New York State Climate Action Council

May 10, 2021

Meeting 10

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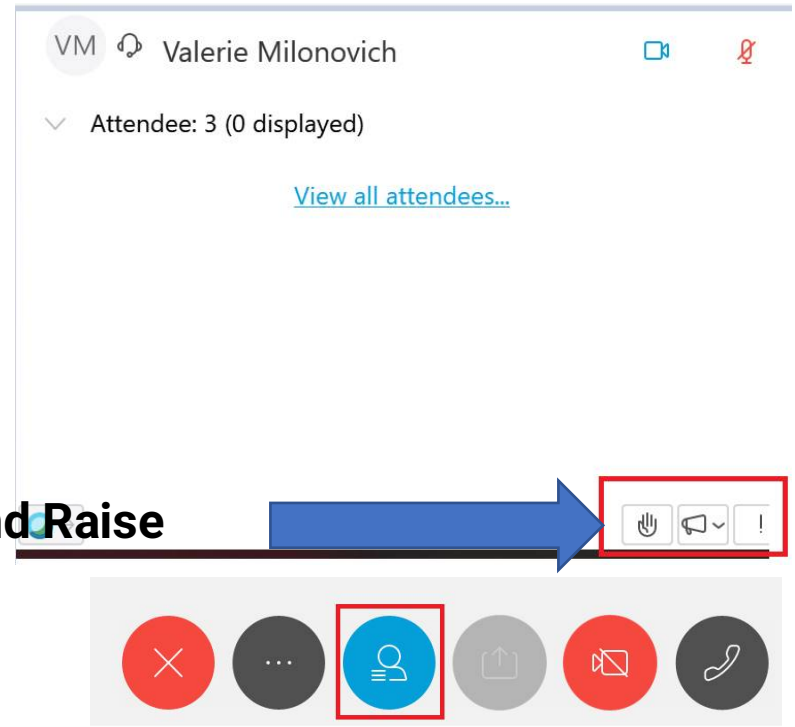
Meeting Procedures

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



Agenda

- Welcome
- Consideration of April 12, 2021 Minutes
- Co-Chair Remarks and Reflections
- Presentation and Discussion: Transportation and Land Use and Local Government Advisory Panels Recommendations
  - Noon – 1 pm: Break
- Presentation and Discussion: Housing and Energy Efficiency and Power Generation Advisory Panels Recommendations
- Next Steps

Consideration of April 12, 2021 Minutes

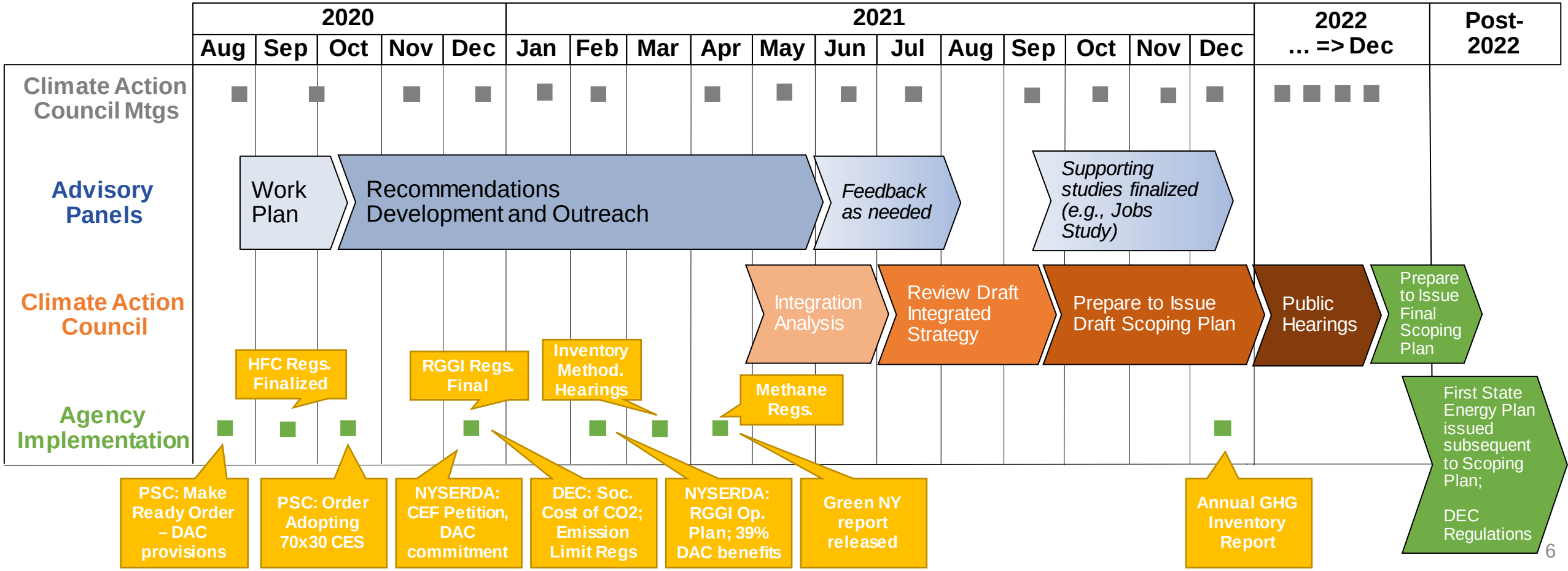
Recapping an action-packed Earth Week

Criss-crossing the state and webinar wires for a smattering of events, announcements, and launches

- Launch of $85m Clean Transportation Prizes
- $2.8m for Municipal Charging Stations and Zero-emission Vehicles
- Issued Proposed Rule addressing methane leakage from the Oil and Gas system (Part 203)
- $4.1m for Environmental Justice Community Impact Grants
- Agencies Issue 2019-20 'Greening New York State Report' on Sustainable Practices in State Operations
- Empire Building Challenge building-owner commitments (52m sq. ft., w/ affordable housing)
- 2021 Large-Scale Renewables RFP, and marking major project construction milestones
- Metro IAF campaign kick-off and grant award
- Grant Cottage goes solar, storage, and off-grid!
- Groundbreaking of St. Mark's Passive House in NYC

CLCPA: Timeline and Progress

Implementation of New York's Climate Act is on track and moving forward expeditiously



Advisory Panel Recommendations

Transportation

Transportation Advisory Panel Recommended Strategies

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Transportation Advisory Panel Members

- Marie Therese Dominguez, DOT Commissioner, Panel Chair
- Jared Snyder, DEC
- Julie Tighe, New York League of Conservation Voters
- Kerene Tayloe, WE ACT for Environmental Justice
- Nick Sifuentes, *formerly TriState Transportation Campaign*
- Bob Zerrillo, New York Public Transit Association
- Porie Saikia-Eapen, Metropolitan Transit Authority
- Steve Finch, AAA Western & Central New York
- Nancy Young, Airlines for America
- Dimitris Assanis, Stony Brook University
- Craig Turner, Buffalo Niagara International Trade Gateway Organization
- Paul Allen, M. J. Bradley & Associates
- John Samuelsen, Transport Workers Union of America AFL-CIO
- Kendra Hems, Trucking Association of New York
- Elgie Holstein, Environmental Defense Fund
- Renae Reynolds, *formerly New York City Environmental Justice Alliance*
- Albert Gore, Tesla

Robust Public/Stakeholder Engagement

- **Extensive public/stakeholder outreach/involvement during course of TAP deliberations, including:**
  - 12 open-to-the-public meetings; presentations and notes posted to climate.ny.gov.
  - Two designated public engagement sessions (December 2020 and February 2021) to solicit input on draft recommendations.
  - Direct engagement with the Climate Action Council on draft recommendations in December 2020 and February 2021.
  - Cross Panel/Work Group coordination, between January and March, including:
    - Agriculture and Forestry,
    - Waste,
    - Power Generation,
    - Land Use and Local Government,
    - Climate Justice Working Group, and
    - Just Transition Working Group.

Robust Public/Stakeholder Engagement

- **Additional expert roundtable engagement, between December 2020 through April 2021), including:**
  - Public Transportation,
  - Smart Growth and System Efficiency,
  - Electrifications and Fuels,
  - Environmental Justice and Health,
  - Freight and Logistics.

- Written comments continue to be accepted through calendar year 2021, via:
  - E-mail - transportation.publiccomment@dot.ny.gov
  - Letter - Transportation Advisory Panel
    C/O Abigail Schultz
    6th Floor, Room 6N23
    50 Wolf Road
    Albany, New York 12232

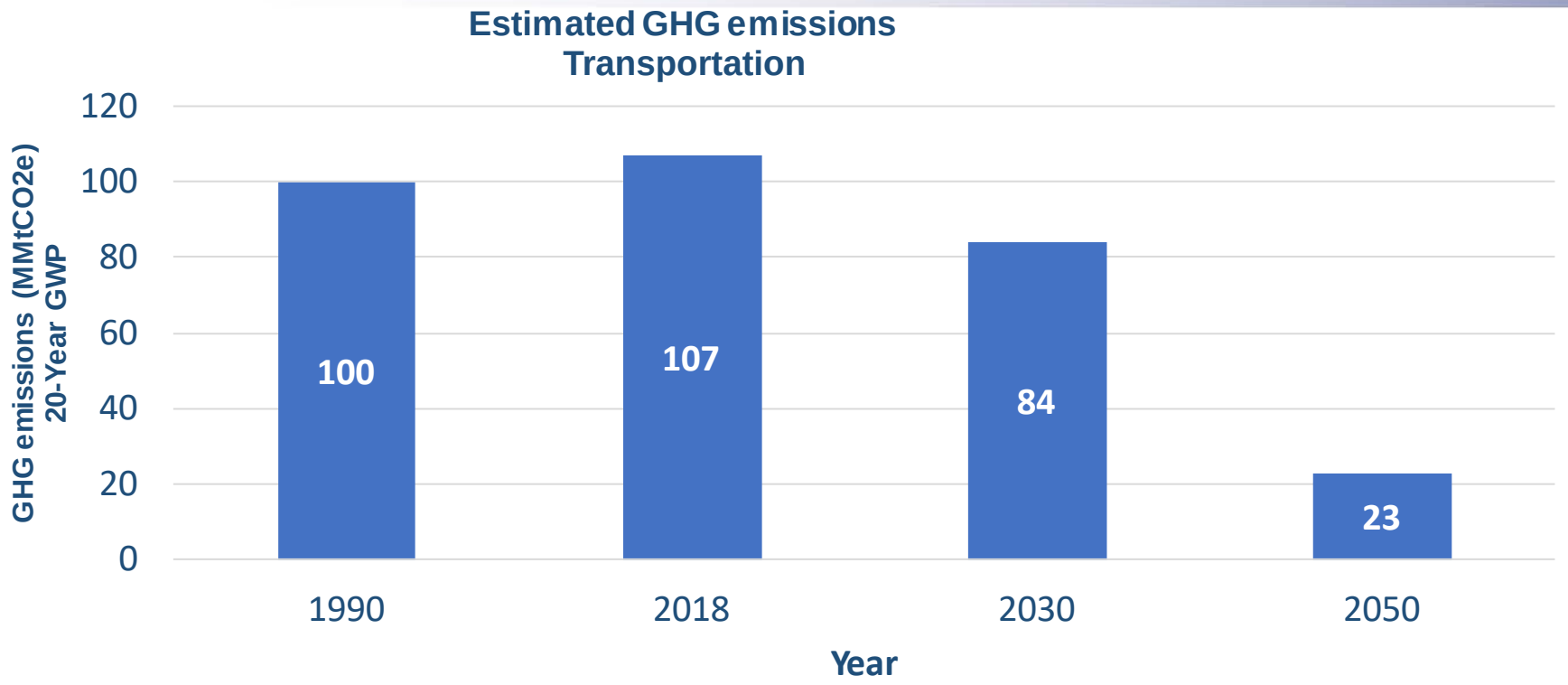
Transportation - Perspective

- The evolution of "transportation" has served as a catalyst for economic growth/productivity.
- Transportation investments influence where economic growth and land use ensues and at what rate.
- Construction of roads, canals, seaports, airports and railways in the 18th and 19th centuries fueled New York's position as a global economic leader.
- Historically low fuel prices and innovations such as just-in-time delivery and dispersion of production facilities has made commerce more cost effective - while decreasing the efficiency of fuel and increasing the vehicle miles traveled.
- Negative effects of this growth include systematic barriers to equity and inclusion as well as the disproportionate production of greenhouse gases and other harmful emissions in disadvantaged communities.
- The Transportation Advisory Panel (TAP) approached the challenge of carbon neutrality recognizing the opportunity/delicate balance of facilitating transportation's role in economic growth with the need to mitigate adverse community; atmospheric; and human health impacts.

Transportation - Perspective

- The comprehensive recommendations of the TAP recognize, respect and adhere to the CLCPA framework.
- TAP Members also recognize that to fully implement the requirements of CLCPA - while maintaining the State's economic competitiveness - New York needs the support of complementary national and regional strategies.
- TAP recommendations are also highly dependent upon:
  - Encouraging robust community engagement;
  - Facilitating public/private partnerships;
  - Advancing regulatory and incentive-based strategies;
  - Continually reassessing strategies/technologies over time/adjusting as needed;
  - Developing new measures for transportation investment decisions; and
  - Promoting personal travel behavioral change.

Aggregate GHG Emissions Impact of Transportation Panel Recommendations



Scope (2018 Subtotal):

- Fuel Combustion (80mmt)
- *Imported Fossil Fuels (27mmt)*

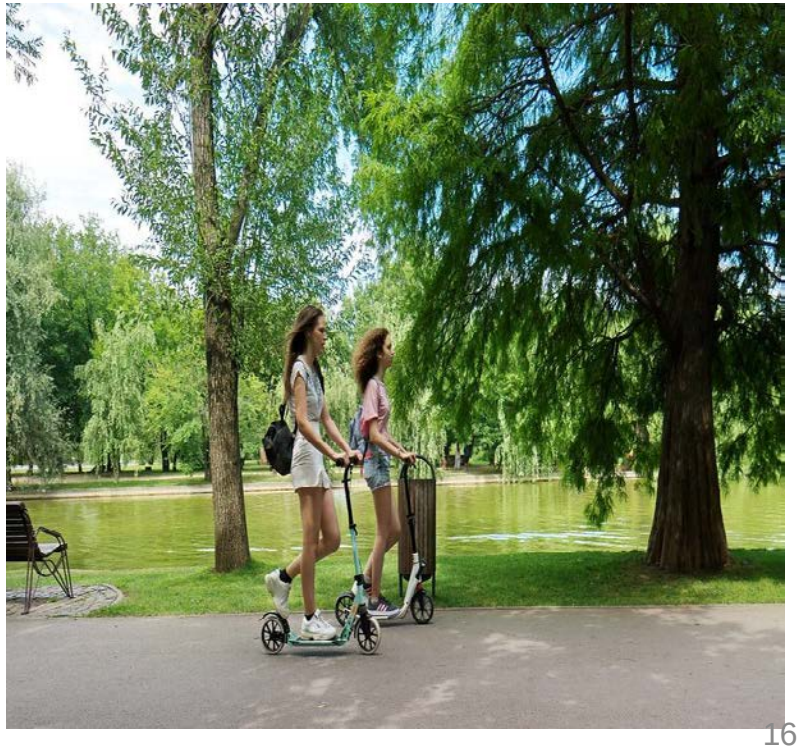
Percent of total NY emissions

24% 29% 34% 38%

2018 emissions data are preliminary draft

Principal Mitigating Strategies

- Transition of vehicles/fleets to electric/zero-emission technologies.
- Enhancing the availability, accessibility, reliability and affordability of public transportation.
- Aligning and integrating transportation investments into land use/development to mitigate carbon emissions.
- Implementing market-based strategies to impact travel decisions and finance investments in clean transportation.



