

New York State Climate Action Council

January 19, 2021
Meeting 7



**Climate Action
Council**

Meeting Procedures

Before beginning, a few reminders to ensure a smooth discussion:

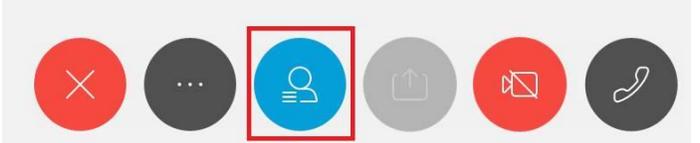
- > CAC Members should be on mute if not speaking.
 - > If using phone for audio, please tap the phone mute button.
 - > If using computer for audio, please click the mute button on the computer screen (1st visual).
- > Video is encouraged for CAC members, in particular when speaking.
- > In the event of a question or comment, please use the hand raise function (2nd visual). You can find the hand raise button by clicking the participant panel button (3rd visual). The co-chairs will call on members individually, at which time please unmute.
- > If technical problems arise, please contact NYS.CAC@cadmusgroup.com.



You'll see  when your microphone is muted



Hand Raise



Agenda

- > Welcome
- > Consideration of December 15, 2020 Minutes
- > Co-Chair Remarks and Reflections
- > Waste Panel Progress Report
- > Integration Analysis
- > Advisory Panel Recommendations Submission Process
- > Agency Updates
- > Next Steps

Consideration of December 15, 2020 Minutes

Co-Chair Remarks and Reflections

State of the State 2021



Governor Cuomo unveiled 2021 SOTS proposals during the week of Jan. 11th:

- > **Historic Large-scale Renewable Energy Awards**
 - Offshore wind awards and port investments
 - Large-scale onshore project awards
 - Tier 4 RFP issuance
 - Initial Build Ready sites
- > **Community Solar for Local Governments (NYPA)**
- > **Climate Justice Jobs Corps (NYSERDA) and clean energy workforce training highlights**
- > **Solar and Efficiency Retrofits for Affordable Housing**
 - NYSERDA, HCR, and NY Green Bank to collaborate on *Raise the Green Roof*
 - SONYMA, *Clean Heating/Cooling, Resilience Offerings*



Beacon Wind & Empire Wind 2 will Deliver Nearly
2,500 Megawatts

Public and Private Investment of
\$644 Million in NY Ports



Combined, These Projects will Deliver
\$14 BILLION
in Direct Investments and
8,600 GOOD-PAYING JOBS

New York has made the
LARGEST
Combined Renewable
ENERGY
AWARDS
ever by a U.S. State



