Cap-and-Invest Stakeholder Feedback Session #6: Analysis Inputs and Methods

June 20, 2023, by Lucy Mastrianni

DEC and NYSERDA co-hosted their sixth webinar on June 20 in their Cap-and-Invest Series. This webinar opened with Maureen Leddy, the director of the Office of Climate Change at DEC. This webinar shifted the focus to a discussion of proposed methods for the analytic modeling that will be conducted to support the development of NYCI.

Leddy began by providing an overview of the Climate Act, as covered in previous webinars, and showed graphical depictions of the steep decline in future greenhouse gas emissions that New York is required to achieve. The overall framework was reviewed before Leddy passed the microphone to Vlad Gutman-Britten, assistant director for policy and markets at NYSERDA, who began by discussing the analytical methods that they intend to take to inform decisions in creating NYCI. They emphasized again that the state has not made final implementation guidelines, as they are waiting for stakeholder input and for data from the analytic methods they are describing today.

The model that DEC and NYSERDA are using is one that has been used globally, but will be tailored to fit New York. The model will help provide copious insight, including allowance price trajectories, allowance supply and demand, emissions, outcomes by sector, and a detailed technology base. DEC and NYSERDA plan to use this information to better understand the effects that NYCI will have across the board, including on health and air quality, jobs impacts, benefits and costs, and more. They will then be able to evaluate how successful their policy choices will be overall.

The model consists of iterating over five key steps and model convergence:

- Initialize the model and set up model parameters.
- Simulate potential abatement in each sector and resulting emissions.
- Compute the demand for allowances from obligated sectors.
- Check if the allowance price clears the market given demand and supply.
- If the market is not cleared, generate new market allowance price trajectory and revenue reinvestment effects for the next iteration.

The webinar then shifted to cover the five categories of inputs to the NYCI analysis:

- Starting point emissions.
- Policy parameters.
- Techno-economic inputs.
- Revenue reinvestment inputs.

- Electricity sector response.

Hillel Hammer, senior advisor for energy and environmental analysis at NYSERDA, spoke about the development of starting point emissions. NYCI modeling will be based on an updated view of New York state's emissions under current policies. The Scoping Plan's reference case will be updated with policies adopted since the original case was designed. They are hoping to close the gap between the updated starting point emissions for any given year and the economy-wide gap for that year. Although still lacking concrete amounts, they showed illustrative graphs that helped demonstrate the allowance budget that will be developed by the state team. 2025 will be the starting year for emissions estimates. From 2025 to 2030 the goal is to achieve 60% of 1990 emissions, and for 2030-2050, the goal is 15% of 1990 emissions, as required by the CLCPA.

Regarding policy parameters, the model is capable of modeling scenarios with price stability mechanisms including price floors, price ceilings, and auction reserves. It is also capable of modeling scenarios with carrying rules on compliance schedules and allocations to EITE sectors. While the model can consider offsets, it has already been determined that offsets will be disallowed as a compliance option under NYCI. This will be different than how allowances work under RGGI.

Hammer went on to address techno-economic inputs. The model needs a starting point emission level, as a variety of other calibration components will be based on this starting point. In addition to the starting point, technology costs, economic lifetimes of assets, and borrowing costs all were used as modeling inputs. A key factor in determining demand for allowances is the cost of switching to clean technology, regarding both upfront capital costs and ongoing operating costs. The model considers changes in activity level, depending on two things: (1) the price of greenhouse gasses that are passed on in fuel prices, and (2) how consumer demand responds to that change in fuel prices, i.e., the price elasticity of demand. These behavioral assumptions are likely to be included to capture drivers of abatement beyond technology costs.

Guttman-Britten then touched on the revenue reinvestment input. As stated before, the model initializes at an estimate of a given price for allowances, which is then improved through each iteration. As mentioned in previous webinars, an essential aspect of the program is that the reinvestment will both mitigate consumer costs and incentivize decarbonization. Specifically, reinvestment of proceeds will help realize policy guiding principles especially affordability, health, and other benefits for disadvantaged communities, and job creation. Regarding the building environment, it has been divided into three subsectors: market-rate residential, low and moderate-income residential, and commercial institutional.

Each subsector will have a tailored treatment for energy efficiency packages as well as a different supply curve, which will also change each year.

A similar approach will be used for transportation, which will estimate a response per unit of investment per year for each strategy. The module will also provide changes in vehicle travel by vehicle technology and year per million dollars. Key assumptions have been made regarding electrification and vehicle travel reduction strategies. These assumptions are available in the presentation for this webinar.

The last key input to be addressed is the electric sector. NYCI modeling will include an evaluation of the impact of obligating electricity. The Integrated Planning Model will be used to find the RGGI footprint. The analysis will evaluate the interaction between a NYCI price and a regional cap. A variety of price responses will be developed that can be integrated with a market model before settling on a single process across the economy.

Guttman-Britten then shifted to speak on the approach to modeling the Command-and-Control scenario. NYCI was recommended as the best method in order to achieve the state's greenhouse gas emission limits. However, without NYCI, the state would still need to achieve the Climate Act targets. This specific study will model a stylized Command-and-Control scenario as a comparison to NYCI. This is to showcase how other options would pan out in New York.

For the next steps, NYSERDA and DEC will share additional sets of input cost assumptions and develop complementary analyses on air quality/health impacts and workforce implications. They are soliciting feedback and comments on the methods, modeling, framework, and input choices being used. As a part of the Regulatory Impact Statement, analysis results will be shared when proposed rules are published.

The webinar wrapped up with the usual Q&A section. Key takeaways from that include:

- Co-pollutants will be evaluated, as stated in the Scoping Plan.
- The modeling will allow for an examination of including electricity in NYCI.
- Many policy choices have not been made, these webinars and the comments they will receive are to allow staff to make the most informed policy choices across all sectors, including electricity.

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