

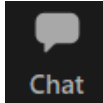

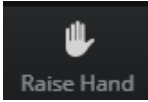


# **Regional Greenhouse Gas Initiative Program Review:**

## **Public Meeting**

March 29, 2023

# Meeting Protocols

- This meeting is being recorded and will be shared publicly on the RGGI website.
- Participants will be muted throughout the meeting.
- For technical assistance, use the chat function  or send a message to [info@rggi.org](mailto:info@rggi.org)
- Use the Q&A function  to send a question to the host. Questions will be addressed during the Q&A portion of the meeting.
- During the Public Comment portion, use the raise hand function  to let the host know that you'd like to make a verbal comment (*phone participants dial \*9*).
- The host will let you know when it is your turn to speak.

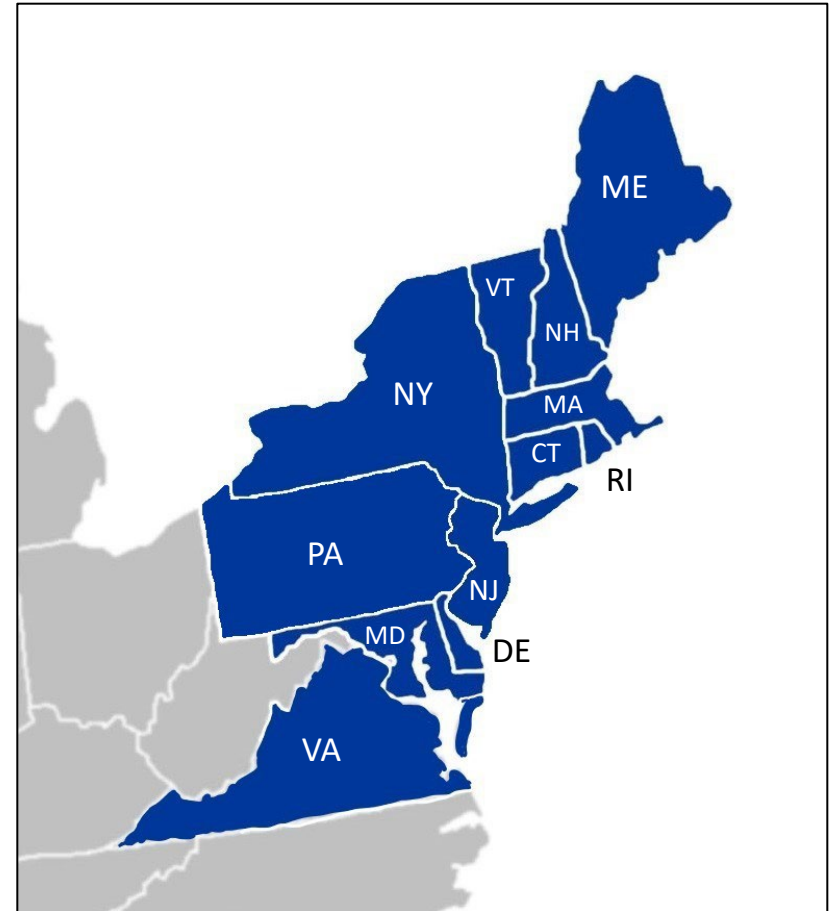
# Meeting Agenda

- Welcome & Introductions
- Program Review Update
- Electricity Sector Analysis
- Question & Answer
- Public Comment
- Next Steps