NYSERDA



24 Large-scale Land-based Renewable Projects Awarded to Deliver
2,200 Megawatts

Which is Equivalent to Powering Over
560,000 Homes for 20 Years

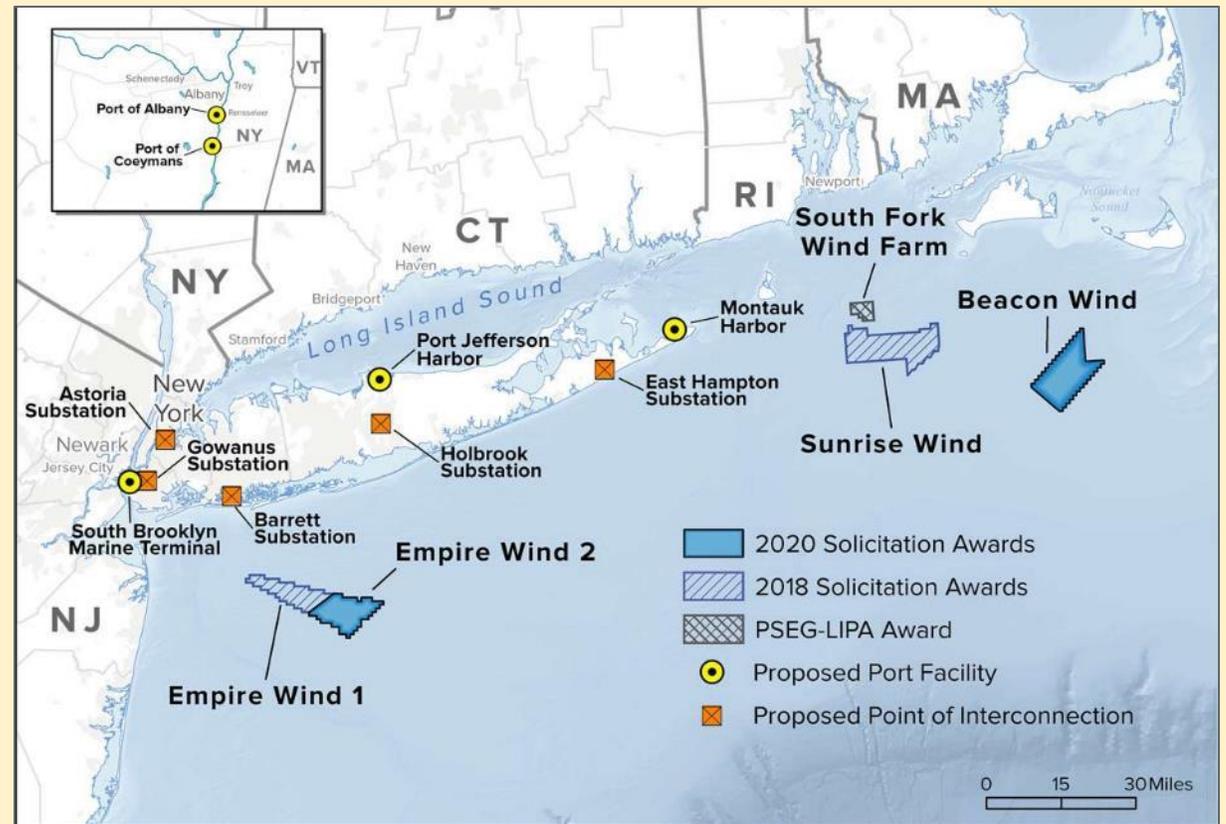
CLEAN ENERGY
PROJECTS WILL

- ✓ Stimulate New York's economic recovery from COVID-19
- ✓ Prioritize disadvantaged communities
- ✓ Create good-paying short- and long-term jobs
- ✓ Help decarbonize New York's power sector and combat climate change

Offshore Wind Port Infrastructure

Empire Wind 2 and Beacon Wind will bring \$8.9 billion of investment, leveraging almost \$3 of private funding for every \$1 of public funding for a combined \$644 million in port investments, and support the creation of 5,200+ jobs

- > Create the nation's first wind tower-manufacturing facility at the Port of Albany
- > Establish an offshore wind turbine staging facility and operations and maintenance hub at the South Brooklyn Marine Terminal
- > Increase use of the Port of Coeymans for turbine foundation manufacturing
- > Support the ongoing operations and maintenance from Port Jefferson and Port of Montauk Harbor
- > Giving New York five wind industry focused ports, more than any other state



