

# Draft Scoping Plan

## Overview

January 2022



**Climate Action  
Council**

# Climate Leadership and Community Protection Act (CLCPA) – Overview

**Carbon neutral economy, mandating at least an 85% reduction in emissions below 1990 levels**

**40% reduction in emissions by 2030**

**100% zero-emissions electricity by 2040**

**70% renewable electricity by 2030**

**9,000 MW of offshore wind by 2035**

**6,000 MW of distributed solar by 2025**

**3,000 MW of energy storage by 2030**

**185 TBtu on-site energy savings by 2025**

**Commitments to climate justice and just transition**

# Climate Action Council

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Chair**  
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**Rose Harvey**

Senior Fellow for  
Parks and Open  
Space: Regional Plan  
Association

**Bob Howarth**

Professor of Ecology  
and Environmental  
Biology: Cornell

**Peter Iwanowicz**

Executive Director:  
Environmental  
Advocates NY

**Vacant**

Governor Appointee

**Anne Reynolds**

Executive Director:  
Alliance for Clean  
Energy New York

**Raya Salter**

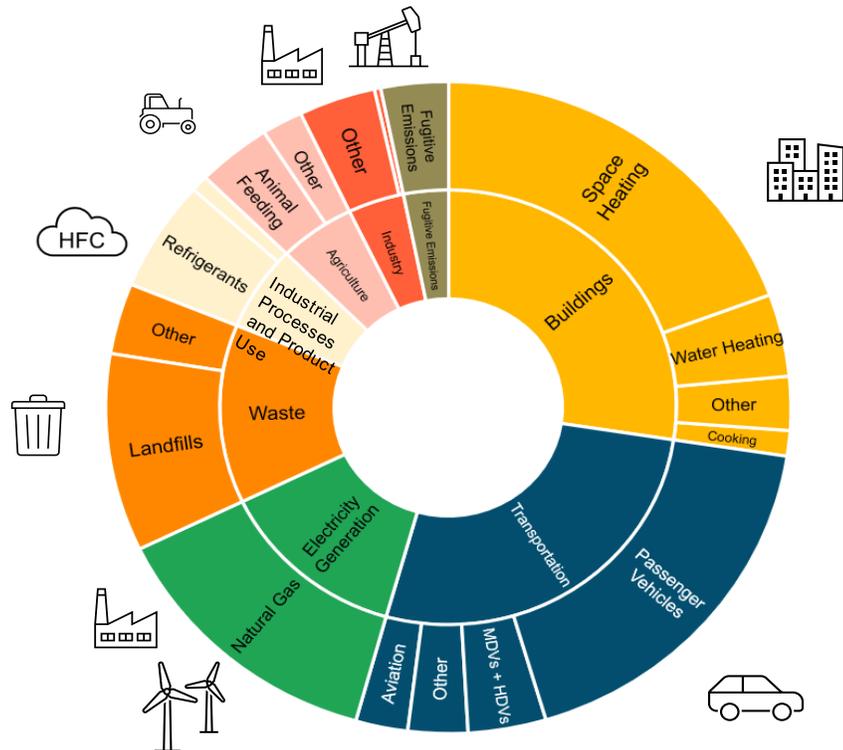
Principal: Imagine  
Power LLC

