

Carbon Pricing Supplemental Analysis

Analysis Group's Analysis of Economic Impacts of the NYISO Carbon Pricing Proposal for New York State

Sue Tierney, Senior Advisor, and Paul Hibbard, Principal
Analysis Group

March 28, 2019

Overview of our study

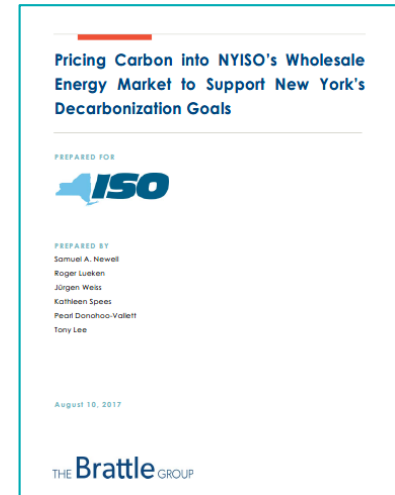
- Background and context
- Topics under review
- Next steps

Background and context

Integrated review of NYISO's carbon pricing proposal

Integrated review of NYISO's carbon pricing proposal

- Considerable analysis and discussion have taken place regarding the implications of a new carbon pricing proposal for NYISO markets.
- The Brattle Group conducted studies in 2017 and 2018 to assess the effects of a potential carbon price on NYISO markets and customers.
- Analysis Group has been asked by NYISO to perform an analysis to supplement the Brattle studies by focusing on two types of issues:
 - examining macroeconomic and public health impacts ('co-benefits') of the carbon price proposal that were not addressed in quantitative and/or monetary terms in the Brattle Group's analyses; and
 - exploring the implications on wholesale markets and consumers of relying on alternative, less-conservative assumptions than those relied upon by the Brattle Group team.



Integrated review of NYISO's carbon pricing proposal

- Economic impacts that are external to NYISO's electricity markets are relevant to New York State's interests in considering the adoption of a carbon pricing mechanism
- Alternative assumptions may reveal important outcomes for New York that similarly may affect views on the value of a carbon pricing mechanism in NYISO markets
- Analysis Group is not replicating or critiquing the Brattle analysis. Instead, our study will supplement it to provide the state and other stakeholders with additional information about public health and economic impacts

Topics under review

Supplemental areas where a carbon price might benefit the public interest in New York State

Additional Economic/Co-Benefit Impacts in New York State

PUBLIC HEALTH BENEFITS

- The Brattle study indicates that a carbon price will reduce emissions from fossil-fueled power plants.
- Most of the emissions reductions will be in downstate NYS, where most New Yorkers live, and in counties with significant at-risk population for exposure to poor air quality.
- The New York metropolitan area has the 10th-worst ozone air quality in the U.S.*
- Lower air emissions will help improve air quality and public health for New Yorkers, with economic benefits associated with avoided medications, hospital visits, deaths, etc.
- Analysis Group will estimate public health benefits associated with emission reductions identified in the Brattle study.



Photograph: <https://www.timeout.com/newyork/blog/nyc-has-some-of-the-worst-smog-pollution-in-the-country-052617>

* American Lung Association, "State of the Air Report, 2018," page 127.

Additional Economic/Co-Benefit Impacts in New York State

SUPPORT FOR NEW YORK'S POLICY GOALS

- The introduction of a carbon price in NYISO markets has many goals, not the least of which is to improve the performance of wholesale power markets by internalizing some of the social costs of carbon (beyond what is now reflected in RGGI prices).
- These wholesale markets are part of a larger policy context in which New York State aspires to reduce GHG emissions, decarbonize its power sector, and invest in clean energy technologies.
- The addition of a meaningful carbon price into the NYISO markets will help accomplish such objectives-through an efficient market-based mechanism.
- A new “carbon price + dividend” approach would further position New York as a policy leader in clean energy markets, technological innovation, and finance.