2020 Renewable Energy Standard Solicitation

22 New

Large-scale renewable energy projects

More than 40%

cost savings over previous year

Nearly \$3 billion

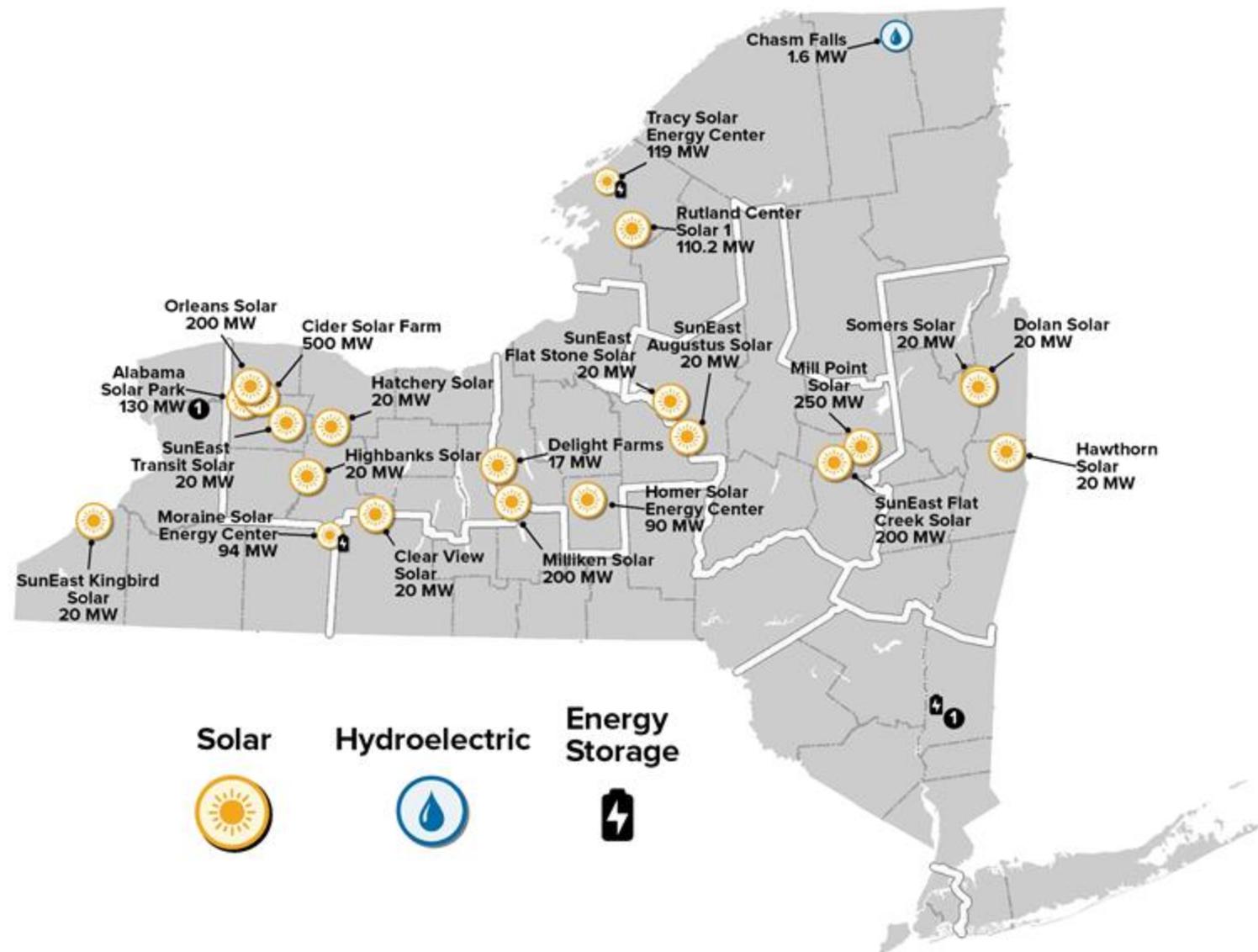
direct investment projected

Over 3,100

jobs created

Reduced carbon emissions

- as if taking more than 440,000 cars off the road annually



Electric Transit Buses Announcements

More Than \$16 Million in Volkswagen Settlement Funds and Technical Support for Five Large Transit Operators

Additional \$2.5 Million Available Statewide for School Buses that Reduce Emissions

Expands Charge Ready NY Incentives for Disadvantaged Communities and Enhances Options for Aggregated Electric Transit Bus Purchasing

- > Funding will help cover up to 100 percent of incremental costs for all-electric school buses operating near a disadvantaged community.

State of the State Announcements

- > State to assist transit operators in purchasing 100 new electric buses; 45 for the Metropolitan Transit Authority
- > MTA will partner with DOE's National Renewable Energy Laboratory on using electrified rail power for bus charging
- > MTA will launch a "Smart Battery" initiative with NYSERDA to capture regenerative braking energy from subways

CLCPA Milestones

DEC Finalizes 'Value of Carbon' Guidance

- > DEC and NYSERDA, in consultation with Resources for the Future
- > Guidance establishes a monetary value for the avoided emissions of carbon dioxide, methane, and nitrous oxide; provides an up-to-date review of approaches used by other governments to place a value on emissions; and identifies future areas of work
- > Carbon dioxide: \$125/ton; methane \$2,782/ton; nitrous oxide \$44,727/ton

GHG Reductions Regulations Finalized

- > Governor Cuomo announced the finalization of regulations to reduce greenhouse gas emissions statewide and implement the CLCPA
- > These regulations:
 - Establish limits on the statewide emissions of greenhouse gases 40 percent by 2030, 85 percent by 2050
 - Emissions will be measured in carbon dioxide-equivalent units using a 20-year Global Warming Potential

Waste Panel Progress Report

Waste Panel Progress

- > *Held 4 full panel meetings to date*
- > *Created sub-panel working groups to focus on strategies, multiple meetings*
- > *Cross-panel engagement underway at staff and sub-panel level*
- > *Engagement with Climate Justice Working Group on January 27*
- > *Public meeting planned for mid-February*

Mitigation strategies

1. Scope: Maximize local waste diversion in low-income communities

Strategy under consideration	Explore innovative community-based solutions to capture and divert recyclable materials from waste stream. Promote local-scale recycling and compost collection initiatives that create jobs. Provide recycling and compost outreach and education in marginalized communities.
Rationale	To reduce exposure to environmental contaminants in impacted communities, reduce landfilling of methane producing waste. Sustainable green-collar jobs are needed in communities that have high unemployment rates. Education builds awareness and improves material diversion.
Equity considerations	Ensure climate and environmental justice in waste collection and processing. Including reduced reliance of waste transfer stations, landfills, combustors, waste transport. Support capacity and capital building with CJ and EJ organizations. Include local organizations to help create new policies and ensure enforcement.
Potential Implementation challenges	Buy-in and financial support from municipalities and local governments. Cost associated with building programs. Local land usage.
Issues to explore	Methods to sustain grassroots initiatives. Means to engage youth in green job sector. Learn from Green City Force in NYC and other local groups. Resident incentivization.
Additional thoughts	Cross-cutting issue with local land use and permitting