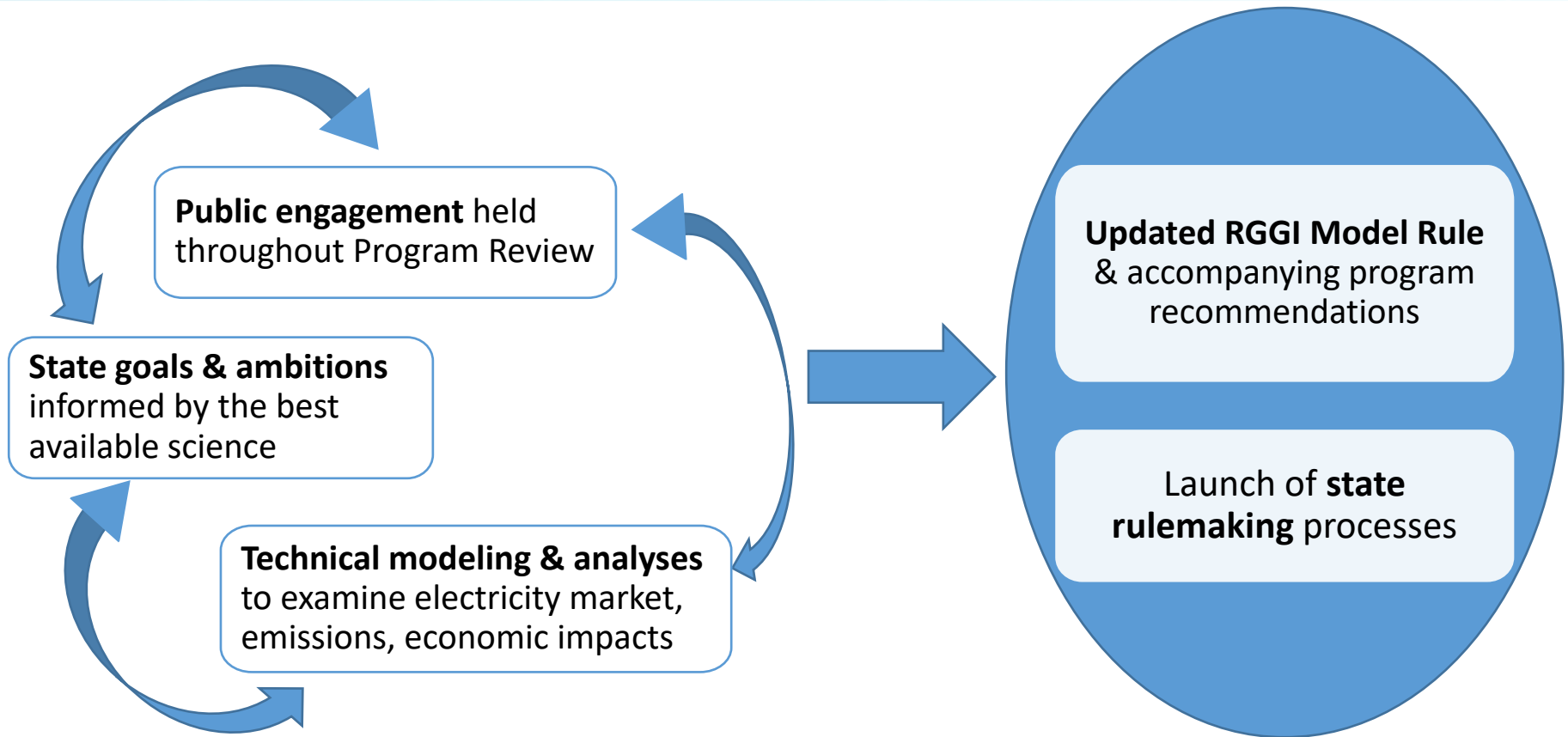
# Program Review Update

## RGGI Overview

- Cooperative effort to reduce CO<sub>2</sub> emissions from the power sector
- Each state develops its own cap-and-invest program to cap and reduce emissions over time
- Individual programs are similar enough to allow for allowance fungibility, regional auctions, and other cooperative elements



# Program Review Update



# Program Review Update

## Public Engagement

- Four public meetings held to date
- 51 [public comments](#) submitted
  - 27 organizations or groups of organizations
  - 11 individuals
- States are considering all comments received

