

Week of February 12 – Set a schedule of topics and begin the first discussion

Week of March 12 – discussion

Week of April 16 – discussion

Continuing every 3 weeks unless modified in the mid-June meeting to review progress and set a schedule through October.

Any meetings that are not needed will be canceled.

Issue Track 3: Policy Mechanics

This Issue Track includes only one topic area at this time: how a carbon charge would be set and adjusted. Additional policy mechanisms could be added, if necessary.

Deliverable:

Recommendations and implications for each topic area covered by the Issue Track and the rationale for the recommendations.

Time line

This Issue Track will conclude and deliver recommendations by the end of October.

Topic Areas

This issue track includes, but is not limited to, the following topic (see Appendix A for more details on this topic):

- Carbon charge setting and adjustment

Schedule:

Week of February 19 – Set a schedule of topics and begin the first discussion

Week of April 2 – discussion

Continuing every 3 weeks unless modified in the mdi-June meeting to review progress and set a schedule through October.

Any meetings that are not needed will be canceled.

Issue Track 4: Interaction with Other Wholesale Market Processes

This Issue Track focuses on interactions with other wholesale market processes. This includes, for example, credit implications and capacity market implications, among others.

Deliverable:

Recommendations and implications for each topic area covered by the Issue Track and the rationale for the recommendations.

Time line

This Issue Track will conclude and deliver recommendations by the end of October.

Topic Areas

This issue track includes, but is not limited to, the following topics (see Appendix A for more details on each topic):

- Credit Implications
- Capacity Market Implications
- Bilateral Arrangements

Schedule:

Week of March 5 – Set a schedule of topics and begin the first discussion

Week of April 2 – discussion

Continuing every 3 weeks unless modified in the mid-June meeting to review progress and set a schedule through October.

Any meetings that are not needed will be canceled.

Issue Track 5: Interaction with Other State Policies and Programs

This Issue Track focuses on interactions with other New York State policies and programs. For example, the interactions with RECs, ZECs, RGGI, REV and/or VDER.

Deliverable:

Recommendations and implications for each topic area covered by the Issue Track and the rationale for the recommendations.

Time line

This Issue Track will conclude and deliver recommendations by the end of October.

Topic Areas

This issue track includes, but is not limited to, the following topics (see Appendix A for more details on each topic):

- Existing programs (for example, RECs, ZECs, RGGI, etc)
- Retail programs (for example, VDER, Recharge NY, etc.)

Schedule:

Week of March 5 – Set a schedule of topics and begin the first discussion

Week of April 9 – discussion

Continuing every 3 weeks unless modified in the mid-June meeting to review progress and set a schedule through October.

Any meetings that are not needed will be canceled.

Issue Track 6: Impacts

This Issue Track focuses on both wholesale and retail customer impacts and, therefore, also includes how any surplus in collections due to a carbon price would be returned to wholesale and retail customers.

Deliverable:

Recommendations and implications for each topic area covered by the Issue Track and the rationale for the recommendations.

Time line

This Issue Track will conclude and deliver recommendations by the end of October.

Topic Areas

This issue track includes all wholesale customer impacts and how a wholesale carbon charge would be returned to loads. Retail customer impacts and electric system reliability impacts will also be considered in this issue track.

Schedule:

Week of March 5 – Set a schedule of topics and begin the first discussion

Week of April 9 – discussion

Continuing every 3 weeks unless modified in the mid-June meeting to review progress and set a schedule through October.

Any meetings that are not needed will be canceled.

Summary of the anticipated IPPTF SCHEDULE 2018

Issue Tracks:

- Issue Track 1: Straw Proposal Development.
- Issue Track 2: Wholesale Energy Market Mechanics.
- Issue Track 3: Policy Mechanics.
- Issue Track 4: Interaction with Other Wholesale Market Processes.
- Issue Track 5: Interaction with Other State Policies and Programs.
- Issue Track 6: Impacts.

Week of	Topics
January 8	Review and comment on draft Plan UIU presentation
January 29	Release Work Plan
February 5	Issue Track 1: Stakeholder presentations on proposals and discussion
Feb 12	Issue Track 2: Schedule of topics and first discussion
Feb 19	Issue Track 3: Schedule of topics and first discussion
Feb 26	Issue Track 1: Review of, and comments on, the draft straw proposal
March 5	Issue Track 4 Schedule of topics and first discussion Issue Track 5 Schedule of topics and first discussion Issue Track 6: Schedule for topics and first discussion
March 12	Issue Track 2
March 19	Issue Track 1: Finalized straw proposal posted
March 26	[No meeting this week]
April 2	Issue Track 3 Issue Track 4
April 9	Issue Track 5 Issue Track 6
April 16	Issue Track 2

Issue Tracks 2 through 6 will continue on the same pattern until:

A mid-June Meeting (Week of June 18) to review progress, to determine schedule through October, and to discuss any necessary changes to deliverables.