Mitigation strategies

2. Scope: Waste Reduction and Recycling

Strategy under consideration	Expand Extended Producer Responsibility (EPR) / Product Stewardship and the Returnable Container Act (Bottle Bill)
Rationale	EPR shifts the responsibility for managing targeted products and/or packaging at the end of its useful life to product manufacturers. EPR includes recycling mandates to divert waste from the landfill, therefore reducing GHG emissions. To maximize GHG benefits, EPR policies should target packaging and printed paper, carpets, clean energy products and appliances. The Bottle Bill, NY's first EPR policy, drives high levels of reuse and recycling and should be expanded for additional GHG benefit.
Equity considerations	Consumers will benefit from better product and packaging design and reduced waste disposal burdens. Additional recycling infrastructure can be supported, potentially producing green jobs.
Potential Implementation challenges	Legislative action is needed. Broad EPR framework has been difficult to pass in the past and has focused on specific products each time. In the short term, significant momentum exists for EPR for packaging and printed paper.
Issues to explore	EPR should be structured to ensure improved recycling and reduced GHG emissions, and not merely a cost shifting strategy. EPR framework rules allowing additional products to be added easily in the future, and provides consistency for the addition process, should be explored.
Additional thoughts	Products that would immediately benefit from EPR legislation: packaging and printed paper, carpet, clean energy products (e.g., solar panels, batteries, wind turbine blades), appliances, and refrigerants. Bottle bill additions include wine, liquor, and other beverage containers.

Mitigation strategies

3. Scope: Waste Reduction and Reuse

Strategy under consideration	Materials Exchange and Repair Investments
Rationale	Financial incentives, grants and contracts to support reduction and reuse as a waste prevention and landfill diversion strategy for methane producing wastes (e.g., single-use service ware and packaging, furniture, textiles, and other materials) by NGOs, local governments and other entities.
Equity considerations	Reuse and repair resources allow consumers to save money by making use of existing products instead of buying new and reduces the burden of waste disposal on communities. Promotion of reuse and repair fosters those small community-oriented businesses. Skills training programs furthers a local green workforce.
Potential Implementation challenges	Need to determine best incentive methods to be effective and efficient (e.g., tax programs, grants, etc.)
Issues to explore	<p>Example incentive programs to encourage source reduction, reuse, and repair:</p> <ul style="list-style-type: none"> • Replacement of single-use food service ware and packaging with durable alternatives; • Foster deconstruction projects for building material reuse (lumber, wood furniture, etc.); • Reusable packaging used to transport or distribute goods; • Repair skills training for schools and vocational programs to enhance workforce development through skills that encourage waste prevention and diversion from landfill; and • Develop sharing platforms and online directories for reuse options to connect residents, businesses, and local resources.
Additional thoughts	

Mitigation strategies

4. Scope: Improve Markets for Traditional Recyclables and Construction & Demolition Debris

Strategy under consideration	Expand domestic markets and recycling capacity in NYS
Rationale	Financial incentives to support markets and maximize the capture of all recyclables (but specifically those for methane producing wastes) such as mixed paper, cardboard, large-volume items (e.g., film plastics and textiles) will divert these materials from disposal. Remove C&D debris, some of which contains methane producing wastes, from disposal; reducing the GHG impacts of production of new products by reusing and recycling C&D debris.
Equity considerations	Supports green jobs from the increased local recycling infrastructure.
Potential Implementation challenges	Cost to build facilities, competition with low-cost virgin materials. Need to collaborate with agencies and local governments on revising building codes/permits as well as the market development for deconstructed or recycled materials.
Issues to explore	Appropriate mechanisms (e.g., financial, etc.) to support recycling infrastructure within the state. For C&D debris, the need to focus on responsibility of the builder/developer to plan for recovery and to ensure performance-based diversion goals are met.
Additional thoughts	May require regional collaboration, and / or national focus. Work to ensure market development investments facilitate stabilization of municipal recycling programs through contract mechanisms, such as floor pricing for guaranteed supply.

Mitigation strategies

5. Scope: Organic Waste Reduction and Recycling

Strategy under consideration	Expand food donation, food waste reduction, and food scraps recycling strategies statewide. Expand markets for compost and other similar products.
Rationale	Reducing the quantity of organics disposed by first feeding hungry people and then recycling will significantly reduce GHG emissions from landfilling.
Equity considerations	Increased food donation and statewide financial support of food rescue organizations will benefit food insecure New Yorkers. Reducing organic materials from being disposed at landfills (potentially located in Environmental Justice communities) will help reduce odors, truck traffic, and other site impacts.
Potential Implementation challenges	Current lack of available capacity to process significant quantities of food scraps and cost to develop new infrastructure. Markets for the resulting products (compost, etc.) is crucial.
Issues to explore	Potential collaboration with agricultural sector on digester development on farms. Collaboration with DOT, DAM, etc. on product use.
Additional thoughts	<p>Strategies to consider:</p> <ul style="list-style-type: none"> • Amend the Food Donation and Food Scraps Recycling Law to include smaller generators and implement a tiered approach, eventually including residents. • Funding for food rescue organizations to support the donation of edible food to hungry New Yorkers. • Explore potential surcharge on the disposal of organics and other methane producing wastes. • Funding or other financial incentives to facilitate new development of facilities. • Support education and other efforts to implement food waste reduction programs and initiatives.

