

New York State Climate Action Council

November 7, 2022
Meeting 28



**Climate Action
Council**

Agenda

- > Welcome and Roll Call
- > Co-Chair Remarks and Reflections
- > Scoping Plan Path to Completion
- > Integration Analysis Update
- > Discussion of Potential Edits to Draft Scoping Plan Chapters
- > Next Steps

Co-Chair Remarks and Reflections

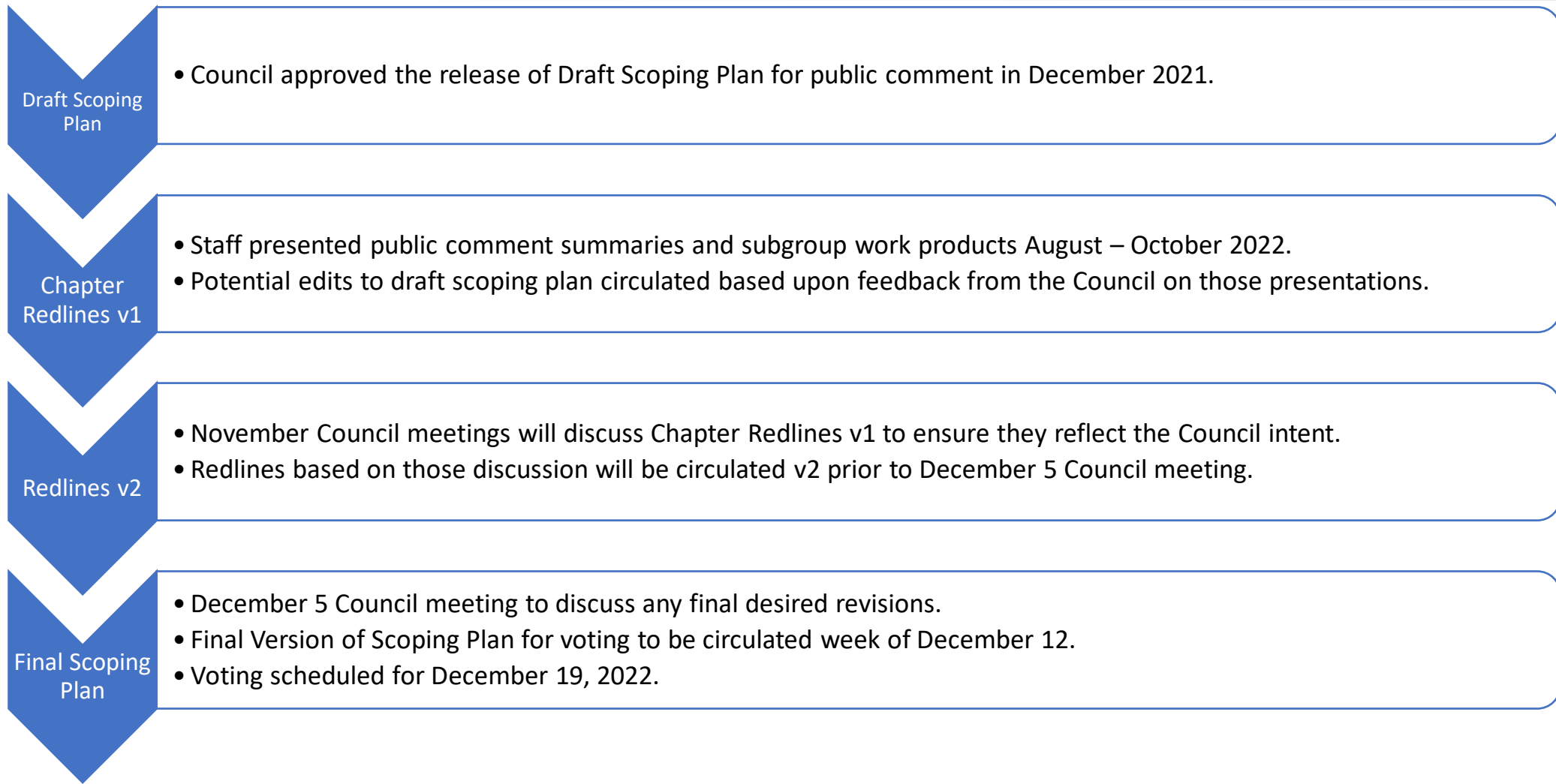
Recent Announcements

Recent Activity from New York State

- **11/03/22 Governor Hochul Announces First Clean Water Infrastructure Projects in the State to Receive Federal Bipartisan Infrastructure Law Funding | Governor Kathy Hochul (ny.gov)**
- **11/02/22 Governor Hochul and Majority Leader Schumer Announce Major Semiconductor Supply Chain Manufacturer Edwards Vacuum to Build \$319 Million Facility in Genesee County | Governor Kathy Hochul (ny.gov)**
- **10/31/22 NYSERDA Selects Team to Design, Build, and Operate State's Integrated Energy Data Resource Platform - NYSERDA**
- **10/28/22 Ahead of Tenth Anniversary of Superstorm Sandy, Governor Hochul Announces New Office of Resilient Homes and Communities to Protect New Yorkers from Climate Change | Governor Kathy Hochul (ny.gov)**
- **10/27/22 Governor Hochul, Majority Leader Schumer, and Micron, Welcome President Biden to Central New York Marking Milestone Local Community and Workforce Commitments | Governor Kathy Hochul (ny.gov)**

Scoping Plan Path to Completion

Process of Revising Draft Scoping Plan



Decision-Making Process

Preference for consensus on the Final Scoping Plan

- Consensus requires that there has been a good-faith effort to produce a Final Scoping Plan for vote that meets the most important interests of Council members.