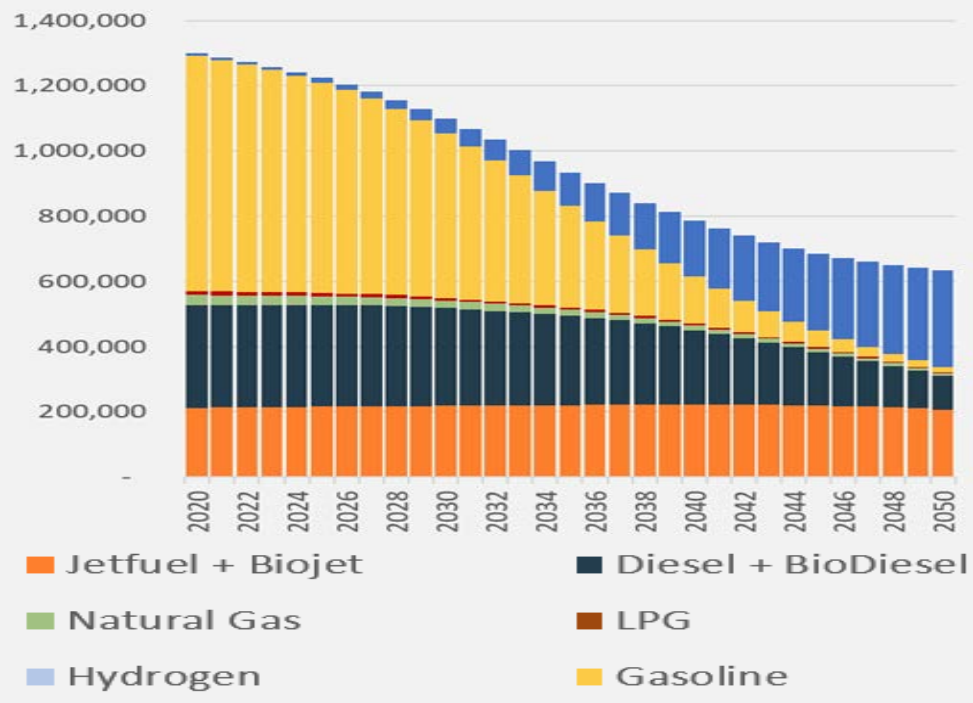
Transition of Vehicles/Fleets to Electric/Zero-Emission Technologies

- **Adopt zero emission sales regulations for 100 percent light-duty and medium/heavy duty vehicles by 2035 and 2045, respectively**

  - Prioritize direct ZEV investments/community ownership models in disadvantaged communities that enhance healthy neighborhoods.
  - Implement feebate, incentives and affordable financing options for LMI consumers, commercial and FHV fleet owners - prioritizing disadvantaged communities.
  - Electrify priority fleets through investment and potentially regulation (e.g., those servicing ports).
  - Reduce ZEV sales/maintenance barriers and enhance consumer awareness.
  - Address utility rate design changes that support EV implementation.
  - Incentivize the transition of off-road ZEVs, including airport, railroad, seaport, construction and farm-related equipment.
  - Develop policies/programs to electrify yard and garden equipment, small marine vessels and off-road recreational vehicles.
  - Support emerging ZEV workforce training/development opportunities.

Clean Vehicles - Role of Clean Fuels

Fuel Use After Electrification Strategies



Potential Clean Fuel Standard

- Supports achieving electrification goals.
- Replaces fossil fuels with cleaner renewable fuels during transition.
- Bridges hard-to-electrify sectors (e.g., aviation, long-haul trucking).

Enhance Public Transportation

- **Enhance the availability, accessibility, reliability and affordability of public transportation**

  - Incentivize community/public transportation-oriented development/redevelopment.
  - Develop/implement coordinated transportation/development land-use plans/smart growth.
  - Disincentivize auto dependency/congestion through pricing/parking strategies.
  - Support first mile/last mile connectivity through accessible and integrated infrastructure.
  - Increase the number of destinations that are accessible by bus rail, walking and biking.
  - Enhance service frequency, reliability and hours of operations.
  - Increase the number of mobility options (e.g., micro-transit, micro-mobility).
  - Provide high-quality amenities at public transportation facilities/stops.
  - Accelerate new technologies that provide real-time schedules/make transit easier to use.
  - Procure ZEV public transportation vehicles appropriate for community being served.
  - Partner with utility companies/consider opportunities for transportation right-of-way to generate energy for public transportation services.
  - Investigate developments in hydrogen fuel cell bus technologies/other renewable fuels.
  - Create targeted opportunities/investments in STEM initiatives/disadvantaged communities.

Align Transportation Investments Into Land Use/Development

- **Implement Smart Growth land use policies that support/align with Transportation Oriented Development (passenger and freight)**
  - Prioritize infrastructure investments in Priority Development Areas.
  - Expand investments in low carbon transportation modes.
  - Improve system efficiency through policies, technologies, and investments that reduce congestion, increase safety and facilitate connectivity and automation.
  - Encourage and/or require density bonuses around new development.
  - Provide technical support/planning grants to enhance local planning/zoning process, including freight considerations.
  - Incentivize expansion/access for bike, pedestrian, transit, and complete streets projects that serve employment centers.
  - Expand tax credits for employers that offer employee mobility alternatives.
  - Disincentivize polices that encourage gentrification.

Implement Market-Based Strategies to Facilitate Transition

- **Implement market-based policies/programs that directly reduce emissions, facilitate the transition to ZEVs and generate revenues to implement strategies**
  - Regional cap-and-invest prioritizing investment in disadvantaged communities.
  - Congestion and/or variable pricing.
  - Demand Parking/Curb Pricing.
  - Vehicle registration fees.
  - Mileage Based User Fees.
  - Tax Increment Financing/Special Assessment Districts.
- **Complementary financing strategies to support private investment and leverage public investment**
  - Expand market participation through approaches like first loss protection, innovative leasing models and Green Bank products.

Benefits of Combined Transportation Recommendations

- Decarbonizes the transportation sector.
- Promotes equity and inclusion in investment decisions; policy development; and program implementation.
- Prioritizes investments in low and moderate-income communities/mitigates harmful health impacts.
- Supports emerging workforce training/development opportunities in disadvantaged communities.
- Promotes alternative modes of transportation in collaboration with integrated land use development.
- Drives innovation/carbon neutrality in the sector while supporting economic opportunity/growth.
- Implements strategies that maximize flexibility/minimize costs for sector-related businesses/developers.
- Develops market-based approaches that incentivize alternatives/generate revenues to support policies.
- Facilitates collaboration between public and private entities.
- Builds upon New York's nation leading commitment to climate leadership.

Land Use and Local Government

Land Use and Local Government Advisory Panel

Emissions Reduction and Carbon Sequestration Recommendations

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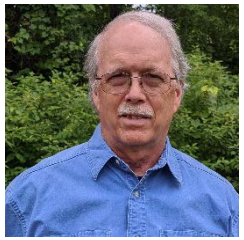
Land Use and Local Government Advisory Panel Members

Sarah Crowell, Chair
Director, Office of Planning, Devt, & Community Infrastructure: DOS

Jayme Breschard-Thomann
Senior Project Manager: Bergmann PC



Ed Marx
Former Commissioner of Planning: Tompkins County

Gita Nandan
Board Chair: RETI (Resilience, Education, Training and Innovation) Center

Mark Lowery
Assistant Director, Office of Climate Change: DEC

Kevin Law
Former President & CEO: Long Island Association

Kathy Moser
Senior Vice President: Open Space Institute

Juan Camilo Osorio
Assistant Professor: Pratt Institute School of Architecture

Jessica Bacher
Managing Director: Pace University School of Law Land Use Law Center

Katie Malinowski
Executive Director: NYS Tug Hill Commission

Priya Mulgaonkar
Project Manager: Hester Street Collaborative; formerly NYCEJA

Eric Walker
Climate and Clean Energy Strategist

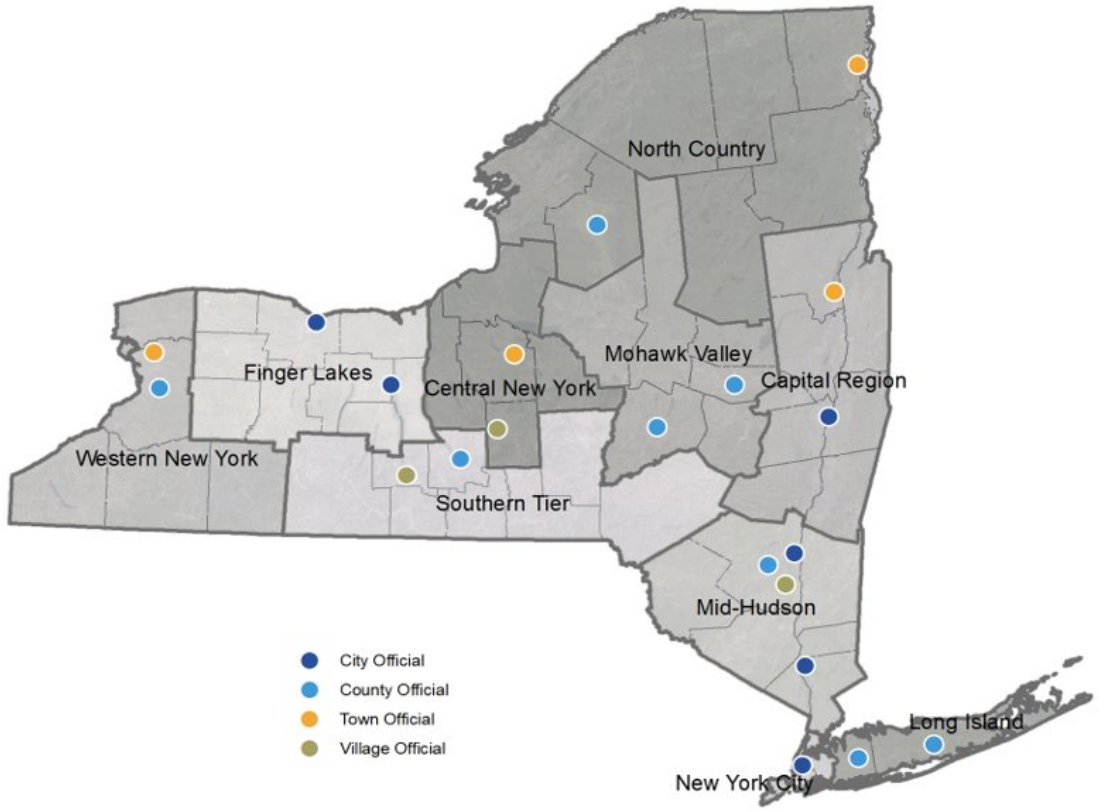
Local and Regional Governance in NYS

- Municipalities of New York Include:
  - **62 Counties**
  - **62 Cities**
  - **932 Towns**
  - **551 Villages**
  - **~ 7,000 Special Districts**
- Regional organizations of New York include
  - **14 Metropolitan Planning Organizations**
  - **9 Regional Planning Boards**
  - **10 Regional Economic Development Councils**

Regional Planning Boards

Local Government Engagement

Local Government Roundtable Representation

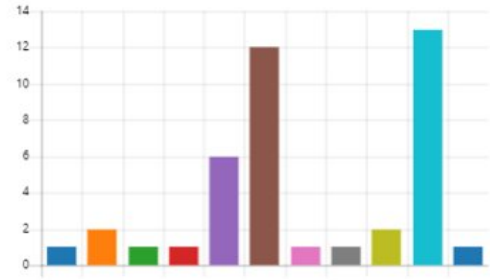


Stakeholder Survey Representation

Region(s) where you work (If you are unsure of your region, a map is available here: https://esd.ny.gov/regions)

More Details

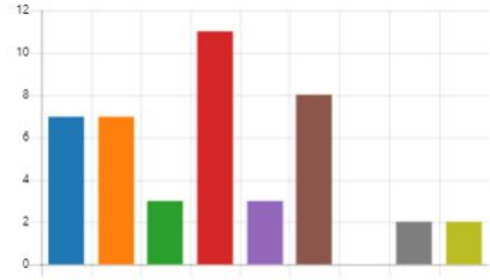
Statewide	1
Capital Region	2
Central New York	1
Finger Lakes	1
Long Island	6
Mid-Hudson	12
Mohawk Valley	1
New York City	1
North Country	2
Southern Tier	13
Western New York	1



Which of the following best describes the organization/entity you represent?

More Details

City	7
Town	7
Village	3
County	11
Regional organization	3
Non-profit or community orga...	8
Private sector business or indu...	0
Community or local board me...	2
Other	2



Public and Stakeholder Input Process

Panel Meetings: The Land Use and Local Government Advisory Panel has held 8 full panel meetings that were open to the public; all meeting presentations and notes have been posted to climate.ny.gov.

Local Government Officials Roundtable: Local government input was received during two roundtable discussions (December 2020 and March 2021) and six small-group conversations with representatives from municipalities from across the state (November 2020).