Mitigation strategies

6. Scope: Reduce methane and other fugitive emissions from landfills and other waste management facilities

Strategy under consideration	<p>Use incentives and regulations to:</p> <ul style="list-style-type: none"> • Establish and support performance standards for waste facilities. • Support co-locating and local comprehensive waste management facilities, as well as energy or heat users such as greenhouses, industrial facilities, and similar. • Improve monitoring for better data collection of actual emissions beyond general modeling, and to inform decision making using these emissions measurements.
Rationale	<p>Technologies exist that can better measure and reduce fugitive emissions. Incentives and regulations are needed to promote investment and upgrading of infrastructure.</p>
Equity considerations	<p>All communities should have access to best-in-class technologies and high-quality infrastructure investment.</p>
Potential Implementation challenges	<p>Cost. Local permitting and land use rules and potential impacts to communities.</p>
Issues to explore	<p>Opportunities for public-private partnership to increase investment. Engage local communities on the technology needs of their communities.</p>
Additional thoughts	

Mitigation strategies

7. Scope: Minimize Fugitive GHG Emissions from Wastewater Treatment

Strategy under consideration	<p>Mitigate fugitive emissions of methane through (1) routinely inspecting WRRF gas handling systems for leaks and taking actions to resolve, (2) funding state-of-good-repair work to stop leaks, and (3) encouraging conversion of home septic systems in densely populated areas to sewer systems.</p>
Rationale	<p>While anaerobic systems at WRRFs are designed to control and contain methane formation, state-of-good-repair issues can cause leaks. Routine inspection of these systems will identify leakage issues, and funding to repair underlying issues can reduce fugitive emissions to nearly zero.</p> <p>NYS has approximately 1.5 million septic systems which emit methane unmitigated. Where sufficient population density supports it, recommend converting to sewer systems that release far less methane per capita.</p>
Equity considerations	<p>State-of-Good-Repair issues at WRRFs often result from constrained financial resources limited by the need to keep water rates affordable. Financial assistance to repair leaks or incentivize the beneficial use of the biogas would help municipalities prioritize this work.</p> <p>Hook-up fees for conversion from septic systems can be expensive for homeowners. Assistance with these fees can help mitigate the financial burden, while mitigating GHG emissions and improving local water quality.</p>
Potential Implementation challenges	<p>The decision to sewer also requires that a legal entity be formed and the measure voted upon by the affected community.</p>
Issues to explore	<p>Subgroup is still investigating fugitive emissions of nitrous oxide at WRRFs</p>
Additional thoughts	

Mitigation strategies

8. Scope: Recovery Energy from Wastewater

Strategy under consideration	Incorporate energy recovery and beneficial use at WRRFs, including diverting organics and other high strength waste from landfills and extract energy content through co-digestion at WRRFs.
Rationale	<p>There is a tremendous amount of energy entrained in wastewater, food waste, and other organics. This strategy provides the opportunity to harness a renewable source of energy from waste, offsetting fossil fuels and avoiding methane emissions from landfills.</p> <p>Landfilled organics and other high strength waste are significant sources of methane emissions. Co-digestion of these waste streams will recover energy and also significantly reduce the volume of waste stream for disposal.</p>
Equity considerations	<p>Beneficial use of the recovered energy should be evaluated for the highest and best use for the community where the WRRF is located. While recovered energy is typically used on-site at the WRRF to meet heat and power needs, it may be deemed more beneficial to use the recovered energy to heat local homes or businesses, or as transportation fuel for difficult-to-electrify fleets.</p> <p>While diverting waste streams from landfills to WRRFs generally reduces trucking miles overall, it can increase truck traffic in the immediate vicinity of the WRRF. Mitigation of this effect needs to be considered: minimizing trucks by transporting a concentrated material, electrified or other clean-burning trucks to minimize emissions impacts, investigate other forms of transport (rail, barging).</p>
Potential Implementation challenges	Cost and the treatment of biogas as renewable. The most challenging aspect of food waste diversion is how to separate it from the waste stream to begin with. Suggest starting with food manufacturing waste, depackaged food waste, and large food waste producers (arenas, hotels) before addressing residential food waste.
Issues to explore	
Additional thoughts	Extracted energy needs to be used beneficially - "highest and best use" for the community

Mitigation strategies

9. Scope: Recognize the climate benefits of beneficially using WRRF biosolids

Strategy under consideration	Divert biosolids from landfills
Rationale	Landfilled biosolids release significant levels of methane emissions. Biosolids also contain resources (e.g., nitrogen and phosphorus) that can be recycled or recovered. Diverting biosolids from landfills will reduce methane emissions, sequester carbon in plant material, and offset synthetic fertilizers that are fossil fuel intensive.
Equity considerations	Landfills are often located in Environmental Justice communities. Diverting biosolids from landfills will reduce impacts on these communities.
Potential Implementation challenges	Even though most farmers that use biosolids report better crops, along with improved soil microbes and water retention capacity, biosolids continue to carry a stigma that can make finding land application sites challenging. Unless this perception shifts, biosolids need to be made into "bioproducts" that meet the demands of the market.
Issues to explore	Educational efforts to spread the word about the merits of biosolids, as well as discuss products beyond conventional biosolids (e.g., composts, soil amendments, biochars), and potential markets beyond agriculture (forest land, mine land reclamation, roadside plantings). Would be helpful to discuss with Agriculture Panel.
Additional thoughts	Market development is needed.