Characteristics of consensus decision-making used throughout this process include:

- Establish ground-rules
- Embrace differences
- Build trust
- Collaborate on solutions

Co-Chairs' Approach to Version 2 of the Final Scoping Plan

- Aim to produce a consensus Version 2 of the Final Scoping Plan.
- In the event that consensus is not possible, make a decision regarding each item that is both consistent with the Climate Law and representative of the feedback provided, to the extent possible.

Approach to Feedback

Three general categories of feedback

- > Items for Council discussion today
- > Items for staff follow-up responses – summarized in appendix
- > Straightforward edits – summarized in appendix

Key Discussion Topics from Adaptation & Resilience, Agriculture & Forestry, Just Transition, Land Use, Local Government, Transportation, and Waste Chapters

- > Advanced Nuclear
- > Alternative Fuels
- > Clean Transportation Standard
- > Waste Combustion

Integration Analysis: Potential for Nuclear Energy

New York's Nuclear Power Plants

- > Nuclear fleet contributed ~25% of in-state generation (31 TWh of zero-emission power) in 2021
- > Integration Analysis Mitigation Scenarios include 20-year license extensions for upstate nuclear
- > Prior analysis presented last year showed that without this extension (and retiring after 60-year lifetime), electric system costs would increase by \$9B (NPV)

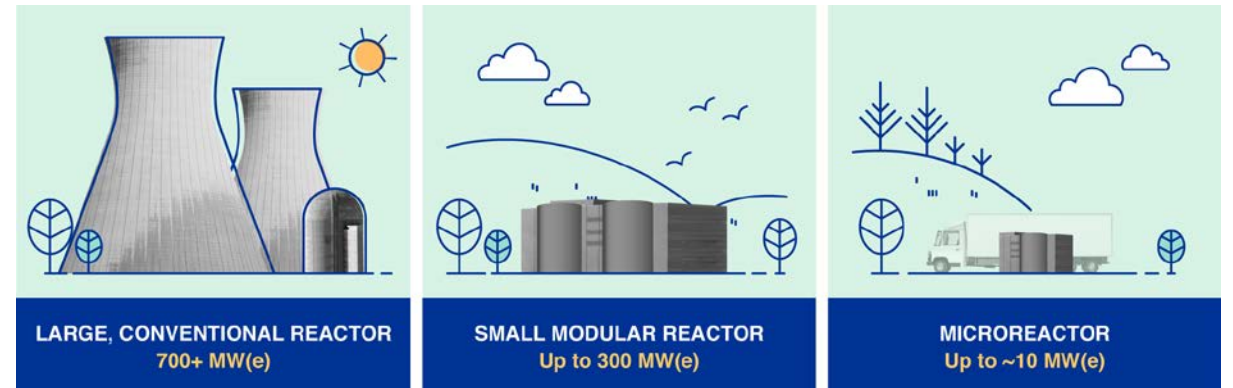
Generator	2022 Capability (MW)	2021 Contribution (GWh)
Nine Mile Point 1	624	5,038
Nine Mile Point 2	1,297	11,156
FitzPatrick	856	7,398
R.E. Ginna	581	4,701
<i>Indian Point 3*</i>	0	2,821

Source: 2022 Gold Book

*Unit retired in April 2021

Advanced Nuclear Reactor Overview

- > Advanced nuclear reactors¹ could have significant improvements over traditional reactors that could include:
 - Inherent safety features
 - Lower waste yields
 - Greater fuel utilization
 - Superior reliability or resilience
 - Resistance to proliferation
 - Increased thermal efficiency
 - Ability to integrate into electric and nonelectric applications
- > Potential use-cases under Climate Act could include: zero-emission electricity, industrial process heat, hydrogen production



Source: International Atomic Energy Agency

¹Source: 42 U.S. Code § 16271

State of the Market

- > Several companies are pursuing advanced nuclear reactors
 - In July 2022, the U.S. Nuclear Regulatory Commission (NRC) authorized certification of the NuScale Small Modular Reactor (SMR) design, to become effective 30 days after NRC publishes the final rule in the Federal Register
 - Other companies have similar applications pending
- > U.S. Department of Energy (DOE) has been a driver for market development and project demonstration, including:
 - Advanced Reactor Demonstration Program Awards aims for testing, licensing, and building reactors within 5-7 years
- > Utilities are pursuing plans for nuclear development
 - Tennessee Valley Authority (TVA) developing plans for 20 small nuclear reactors by 2050
 - Utah public utilities have partnered with NuScale on a facility at Idaho National Laboratory
 - Energy Northwest (Washington State public utilities) partnered with Terra Power and X-Energy on projects



Federal Policy Landscape

- > Nuclear Energy Innovation Capabilities Act (2018) and Nuclear Energy Innovation and Modernization Act (2019) provided research and funding for advanced nuclear reactors and aimed to modernize licensing and regulation
- > CHIPS and Science Act
 - \$800M over 5 years for Advanced Nuclear Technologies Federal Research, Development, and Demonstration Program
 - Almost \$1B over 5 years for National Nuclear University Research Infrastructure Reinvestment
 - \$400M over FY2023 through FY2026 for the Office of Nuclear Energy to carry out advanced materials RD&D activities
 - \$1.2B for the existing Advanced Research Projects Agency-Energy (ARPA-E) program
- > Inflation Reduction Act
 - Provides tax credits for production and investment for advanced nuclear reactors, with adders for prevailing wage, domestic content, and construction in former energy communities
 - \$150 Million to the Office of Nuclear Energy including to assist advanced reactor projects
 - \$700 Million to support research of HALEU (High Assay, Low Enriched Uranium) fuel, as well as its development and use in advanced reactors
 - Additional funding for loan guarantees for investment in energy infrastructure that has ceased or may cease operations