Stakeholder Survey: A survey was created by the panel, shared with panel member networks and other local government groups. The survey was open from December 1, 2020 to January 4, 2021 and 38 responses were received

Public Input: Input from the public received during a virtual forum in December 2020, during advisory panel meetings through the "chat" function, and by email to a dedicated email account (LULG@dos.ny.gov)

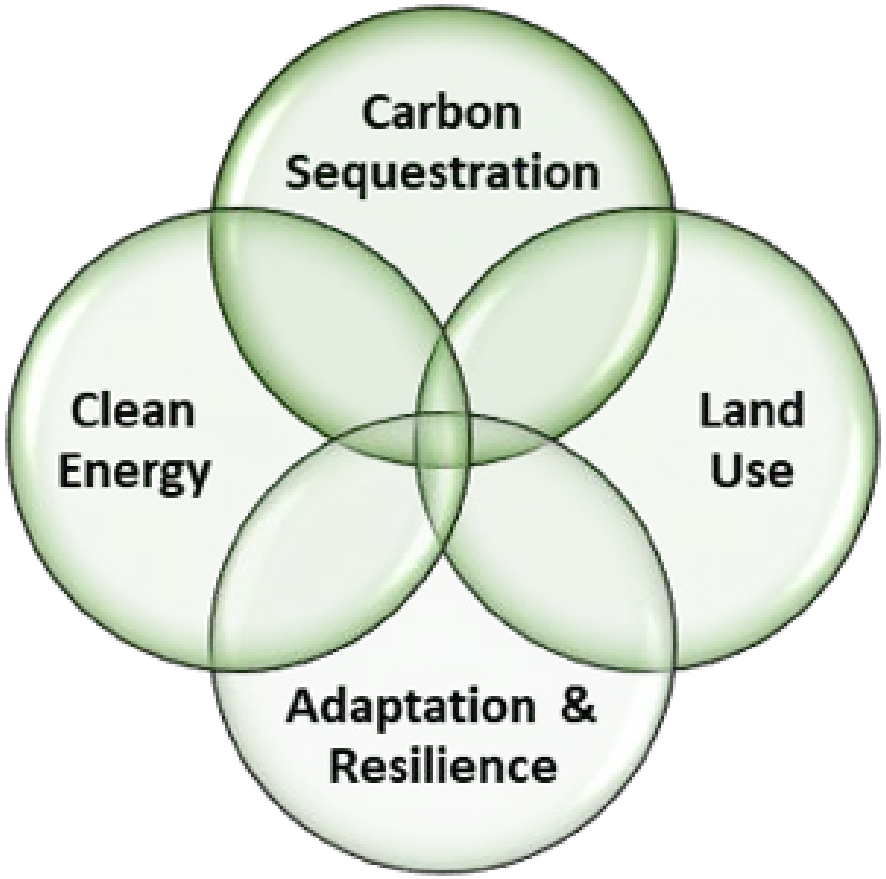
Climate Action Council Engagement: Input from the CAC received in November 2020.

Cross Panel Coordination: Regular collaboration with Transportation, Agriculture & Forestry, Energy Efficiency & Housing, Power Generation, and Waste advisory panels, as well as the Climate Justice and Just Transition Working Groups.

Recommendation Development Process

Land Use and Local Government Advisory Panel

Subgroups



Process

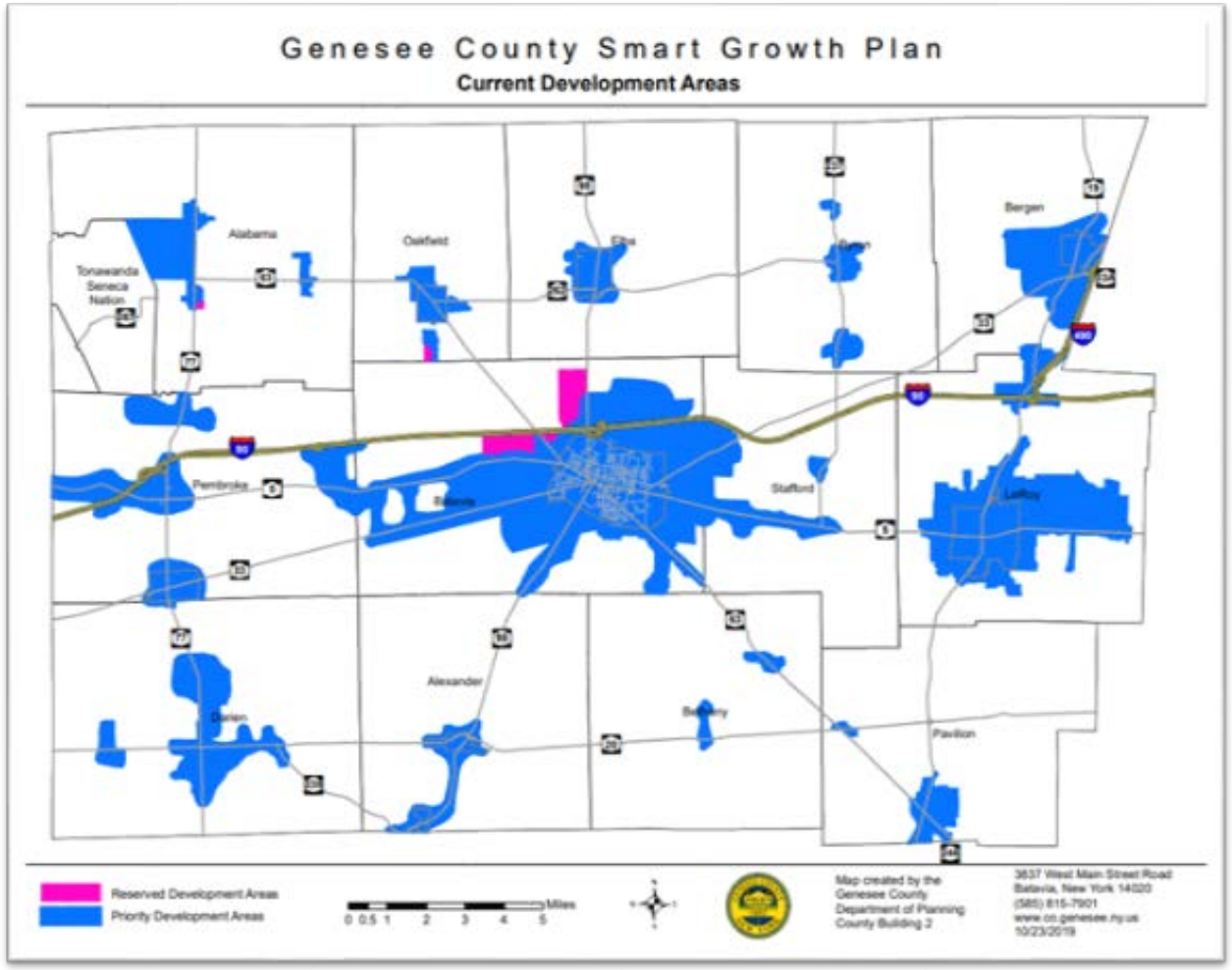
- Scope
- Themes and Priorities
- Strategy Development
- Recommendation Development and Feedback
- Recommendations and Integration Analysis

Panel Themes

- Promote efficient land use/smart growth that reduces VMT
- Maximize natural carbon sequestration potential
- Facilitating responsible siting and adoption of clean energy sources
- Provide local governments the tools and resources to lead on climate
- Commit to environmental justice, disadvantaged communities, and a just transition

Promote efficient land use/smart growth that reduces VMT:

Guiding Development Patterns: Where to grow?



> **Guide future growth, redevelopment, and conservation at the multi-municipal scale through regional planning**

Facilitate and support collaborative multi-municipal smart growth comprehensive planning at the county and regional scales to inform and guide land use decisions, including designation of priority development areas and priority conservation areas

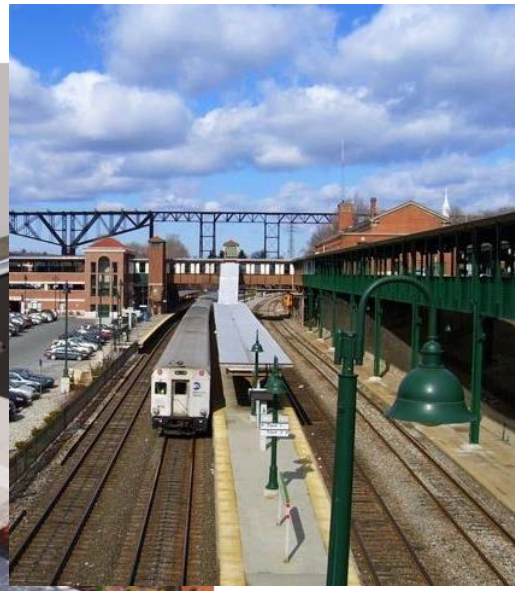
Natural Features Focus Areas

Tompkins County

Promote efficient land use/smart growth that reduces VMT:
Transit Oriented Development

Accelerate Transit-Oriented Development

Accelerate mixed-use, mixed-income transit-oriented development around key transit hubs served by rail and bus.



The TOD Toolbox

- Form-based code and model local laws
- Parking minimums and structured parking
- Generic Environmental Impact Statements and community outreach
- Smart Growth Public Infrastructure Policy Act
- Inclusionary zoning and shared, community-centered ownership models
- Coordination with regional transit entities

Promote efficient land use/smart growth that reduces VMT: Empower Local Governments to Achieve Smart Growth Planning and Development

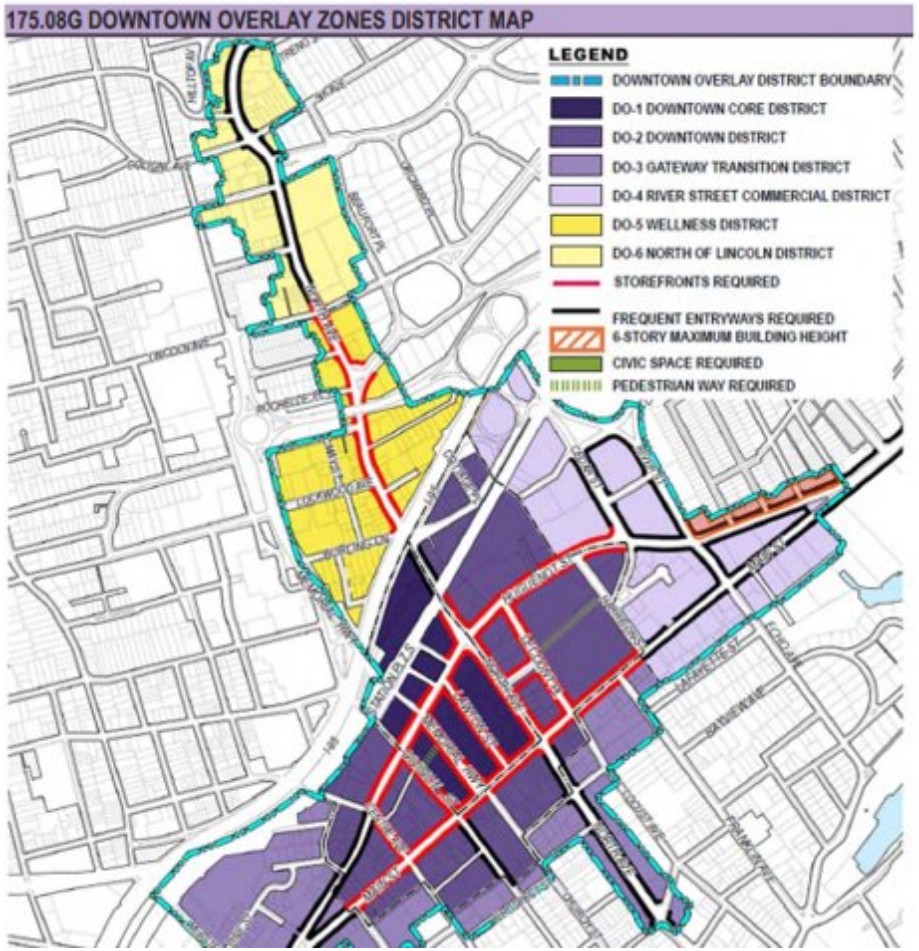
- **Provide direct planning and zoning assistance to local communities**

  Promote municipal implementation of mitigation strategies through enhanced technical assistance, increased support for local adoption of zoning and land use regulations consistent with smart growth principles, and local policies that support sustainable, equitable development and the accelerated expansion of local clean energy through a streamlined “Plan-to-Zone” initiative

- **Expand resources to enable equitable smart growth projects**

  Provide local government with the necessary tools and resources to guide, enable and inform the process of achieving equitable smart growth projects such as TOD, mixed-income/affordable housing, downtown and infill development

New Rochelle, NY

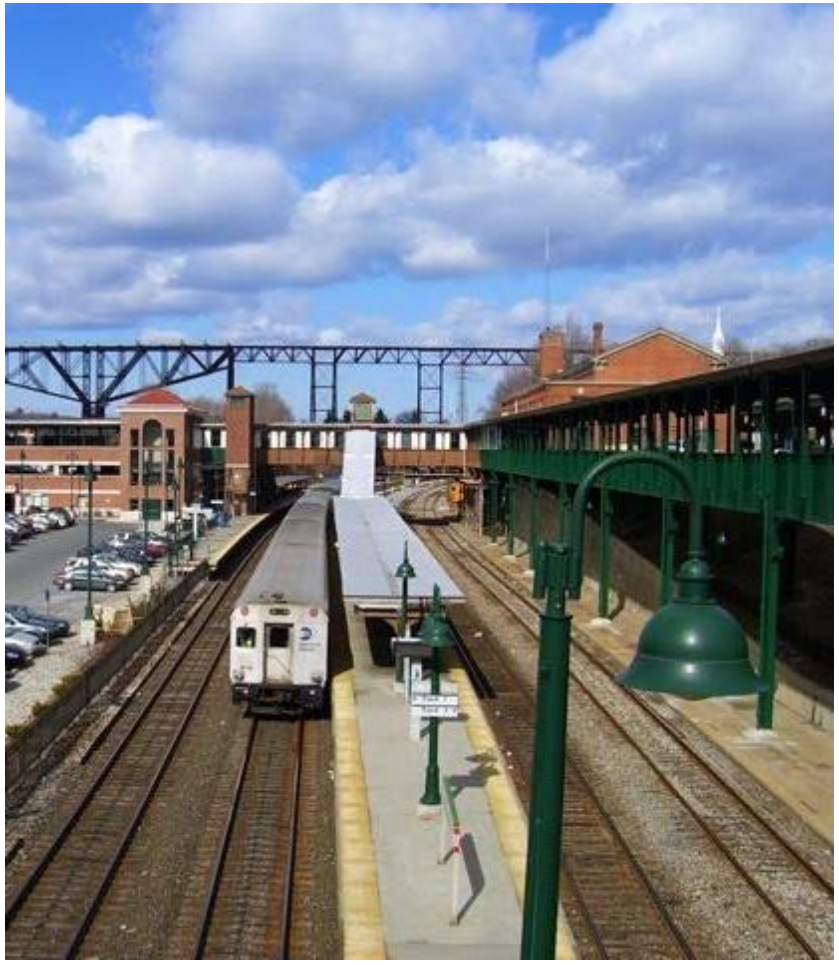


Promote efficient land use/smart growth that reduces VMT:
Align State Funding Priorities to Prioritize Smart Growth

- Prioritize smart growth, equity, and sustainability in all relevant state funding, including new infrastructure spending
  - Expand and strengthen the Smart Growth Infrastructure Act
  - Provide consistent and reliable funding for Restore NY and the NYS DEC Environmental Restoration Program (ERP)
  - Ensure smart growth is prioritized in all relevant State funding sources
  - Expand tax credits for Brownfield Opportunity Areas (BOA) and the Brownfield Cleanup Program (BCP)

A once-contaminated industrial site is now being re-purposed to revitalize the Oswego waterfront with housing, retail and commercial space

Promote efficient land use/smart growth that reduces VMT: Key Strategies



- **Provide grants and technical assistance for county-wide Smart Growth plans and for municipal comp plans and zoning consistent with smart growth principles**
- **Develop criteria and incentivize county-wide smart growth comprehensive plans that adhere to clear State goals and outcomes**
- **Enable designation of priority development areas and priority conservation areas at the county and regional levels**
- **Strengthen the Smart Growth Infrastructure Act to better align state funding priorities with smart growth principles**
- **Align state funding priorities to prioritize smart growth, equity, and sustainability in all relevant state funding, including new infrastructure spending**
- **Develop guidance documents, model local laws, templates, and other resources to simplify and streamline preparation of comp plans and land use regs that support smart growth principles**
- **Explore options to promote Transit Oriented Development (TOD)**

Maximize natural carbon sequestration potential:
Carbon Sequestration in Wetlands and Natural Areas

- **Freshwater Wetlands**

  Maintain and enhance the carbon sequestration potential of freshwater, non-tidal wetlands in New York State through protection, restoration, and monitoring.