Integration Analysis

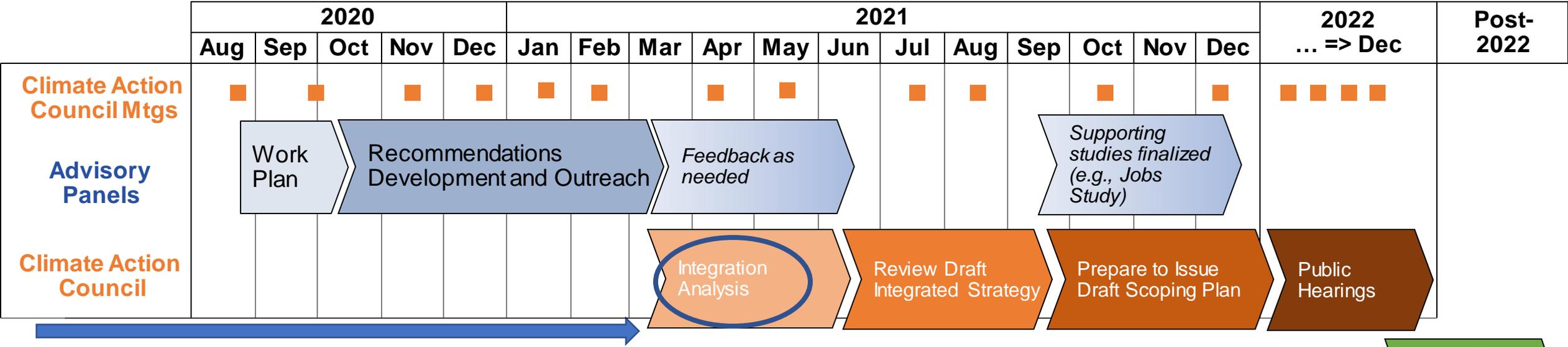
Integration Analysis Process

Statutory basis for integration analysis process and analytic approach

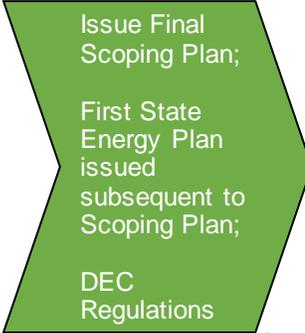
- > ECL § 75-0103 (11) “The council shall. . .prepare and approve a scoping plan outlining the recommendations for attaining the statewide greenhouse gas emissions limits. . . and for the reduction of emissions beyond eighty-five percent, net-zero emissions in all sectors of the economy, which shall inform the state energy planning board’s adoption of a state energy plan. . . The first state energy plan issued subsequent to completion of the scoping plan. . . Shall incorporate the recommendations of the council.
- > ECL § 75-0103 (14)(b) “[i]n developing [the scoping plan] plan the council shall . . . [e]valuate. . . the total potential costs and potential economic and non-economic benefits of the plan for reducing greenhouse gases, and make such evaluation publicly available.”

Integration Analysis Process (cont'd)