Nuclear Sensitivity

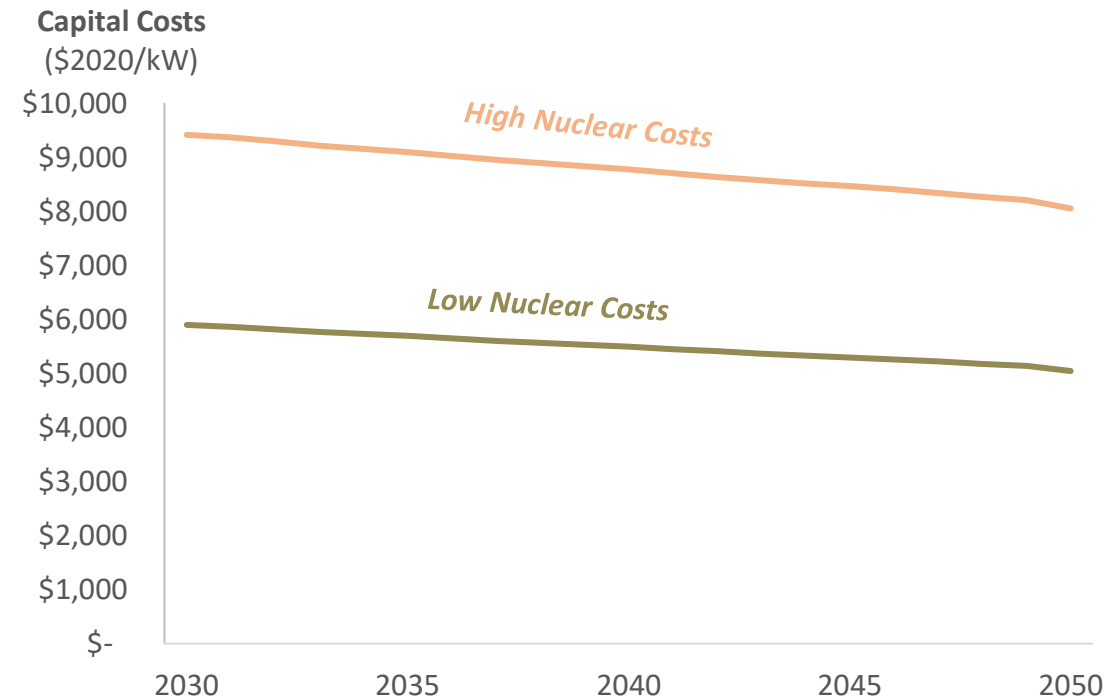
> Objective:

- Explore how introducing new nuclear (with IRA incentives*) as a candidate resource could impact capacity build and electric system costs
- Explore impact of both high and low technology cost sensitivities

> Economic Analysis screening assumptions:

- New builds in zones A-F
- 90% capacity factor
- Availability of IRA credits through entire study period due to extended availability and safe harbor

*Includes tech neutral ITC/PTC with prevailing wage and domestic content bonuses

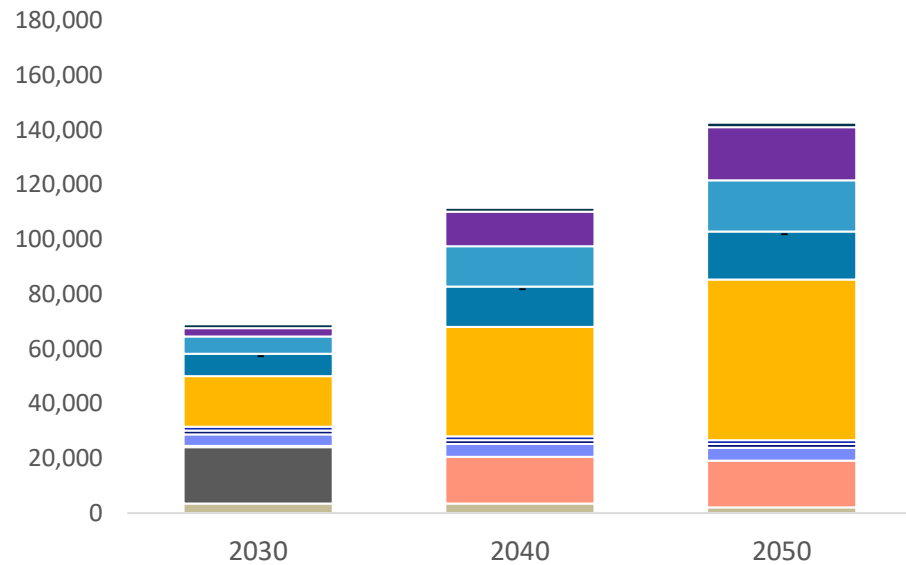


Notes: The High-Cost sensitivity reflects a starting point based on Lazard's Levelized Cost of Energy report, which is comparable to the costs of recent new nuclear projects. The Low-Cost sensitivity reflects a starting point based on EIA's Annual Energy Outlook, which provides a similar cost outlook for both new conventional light-water reactor nuclear projects and new small modular reactor projects. Cost declines in both cases are derived from NREL's Annual Technology Baseline.