# Program Review Update

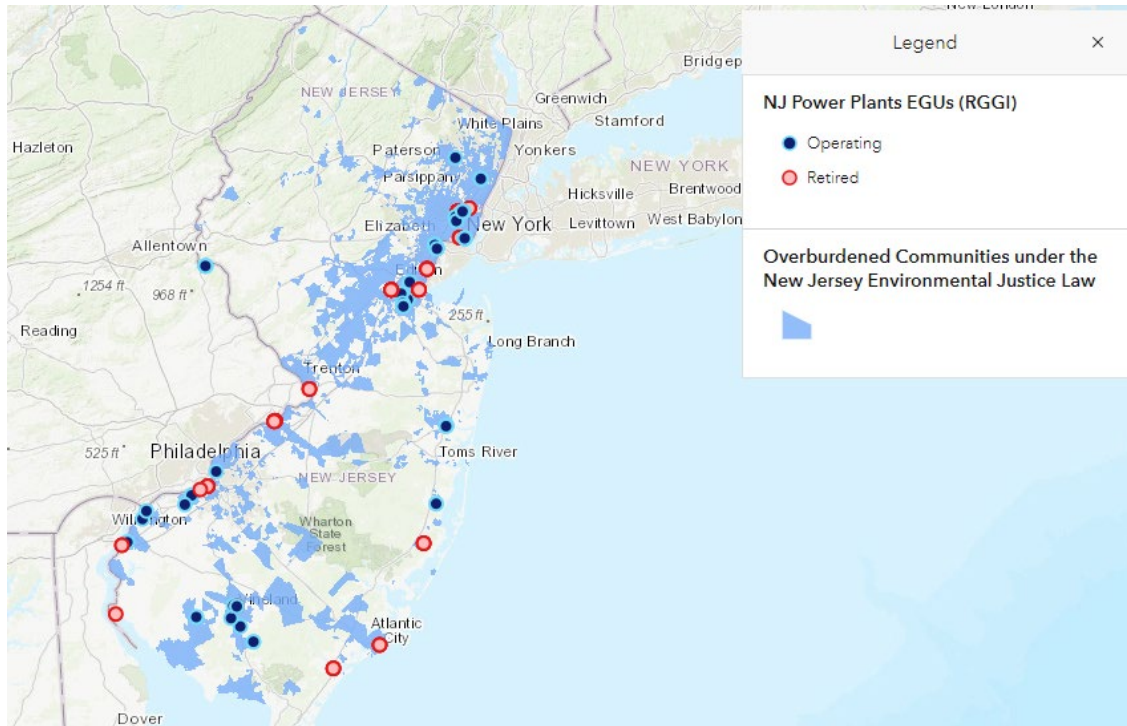
## State activities related to EJ and Equity comments include:

- Air quality monitoring and pollutant emissions reductions
- Equity advisory boards and working groups
  - [EJ and Equity Advisory Boards of the Participating RGGI States](#)



# Program Review Update

## Regional CO<sub>2</sub> emissions mapping tool



Based on: [New Jersey RGGI Power Plant EGU Emissions Dashboard](#)