The integration analysis will support core components of the Draft Scoping Plan

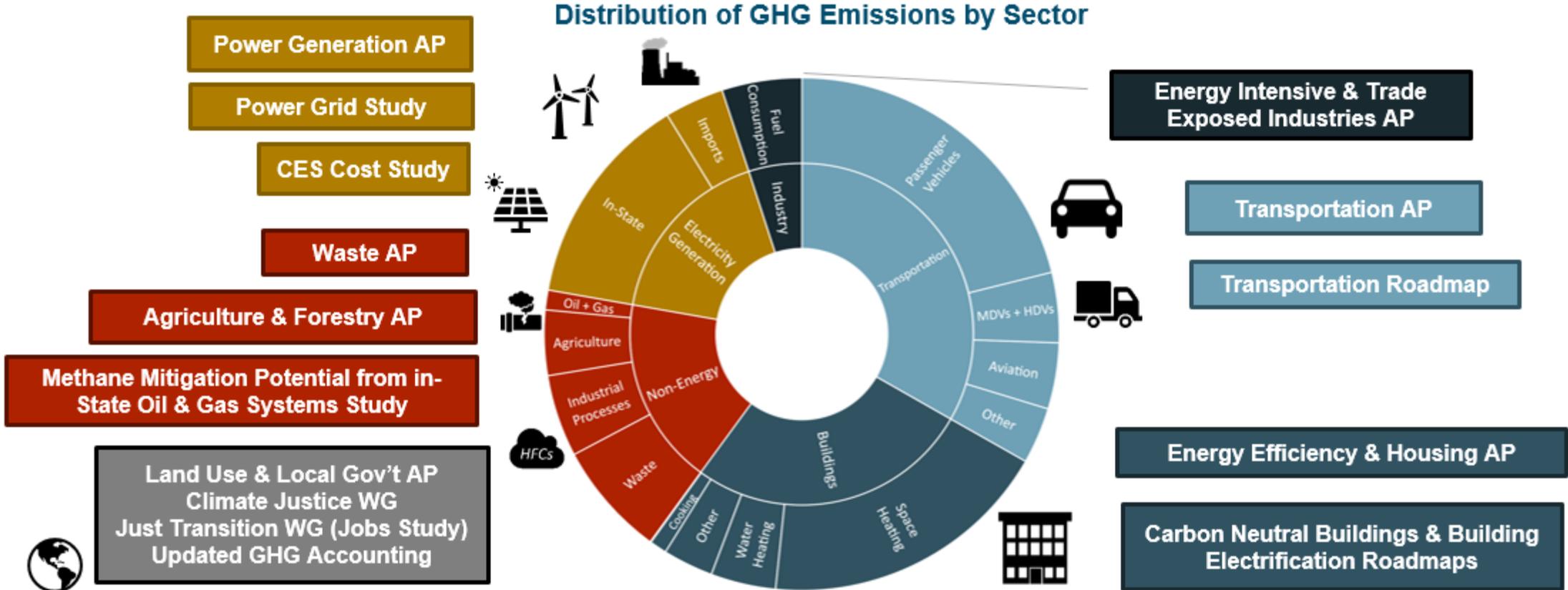


- > Pathways modeling framework is core toolset, supported by complementary analyses
- > Advisory Panels and Working Groups develop recommendations, which are integrated into scenario planning
- > Provide scenarios from draft integration analysis to Climate Action Council



Integration Analysis Process (cont'd)

Integration analysis incorporates insights and recommendations from Advisory Panels, Working Groups, and complementary studies



Integration Analysis Process (cont'd)

Integration analysis will develop scenarios that incorporate Advisory Panel & Working Group recommendations, capture interactions across sectors, and evaluate benefits and costs

Portfolios of recommendations integrated into multi-model framework that captures cross-sector interactions, including:

- > Increased annual and peak electricity demand from building and transportation electrification
- > Electricity consumption associated with **industrial processes**
- > HFC emissions associated with energy end-uses

Example Policy Analysis: “all new sales of passenger vehicles are zero-emission by 2035”

- > Modeling framework translates recommendation into annual adoption of zero-emission vehicles
 - Tracks avoided fossil fuel consumption, GHG emissions, new electricity load
 - Changes in annual and hourly electric load inform least-cost optimization of zero-emission resource mix

Evaluation approach includes assessment of resource cost (e.g., equipment and infrastructure costs, fuel costs), value of avoided GHG emissions, health co-benefits, job creation

Integration Analysis Approach

Integration analysis will evaluate societal costs and benefits of GHG mitigation

- > The pathways framework produces economy-wide **resource costs** for the various mitigation scenarios relative to a reference scenario
 - The framework is focused on annual societal costs and benefits and does not track internal transfers (e.g., incentive levels)
- > Outputs are produced on an annual time scale for the state of New York, with granularity by sector
 - Annualized capital, operations, and maintenance cost for infrastructure (e.g., devices, equipment, generation assets, T&D)
 - Annual fuel expenses by sector and fuel (conventional or low-carbon fuels, depending on scenario definitions)
 - Does not natively produce detailed locational or customer class analysis
- > Locational and customer class impact analyses would be developed through subsequent implementation processes

Integration Analysis Approach (cont'd)

Integration analysis will evaluate societal costs and benefits of GHG mitigation

- > The pathways framework tracks annual greenhouse gas emissions by gas for the various mitigation scenarios and expresses changes in annual GHG emissions relative to a reference scenario
- > **Value of avoided GHG emissions** calculated based on guidance [developed by DEC](#)



Department of
Environmental
Conservation

Establishing a Value of Carbon GUIDELINES FOR USE BY STATE AGENCIES

Andrew M. Cuomo, Governor | Basil Seggos, Commissioner

Integration Analysis Approach (cont'd)

Integration analysis will evaluate societal costs and benefits of GHG mitigation

- > Integration analysis will include a **health co-benefits** analysis to estimate and quantify health benefits of mitigation scenarios relative to a reference scenario
- > County-level analysis using EPA's [CO-Benefits Risk Assessment \(COBRA\) Health Impacts Screening and Mapping Tool](#) customized with detailed inputs specific to NY and the Pathways scenarios analyzed
- > Evaluates ambient air quality, based on SO₂, VOC, NO_x, and direct PM_{2.5} emissions and the ensuing changes in annual PM_{2.5} concentrations from 2020-2050
- > Results include 12 different health outcomes, such as premature mortality, heart attacks, hospitalizations, asthma exacerbation and emergency room visits, and lost workdays
- > Value of health co-benefits reported by fuel and by sector

Integration Analysis Linkage with Jobs Study

Integration analysis will serve as key input to the Just Transition Working Group Jobs Study

- > Linkage between integration analysis and jobs study will illustrate employment benefits of GHG mitigation
- > ECL § 75-0103 (8)(g) [Jobs Study to report on]...“the number of jobs created to counter climate change, which shall include but not be limited to the energy sector, building sector, transportation sector, and working lands sector.”