Nuclear Sensitivity Key Findings

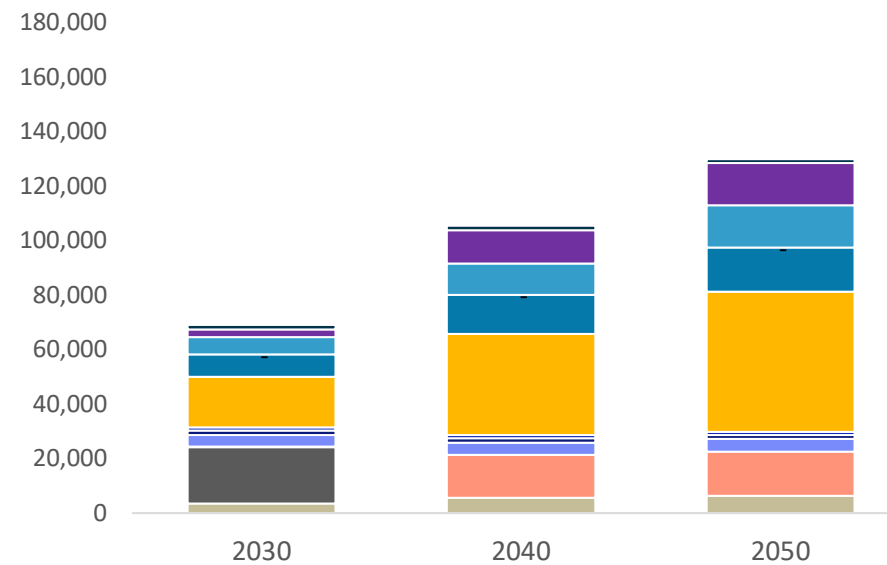
IRA 2042, high-cost nuclear

Installed Capacity
MW



IRA 2042, low-cost nuclear

Installed Capacity
MW

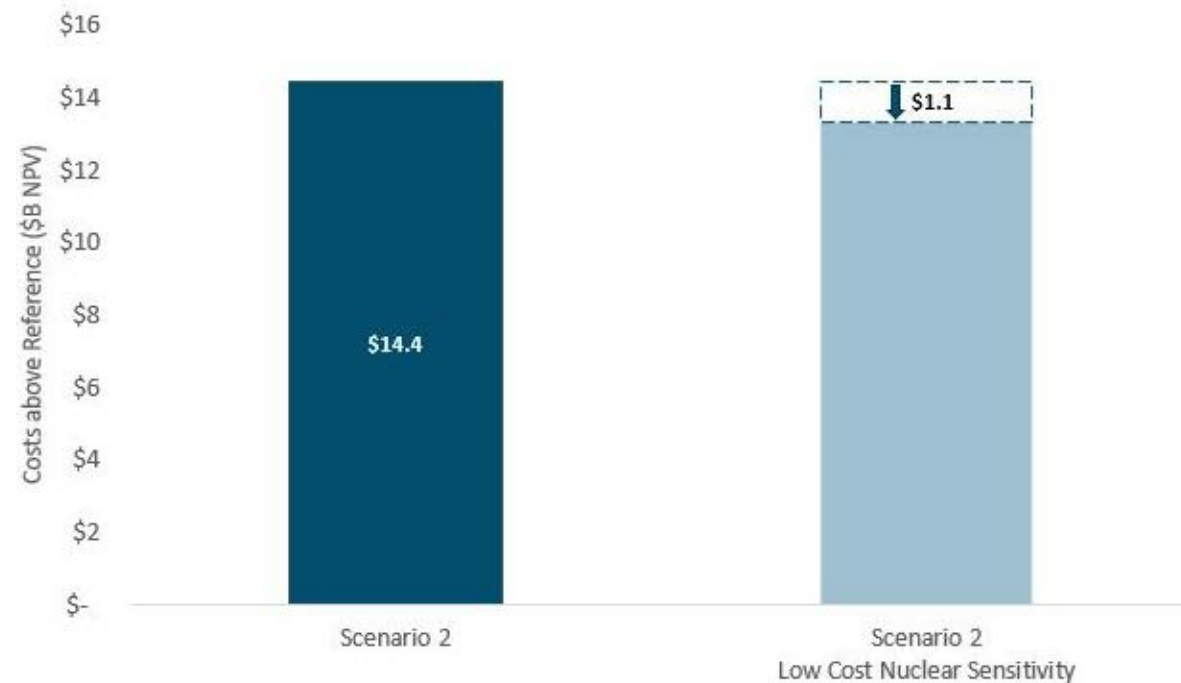


- Pumped Storage
- Battery Storage
- Offshore Wind
- Wind Imports
- Wind
- Solar
- Hydro Imports (New)
- Hydro Imports (Existing)
- In-State Hydro
- Other
- Zero-Carbon Firm Resource
- Gas & FO
- Nuclear

- > Under the high-cost nuclear sensitivity, no nuclear capacity was selected
- > Under the low-cost nuclear sensitivity, 4 GW of new capacity were added by 2050
- > Both scenarios are majority wind and solar by 2050, with tens of GWs of wind and solar additions
- > With a 90% capacity factor, the new nuclear displaces nearly 12 GW of intermittent renewables and 5 GW of firm resources and battery storage. These units can provide ~33 TWh of carbon free generation in 2050

Additional Takeaways

- > The availability of both the IRA and lower cost trajectories are essential for potential economic competitiveness of nuclear
- > Under the IRA and with low nuclear costs, adding new nuclear capacity and displacing renewables and firm generation could reduce electric system costs by \$1.1B (8% of Mitigation costs)
- > Transmission costs and lack of operational flexibility inhibit a larger buildout (more study needed)
- > While these resources may be less land intensive, significant construction and permitting challenges remain



Discussion of Potential Edits to Draft Scoping Plan Chapters

Alternative Fuels

Discussion Items

- > Clarify the use of biogas onsite, where feasible and practical, is preferred before refinement of biogas into RNG for onsite use with excess RNG used locally
- > Recommendation to avoid “significant” new gas infrastructure in the Waste and Agriculture & Forestry Chapters is specific to infrastructure needs at a farm-based digester, WRRF, or landfill. “Significant” could be revised to align with the recommendation that gas infrastructure investments should not create a continued reliance on gas or impede the pace of electrification required by the Scoping Plan
- > Review Waste and Agriculture & Forestry chapters to ensure treatment of alternative fuels are aligned
- > Clarify that the Biomass Action Plan is evaluating applications for alternative fuels not as a substitute for electrification but as a way to meet strategic needs in order to more effectively advance the wide-scale electrification needed to meet the emission limits.
- > Clarify that sequestration benefits in the Biomass Action Plan are related to opportunities to improve forest management by creating markets for low-grade wood and forest residues

Clean Transportation Standard

Discussion Items

- > Is a clean transportation standard more narrow in terms of allowable options than a clean fuel standard?
- > Include a clear direction to advance the policy if the analysis of viability, need for and efficacy supports the policy and the elements of design mentioned are incorporated.
- > Do we caveat in other areas the “organizational capacity given other policies” like we do in the discussion of the clean transportation standard? If this is needed here, can we be more specific as to why.
- > Suggest using “could” instead of “will” or “would”.