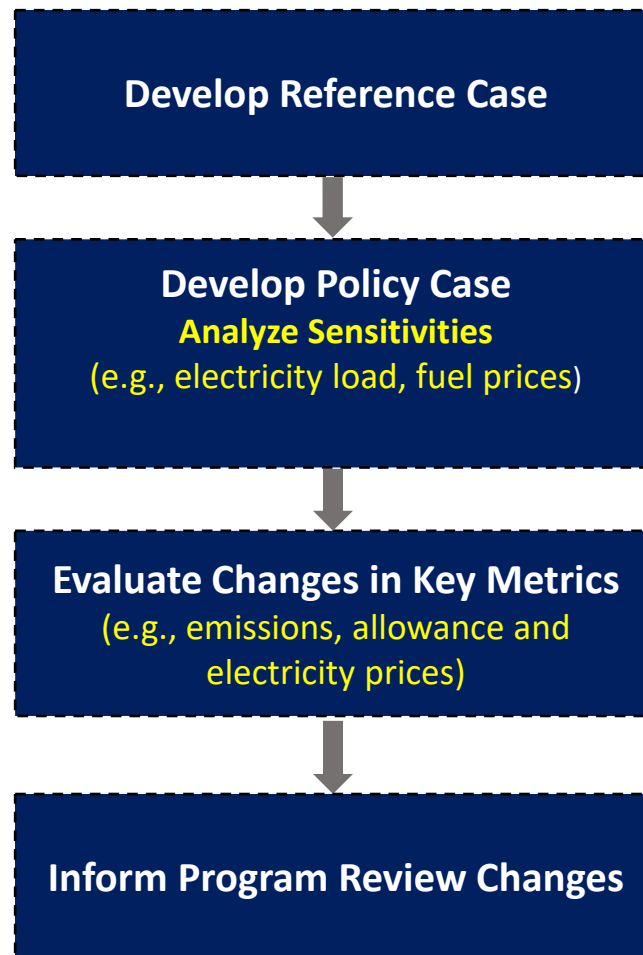


# Program Review Update

## **Topics informed by electricity sector analysis:**

- Regional cap trajectory
- Cost Containment and Emissions Containment Reserves
- Adjustment for banked allowances

# Past Modeling Framework



# Current Modeling Considerations

- Fluidity of state participation
- Climate and complementary energy policies will dramatically impact electricity load
  - Electric vehicles and EV infrastructure
  - Electrification in the building sector
  - Aggressive energy efficiency efforts
- Decarbonization timeline for the electricity sector
  - Participating State timelines vary
  - Implementation of offshore wind deployment
  - Grid-scale battery storage deployment, duration, and supply

# Overview of Modeling Going Forward

- Development of:
  - Assumption sets based on load forecasts and availability of low-emitting generation
  - Allowance supply scenarios
- Cases cover the range of outcomes given current electricity-sector developments
- Results inform development of potential policy cases

# Current Modeling Framework – Assumption Sets

## A: Procured only

- Procured clean energy
- Load forecast in line with ISO baseline estimates

## B: A + In Statute or Regulation

- Clean energy buildout capacity and timeline to meet statute and regulation
- Load forecast in line with electrification statutes and regulations

## C: B + Additional Goals

- Clean energy buildout capacity and timeline to meet non-binding goals
- Load forecast in line with electrification to meet non-binding goals