**Paul Shepson**

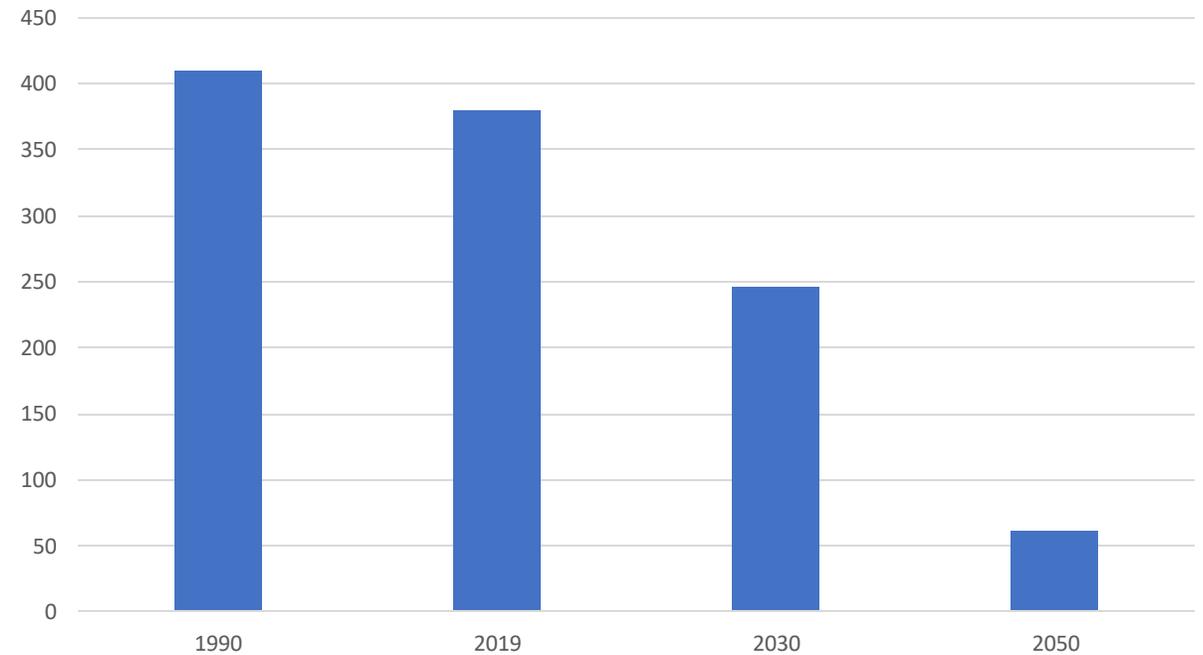
Dean of School of  
Marine &  
Atmospheric Sciences:  
Stony Brook Univ.

# GHG Emissions Reduction Requirements

Current Estimated GHG Emissions by Sector



New York State GHG Emissions (MMtCO<sub>2</sub>e)





# Process for developing the Draft Scoping Plan

**The Climate Act requires the CAC to develop a draft Scoping Plan to meet statutory emission limits by the end of 2021**

- > The Draft Plan is informed by recommendations of Advisory Panels, Just Transition Working Group, and Climate Justice Working Group
- > Reflects the consensus recommendations from the Advisory Panels and JTWG as the strategies to achieve the emissions limits
- > Considers climate justice, job creation, cost reductions, public health benefits, minimizing emission leakage
- > Emissions addressed include upstream emissions associated with fossil fuels from out-of-state
- > Undertakes comprehensive benefit-cost analysis
- > The recommendations formed basis of scenario modeling to show impact of interaction of strategies across sectors
  - 3 scenarios to achieve emissions limits – seeking public feedback on the mix of strategies and level of ambition