- **Blue Carbon**

  Maintain and enhance the carbon sequestration potential of “blue carbon” in New York State, including coastal and estuarine tidal wetlands, submerged aquatic vegetation, and other coastal habitats, through protection, restoration, and monitoring.

Maximize natural carbon sequestration potential:
Carbon Sequestration in Wetlands and Natural Areas

> **Knowledge and Capacity Building**

Through mapping, research, planning, and technical assistance, build the capacity of decisionmakers to contribute to carbon sequestration efforts.

Components include:

- updated mapping and conservation framework
- assistance to local governments and landowners
- research, analysis, and monitoring
- cost-benefit analysis tools, demonstration projects
- conservation service and youth corps programs

Maximize natural carbon sequestration potential:
Key Strategies

- Consider opportunities for improving and expanding regulations, as well as improving implementation of regulatory programs, to ensure the carbon sequestration and storage potential of wetland systems are not lost.
- Increase investment in protection, restoration, and monitoring to maximize carbon sequestration potential of freshwater wetlands and blue carbon.
- Update maps of wetlands, coastal habitats, and other natural areas, using the best available technology with recurring updates. Make them publicly accessible and useful to inform conservation decision-making.
- Provide assistance to county and local governments to create land-use policies and land conservation programs, and help landowners by developing incentives and management practices, both with the aim to conserve and restore wetlands and natural areas.
- Improve our collective understanding of carbon storage and sequestration in natural systems like wetlands, through research, monitoring, and demonstration projects.
- Engage both youth and professionals in conservation service and stewardship to maximize carbon sequestration opportunities and support green job career training.

Accelerate responsible siting & adoption of clean energy sources:
Local Government Climate Action

> **Facilitate Clean Energy Development**

Through planning support and the development and promotion of model local laws, streamlined permitting, and local development regulations that clearly identify appropriate as-of-right installation opportunities for different clean energy technology types, and clear requirements and reasonable processes for installations that are not as-of-right.

Accelerate responsible siting & adoption of clean energy sources: Community Initiatives

- **Promote Community Initiatives to promote adoption of clean energy**

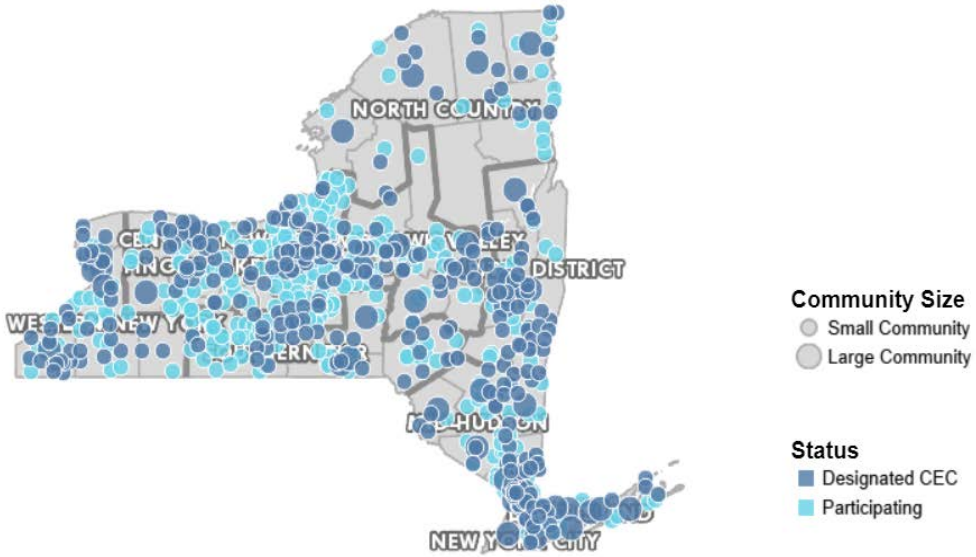
  Connect homes, businesses, and community institutions with clean energy products, services, and job opportunities through Community Choice Aggregation programs, microgrids, district systems, workforce development initiatives, and community-scale campaigns to encourage adoption of new, innovative technologies to generate value and savings for consumers in an equitable manner.

NYSERDA Clean Energy Communities

610 Participating Communities

336 Designated Communities

1,992 Actions Completed



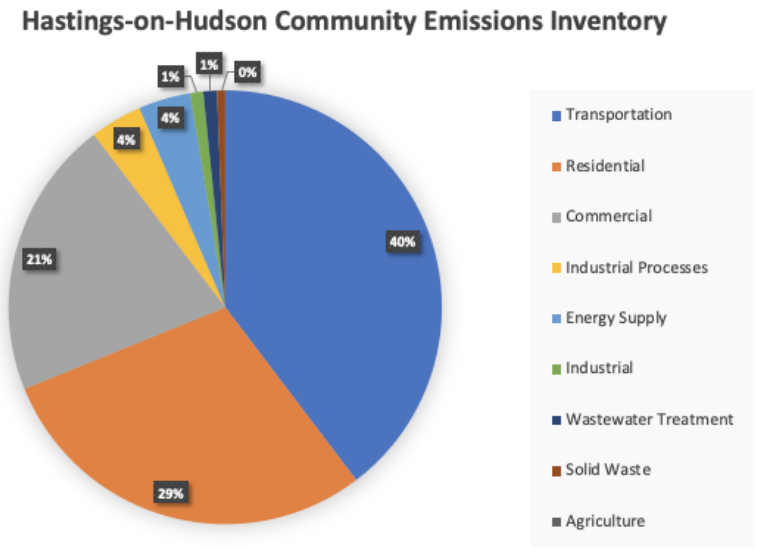
Accelerate responsible siting & adoption of clean energy sources:
Key Strategies

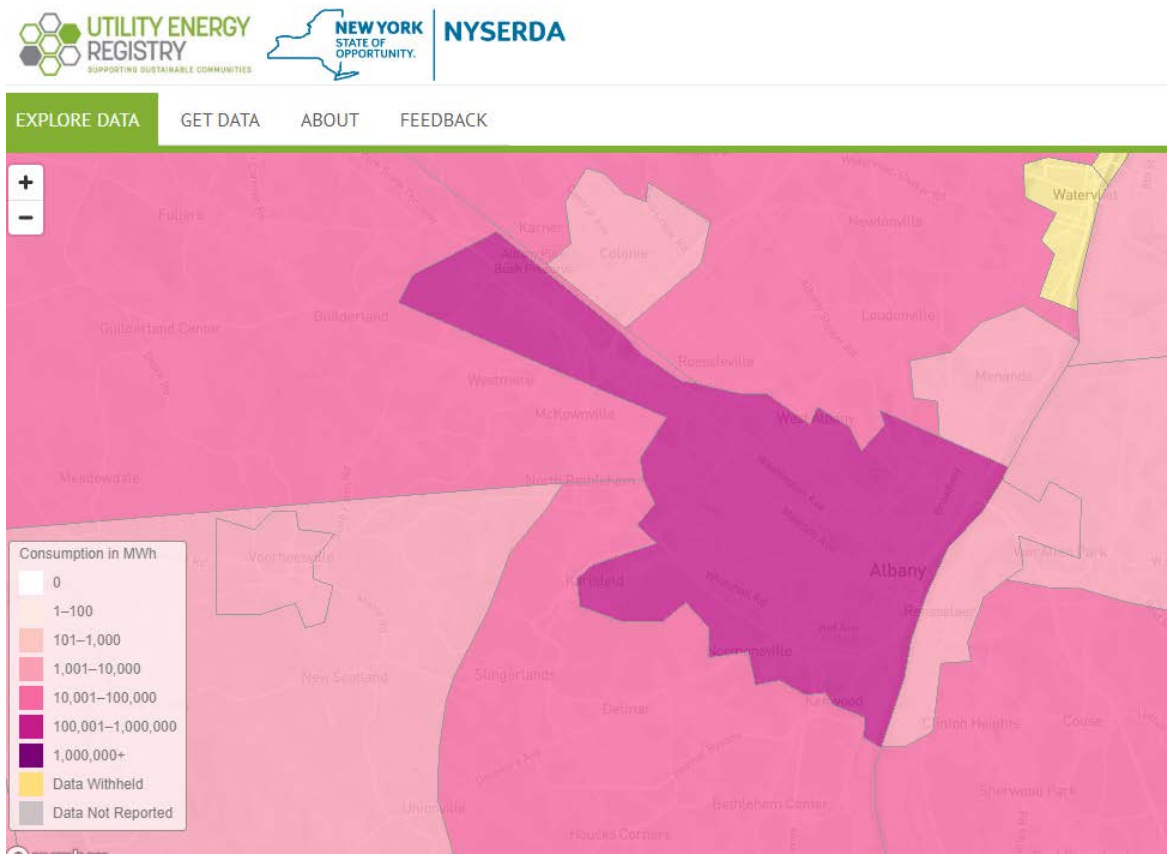
- Provide technical and financial assistance to develop **regional clean energy roadmaps** that identify low-impact locations for solar and wind development.
- Develop **a state-wide mapping tool** that provides communities with information needed to plan for appropriate clean energy siting decisions.
- Encourage development of **Community Choice Aggregation programs** where communities choose 100% renewable energy as the default supply
- Create more **robust community host benefits**
- Evaluate options to **reduce barriers to development of municipally-owned solar**

Provide local governments the tools and resources to lead on climate: Resources for Data-Driven Decision Making

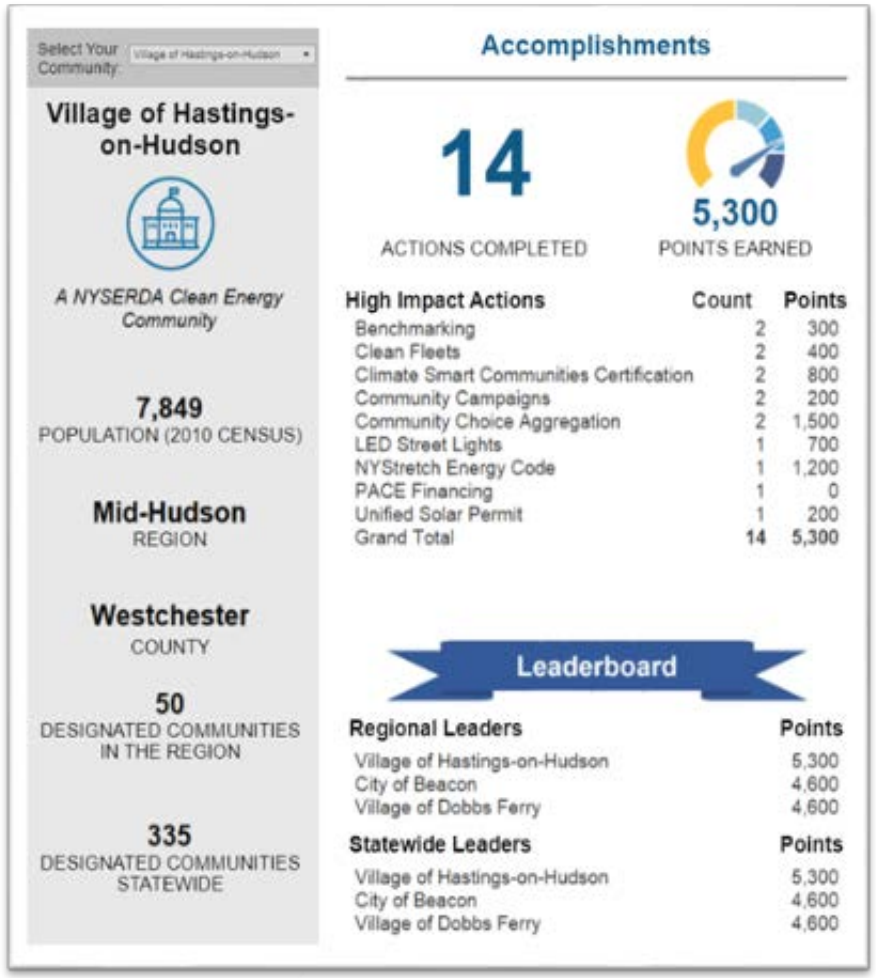
> **Create a Statewide Communities Dashboard**

Develop a statewide dashboard of community greenhouse gas emissions inventories to promote local climate action planning, monitor equity considerations, measure progress, and ensure data consistency at the county/municipality level.





Provide local governments the tools and resources to lead on climate:
Local Government Leadership



> **Demonstrate Local Leadership**

Encourage local governments to demonstrate leadership in energy efficiency by developing model above-minimum energy conservation construction policies or adopting the NY Stretch Energy Code and promoting its adoption, enhanced code enforcement including streamlined permitting, third party inspections, and shared enforcement, and Property Assessed Clean Energy (PACE) financing.

Provide local governments the tools and resources to lead on climate: Key Strategies

- Expand availability of hands-on support and training for municipalities across a range of climate actions with a focus on increased support to small, resource-constrained, and underserved communities.
- Develop a centralized portal that offers resources and information to assist communities in navigating, accessing and integrating state programs relative to sustainable community development and clean energy development.
- Explore options to simplify local government enforcement of evolving building codes such as a statewide permitting system, a tool kit with templates and guidance to assist local building departments, support for implementation of shared services agreements, and third-party inspections for the energy code.
- Establish statewide policies that require consistent advancement on building decarbonization by adopting a highly efficient State Energy Code aligned with CLCPA goals as soon as possible, establishing energy benchmarking and performance standards for buildings, and creating innovative public benefit financing mechanisms.

Benefits and impacts - Disadvantaged communities

- Brownfield revitalization
- Emphasized mixed-income/affordable housing
- New shared equity/ownership opportunities
- Universal data access
- Focused clean energy investments
- More resilient coastal areas
- Expanded access to natural areas and improved wetland function
- Enhanced recreational and outdoor enjoyment opportunities
- Greater participation in local and regional land use decision-making

The Wyandanch Rising BOA located in the Town of Babylon in Suffolk County calls for a transit-oriented mixed-use downtown with affordable housing, retail, community amenities, and open space. The community has received two BOA grants totaling $1.7 million.