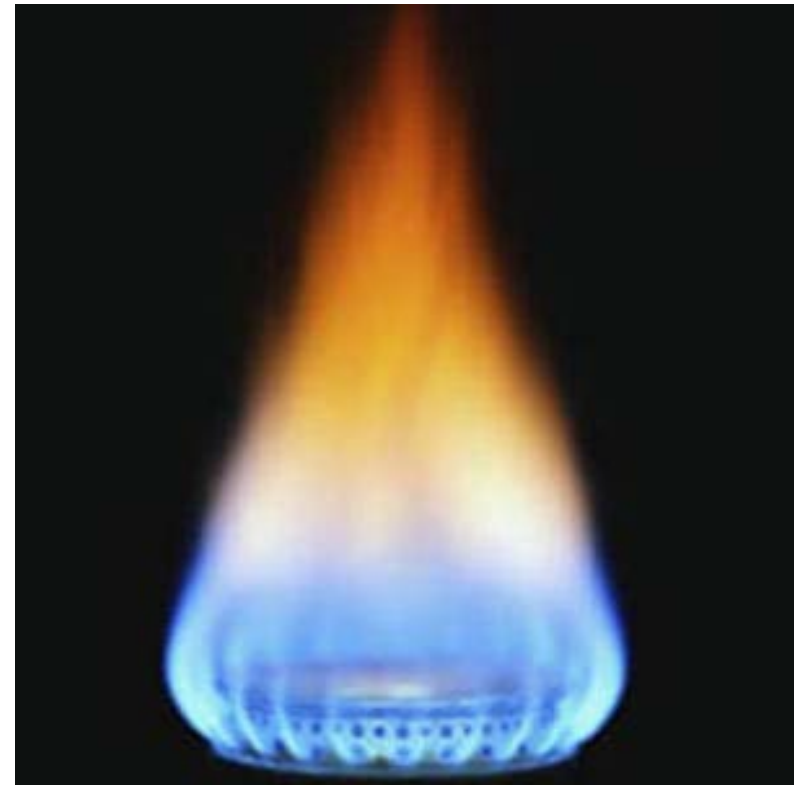


Photograph: <https://www.nysenate.gov/newsroom/articles/senate-passes-green-jobs-green-ny-bill>

Additional Economic/Co-Benefit Impacts in New York State

IMPACTS ON NATURAL GAS MARKETS IN THE STATE

- The introduction of a carbon price in NYISO's market will change the generation dispatch with implications for the demand for natural gas in New York State.
- Using output data from the modeling runs performed for the Brattle study, Analysis Group will assess the impact of the carbon price on demand for natural gas into New York (for both electricity generation and other non-power-sector uses of natural gas).



Photograph: <https://www.engineeringworldchannel.com/natural-gas-101/>

Additional Economic/Co-Benefit Impacts in New York State

JOB IMPACTS

- The Brattle studies indicate that carbon pricing will lead to a number of macroeconomic outcomes, including:
 - economic savings in consumers' pockets,
 - new resources entering the market,
 - repowering of fossil generating units.
- Analysis Group will examine the employment and other macroeconomic impacts of such outcomes, including reduced imports of fossil fuels, on New York's economy.



Potential implications of alternative study assumptions in NYISO markets

REPOWERING ASSUMPTIONS

- In a sensitivity analysis, the Brattle study identified implications of a carbon price for improving the economic feasibility of repowering steam generating units in downstate New York.
- Brattle observes that analyses performed by NYISO's market monitor (Potomac Economics) indicated that repowering may already be economical, meaning that a carbon charge would potentially increase the amount of repowering.
- Analysis Group will evaluate macroeconomic and/or public health implications of incremental repowering opportunities.



Photograph: <https://www.araner.com/blog/repower-possible-keys-achieve-easily/>

Potential implications of alternative study assumptions in NYISO markets

RETENTION OF EXISTING ZERO-CARBON RESOURCES

- In the years ahead, New York will have existing zero-carbon generating resources nearing the end of their contract lives and which have the potential to retire, depending on their profitability beyond that point.
- The Brattle study examines the implications of ZEC and REC prices paid to contracted-for renewable and nuclear resources, as well as the retirement of existing nuclear plants at or before the end of their current operating licenses.
- Given the state's aspirations for carbon-free electricity by 2040 (along with the goals for affordable electricity supply), the trajectory of existing renewable-resource and nuclear operations may differ from modeling assumptions.
- Analysis Group will evaluate the role of a carbon pricing with respect to these existing zero-carbon resources and the state's decarbonization goals.



<https://www.ws-corp.com/default.asp?PageID=13;>
<https://www.rtoinsider.com/tag/r-e-ginna-nuclear-plant/>

Next steps

Approximate schedule

Next Steps

ANTICIPATED WORK PRODUCT AND SCHEDULE

- Analysis Group will prepare a written white paper and a companion technical report by the end of May
- Preliminary findings and approaches will be presented to and discussed with stakeholders by the end of April 2019.
- Analysis Group will make a stakeholder presentation on initial analysis results in mid May, to allow for comments before the report is finalized.

Contact

Sue Tierney

Senior Advisor

617-425-8114

Susan.Tierney@analysisgroup.com

Paul Hibbard

Principal

617-425-8171

Paul.Hibbard@analysisgroup.com