The rest of the year will continue on the pattern outlined above for Issue Tracks 2 through 6 (unless modified based on mid-June feedback). In September or October, the NYISO / New York State joint staff team will present and comment on the draft deliverables for each Issue Track (could be sooner based on stakeholder discussions). Deliverables finalized by end of October for all Issue Tracks.

The NYISO / New York State joint staff team intend to present a carbon dioxide pricing proposal by December 2018. Alternatively, the NYISO / New York State joint staff team will present a

detailed schedule by the end of December 2018 leading to a firm proposal date in early 2019. Should the NYISO / New York State joint staff team conclude that a viable proposal is not achievable, the IPPTF would be notified and the work described in this work plan would cease.

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Appendix 1: Potential detailed topics and questions

(Incorporates stakeholder feedback received communicated at IPPTF meetings, via email and filings)

This draft list should not be considered complete or final. It is included to inform the proposed work plan and Issue Tracks.

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
1	Leakage & Resource Shuffling	Wholesale	<p>Geographic Electric Leakage</p> <ul style="list-style-type: none"> -How would a carbon charge be applied to interregional transactions? -Should specific charges be applied to each neighboring region, or should the same charge be applied to all neighboring regions? -Would crediting the carbon charge on exporting interregional transactions create incentive to sell power out-of-state? Will the biggest emitters see this as an incentive to export more energy from New York? -How are wheeling transactions (wheeling through NY) treated? -Interest in how there could be leakage by dirty generators leaving (would like data on that) -Are there unintended consequences of border charges? -What are the lesson learned in other jurisdictions/programs -Are border charges addressing the overall goal of reducing carbon dioxide? -What is the impact on RGGI? What changes are needed to RGGI? What does RGGI do to the effectiveness of this proposal? 			Wholesale Energy Market Mechanics

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
			<p>-What is the role of DPS on leakage? Is leakage policy a NYS policy? Does there need to be a state policy on leakage? Where does state policy end and wholesale markets begin? Whose policy is leakage?</p> <p>Cross Sectoral Leakage</p> <p>-Would a carbon charge shift carbon dioxide emissions to other sectors? (and vice versa)</p> <p>-Does this shift carbon dioxide</p> <p>Other Sources Leakage (potentially, overlapping topics)</p> <p>-<25MW units</p> <p>-BTM units</p> <p>-DR (bulk and/or distribution)/DER</p>			

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
2	Allocation of Carbon Revenues	Wholesale & Retail	<ul style="list-style-type: none"> -How should the carbon charge be returned to LSEs? -Are there any circumstances when the money should not be returned to the LSE? -Should the returned carbon charges be based on the impact to consumers in the LSE? <ul style="list-style-type: none"> -Should consumers within an LSE be seen as one block or is there a need for additional subsets -Can the carbon charge be returned in a way to minimize bill impacts and ensure that proper tradeoffs between economic sectors (<i>e.g.</i>, electricity, transportation, heat, waste) can be retained? -Should some or all the carbon charge be returned directly to end use consumers? Could it better be spent somewhere else? (On weatherization, energy efficiency programs, planting trees, investing in greater generator efficiency?) -What are the effect on consumption of how you return the charges to consumers is important (in second best assumptions) and should that impact how the money is returned? 		Related to 10	Impacts

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
3	Emission Rates for Generators	Wholesale	<ul style="list-style-type: none"> -What carbon charge calculation should be used? -Should the emissions rate be consistent with other state policies? -Should it use the same emission rate/measurement as the RGGI program? -Should emissions be measured at the burner tip or consider total carbon emissions? -Should a carbon charge only apply to resources greater than 25 MW (<i>i.e.</i>, similar to RGGI)? -Should emission rates use carbon scoring (based on lifecycle emissions) or just “burner tip” Carbon Dioxide emissions? /Should there be a “Carbon Score” that includes other greenhouse gas emissions? -How should fuel use during startup be accounted for? -Focus on measurement and verification 	Looking for more information about marginality and what is on the margin when		Wholesale Energy Market Mechanics
4	Carbon shadow price	Wholesale	<ul style="list-style-type: none"> -Should the marginal cost of carbon be transparent? -Is NYCA wide sufficient or does there need to more granular information? - Cost of carbon (in \$/ton) vs the cost of carbon in the electric prices \$/kWh which will constantly vary 		Related to 5	Wholesale Energy Market Mechanics
5	Carbon Charge Implementation	Wholesale	<ul style="list-style-type: none"> -Is there any benefit or detriment from applying the cost of carbon on the bid versus applying a carbon charge to emitting resources? -Based on estimated heat rate or based on emissions data? 		Related to 4	Wholesale Energy Market Mechanics