Benefits and impacts - Health and co-benefits

- Greater physical activity and outdoor recreation access
- More opportunities for social interaction and access to nature
- Enhanced access to health care facilities
- Access to services through walkable, bikeable and transit-friendly infrastructure
- Greater access and proximity to fresh, nutritious food
- Accessible transit and public transportation options.
- Reduced urban heat island effect
- Universal data access
- Fewer local sources of air pollution
- Healthy and biodiverse wetlands, coastlines, and ecosystems that benefit people

Benefits and impacts - Just transition: businesses and industries, workers

- Smart growth land use patterns attend to the spatial mismatch between jobs and housing
- Improved environmental outcomes and economic advantages for businesses from smart growth
- Clean energy investments can create jobs and attract businesses establishments while saving energy and money that can be reinvested locally
- Green job career training opportunities
- Resilient transportation infrastructure and natural areas
- Improved decision making

A Solar Village home being produced in the manufacturing facility in Geneva. The Solar Village company currently employs 22 people; more jobs are expected as the company builds more homes for the proposed Ithaca Solar Village.

Thank You

Advisory Panel Members

Sarah Crowell, Chair, Director, Office of Planning, Development, & Community Infrastructure: DOS
Mark Lowery Assistant Director, Office of Climate Change: DEC
Jessica Bacher Managing Director: Pace University School of Law Land Use Law Center
Jayme Breschard-Thomann Senior Project Manager: Bergmann PC
Kevin Law Former President & CEO: Long Island Association
Katie Malinowski Executive Director: NYS Tug Hill Commission
Ed Marx Former Commissioner of Planning: Tompkins County
Kathy Moser Senior Vice President: Open Space Institute
Priya Mulgaonkar Project Manager: Hester Street Collaborative; formerly NYCEJA
Gita Nandan Board Chair: RETI (Resilience, Education, Training and Innovation) Center
Juan Camilo Osorio Assistant Professor: Pratt Institute School of Architecture
Eric Walker Climate and Clean Energy Strategist

Image courtesy of the Earth Science and Remote Sensing Unit, NASA Johnson Space Center

Break

12-1pm

Housing and Energy Efficiency

Energy Efficiency and Housing Advisory Panel

Recommendations to the NYS Climate Action Council for Consideration in the Scoping Plan

NEW YORK STATE OF OPPORTUNITY. Climate Action Council

Energy Efficiency and Housing Advisory Panel Members

CHAIR

RuthAnne Visnauskas
Commissioner
Homes and Community Renewal

Janet Joseph
Senior Vice President for Strategy and Market Development
NYSERDA

Peggie Neville
Deputy Director of Efficiency and Innovation
Department of Public Service

Gina Bocra
Chief Sustainability Officer
NYC Department of Buildings

Kyle Bragg
President, 32BJ SEIU

Amy Sugimori
Director of Policy and Legislation

Molly Dee
Head of Deep Carbon Reduction
Jaros, Baum and Bolles

Dan Egan
Senior Vice President of Energy and Sustainability
Vornado Realty Trust

Bret Garwood
Chief Executive Officer
Home Leasing, LLC

Clarke Gocker
Director of Policy and Strategy
PUSH Buffalo

Jin Jin Huang
Vice President of Generation Development
Ecosave, Inc.

Elizabeth Jacobs
Executive Director
Akwesasne Housing Authority

Jamal Lewis
Sr. Policy and Technical Assistance Specialist
Green and Healthy Homes Initiative

Sadie McKeown
EVP, Lending and Initiatives
The Community Preservation Corporation

Bill Nowak
Executive Director
NY Geothermal Energy Organization

Daphany Sanchez
Executive Director
Kinetic Communities Consulting

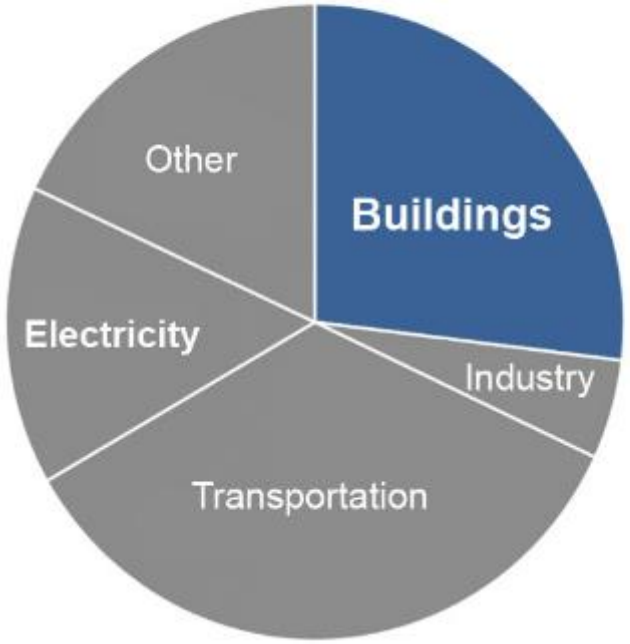
Laura Vulaj
Senior Vice President and Director of Sustainability
SL Green Realty Corp.

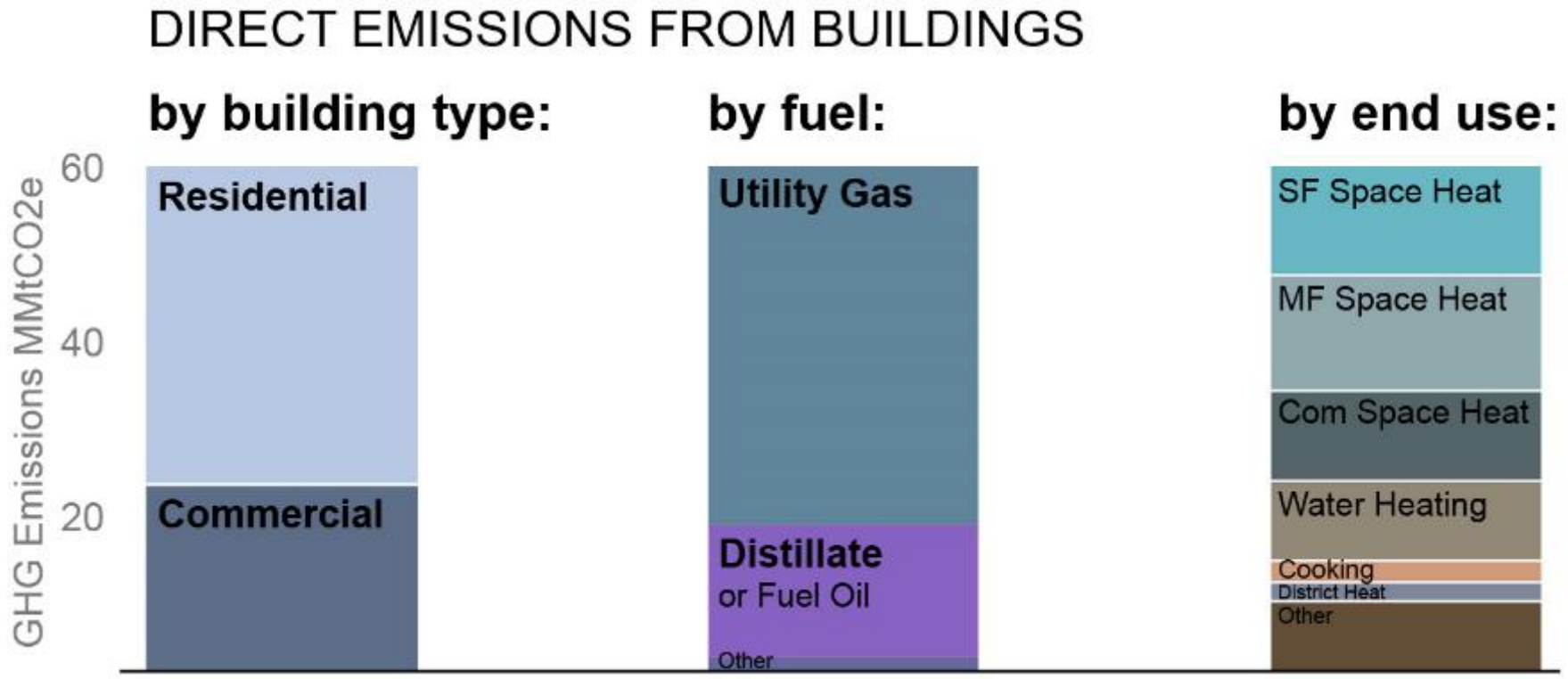
Emissions from our Buildings Today

- **DIRECT EMISSIONS - Onsite fossil fuel combustion** from the buildings sector
- **INDIRECT EMISSIONS - *Electricity usage*** accounted in the electricity generation sector

- ***Direct emissions*** are dominated by fossil-fuel combustion for space heating and hot water
- **Electrification is the largest driver of direct emissions reductions**

New York State
Economy-wide Emissions





Beneficial Building Electrification and Energy Efficiency

100% zero-emissions electricity by 2040 under the Climate Act.

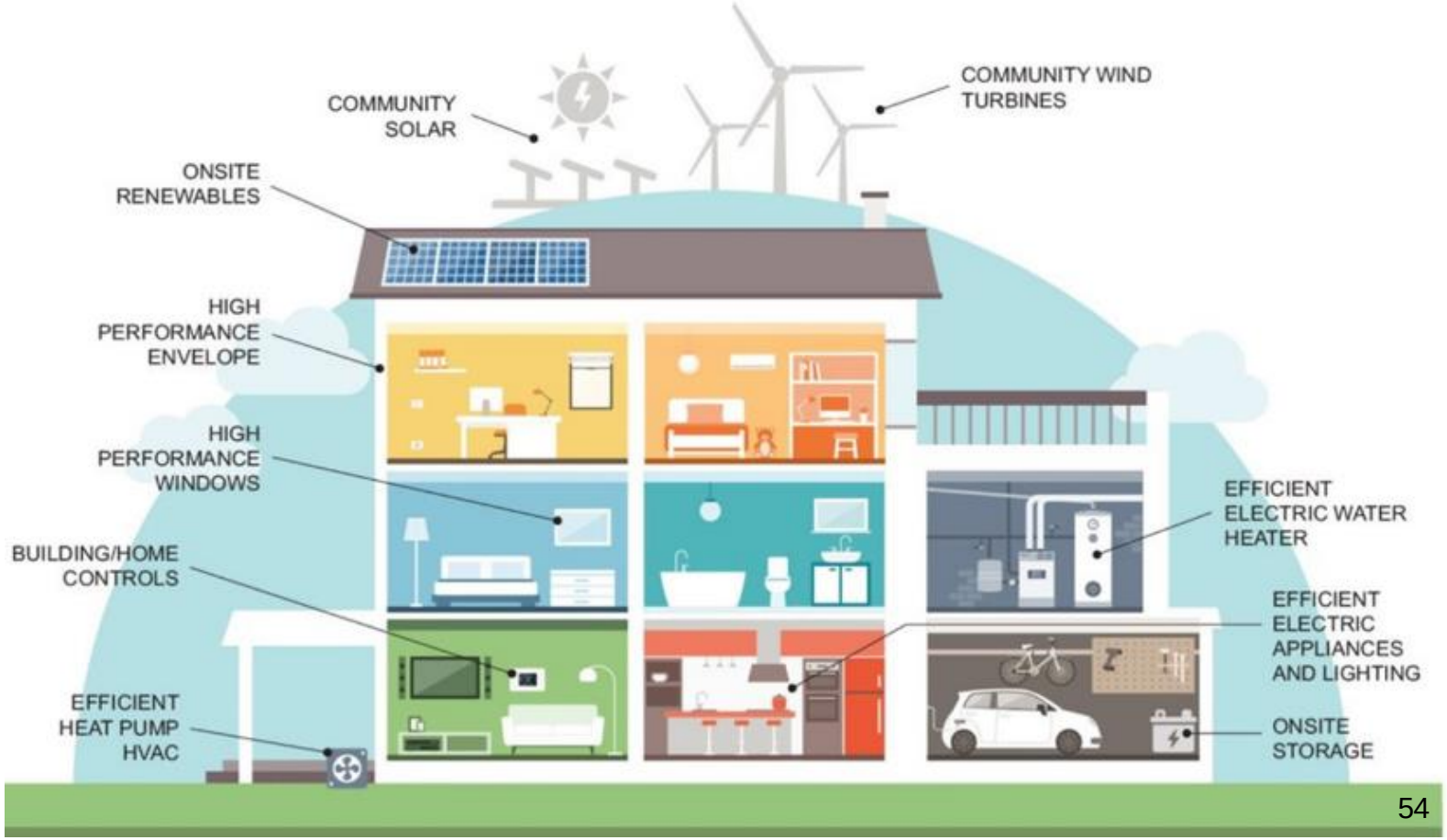
Electrification of heating and hot water systems is the key strategy for building decarbonization and **energy efficiency improvements** in all buildings.

Scope of Panel:

Eliminate on-site GHG emissions from the combustion of fossil fuels

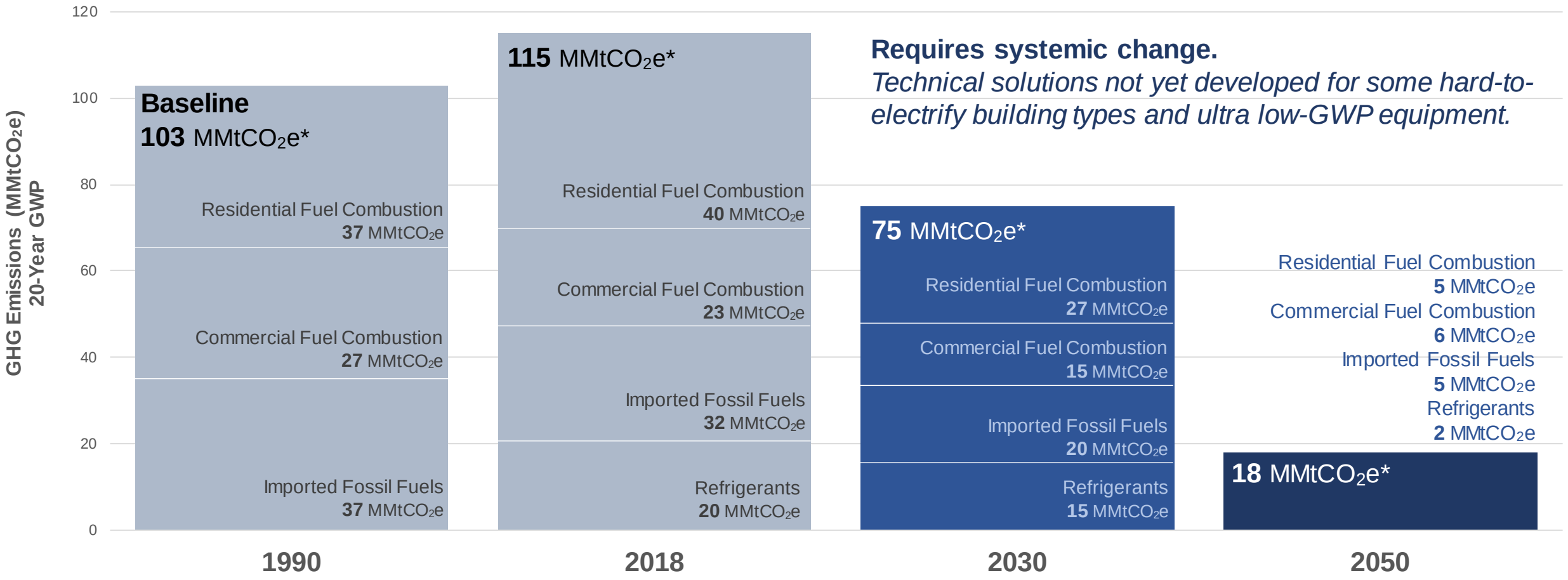
- Residential
- Commercial and Institutional

The Panel adopted a building-level focus; further analysis is needed in campus and community thermal networks, and specialized uses in industry and critical care.