# Summary of Strategies in the Draft Plan

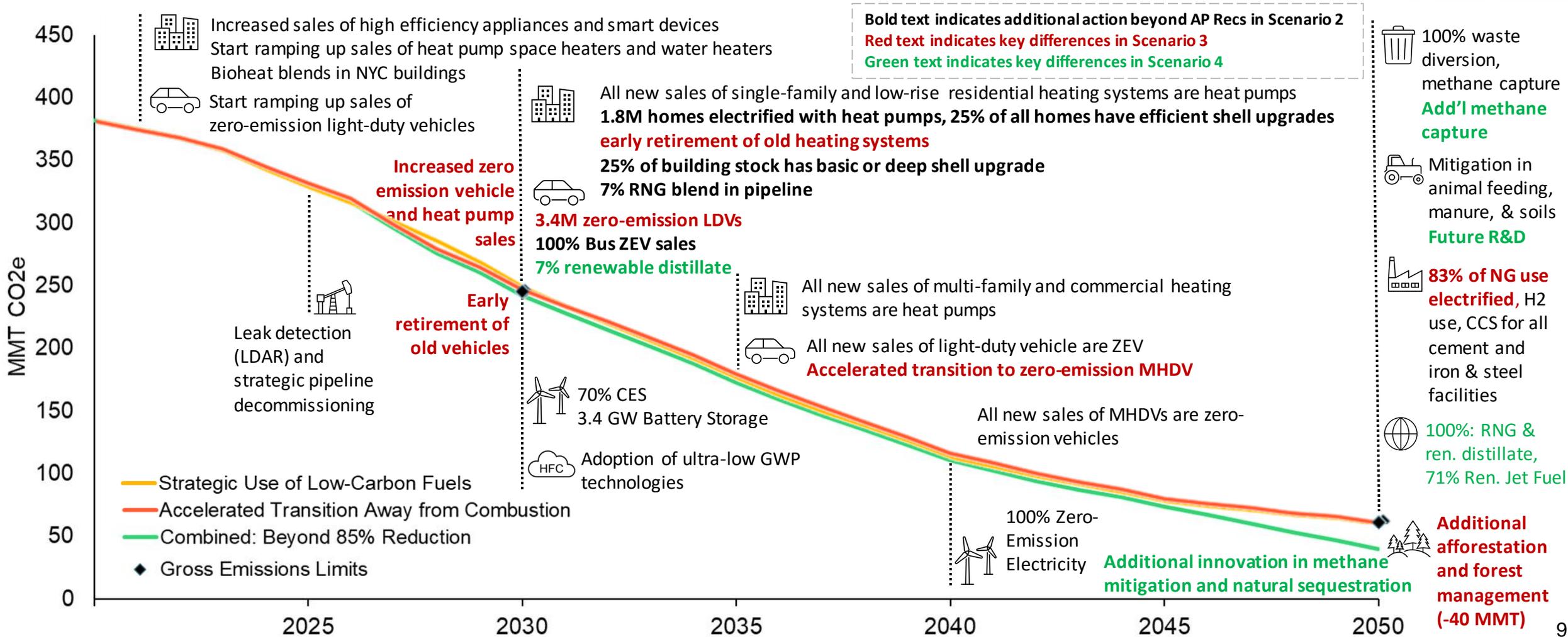
## **The Draft Scoping Plan scenarios advance several key strategies that are fundamental to achieving the emission limits**

- > Energy efficiency measures that achieve the Climate Act energy efficiency goal
- > Transition from fossil fuels to electrification in buildings
- > Zero emissions electricity
- > Transportation electrification
- > Enhancement of transit, smart growth, and reduced vehicle miles traveled (VMT)
- > A transition to low-GWP refrigerants and enhanced refrigerant management
- > Maximizing carbon sequestration in New York's lands and forests
- > Eliminate fugitive methane emissions across the waste, agriculture, and energy sectors
- > A diverse portfolio of solutions in industry, including efficiency, electrification, and limited and strategic use of low-carbon fuels and carbon capture technologies for certain industrial applications.

# Scenario Overview

- > Scenarios that meet or exceed GHG emission limits, achieve carbon neutrality by midcentury
  - Foundational themes across **all** mitigation scenarios based on findings from Advisory Panels and supporting analysis
    - Zero emission power sector by 2040
    - Enhancement and expansion of transit & vehicle miles traveled reduction
    - More rapid and widespread end-use electrification & efficiency
    - Higher methane mitigation in agriculture and waste
    - End-use electric load flexibility reflective of high customer engagement and advanced techs
  - **Scenario 2: Strategic Use of Low-Carbon Fuels**
    - Includes the use of bioenergy derived from biogenic waste, agriculture & forest residues, and limited purpose grown biomass, as well as green hydrogen, for difficult to electrify applications
  - **Scenario 3: Accelerated Transition Away from Combustion**
    - Low-to-no bioenergy and hydrogen combustion; Accelerated electrification of buildings and transportation
  - **Scenario 4: Beyond 85% Reduction**
    - Accelerated electrification + limited low-carbon fuels; Additional VMT reductions; Additional innovation in methane abatement; Avoids direct air capture of CO<sub>2</sub>