Integration Analysis: Next Steps

- > Share key sector-specific input assumptions with CLCPA Advisory Panels and Working Groups
 - Seek and incorporate feedback from APs and WGs
- > Advisory Panels and Working Groups develop recommendations
 - Integrate AP and WG recommendations into planning process for developing scenarios

Advisory Panel Recommendations Submission Process

From August CAC Meeting: Advisory Panel Work Product

Each advisory panel is expected to:

- > Identify a range of emissions reductions, consistent with analysis and in consultation with the CAC, for the sector which contributes to meeting the statewide emission limits.
- > Present a list of recommendations for emissions reducing policies, programs or actions, for consideration by the Climate Action Council for inclusion in the Scoping Plan.
 - Recommendations should identify the estimated scale of impact, knowable costs to achieve, ease of deployment or commercial availability, potential co-benefits to emissions reduction, advancement of climate justice outcomes, and impacts to businesses.
 - Recommendations may be informed by quantitative analysis or qualitative assessment.
- > Recommendations should be sector-based.
 - The panels should not rely on economy-wide policies to achieve emission reduction goals but can recommend that the Council consider economy-wide policies if needed to advance certain sector-specific policies.
 - Cross-sector recommendations should be advanced only after consultation with the appropriate panels.
 - Recommendations should include climate adaptation and resilience considerations

Mitigation strategy – Initiative #[x]: Overview

Description:			
Action type:			
GHG reduction by 2030:		GHG reduction by 2050:	
Cost and funding considerations:			
Ease of implementation:			
Example case studies:			

Risks / Barriers to success	Possible mitigants

EXAMPLE

Mitigation strategy – Initiative #[x]: Components of the strategy

Components required for delivery <i>(Brief description of action required)</i>	Implementation lead <i>(Entity responsible for completing)</i>	Time to implement <i>(Time required to implement)</i>	Other key stakeholders <i>(Entities that need to be engaged)</i>

EXAMPLE

Mitigation strategy – Initiative #[x]: Benefits and impacts

Anticipated Benefits and Impacts	
Disadvantaged communities	
Health and other co-benefits	
Just transition: businesses and industries, workers	
Other	

Game Plan to a Draft Scoping Plan

- > Now – March 2021: Advisory panel working group discussions
- > April 2021: CAC review and discuss advisory panel recommendations
- > April – June 2021:
 - Integration study analysis
 - Topical deep dives
 - Review Adaptation and Resilience Recommendations
 - Consult with Climate Justice Working Group
- > July – October 2021:
 - Integration analysis results
 - Continue topical deep dives
 - Agency staff draft scoping plan based on CAC recommendations
 - Consult with Climate Justice Working Group
- > October – December 2021:
 - Finalize draft scoping plan for release and public comment during 2022

Agency Updates

CLCPA Emission Limit Regulation

- > First regulatory milestone under the CLCPA
- > The regulations set the most ambitious and comprehensive greenhouse gas reduction requirements
- > Establish limits on the statewide emissions of greenhouse gases 40 percent by 2030, 85 percent by 2050 from a 1990 baseline, as well emissions associated with imported electricity and fossil fuels
- > Measured in carbon dioxide-equivalent units using a 20-year Global Warming Potential
- > 1990 baseline = 409.78 million metric tons CO₂e
- > 2030 emission limit = 245.87 million metric tons CO₂e
- > 2050 emission limit = 61.47 million metric tons CO₂e
- > Key points
 - Added nitrogen trifluoride (NF₃) in the final rule
 - Regulation is based upon gross emissions, annual inventories will track progress on net emissions
 - Subject to continual improvement

Value of Carbon Guidance

- > Provides background on different ways to value greenhouse gas emissions reductions
 - Damages approach and marginal abatement cost
- > Recommends the U.S. Interagency Working Group's (IWG) damages-based value of carbon, also referred to as the social cost of carbon, as appropriate for most agency decision making
 - Marginal abatement cost approach can be appropriate in some instances
- > Considers a range of discount rates, including zero
 - Recommends a central value of 2% (\$125 per ton of CO₂ in 2020 dollars)
 - With an evaluation range of 1%-3% (\$421-\$53 per ton of CO₂ in 2020 dollars)
- > Discusses how to value non-CO₂ greenhouse gases
 - Values are provided for CO₂, NO₂ (\$44,727 per ton) and CH₄ (\$2,782 per ton), as per IWG
- > Details specific considerations for State agencies on how to use a damages-based approach

This guidance is not a regulation and does not set a carbon price nor impose any fees.

Next Steps