Aggregate GHG Emissions Impact of Recommendations

Energy Efficiency and Housing Advisory Panel



Requires systemic change.
Technical solutions not yet developed for some hard-to-electrify building types and ultra low-GWP equipment.

* million metric tons carbon dioxide equivalent

Draft values subject to public review process for annual emissions accounting

Scale of the Solution Demands New Resources

6.2 million buildings in the state

- 4.9m single family homes
- 250k multifamily buildings
- 370k commercial/institutional buildings

Eliminating GHG emissions from New York buildings by 2050 requires broad, systemic changes.

- By 2030, more than 200,000 homes per year upgraded to all-electric and energy efficient
- The 370,000 commercial/institutional buildings cut energy use in half and end fossil fuel use
- Behavior and practice change lead to decarbonization

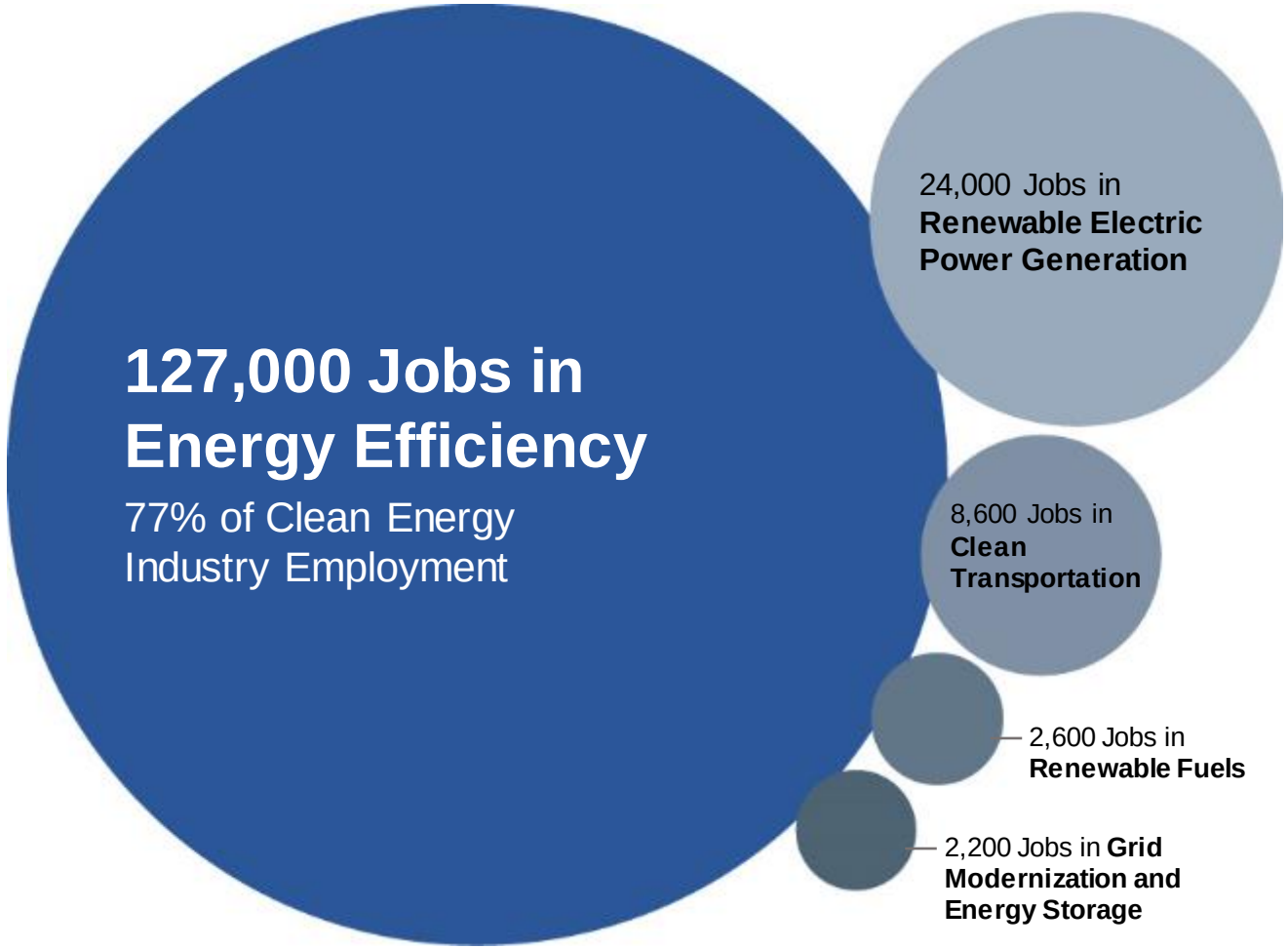
Equitable transformation at this scale requires new resources.

- *Private capital investment* focused on highly efficient buildings
- *Public incentives* for early adoption
- *Public investments* in building efficiency and electrification in LMI homes, affordable and public housing, and disadvantaged communities

Building Decarbonization and Economic Development

Decarbonizing New York's building stock delivers **significant job growth and economic opportunity** throughout the state.

- New York's **energy efficiency industry employs the largest share** of clean energy workers (**77%**).
- The efficiency sector continues to **add workers installing high-efficiency HVAC equipment and heat pumps**, which account for **over half of the sector's employment.**



Source: 2020 New York Clean Energy Industry Report

Approach to Recommendations

Equitably advance building electrification and energy efficiency **at scale**

New construction and retrofits for single family housing, multifamily housing and commercial/institutional buildings

- **Equity and affordability**
- **Practicality**
- **Minimizing costs**
- **Expanding solutions**
- **Benefits**
- **Sustainable and resilient outcomes**

Enabling policies address **access to financing and incentives, affordability, workforce development, and public awareness and engagement** to motivate behavioral change and **investment**

- **Equity**
- **Leading by example**
- **Help and partnership with Federal government**

Outreach and Engagement

Public Panel Meetings
- 8 public meetings in fall/winter 2020/21

Expert Round Tables
- Builders, installers, designers of single family/ multifamily housing; landlords, owners, agents

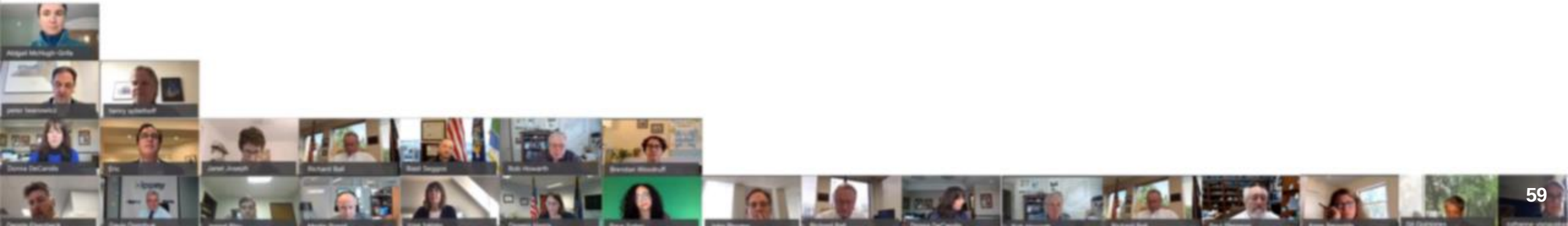
Stakeholder Survey

Carbon Neutral Buildings Roadmap outreach process
- 15 stakeholder engagement sessions

Public Engagement Session
- 110 unique comments (session/email)
- ~320 comments via coordinated emails

Meetings with REBNY condo/coop managers

Meeting with residential property owner associations
- Rent Stabilization Association, Community Housing Improvement Program, New York State Association for Affordable Housing



Mitigation Strategy Summary

		ACTION TYPE	EMISSIONS IMPACT BY 2050	EASE OF IMPLEMENTATION	COST*
1	**Phase out fossil fuel use in buildings**	Legislative, regulatory, programmatic	High	Medium/Hard	$$$
2	**Require benchmarking**	Legislative, regulatory, programmatic	Low	Easy	$
3	**Shift reliance on fossil gas to a clean energy system**	Legislative, regulatory	High	Hard	$$$
4	**Shift reliance on HFC use as refrigerants and in all products used in construction**	Legislative, regulatory	High	Hard	$$

** Cost estimates for mitigation strategies reflect total resource costs statewide, expressed as an equivalent annualized cost.*
The total resource cost approach measures costs to upgrade buildings and utility infrastructure net of energy savings, across all entities (public and private sector).
*The categories used for **equivalent annualized total resource cost** are:*
$ (<$250M, resources are already on hand), $$ ($250M - $1B, requires some new resources), and $$$ (>$1B, requires high degree of new resources).

Mitigation Strategy – Initiative #1 Codes and Standards

Enact **enabling legislation** and adopt **codes, standards, and regulations** to improve energy efficiency, reduce emissions, and enhance building resilience. Adopt regulations that **phase out fossil fuel use** in buildings, requiring energy-efficient electric heating and cooling, electric hot water heating, and electric appliances.

GHG REDUCTION BY 2030	GHG REDUCTION BY 2050	COST/FUNDING CONSIDERATION
MEDIUM	HIGH	$$$

ACTION TYPE	IMPLEMENTATION EASE	CASE STUDY EXAMPLES
Legislative Regulatory Programmatic	MEDIUM/ HARD	California Massachusetts Norway

Mitigation Strategy – Initiative #1 **Codes and Standards**

New construction* of residential and commercial buildings are built to a **highly efficient, zero emission standard** and incorporate requirements for building resilience, where feasible.

ASAP – adopt highly efficient **State Energy Code for new construction*** of residential and commercial buildings.

2023 – amend the **State codes for new construction*** of residential and commercial buildings to require:

- **solar PV** on feasible areas
- feasible grid-interactive electrical appliances
- energy storage readiness
- **electric readiness** for all appliances
- EV readiness where parking is already provided.

Adopt all-electric State codes for new construction*

- **2025** – single family
- **2030** – multifamily and commercial buildings.

Enabling action: Encourage local governments to adopt NYStretch Energy Code, until highly efficient, all-electric codes are enacted statewide.

Enabling action: State funding for local code enforcement (staff, training, materials) and State credentialing of third-party Energy Code inspectors.

**"New Construction" includes additions and alterations as applicable*

Mitigation Strategy – Initiative #1 **Codes and Standards**

Require the sale and installation of energy efficient and **zero emission new equipment**, when replaced **at the end of useful life** in residential and commercial buildings, as well as **efficiency upgrades** for many large buildings.

ASAP – **Adopt energy efficiency standards for appliances** exempt from federal preemption (e.g., computers, monitors, air purifiers).

2030 – **Require lighting upgrades** to current Energy Code standards for existing commercial properties (>25,000 sq. ft.).

2030 – **Adopt an energy efficiency performance standard** for existing commercial properties (>25,000 sq. ft.).

Adopt zero emission standards prohibiting gas/oil replacements (at end of useful life) of heating, cooling and domestic hot water equipment,

- **2030** – single family
- **2035** – multifamily and commercial buildings.

2035 – **Adopt zero emission standards prohibiting gas appliance replacements** (at end of useful life) for cooking and dryers in residential buildings.

Provide for thoughtful development of alternative compliance pathways from recommended codes and standards for extenuating circumstances (including housing affordability-related matters; health and safety/emergency needs). This applies to pre-existing building stock recommendations.

Mitigation Strategy – Initiative #2 Benchmarking and Disclosure

Require measuring building energy usage, **benchmarking energy performance**, and making that information accessible via disclosure or labeling.

GHG REDUCTION BY 2030	GHG REDUCTION BY 2050	COST/FUNDING CONSIDERATION
LOW (but enabling)	**LOW**	**$**

ACTION TYPE	IMPLEMENTATION EASE	CASE STUDY EXAMPLES
Legislative Regulatory Programmatic	**EASY to MEDIUM**	**NEW YORK CITY, SEATTLE, WASHINGTON DC, BOULDER, LONDON**

Mitigation Strategy – Initiative #2 **Benchmarking and Disclosure**

Components required for delivery:

2023 – **Statewide energy benchmarking and disclosure program** - Building owners (>10,000 sq. ft.) to annually report whole building energy and water consumption data to NYSERDA.

2025 – Require owners to obtain and **publicly disclose, as part of sale or lease listing,** the prior-year energy consumption of the building, unit, or space.

2027 – Require owners of single-family buildings to obtain and disclose an **energy performance rating** (e.g., a Home Energy Rating System (HERS) index) as part of sale listing.

2025 – All buildings (>25,000 sq. ft.) complete a **comprehensive building energy assessment** (audit) at least once a decade that:

- evaluates the building's systems;
- identifies opportunities to invest in energy efficiency upgrades; electrification or electrification-readiness for building systems; and
- resilience measures.

Policy implementation: Ensure consistency and alignment, where appropriate, across State and local government requirements (e.g., NYC local laws), incl. in reporting templates and timeframes. Use statewide benchmarking data to inform subsequent programmatic and policy design.

Mitigation Strategy – Initiative #3 Gas System Transition

Advance a managed, phased, and just transition from reliance on fossil gas and the gas distribution system to **a clean energy system**, including elimination of embedded subsidies for fossil gas.