# Comparison of the Mitigation Scenarios

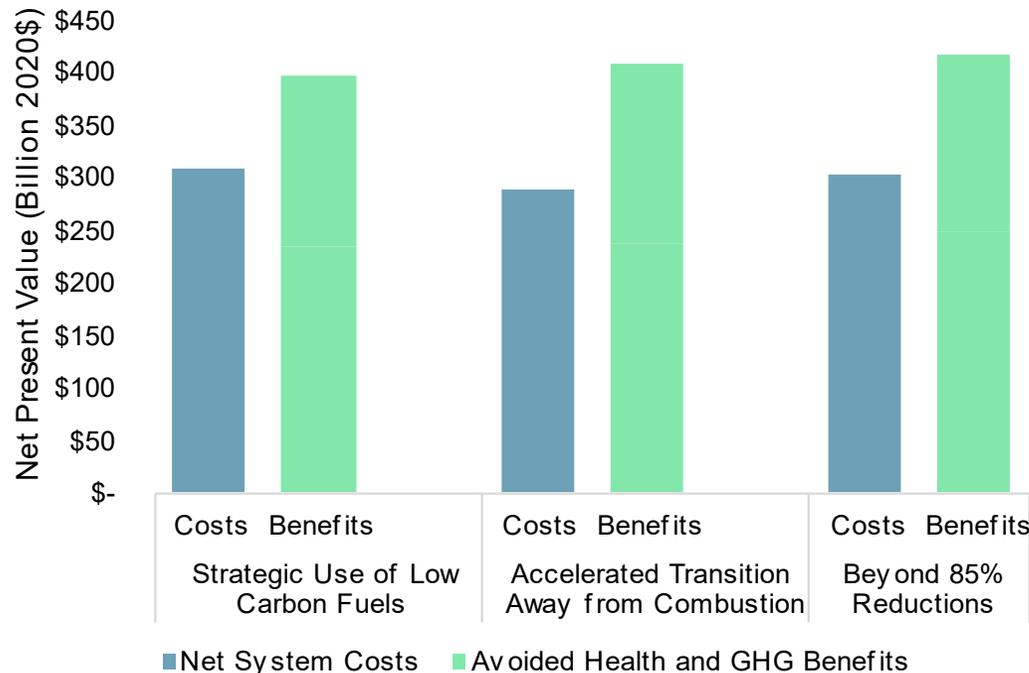


# Key Benefit-Cost Findings [NPV 2020-2050]

## Cost of Inaction Exceeds the Cost of Action by more than \$90 billion

There are significant required investments to achieve Climate Act GHG Emissions Limits, accompanied by even greater external benefits and the opportunity to create hundreds of thousands of jobs