Waste Combustion

Discussion Items

- > In the Waste Chapter Vision for 2050, it is noted that the existing capacity for combustion of municipal solid waste is retained to manage some waste
- > After reducing waste by 85% in 2050 there are some types of waste that, absent advances in technology, can not be recycled, reused, composted, or otherwise diverted from landfills. This remaining waste will need to be managed either through continued landfilling, combustion, or export.
- > There is a need to clarify what the chapter means by “high environmental standards” for combustors
- > The continued operation of combustors should be discussed in the context of the facilities meeting all permitting requirements, including the requirements of Section 7 of the Climate Act – examining consistency with the Statewide GHG emission limits and disproportionate burden on disadvantaged communities.
- > The Waste Chapter defers to the PSC in determining if electricity generation from MSW combustion will continue after 2040

Open Feedback

Next Steps

Next Steps

Tentative Council Meetings and Topics

Date and Time	Location	Topic
Monday, November 21, 9 am – 1 pm	Empire State Plaza Meeting Room 6	Discuss redlines of interest
Monday, December 5, 1 – 5 pm	Empire State Plaza Meeting Rooms 2-4	Final resolution of outstanding items
Monday, December 19, 1 – 5 pm	Empire State Plaza Meeting Room 6	Vote on Final Scoping Plan, member statements

Proposed Schedule for Distribution of Draft Edits

Plan Chapters	Redline text provided to CAC	Small group feedback session	Discussed at CAC meeting
Gas Transition, Buildings, Health, Industry	9-Nov	14-Nov	21-Nov
Economywide, Electricity, Climate Justice	14-Nov	17-Nov	21-Nov

Appendix: Cost Estimates for the Buildings Sector

Cost Estimates for the Buildings Sector

- > In support of the draft Scoping Plan, the Integration Analysis models technical pathways for New York to achieve the climate targets set in the Climate Act and evaluates associated impacts on energy demand, GHG emissions, and benefits and costs.
- > Cost assumptions used in the Integration Analysis can be found in **Appendix G: Annex 1**, available at <https://climate.ny.gov/Our-Climate-Act/Draft-Scoping-Plan>. For the buildings sector, these inputs represent weighted average statewide estimated costs for the installation of residential and commercial devices and building shell improvements, segmented by residential (single family, small multifamily, large multifamily) and commercial buildings.
- > Annex 1 data are drawn from a variety of sources, including national and NYS modeling. NYS-specific source estimates for the installed cost of HVAC, hot water devices, and shell improvements were developed based on desk research, direct quotes from equipment suppliers, and vetting with program and market experts. In other analysis, cost estimates developed for buildings located in Climate Zone 5 (the Hudson Valley) have been adjusted for geographic region using cost factors that reflect RSMeans construction estimating cost data, Bureau of Labor Statistics construction labor costs, and expert vetting; e.g., as compared to costs in Climate Zone 5, costs in New York City are 25% higher, costs in Long Island are 16% higher, and costs in upstate regions in Climate Zone 6 are 5% lower.
- > Higher costs in New York's downstate region are driven by a more expensive labor rate, as well as factors such as higher permitting costs and higher marketing costs (as reported by contractors).
- > Regional examples of estimated project costs for efficient electrification upgrades in a typical housing unit upstate (single family detached home in Climate Zone 6A) and in NYC (7-story multifamily building in Climate Zone 4A) are included in the February 10, 2021 Presentation to the Energy Efficiency and Housing Advisory Panel, available at <https://climate.ny.gov/CAC-Meetings-and-Materials/Advisory-Panel-Meetings-and-Materials>

Appendix: Additional Feedback

General Topics: Summary of Feedback

Follow-Up Items

- > "To fully implement the requirements of the Climate Act while maintaining economic competitiveness, the State needs the full support of the complementary national, regional and local strategies" is a point that should be made in every chapter.

Editorial Feedback

- > For each chapter, include workers and their unions as stakeholders.

Additional Feedback: Transportation

Transportation: Summary of Feedback

Editorial Feedback

- > Replace (section 11.1) "Compounding this challenge are individual customers' preference for larger, less fuel-efficient vehicles" with "Compounding this challenge are a multitude of factors. Individual consumers have a preference for large, less fuel-efficient vehicles."
- > The statement (section 11.1) that we avoid 17 MMT of GHG emissions through existing public transportation service and compact land use patterns may be misleading to some and needs to be clarified as to whether it is specific to only transportation emissions or includes building emissions. The framing of the sentence suggests we are taking credit for 17MMT of emissions reductions through past actions, actions that were not driven by GHG.
- > Provide citation (section 11.1) for the reference that NYS provides more financial support than 46 other states combined, and identify which state is second to NY.
- > Stakeholders should include "workers and their unions" and "vehicle manufacturers" more broadly instead of specifically "bus manufacturers" to spread a wide net of industry participants.
- > For T3 Community Based Service Enhancements, suggest including "offering F11" among the list of actions identified as potential enhancements. Expand "Identify, plan, and implement service enhancements" component to include "offering shared mobility and micro-transit services" and clarify that we want "...increase utilization of *existing* public transportation alternatives".
- > Use more up-to-date deployment numbers and define various terms used for alternative fuels (e.g., green hydrogen)
- > Supplement "lowering" co-pollutant emissions reductions with emphasis on "prioritizing" such emission reductions in Disadvantaged Communities.
- > Mention on-street charging as a solution for EV drivers without home charging access.
- > Clarify how VMT measurement applies to transit.
- > Clarify what is meant by (section 11.1) "measures for reducing emissions from transportation are interconnected"? Are we saying they are interconnected with actions in other sectors or interconnected with each other?
- > Clarify what is meant by "market based policies" (referenced in paragraph 3 of section 11.1)?