GHG REDUCTION BY 2030	GHG REDUCTION BY 2050	COST/FUNDING CONSIDERATION
MEDIUM (overlap with #1)	**HIGH** (overlap with #1)	**$$$** Long-term planning expected to mitigate the risk of stranded assets

ACTION TYPE	IMPLEMENTATION EASE	CASE STUDY EXAMPLES
Legislative Regulatory	**HARD**	**Netherlands** (revocation of obligation to serve, subsidized gas phase out)

Mitigation Strategy – Initiative #3 Gas System Transition

Components required for delivery:

Undertake planning study and process to examine regulatory, legislative, and other policy changes needed for a managed and just transition of gas system and infrastructure, with attention to:

- safety, equity, reliability, and affordability of service;
- gas infrastructure and options for contraction;
- end-users and economic impacts;
- utility proposals to meet emissions reduction goals;
- alternative models for gas utilities in the long-term.

Develop a **comprehensive equity strategy** to incorporate needs of LMI households and DACs:

- Meaningful LMI/DAC engagement in transition process
- Prioritize technical and financial assistance.

Create **equitable transition plan for the gas industry workforce** (incl. protections, training, job transition opportunities).

Minimize new investments in gas delivery infrastructure, not otherwise needed for safety and reliability. Change utility incentives and planning.

Mitigation Strategy – Initiative #3 **Gas System Transition**

Components required for delivery:

Stop utilities advertising fossil gas as "clean," "natural," "climate friendly," or in similar terms.

Phase-out incentives and rebates for fossil gas equipment offered by utilities or NYSERDA.

Undertake analysis and provide resources for **building-readiness for electrification** and undertake analysis, planning, and information sharing for **electric grid-readiness for electrification**.

Undertake analysis and **planning for decarbonization of ConEd district steam system**.

Level playing field for adoption of clean heating solutions by **eliminating the "100-foot rule"** which can bias customer heating choice decision-making.

Clean heating choices should be considered policy in the public interest to support healthy homes, with the provision of heating service to homes recognized in State Policy as necessary for preservation of health and general welfare.

Develop **easement rules to allow access for thermal/ground source loops** to use utility and public (municipal) rights of way on reasonable terms.

Mitigation Strategy – Initiative #4 Transition from HFCs

Advance a **managed and just transition from reliance** on the use of hydrofluorocarbons (HFCs) as refrigerants and in all products used in building construction.

GHG REDUCTION BY 2030	GHG REDUCTION BY 2050	COST/FUNDING CONSIDERATION
MEDIUM	HIGH	$$

ACTION TYPE	IMPLEMENTATION EASE	CASE STUDY EXAMPLES
Legislative Regulatory	HARD	California Short-Lived Climate Pollutants Strategy; US Climate Alliance SLCP Roadmap; Washington State

Mitigation Strategy – Initiative #4 **Transition from HFCs**

Components required for delivery:

Update **NYS codes to allow low-GWP refrigerants**.

Require reclamation or destruction of refrigerants from appliances at end-of-life, with verification and reporting, and require leak detection for certain commercial refrigeration.

Provide training, technical assistance, and economic support to aid local industry with this transition.

Support **workforce training and education** for low-GWP refrigerants and technologies and for low-GWP alternatives in building/construction spray foam.

Continue to support **demonstration projects for low-GWP refrigerants** in HVAC and hot-water systems, and for refrigerant leakage detection and reduction strategies.

Expand the **scope of NYS Significant New Alternatives Policy (SNAP) Rule** which prohibits certain HFCs in refrigerator/freezers, chillers, commercial refrigeration, and aerosols/foams/ solvents; and lower GWP threshold over time as low/ultra-low GWP options become available.

- Align NYS policy with anticipated federal policy
- Send strong market signal while mitigating costs

Support further research into known data gaps (e.g., leak rates and charge size for VRF systems, **long term health effects** of exposure to new chemicals).

Benefits and Impacts of Mitigation Strategies

DISADVANTAGED COMMUNITIES

- Need subsidies for LMI homeowners, affordable and public housing and building owners in DACs; avoid potential disinvestment in low-income properties and DACs
- Prioritize training, job placement and workforce development in DACs and for priority populations
- Energy usage disclosure allows informed decision-making and budgeting for renters/buyers
- Risk LMI/DAC households will be left carrying the rate-base for gas infrastructure; planning for gas transition needs to involve stakeholders from DACs
- Refine affordability policy to account for household energy burden

HEALTH and CO-BENEFITS

- Improved outdoor and indoor air quality resulting in better health outcomes
- Improved building occupant comfort, safety, and productivity
- Attracts buyers/renters for efficient homes
- Reduced environmental damages from fossil fuel combustion and production

JUST TRANSITION
BUSINESS, INDUSTRY, WORKERS

- Invest in a workforce equipped to deliver electrification and energy efficiency services. Offer incumbent workers paths to transition
- Training/upskilling of design professionals, HVAC, and construction industries
- New industries and jobs in the clean energy economy
- Unlocks demand for energy-efficiency services and skilled workers

Enabling Strategy Summary

		ACTION TYPE	EASE OF IMPLEMENTATION	COST*
1	**Public Financial Incentives**	Financial, regulatory, programmatic	Hard (given scale)	$$$
2	**Public and Private Low-cost Financing**	Financial	Hard (given scale)	$$$ + mobilize private capital
3	**Workforce**	Financial, regulatory, programmatic	Medium	$$
4	**Consumer Education**	Programmatic	Medium	$$
5	**Innovation**	Financial, programmatic	Easy	$$
6	**Embodied Carbon**	Financial, regulatory, programmatic	Easy	$

Cross-cutting recommendations also address identifying resources, federal support, energy prices, resilience, and the importance of energy efficiency.

* *Cost estimates for enabling strategies reflect new State resources above current levels of investment, through 2030. State investments in market enabling strategies will be needed for at least the coming decade, with ongoing State resources thereafter to support LMI households and DACs. The categories used for **new State resources (through 2030)** are: $ (<$25M, resources are already on hand), $$ ($25M - $100M, requires some new resources), and $$$ (>$100M, requires high degree of new resources).*

Enabling Initiative #1 **Public Financial Incentives**

Provide incentives for single family, multifamily, and commercial and institutional building owners that speed uptake and help transform the market for building efficiency, electrification, and decarbonization.

Focus on uptake benefitting LMI households, affordable and public housing, and DACs.

COST/FUNDING CONSIDERATION	
$$$ ▪ Minimum of **$1B/yr needed for programs serving LMI households, affordable and public housing, and DACs**, on an ongoing basis. ▪ **Financial incentives to motivate early adoption in market-rate housing and commercial buildings will be needed for at least the coming decade.**	*NYS currently invests ~$250M/year for energy efficiency programs that serve LMI and affordable housing, as part of > $1B annually to support energy efficiency and building electrification across residential, commercial, and institutional buildings

ACTION TYPE	IMPLEMENTATION EASE	CASE STUDY EXAMPLES
Financial, Programmatic, Regulatory	**HARD given scale**	**NY-Sun, Statewide LMI Portfolio of energy efficiency programs, NYS Clean Heat, Comfort Home Pilot**

Enabling Initiative #1 **Public Financial Incentives**

Components required for delivery:

Regulatory frameworks that further align energy efficiency and electrification programs with State objectives (e.g., consideration of benefit-cost accounting).

Create a **direct cash incentives program for electrical service upgrades** and in-building wiring and equipment.

Expand/create incentives for energy efficiency and electrification to enable uptake and transform the market for at least the coming decade, with ongoing resources for **LMI households, affordable housing, public housing, and DACs.**

Support and accelerate **efficiency, electrification, and resilience in public housing**, statewide (e.g., in NYCHA and other PHA developments).

"Retrofit and Electrification Readiness Fund" for LMI households, affordable housing, public housing, and residential buildings in DACs to cover costs of non-energy building improvements that are necessary to install energy measures and broadband installation.

Leverage healthy homes services and **funding across housing, health, and energy improvements** for low-income households to fund green and healthy housing retrofits.

Enabling Initiative #2 Public and Private Low-cost Financing

Low-cost financing for energy efficiency, electrification, electrification readiness, solar PV, and related improvements in buildings to provide single family, multifamily, and commercial and institutional building owners with access to low-cost capital at the scale needed to **pay for the building upgrades** necessary for decarbonization.

COST/FUNDING CONSIDERATION	IMPLEMENTATION EASE
$$$ + unlock private capital	**HARD given scale**

ACTION TYPE	CASE STUDY EXAMPLES
Financial	**GJGNY; mobilize low-cost capital at a scale comparable to the NYS Environmental Facilities Corp (Clean Water State Revolving Fund)**

Enabling Initiative #2 **Public and Private Low-cost Financing**

Components required for delivery:

Provide support for lenders to **underwrite to energy performance standards** and applicable regulatory requirements.

Continue to **scale up green requirements in affordable housing** deals while ensuring that sufficient resources are available to maintain, preserve and produce clean, safe and affordable housing.

Streamline access to all incentives and resources for regulated affordable housing building decarbonization, to go through housing agencies.

Provide **greater access to low-cost financing** products for upgrades, including for low-income homeowners and/or DACs (e.g., low-interest financing coupled with credit enhancement/insurance).

Expand the use of **performance contracting** to achieve goals for State, municipal, and K-12 school building upgrades.

Provide a **revolving loan fund** for building decarbonization; e.g., enable public requirements coupled with access to low-cost capital.

Enabling Initiative #3 **Workforce**

Support workforce **education, training, job placement** and development that equip the state's current and future workforce to design, install, inspect, maintain and operate healthy, comfortable, low-carbon buildings while increasing clean energy job placement for DACs and advancing industry diversity.

COST/FUNDING CONSIDERATION	CASE STUDY EXAMPLES
$$ build on NYSERDA's $100M clean energy workforce training initiative	**NYSERDA** clean energy workforce programs

ACTION TYPE	IMPLEMENTATION EASE
Financial Programmatic Regulatory	**Easy** to develop programs and training infrastructure; **Medium**-effort to coordinate/deliver training and placement services at scale, and support needed for DACs

Enabling Initiative #3 **Workforce**

Components required for delivery:

Scale up training for incumbent and new clean energy workers and adjacent industries.

Prioritize DACs/low-income residents and other priority populations for training and job placement.

Promote good wages, benefits, local and targeted training and hiring through models like Community Benefits/Workforce Agreements and On the Job Training Funding.

Leverage State agencies' spending and regulatory influence to advance commitments around job access and job quality for DACs.

Increase participation of MWBE, Service Disabled Veteran Owned Businesses (SDVOB).

Require **building decarbonization curricula and career services** in State-funded education and encourage this curricula at private universities.

Require **continuing education on building decarbonization** for architects, engineers, trades, contractors, building operations and maintenance, real estate professionals.

Support **retention** of experienced building service workers.

Enabling Initiative #4 Public Awareness and Consumer Education

Support broad public awareness and consumer education, create strategic partnerships with trusted community leaders, and scale-up targeted outreach and decision-making support to **increase market demand** and accelerate the transition to low-carbon, energy-efficient, all-electric buildings.

COST/FUNDING CONSIDERATION	CASE STUDY EXAMPLES
$$	**Clean Energy Hub model** (under development)

ACTION TYPE	IMPLEMENTATION EASE
Programmatic	**Easy** to develop content; **Medium**-effort to develop integrated strategic plan and coordinate aligned messaging and dissemination; high touch/volume, delivered through range of channels to effectively reach broad range of audiences

Enabling Initiative #4 **Public Awareness and Consumer Education**

Components required for delivery:

Support/scale up **multilingual public and consumer education** efforts through campaigns.

Create **Strategic Partnerships.**

Provide technical assistance and resource toolkits Demonstrate low-carbon solutions through challenges, case studies.

Publicize best practices for efficient building operations and create recognition and incentive/challenge activities.

Ensure the media **represent DACs in marketing efforts** and prioritize education and technical assistance for DACs.

"**One-stop shop**" website for clean energy, electrification, and energy efficiency programs and **hubs** for education, resources, local contractors, technical assistance and program navigator support.

Build on: NY Energy Advisor website and marketing for a statewide LMI program portfolio; NYSERDA's development of regional Clean Energy Hubs.

Enabling Initiative #5 **Innovation**

Support **research & development,** demonstration projects, and **more companies and manufacturers operating in NYS** to bring innovative solutions to the marketplace for buildings to

- be highly efficient, all-electric, and resilient
- be grid-interactive, with revenue opportunities, and
- reduce embodied carbon.

COST/FUNDING CONSIDERATION
$$ building upon NYSERDA's $60M annual commitment

ACTION TYPE	IMPLEMENTATION EASE	CASE STUDY EXAMPLES
Programmatic	**Easy**	New York Battery and Energy Storage Technology (NY-BEST), ARPA-e, California Public Interest Energy Research (PIER) project, MassCEC

Enabling Initiative #5 **Innovation**

Components required for delivery:

Advocate for, and leverage, **Federal and National Laboratory resources.**

Provide support and **outreach for MWBEs, cooperatives, and B Corps**.

Continue to support R&D and demos in:

- **Grid-Interactive Efficient Buildings** that contribute to efficient grid management and grid reliability.
- **Next generation HVAC systems and building envelopes** that deliver high performance, meet technical needs, and lower costs.
- **Building resilience** (with electrification and more frequent extreme weather); flexibility and resilience of the electrical system; and related energy and thermal storage solutions.

Support the development of **market signals**:

- Revenue streams for Grid-Interactive Efficient Buildings
- Analysis and pilots/demonstrations to inform rulemaking or ratemaking.

Scale up resources to identify and **promote tech. transfer for innovative building decarbonization.**

Enabling Initiative #6 **Embodied Carbon**

Establish procurement requirements and design specifications for State-funded projects and support education, building reuse, R&D, and in-state manufacturing of alternative products to **lower the embodied carbon of products and materials** used in the buildings sector and to create broad carbon literacy regarding the impact of materials, while increasing attention to carbon-sequestering products (e.g., cross-laminated timber, hempcrete).

COST/FUNDING CONSIDERATION	IMPLEMENTATION EASE
$	**Easy** via diversified approach

ACTION TYPE	CASE STUDY EXAMPLES
Education Financing Regulatory	Port Authority NY/NJ calls for EPDs in some specifications; NYSERDA takes embodied carbon into account in awarding support for building construction projects; EC3 is a viable, free tool gaining traction

Enabling Initiative #6 **Embodied Carbon**

Components required for delivery:

Drive embodied carbon reductions through **procurement in State-funded projects.**

- State-funded projects to follow **lower-carbon specifications** for the most carbon intense building materials and products.
- Set a target embodied carbon **reduction levels** for projects.

Support **R&D, demonstration projects, and technology transfer/commercialization** for enhanced low embodied carbon construction, including preference for re-use of existing buildings.

Provide assistance to **expand in-state manufacturing** for products that are lower in embodied carbon or made of carbon sequestering materials also known as biogenic or agriculture-based materials.

Identify and pursue **financial incentives, changes to building codes**, and other strategies to encourage building reuse.