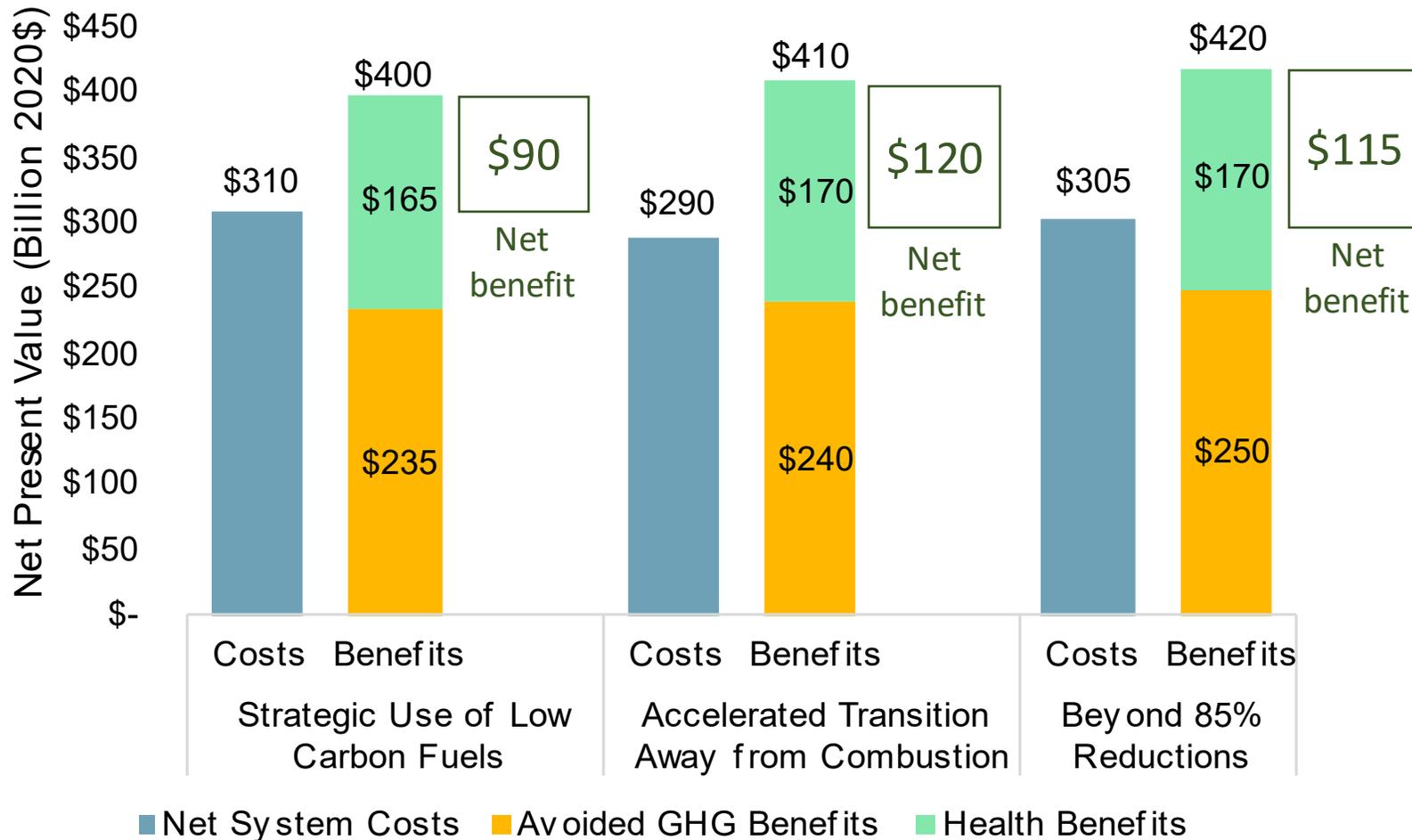
2020 - 2050



- **Net *benefits* range from \$90-\$120 billion**
- Costs are a small share of **New York's economy**: 0.6-0.7% of GSP in 2030 and 1.4% in 2050
- As a share of current overall **system expenditures**, costs are moderate: 9-11% in 2030 and 25-26% in 2050

# Benefit-Cost Assessment

*Net Present Value of benefits and costs relative to Reference, including net direct costs, GHG benefits, and health benefits (2020 – 2050)*



Mitigation cases show **positive net benefits (\$90-\$120 billion)** when considering the value of avoided greenhouse gas emissions and health co-benefits, in addition to cost savings from reduced fuel use