Additional Feedback: Waste

Waste: Summary of Feedback

Follow-Up Items

> Biogas

- If the intent is to limit the potential for emissions associated with the use of biogas, then an alternative approach would be a more robust monitoring of natural gas pipelines (e.g., the long-term monitoring and tracking of pipelines built for bio-fuels to minimize the potential for leaks.)
- Consideration should be given to proposing a Low Carbon Fuel Standard, Renewable Gas Standard or other mechanism to assist with advancing emission reductions in this sector.
- A full lifecycle analysis that accounts for the avoided greenhouse gas emissions from waste feedstocks should be used when assessing the greenhouse gas impacts of RNG from a policy perspective, as recognized by the Alternative Fuels Subgroup in their presentation to the CAC.

> W2. Waste Reduction, Reuse, and Recycling

- Suggest considering including a recommendation to have a carbon intensity label applied to either all products sold in New York, or to all products with embodied carbon in excess of a specific figure, or to products/services deemed to already be carbon intensive.
- The strategy components "Elementary School Education" and "School Curriculum" should be included in some way in all Chapters throughout the CAC.

> Circular Economy

- General concern with limited emphasis on the need for a circular economy.
- Concerned that the scope of the change in consumer habits and purchasing patterns is not accurately represented and that the emphasis is on waste management rather than reduced consumption.

Waste: Summary of Feedback

Editorial Feedback

- > The point that 42% of national GHG emissions is influenced by energy and fuel consumed in production, use and management of materials that become waste is a point that should be made much earlier. Additionally, if available, NYS figures should be included.
- > Suggest keeping the sentence "Using recycled materials in paper production..."
- > Either Vision statement should mention the need to have a circular economy.
- > For the paragraph starting with, "The most significant GHG emissions...", add to the end: **"New requirements for the end-of-life management of post-consumer products will be needed to minimize the GHG impact of products throughout the product life cycle."**
- > Clarify what is meant by "food scraps". Are they food waste (e.g., leftovers from a half-eaten meal?) or excess food (e.g., mishapen produce that won't sell at a market)?
- > Suggest changing title of strategy W5. Waste Diversion to "Refrigerant Monitoring, Leak Detection, Reduction and Diversion". This parallels language used for fugitive emissions and better articulates the goals of this section. Also, add "Monitoring and tracking HFC leaks" as a component of the strategy.
- > For W6. Fugitive Emissions of Methane and Co-Pollutants from Solid Waste Management Facilities, modify title to include **"Divert and Reduce Fugitive Emissions..."** because while we want to deliver these emissions reductions, later in the chapter there's a discussion on capturing bio-fuels, which implies diversion of emissions is acceptable as well.

Additional Feedback: Local Government

Local Government: Summary of Feedback

Follow-Up Items

- > Contradictory statements
 - Final two sentences of (section 20.1) paragraph 3 appear to contradict each other. Calling for "Uniformly applied State Mandates", which is then immediately followed with "a regional approach that acknowledges different needs", sounds contradictory.
- > Energy Efficiency
 - Energy efficiency should be included as a priority – focus should not be exclusively on the development of Clean Energy.
 - Continued development of Clean Energy can only be supported by an equally, if not more aggressive disposition, towards enhancing energy efficiency within our communities. Local Governments have an outsize role in setting the tone for what is important in communities, and for driving action in an appropriate direction.
 - State policy has always made energy efficiency a primary consideration and this chapter should be modified with that fact in mind. Shifting towards clean energy without energy efficiency will result in an inefficient allocation of resources by allowing existing inefficiencies to fester, forcing continued greater use of energy, and worse, wasteful use of renewable energy should clean energy be deployed first..
- > Community GHG Dashboard
 - Reference the challenges of data security, privacy, and ownership.
 - Include workforce representation in the group.
 - Highlight what is novel about the Climate Act GHG emissions accounting methodology.
 - Include mention of local communities working with CBOs
 - Provide guidance on how communities and local governments should be approaching DAC maps, criteria, and benefits requirement

Local Government: Summary of Feedback

Editorial Feedback

- > Ensure that GHG considerations are emphasized wherever costs are mentioned as a goal or benefit as actions taken to lower costs can actually increase emissions. The two considerations should be intertwined
- > Suggest add to disadvantaged communities to the following sentence: Partnership with local governments is a keystone of the State's clean energy, adaptation and resilience, and GHG emissions mitigation strategies, and support for local efforts will help ensure access to the benefits of these actions for all New Yorkers.
- > Increase emphasis in the introduction on the need for funding to provide local governments with the support they need to mitigate GHG emissions.
- > Delete this sentence: "Local officials stressed the importance of existing State technical assistance, incentives, and resources provided to local governments for GHG mitigation actions."
- > Include (section 20.1, paragraph 4) metrics for accomplishments (e.g., kwh and therm reductions, or GHG reductions). The final sentence of this paragraph suggests that GHG data is available.
- > last sentence in paragraph 1. Suggest adding a reference to reducing GHG emissions
- > Remove name of specific CCA providers
- > "Encourage Energy benchmarking" (section 20.2, LG4) should be the first bullet, with encouraging energy efficiency added as a second bullet
- > Industry involvement/consultation related to model local laws (section 20.2, LG3) and reducing grid interconnection costs (LG5) should be inclusive of all clean energy industries, not just solar