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
6	Credit Implications	Wholesale	-Are changes to the NYISO's existing credit rules and processes necessary? If so, what changes may be necessary? -This is downstream from the proposal			Interaction with Other Wholesale Market Processes
7	Capacity Market Implications	Wholesale	-Are changes needed to the Capacity market to accommodate a carbon charge? -Would the demand curve reference point and the cost of new entry adjust and how? How does it impact energy and ancillary service revenues? - Is there an impact on buyer-side mitigation (and are changes needed)? -How to avoid overbuilding but still provide adequate resilience?			Interaction with Other Wholesale Market Processes
8	Bilateral Arrangements	Wholesale	- Are existing bilateral arrangements likely to be impacted? If so, what are the potential impacts? - Could bilateral arrangements be used to avoid the carbon charge? -Need to be able to prevent circumventing the carbon charge. Could it be done by charging all emitters regardless of contracts/sales)		Depends on 12	Interaction with Other Wholesale Market Processes
9	Emission Rates for DER and DR	Wholesale	-How should the emissions from DER and DR sources be considered with respect to carbon charges? -Are there metered emissions? -How to count the emissions of cogeneration plants?			Wholesale Energy Market Mechanics

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
10	Bill Impacts on different Customers	Wholesale & Retail	<ul style="list-style-type: none"> -Upstate vs downstate impacts -Impact on economy sectors including industrial -Impact on fleet owners -Impact on transportation sector -Impact by zone -Impact on fleet composition (which generators are expected to leave) -Impact of different border charges on customer costs -impact on carbon abatement -Impacts on low income customers (& how are they impacted by revenue reallocation & reinvestment?) -Impact on decarbonization goals (transportation, heating) -How will imports/exports change -How does it impact ESCOs – don't want to pay twice -Want bill impacts that include all programs including infrastructure upgrades -Request to stay with first order price impacts and not secondary (etc.) impacts 	Is production cost modeling needed?	Related to 1	Analysis/TBD

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
11	Carbon Charge Setting and Adjustment	Wholesale	<ul style="list-style-type: none"> -How is the carbon charge set & who sets it? -What is the process for modifying the carbon charge? -How frequently should it change? -Should the carbon charge be designed to vary by time of day, season and/or location? -What is the basis for setting the charge? Is it based on social cost of carbon? On the abatement costs? Etc. -A request for consistency across state policies 			Policy Mechanics
12	Impact of a Carbon Charge on dispatch	Wholesale	<ul style="list-style-type: none"> -Should additional analysis be conducted to evaluate the potential impact a carbon charge could have on dispatch? - The Brattle study did not sufficiently analyze redispatch. -Also did not address entry & exit -Depending on the policy may impact imports and exports. Need to keep that in mind. -Need to add transmission to the modeling and multiple years & optimistic/pessimistic. -Look at impact on investment. -Need scenarios -Detail vs big picture needs to be considered 	<ul style="list-style-type: none"> -Study? Ranger or other software? -Production cost modeling consider IPM & MAPS -how can we get to less than 1 hours (MAPS cannot) -Consider grid view for sub hourly 	Needed for 8	Analysis/TBD

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
13	Other State Policies & existing programs related to carbon emissions	Retail & Wholesale	-What are the potential impacts on: <ul style="list-style-type: none"> o The existing REC and ZEC program(s)? o RGGI prices and allowances? - What coordination with RGGI might be necessary to eliminate the potential for leakage across the RGGI region? - How do future REC contracts need to change? Concern about “protecting” existing REC contracts. - Look at feasibility of a CFD type contract			Interaction with Other State Policies and Programs
14	Fuel Blends	Wholesale	-Does the NYISO need more information about what fuel blend is being used?			Wholesale Energy Market Mechanics
15	Other Retail Programs	Retail	-How would a carbon charge impact the VDER rate? -How would a carbon charge impact retail DR? -Interaction with RGGI and RGGI changes -Impact on Recharge NY & Job Retention programs			Interaction with Other State Policies and Programs

#	Topic	Is it wholesale or retail topic?	What questions need to be addressed?	Methodologies, relevant existing and/or new research or studies	Sequencing and/or interrelationship with other topics	Issue Track
16	Alternatives and or alternate goals		<ul style="list-style-type: none"> -Focus on abatement costs. -request for loads to be able to take advantage of lower cost renewables -A request to focus on average emissions rates and not marginal emissions rates -NY State carbon tax, all sectors -NY Cap and Trade program -Bifurcated 2 tiered capacity markets -Dynamic forward clean energy market -Achieving goals through RGGI -CO2e reduction alternatives: cap landfills, electric vehicle incentives, etc. -Restructuring the CES incentives to fixed payments or payments based on availability. 			Review and Solicitation of Alternate Proposals
17	Evaluation of existing Carbon Dioxide abatement efforts		Request to evaluate where NY is now with respect to 1990 levels and what the existing programs will achieve	Refer to existing state analysis to support RECs and RGGI?		Analysis/TBD
18	How much transparency is available?	Retail & Wholesale	<p>How much information is there to inform generators and consumers?</p> <p>Information about the characteristics of units on the margin (marginal emissions rate, fuel on the margin, technology on the margin, other?)</p>			Analysis/TBD
19	How this relates to transmission	Wholesale	<ul style="list-style-type: none"> -Should this impact the public policy transmission process? And if so, how? -Do the prices appropriately signal the need to new transmission? 			Interaction with Other Wholesale Market Processes