EVALUATION

FURTHER CASE WORK PENDING EVALUATION

# Current Modeling Framework – Allowance Supply

**1: BAU Flat Cap post 2030**

**2: Extend Current Cap  
Reduction to 2040**

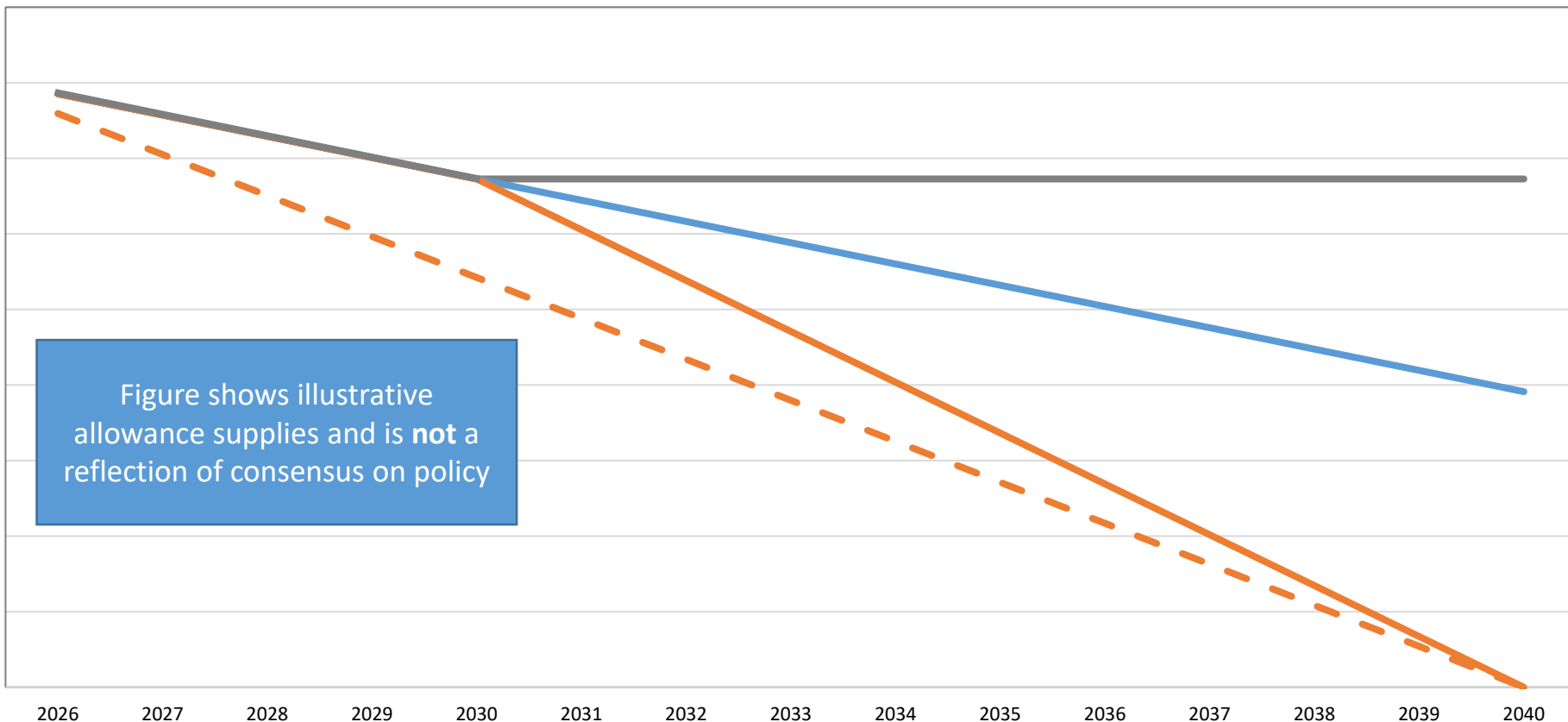
**3: Test Against Zero by  
2040**



# Current Modeling Framework – Allowance Supply

## Illustrative Allowance Supply Cases

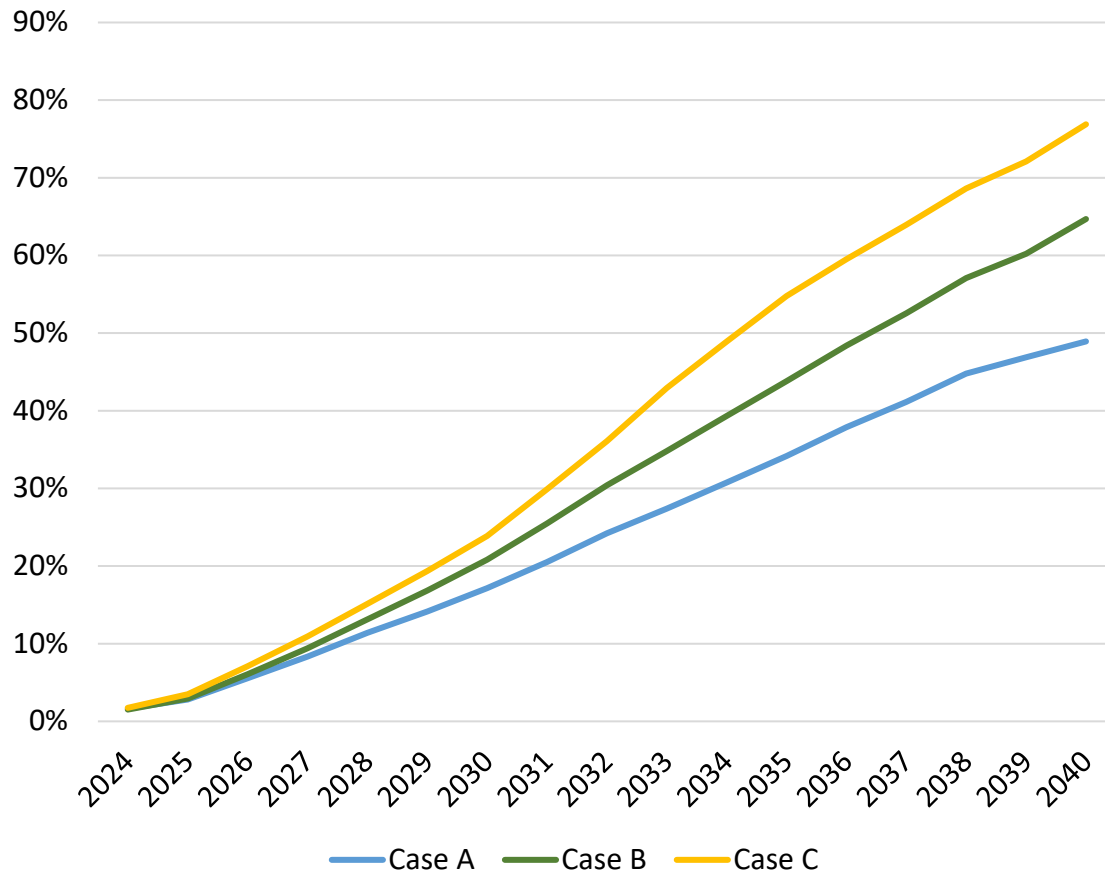
— 1 - Current RGGI Trajectory — 2 - Extend Reduction — 3 - Zero by 2040 — Zero by 2040; start in 2026



# Current Modeling Framework Array

<b>Allowance Supply Assumption Set</b>	<b>1: BAU Flat Cap Post-2030</b>	<b>2: Extend Current Cap Reduction to 2040</b>	<b>3: Test Against Zero by 2040</b>
<b>A: Procured Only</b>	<b>A - 1</b>	<b>A - 2</b>	<b>A - 3</b>
<b>B: A + In Statute or Regulation</b>	<b>B - 1</b>	<b>B - 2</b>	<b>B - 3</b>
<b>C: B + Additional Goals</b>	<b>C - 1</b>	<b>C - 2</b>	<b>C - 3</b>

# Draft RGGI Assumptions – Electric Load Growth by Case



Case	Compound Annual Growth Rate (CAGR)	
	2023-2030	2030-2040
<b>Case A</b> Procured Only	2.3%	2.4%
<b>Case B:</b> A + In Statute or Regulation	2.7%	3.1%
<b>Case C:</b> B + Additional Goals	3.1%	3.6%

\*The graph shows the % growth relative to the 2023 load.

# Renewable Energy Build Mandates (GW)

Build Mandates	Case A Procured Only	Case B A + In Statute or Regulation	Case C B + Additional Goals
Battery Storage	0	8 GW	11 GW
Offshore Wind	17 GW	33 GW	44 GW
Solar	4 GW	26 GW	41 GW