Additional Feedback: Agriculture & Forestry

Agriculture & Forestry: Summary of Feedback

Follow-Up Items

- > For the 'Advance Precision Feed, Forage, and Herd Management' strategy when speaking about scalability, it shouldn't be just "scalability." We also need focused research on actual effectiveness over time, particularly on relatively new additives.
- > Advance Agricultural Nutrient Management
 - Three things should also be discussed: 1) past nutrient management focused more on P than N; this has started to shift over the past decade, both because of N₂O and because of water quality, but we need to do more. 2) climate change may be aggravating N losses from ag systems to downstream lakes and rivers. 3) ammonia volatilization a much larger issue than we recognized 5-10 yrs ago.
- > Adopt Soil Health Practice Systems
 - Important to emphasize a focus on practice systems that achieve climate mitigation and adaptation while also helping to mitigate other environmental problems such as N pollution in lakes and rivers. Conservation tillage is very problematic in this context.
 - When speaking of perennial plant systems, focus should be expanded from steep slopes. Should also mention perennial grains such as Kernza, replacing annual crops such as those now used for corn.
- > Develop a Sustainable Biomass Feedstock Action Plan for Bioenergy and Low-Carbon Products
 - Concern over incentivizing feedstock residue use.
 - Does not support development of low carbon fuel strategies for challenging to electrify applications.
 - Concern over use of NY state funds to support research of hard to decarbonize fuel needs such as jet fuel.

Agriculture & Forestry: Summary of Feedback

Editorial Feedback

- > When mentioning sequestration amounts, be clear if they are annual or total figures.
- > When presenting emissions rates, clarify if they are average or marginal emission rates.
- > Include in the list of market opportunities under the Advance Alternative Manure Management strategy Low Carbon Fuel Standards and Renewable Gas Standards.
- > Clarify how a forests ability to sequester carbon may be altered by climate change.
- > Where potential collaborations are mentioned, be more inclusive and allow broader participation.
- > Need better incorporation of small parcels and clear statements as to whether and how they are included in programs and initiatives.
- > Clarify 'additionality' in AF4. Assist Landowners in Implementation of Sustainable Forest Management and Mitigation Strategies component 'Enact New Legislation'.
- > Under Livestock Management, explicitly state that enteric fermentation is larger than manure source, that precision feeding is one way to address enteric fermentation, but there are likely other ways as well.
- > For Monitor and Benchmark Agricultural Greenhouse Gas Emissions, mention that county level data would be extremely useful, not just state-level.
- > Clarify that for farms, the goal is to reduce their deleterious effects on water quality.
- > Bolster Local Agricultural Economies should include mention of new experimental crops like perennial grain crops.
- > Climate-focused Bioeconomy should clarify between high quality veneer and boards vs. paper, pallets, and firewood.
- > For Develop Agricultural Environmental Management Planning for Climate Mitigation and Adaptation, mention that climate change likely aggravates nitrate in groundwater from ag soils, a water quality problem. Add a new component that addresses ways to reduce the consequences of climate change on deleterious effects of ag on water quality.

Additional Feedback: Just Transition

Just Transition: Summary of Feedback

Follow-Up Items

- > Direct Displaced Worker Support
 - Delete the following language: "as infrastructure and appliances reach the end of their useful life". The focus should be on reduction of fossil fuel use, not on eliminating infrastructure and appliances that can potentially be used with decarbonized energy sources like RNG and hydrogen.
 - Addition of mutual aid/work agreements and financial incentives for worker retention measures
- > Exploring Emerging Technologies
 - RNG/biofuels should be included in the discussion of technology opportunities that align with Climate Act goals and support for labor and a just transition. Additionally, like hydrogen, pursuit of RNG will see benefits from the Inflation Reduction Act, including for use in buildings.
 - Deployment opportunities for thermal energy networks, enhanced geothermal systems
- > Labor Standards
 - Reword S. 7.2 heading as follows to eliminate limiting text: "Ensuring Application of Labor Standards to All Projects" – and other related recommendations that labor standards be applied to all sectors and all projects.
 - Additions of labor peace and neutrality agreements, among other labor standards.
- > Other topics:
 - Office of Just Transition – interaction with other existing WFD funding and financial incentives; tracking of job displacement
 - Edits to Just Transition Principles produced by the Just Transition Working Group
 - Application of Buy New York provisions

Just Transition: Summary of Feedback

Editorial Feedback

- > Be careful with use of passive voice. Avoid "probably", "might" or "may".
- > The use of “fossil gas” versus “natural gas” needs to be consistent. The use of "natural gas" is preferred because it aligns with existing regulatory language in established law (e.g. Environmental Conservation, Public Service Law, General Business, etc.). Absent updates to existing laws, the use of "fossil gas" is likely to cause confusion and increase likelihood of legal challenges.
- > Strategies for community engagement and stakeholder awareness should be accompanied by robust Specific, Measurable, Achievable, Relevant, Time-bound (SMART) targets
- > Under Community Engagement, Stakeholder Input, Market Assessments, the list of organizations should include the Department of Civil Service. The path to net zero requires new skills and expertise and likely new job titles. Agencies have hiring needs that likely do not align well with existing civil service titles.
- > Direct Displace Worker Support language should be modified to include opportunities for workers to work on decarbonized natural gas systems: “including decarbonization and operation of the gas delivery system with alternative fuels, support of dual or hybrid heating pathways and newly authorized utility and community thermal energy network development for gas utility workers and contractors.” The inserted language comes from the Gas System Transition Subgroup's approved framework as part of its key considerations to ensure a just transition for the gas industry workforce. When speaking to the importance of business model changes in the fuels industry, clarify that changes would need to be supported by PSC rules to repurpose and enhance existing skill sets to decarbonize the gas system.
- > Consistent with the Gas System transition subgroup framework, references to “decommissioning” the gas system should be changed to “decarbonization”.
- > Add citation for labor standards in 2022, networked thermal, and definition of green hydrogen.
- > When referencing technology mixes, broaden to include all alternative fuels consistent with the alternative fuels framework.
- > Bolstering Training Curriculum and Programs should also include mention of union apprenticeship programs

Additional Feedback: Land Use

Land Use: Summary of Feedback

Follow Up Items

> Smart Growth

- Section should better flesh out the differences between regions of the state. There are big differences between suburban and rural transit issues that need to be discussed, highlighted, and enhanced. Include an explicit statement on the need to find ways to strength mass transit in rural parts of the State.
- Need more emphasis on infrastructure. Distribution systems are not prepared so we'll need stronger infrastructure to revitalize some communities and the current practice of putting the burden on developers reduces the interest.
- PSC should be engaged to support build-out of infrastructure to support smart growth development patterns.
- Should consider methods to finance the investment needed to finance revitalization in urban areas and disadvantaged communities.