Benefits and Impacts of Enabling Initiatives

DISADVANTAGED COMMUNITIES

- Repair of structural inequalities
- Access to lending & protections from predatory practices
- Early adoption of retrofits/new tech in DACs/LMI households
- Prioritized training, jobs and workforce development in DACs
- Reduced energy costs/burden
- Improved quality/value of building stock in DACs
- Increased participation/benefits from clean energy transition
- Cleaner manufacturing & reduced damages to air/soil/water

HEALTH and CO-BENEFITS

- Improved air quality resulting in better health outcomes
- Improved building occupant comfort, safety, and productivity
- Cross-training of clean energy workforce on health and in-home health workforce
- Reduced environmental damages from fossil fuel combustion and production
- Builds demand for building energy performance & resilience

JUST TRANSITION
BUSINESS, INDUSTRY, WORKERS

- Repair of structural inequalities
- Job growth and economic development in every part of NYS
- Business development & growth for MWBEs and cooperatives
- Direct investment in retraining and new business development
- Builds awareness for building decarbonization
- Increased local capacity to participate in stakeholder-engaged planning processes toward a just transition
- Transparency in markets

Cross-Cutting Recommendation **Economy-wide Analysis to Identify Resources**

Transformation at this scale and advancement of equity will require **mobilizing private capital and a significant increase in public resources**.

The CAC should conduct an *economy-wide analysis* to identify resources and funding mechanisms to address the Scoping Plan, holistically.

Cross-Cutting Panel Recommendations

PANEL RECOMMENDATIONS
Advocate for **Federal resources** and policy support in the scoping plan.
Continue PSC attention to rate design and retail **rates for electricity and gas.**
Resilience is of critical importance. Amend **State codes** to enhance building-level resilience and grid reliability/resilience. Support recommendations of the **Adaptation and Resilience group**.
Broad adoption of **insulation/weatherization and energy efficiency in homes;** increased **funding for weatherization and energy efficiency** in LMI homes; **energy disclosures** can inform future policy.

Additional Panel Perspectives Summary

SOME MEMBERS OF THE PANEL RECOMMEND FOR FURTHER CONSIDERATION…

Specific **Federal Advocacy** items.
An **economy-wide carbon fee.**
Additional mechanisms for **financing and financial incentives.**
Specific modifications to **electric and gas rate design.**
A more **accelerated schedule for an all-electric State Code.**
In the Integration Analysis process, attention to: ▪ Viable **solutions for hard-to-electrify buildings**, incl some use of low-carbon fuels ▪ Additional policy options that could **accelerate emissions reductions** by 2030.

Scale of the Solution Demands New Resources

6.2 million buildings in New York State

Eliminating GHG emissions from New York's building stock by 2050 will require broad, systemic changes.

An equitable transformation at this scale requires new resources.

Thank you to our Panel, Staff Working Group, engaged stakeholders, and the Climate Action Council

Q&A

Power Generation

Power Generation Advisory Panel
Summary of Recommendations

NEW YORK STATE OF OPPORTUNITY. | Climate Action Council

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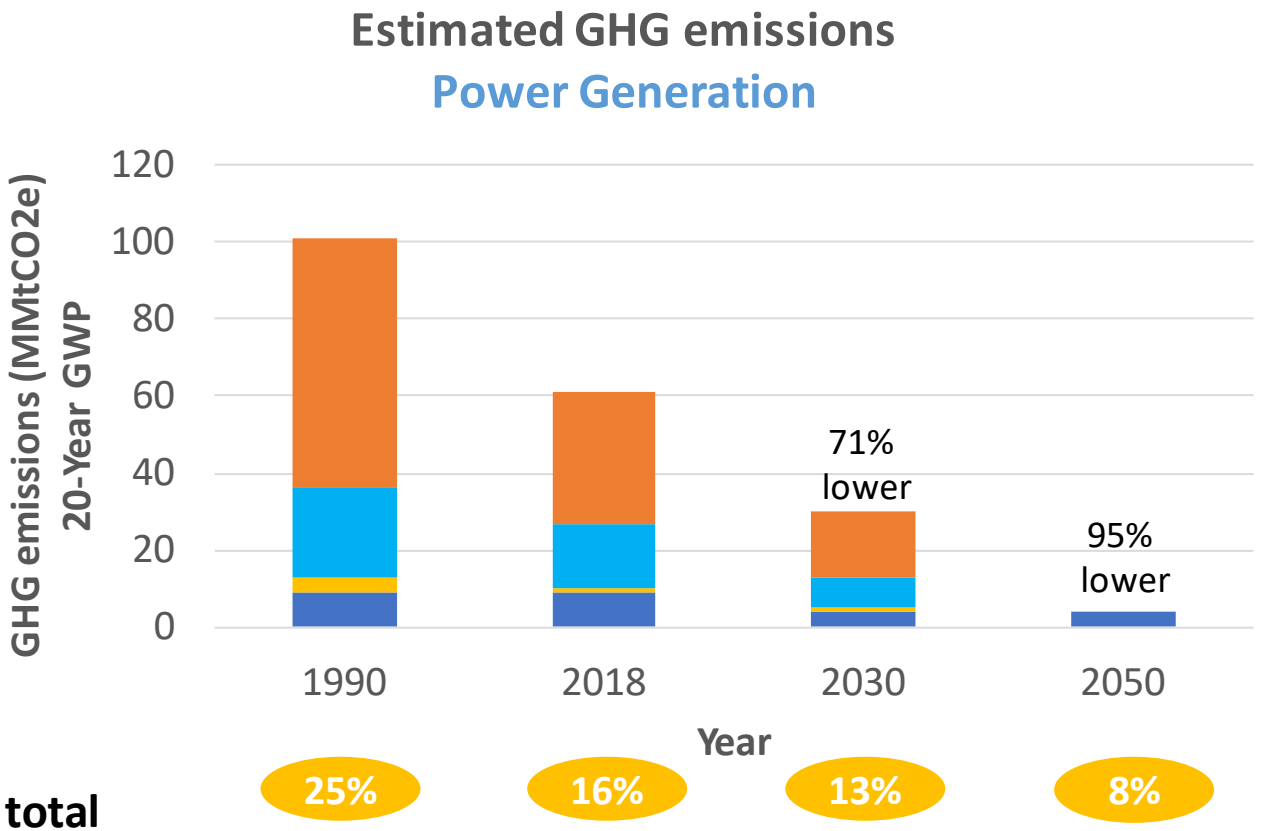
Stakeholder Involvement

- **11 Panel Meetings**
  - Available for live public viewing and announced via https://climate.ny.gov
  - Panel meeting presentations and notes posted following meetings
- **Public Feedback**
  - General email and voicemail established for public input
  - 1 Evening public input session for general feedback, 4 input sessions following panel meetings where draft recommendations were presented
  - Key group survey
- **Cross-Panel Engagement**
  - Building electrification with Energy Efficiency & Housing AP
  - Transportation electrification with Transportation AP
  - Clean energy deployment with Land Use and Local Government, Agriculture and Forestry APs
  - Energy jobs transition with Just Transition WG
  - Bioenergy end use applications with Agriculture and Forestry AP
  - Climate justice with the Climate Justice WG

Aggregate GHG emissions impact of Power Generation panel recommendations



% of total NY emissions

2018 emissions data are preliminary draft

Electricity Sector

Emissions (2018 Subtotal)

- Fuel Combustion (34mmt)
- Imported Fossil Fuels (17mmt)

Panel Goals:

- 2030: 70% RE is equivalent to 50% emission reduction from 2018 levels above
- 2050: Align with 100% Zero Emission by 2040

Other Sectors

- NYS Oil and Gas Methane Leakage
  - Recommendations reduce leakage 50% from 2018 levels (9mmt to 4mmt)
  - Additional actions by other Panels not included
- Electricity T&D
  - Phase-Out SF6 by 2050 (<1mmt to 0mmt)

Power Generation Advisory Panel Considerations

Electrifying buildings and transportation is crucial to meeting CLCPA goals.

Principles

> Reliability
> Equity
> Affordability
> Zero-emission
> Timely

Approach to Electrification Must…

> Minimize the system costs of electrification and balance the behind-the-meter costs with grid-side costs, with both bulk and local solutions
> Optimize the deployment and operation of resources – locationally and for flexibility – through storage, managed load, and clean dispatchable generation
> Look to utilities, DER providers, and bulk providers for this – as makes most sense and with steady and improvement and rules
> Provide for improved holistic planning of the electric system and across energy systems to accommodate significant changes in characteristics of generation and significant changes in load due to electrification
> Pay heightened attention to resilience and reliability as the energy system becomes more electric
> Support solutions in technologies, regulation, markets, and systems management and oversight

Recommendations Overview

- Deployment of Resources
- Critical elements to consider as we transition
- Advances needed for the future
- Transitioning away from fossil fuels to meet CLCPA targets

Initiative #	Description	Action type	Ease of implementation	Cost
1	Growth of Large-Scale Renewable Energy Generation	Procurement, Regulatory	Medium	$
2	Clean Energy Siting & Community Acceptance	Executive, Regulatory	Medium - Hard	$$
3	Distributed Generation / Distributed Energy Resources	Procurement, Regulatory	Medium	$$
4	Existing Storage Technology	Legislative, Regulatory, Executive	Medium	$$
5	Demand Side	Executive, Regulatory	Medium	$
6	Reliability for the future grid	Executive, Regulatory	Easy	$
7	Access and Affordability for All	Executive, Regulatory	Medium	$$
8	Workforce Development	Executive	Easy	$$
9	Market Solutions	Regulatory, Executive	Medium	$
10	Technology Solutions	Research & Development	Medium	$$$
11	Long Duration Storage Technology	Executive, Regulatory, Research & Development	Hard	$$-$$$
12	Energy Delivery & Hosting Capacity	Executive, Regulatory	Hard	$$$
13	Gas Infrastructure, Transmission & Methane Leakage	Executive, Regulatory	Easy - Medium	$$
14	Retirement of Fossil Fuel-Fired Facilities	Regulatory	Hard	$

Deployment of Resources

Growth of Large-Scale Renewable Energy Generation

- Continued evaluation and adjustment of policies and procurement targets
- Continue to support & appropriately staff successful programs and pursue needed regulatory changes
- Identify key transmission and distribution upgrades, improvements, and new line construction
- Establish a non-binding metric/goal for the Office of Renewable Energy Siting (ORES) with respect to megawatts of renewable energy which should be permitted each year

Deployment of Resources

Clean Energy Siting & Community Benefits

- Support the development and use of information and resources for local communities
- Clean energy development mapping
- Public education and outreach
- Equity and local community benefits
- Commercial rooftop and parking lot solar

Deployment of Resources

Clean Distributed Generation & Distributed Energy Resources

- Increase Hosting Capacity
- Improve interconnection
- Consider rate design and compensation
- Use incentives to target high-benefit projects

Deployment of Resources

Existing Storage Technologies

- Update the State's storage deployment goals
- Establish new targets and funding for storage.
- Better integrate energy storage into energy delivery and transmission planning processes
- Continue to work with the NYISO on market enhancements

Deployment of Resources

Demand Side

- Incorporate responsive demand into system planning
- Identify data to facilitate markets for clean energy
- Encourage state and federal appliance standards
- Develop standards to enable “opt out” demand flexibility programs
- Review cost-benefit tests

Critical elements to consider as we transition

Reliability for the future grid

> Biennial checkpoints of bulk power system reliability

> Studies and planning to integrate climate change impacts

> Improve reliability and resiliency to extreme weather events

> Update market products, requirements and technology standards needed to maintain reliability through time

Access and Affordability for All

> Continually examine and monitor PSC's Energy Affordability Program

> Modify the Home Energy Assistance Program

> Improve coordination of State agencies

Critical elements to consider as we transition

Workforce Development

- Evaluate current and future workforce needs and align training
- Partner in education and outreach
- Create community-to-employment pipelines and career pathways
- Establish continuing education, certifications, and licensing in trades and professions for current fossil fuel workers

Advances needed for the future

Market Solutions

> Expand demand-side opportunities and opportunities for flexible resources

> Adapt ancillary service market designs to incent flexibility as needed to efficiently integrate renewables

> Determine most effective approach to incorporate environmental values in market pricing

> Increase proactive advocacy at NYISO and FERC

> Evaluate effectiveness and any changes needed to earnings adjustment mechanisms

Technology Solutions

70 by 30

> Deploy currently available solutions

> Upgrade transmission

> Support utility-scale demonstration projects

Zero-emission by 2040

> Identify, explore, evaluate, and develop dispatchable technologies and solutions

> Detailed, holistic modeling of load, generation, and energy delivery

> Further analysis, technical development, and research on advanced fuels

> Evaluate contribution of nuclear power to 2040 resource mix

Advances needed for the future

Long Duration Storage Technology

> Focus State programs and funding on research and demonstration projects for the development of large scale and longer duration storage

> Develop and expand a Storage Center of Excellence to mature and deploy new technologies on the grid for large scale testing

> Attract and engage relevant parties in collaborative efforts to address the challenges unique to long-duration storage

Energy Delivery & Hosting Capacity

> Expand electricity transmission and distribution systems to support energy delivery

> Conduct further planning and pursue system upgrades necessary to facilitate offshore wind

> Incorporate and deploy advanced grid technology

> Improve the interconnection process

Transitioning away from fossil fuels

Gas Infrastructure, Transmission & Methane Leakage

> Decommission gas infrastructure with a managed, phased, and just transition

> Avoid creating additional stranded assets and exacerbating GHG emissions

> Support and expand DEC effort to promulgate regulations to decrease methane emissions from gas infrastructure

> Inventory and characterize gas infrastructure

> Develop and integrated plan to decommission infrastructure

Retirement of Fossil Fuel-Fired Facilities

Non-Consensus Recommendation component:

> Temporary moratorium on new or repowered fossil fuel-fired facilities until full consensus recommendation is adopted

Full Consensus Recommendation:

> A planning process to determine emissions reduction targets to reach zero emissions by 2040

> Promulgation of emissions regulations by DEC in order to reach the 2040 goal

> An iterative planning process that builds on #1 in which the progress, the reduction targets, the regulations, and the other mechanisms being utilized are evaluated and revised as necessary in order to reach the 2040 goal

Benefits and impacts

Decrease in GHG emissions and improved air quality, particularly in communities where fossil fuel generation is currently located

Disadvantaged communities

> Air quality and health impacts
  - Replace fossil generation with cleaner alternatives
  - Reduce methane emissions
  - Consideration of the impacts of new technologies

> Affordability
  - Cost of energy
  - Ability to afford measures
  - Impact of lost tax revenue when generation facilities close

> Access and participation
  - Information
  - Clean energy and payment assistance programs
  - Economic and workforce development opportunities

Just transition: businesses and industries, workers

> New businesses and industries will grow in NY centered around clean energy technologies and the supply chain for them.

> Becoming a "hub" for clean energy technology development will attract clean energy research and development companies to NY.

> There will be a growth in career paths for new workers who want to enter these new fields and for incumbent energy workers who are looking to transition.

> The transition away from fossil plants will impact workers of those facilities and host communities. Training and support in the transition to new jobs will be important.

Next Steps