Assumption	Description	Source
<b>Planning Reserve Margin</b>	Installed reserve margin and locational capacity requirements from 2022-2040 by ISOs	<b>PJM</b> - 2021 Reserve Requirement Study <b>ISO-NE</b> - FCA13-FCA17 <b>NYISO</b> - ICAP Manuals
<b>Minimum Run Requirements</b>	Certain states have submitted minimum run requirements to be included in the model	<b>Provided by states</b> (incl. Delaware, New Hampshire, New York, and Virginia)
<b>Capacity changes</b>	Include firm builds for the next 6 years (2023-2028), firm retirements (announced in the near term), and recent builds and retirements to capture the changes in the market	<b>PJM</b> - Interconnection Queue, Generation Deactivations list <b>NYISO</b> – 2022 Gold Book, NY CAC Scoping Plan Documentation* <b>ISO-NE</b> - Interconnection Queue, Status of Non-Price Requirement Requests and Retirement De-list Bids
<b>Transmission Additions</b>	Relevant transmission additions are modeled in New York and Massachusetts	<b>NY</b> - TIER 4 New York City Renewable Energy, NYISO Public Policy Transmission Planning Process – CHPE and NY Clean Path <b>MA</b> – ISO-NE 2021 Regional System Plan – New England Clean Energy Connect
<b>Gas Prices (Draft)</b>	Henry Hub gas prices and hub basis by season	Henry Hub spot and future prices; AEO 2023 - <i>Gas price assumptions are in draft stage pending a review of the updated EIA AEO 2023 release. Gas prices assumptions will be finalized following a review of the methodology with AEO 2023 data</i>
<b>Cost and Performance of the new builds</b>	Nationwide assumption on the cost (CAPEX, VOM, FOM) and performance (heat rate, capacity factor) for the potential builds from 2023 to 2040, which will be regionalized with EPA regional modifier	<b>Nationwide</b> - NREL ATB 2022, EIA AEO 2023 <b>Regional modifier</b> – EPA Regional Cost Adjustment Factors (tb.4-14 EPA platform v6 Summer Sept.2021)
<b>Federal Tax Credits</b>	Include ITC, PTC, and relevant tax credits that are new or extended under IRA	<b>ITC/PTC</b> - DOE Inflation Reduction Act Summary <b>Hydrogen</b> - 26 USC 45V: Credit for production of clean hydrogen <b>Existing Nuclear</b> - 26 USC 45U: Zero-emission nuclear power production credit <b>CCS</b> - 26 USC 45Q: Credit for carbon oxide sequestration

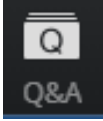
*\*For Case B and C, NYISO buildout will align with the NY CAC Scoping Plan, Scenario 2.*

# Questions for Input from Stakeholders

- How comfortable are you with the assumptions that have been included?
- Are there other assumptions that need to be included in these scenarios?
- Is there anything that we can do to improve the understanding of the differences between the cases?
- For which scenarios are stakeholders most interested in seeing results for further Program Review consideration?



# Clarifying Questions

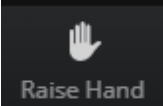
- Use the Q&A function  to send a question to the host.
- Send additional questions to [info@rggi.org](mailto:info@rggi.org)

# How to Provide Comment

- 1. Submit verbal comments during public meetings:** Meetings throughout Program Review will include opportunities for verbal comment from members of the public.
- 2. Submit written comments during open comment periods:** Public meetings will be paired with comment periods, during which comments may be sent to [info@rggi.org](mailto:info@rggi.org).

*Submit written comments for this meeting by **April 21, 2023**, with the subject line “RGGI Program Review Comment.”*

# Public Comment

- Individuals who reserved time to comment will provide comment first.
- Use the raise hand function to let us know you would like to comment.  (*phone participants dial \*9*)
- The host will let you know when it is your turn to speak.
- Speakers will have 3 minutes to provide comment.

**Note:** *This meeting is being recorded. If you prefer, you may submit a written comment to [info@rggi.org](mailto:info@rggi.org)*

# Next Steps

- Submit written comments to [info@rggi.org](mailto:info@rggi.org) by **April 21, 2023**. Use the subject line “RGGI Program Review Comment.”
- States will review and incorporate feedback into the electricity sector analysis.
- Next public meeting targeted for summer 2023



**Thank You!**