> Emphasis of Strategies

- LU2. Afforestation and Reforestation: Should the focus be on number of trees planted or the amount of forests and carbon sequestration we end up with? Suggest inclusion of incentives for green roofing practices.
- Component of LU3. Avoid Agricultural and Forested Land Conversion to increase funding for farmland and forestland protection programs should also include limits to conversion of forests to agricultural lands. Should also clearly distinguish between agriculture and forest lands in terms of their sequestration potential and speak to the management of small parcels with similar emphasis to Agriculture & Forestry chapter.
- We should be careful about how much emphasis is placed on tidal wetlands and seagrass beds in LU4 because the sequestration potential is small. Our investments can be better directed to forests due to higher rates of sequestration
- Language on page 19 should focus more on forests due to higher rates of sequestration in this land type.
- References to California legislation is unclear.
- Regarding "Provide conservation incentives to landowners" component of LU5. Mapping, Research, Planning, and Assistance, flesh this out with more detail and give greater emphasis.

> Terminology

- The term "underserved" is too generic and should be defined or revert back to the original language.

Land Use: Summary of Feedback

Editorial Feedback

- > Modify opening paragraph with bolded text: The way we use land, whether for development, conservation, or a mix of uses, directly affects the State's carbon emissions, sequestration, and storage. Smart growth land use patterns reduce transportation-based GHG emissions by reducing automobile use, **enhancing accessibility and effectiveness of public transit and pedestrian traffic** and thus reducing VMT; sustainable land use planning and zoning can facilitate optimal siting of renewable energy; and protection of forests, cropland, and wetlands is critical for natural carbon sequestration, **and improve the resilience of communities**. Deciding where to conserve land, where to develop, and how to arrange and design that development constitutes the critical first steps in addressing climate change in land use. These decisions directly impact the ability to achieve carbon mitigation, sequestration, and adaptation and resilience goals.
- > Modify 3rd paragraph with bolded text: Land use and land management decisions that seek to maximize carbon sequestration in our natural and working lands is a key component to realizing the Climate Act goal of net zero emission across all sectors of the economy. Not only are natural and working lands critical for **ongoing and enhanced** future carbon sequestration, avoiding conversion of such lands eliminates the prospect of additional GHG emissions release.
- > LU3 should include ORES as an agency when discussing siting of renewable energy projects.
- > Emphasis to "maintain" NY's forest and carbon sequestration and storage levels should be modified to "enhance".
- > Clarify what happens once the goals of (LU2. Afforestation and Reforestation) producing 10 million trees per year in 2030 and 20 million trees by 2040 is achieved. Do we return to a steady state of the original 1.2 million per year or a higher value?

Additional Feedback: Adaptation & Resilience

Adaptation & Resilience: Summary of Feedback

Follow Up Items

- > Post-event assistance
 - In making communities more resilient in the future the chapter focuses on measures to improve future regulatory and planning actions for improving resiliency – are there also near-term actions that can improve a community's resiliency should a storm happen in the near term? Is there a role for the State to play in gap-filling direct federal support in disadvantaged communities?
- > Ensure the Reliability, Resilience, and Safety of the Energy System
 - A primary component of this strategy should be to utilize the existing natural gas system to ensure the continued resiliency and reliability of the State's energy systems. The underground pipeline system is generally shielded from impacts from severe weather events and is extremely reliable (e.g., National Fuel's system is 99.99% reliable). Could add in AR5 and/or AR9.
- > Emphasis on preservation versus expansion
 - Emphasis on preservation should be changed to opportunities for expansion (e.g., creating new farmland, new wetlands, etc.)
- > AR4. Identify and Evaluate Options for Supporting Equitable Adaptation and Resilience Practices and Projects, and to Enhance Insurance Protection
 - Should eminent domain be considered as a strategy where impacts are severe and adaptation in-place may be more costly than relocation?
- > AR6. Ensure the Reliability...
 - Consider including additional component to **Establish Statewide Warranty of Habitability incorporating Indoor Temperature Range**. Several local municipalities have rules re: indoor heating in the winter heating season. Indoor spaces must be heated to a certain minimum temperature when the outdoor temp drops below a specific level. Given concerns about heat waves, establish a maximum allowable indoor temperature as well would address a major public health concern.

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Editorial Feedback

- > Modify last sentence of first paragraph of Priority Actions (section 21.2) to say, “establish a campaign to build **public awareness, and educate students from k-12, on the importance of climate change;** ...)
- > In last paragraph of Priority Actions (section 21.2), mention the need to coordinate with FEMA to ensure disadvantaged communities will benefit from Federal Funds as easily and to an equivalent degree as wealthier communities.
- > Modify sentence under Explore hazard mitigation funding alternatives component of AR4 to say “... and to transfer **costs incurred from catastrophic risk to...**”
- > Modify first component of AR9. Ensure the Reliability, Resilience, and Safety of the Energy System to say, **Periodically Revise Existing** energy system resilience standards and assess vulnerabilities: The PSC should **periodically review** established resilience standards and require **regulated** utilities and **critical infrastructure** to assess vulnerabilities to climate hazards and to develop and implement agency-approved risk-reduction plans. **Municipal utilities not regulated by the PSC should be supported in the development of their own requirements and plans.**
- > Add a component to AR9. Ensure the Reliability, Resilience, and Safety of the Energy System regarding behind the meter battery storage.