# Integration Analysis Findings

- > **Achieving deep decarbonization is feasible by mid-century.** Achieving the emission limits **requires action in all sectors**, requiring critical investments in New York's economy.
- > **Energy efficiency and end-use electrification are essential.** Approximately 1 to 2 million efficient homes will need to be electrified with heat pumps by 2030. Approximately 3 million zero-emission vehicles (predominantly battery electric) will need to be sold by 2030.
- > **New York will need to substantially reduce VMT while increasing access to public transportation.** This should include expanding transit services structured around community needs, smart growth inclusive of equitable TOD (E-TOD), and transportation demand management.
- > **Consumer and community decision-making is key, and especially important for the purchase of new passenger vehicles and heating systems for homes and businesses through the next decade.** In all modeled scenarios, zero-emission vehicles and heat pumps will need to become the majority of new purchases by the late 2020s, and fossil fuel-emitting cars and appliances will no longer be sold after 2035.
- > **A transition to low-GWP refrigerants and enhanced refrigerant management will be required** to electrify while reducing and ultimately eliminating GHG emissions from HFC-based refrigerants used in today's heat pumps.

# Integration Analysis Findings (cont'd)

- > **Low-carbon fuels such as bioenergy or green hydrogen have a role**
  - **Sectors that are challenging to electrify**, including MHD vehicles and high-temperature industrial, potential application in district heating and non-road transportation such as aviation and rail.
  - **Electricity system reliability beyond 2040**, increased electrification results in electric consumption doubling and peak load nearly doubling by 2050, and New York becomes a winter peaking system by 2035. Firm, zero-emission resources, such as green hydrogen or long-duration storage are needed
- > **Necessary methane emissions mitigation in waste and agriculture will require transformative solutions.** Massive diversion of organic waste from landfills and innovative manure management and animal feeding practices coupled with the capture of fugitive methane emissions
- > **Large-scale carbon sequestration opportunities include lands and forests and negative emissions technologies.** Protecting and growing New York's forests is required for carbon neutrality. Negative emissions technologies (such as the direct air capture of CO<sub>2</sub>) may be required if the state cannot exceed 85% direct emissions reductions by 2050. Strategic land-use planning will be essential to balance natural carbon sequestration, agriculture activities, new renewables development, and smart urban planning (smart growth).
- > **Research, development, and demonstration (RD&D) is key.** Additional innovation will be required in areas such as carbon sequestration solutions, long-duration storage, flexible electric loads, low-GWP refrigerants, and animal feeding, in concert with federal action (such as Earthshots).

# Health Effects

# Overview of the Analyses

The public health benefits analysis includes three components:

1. Improvements in **ambient air quality** from reduced fuel combustion
  - Using EPA's Co-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA), NYS quantified **air quality and health benefits** resulting from the pathways analyzed from 2020 to 2050
2. Health improvements from increased **active transportation** (e.g., walking and cycling)
  - The potential for public health benefits from increased activity while accounting for changes in traffic collisions were estimated using the *Integrated Transport Health Impacts Model* (ITHIM)
3. Health benefits associated with **energy efficiency interventions** in low- and moderate-income homes
  - This analysis applies the average values from published literature on the health and safety benefits of energy efficiency and weatherization programs to estimate the benefits of such programs in NYS

# Key Findings

- Decarbonization of New York can result in a substantial health benefit from improved air quality, on the order of **\$50 - \$120 billion** from 2020-2050 (based on reduced mortality and other health outcomes)
  - Benefits would be experienced **throughout the state** and downwind of the state in neighboring states.
  - Benefits of reduced fossil fuel combustion are **higher in urban areas** due to both higher emissions and larger impacted population.
  - Although no strategies target wood combustion specifically, **upstate areas** experience benefits of from reduced wood combustion due to electrification and energy efficiency.
  - Annual benefits **grow over time** as pollution rates decrease.
- In addition, we estimate other related potential health benefits:
  - **\$40 billion** associated with the health benefits of increased **active transportation** (e.g., walking, cycling)
  - **\$9 billion** associated with energy **efficiency interventions** in **low- and moderate-income homes** (additional benefits, not quantified, may occur in other buildings as well)

# 2022 Next Steps

# Draft Scoping Plan Public Comment

## Public hearings

April 5, 4:00	Bronx Community College, Bronx
April 6, 4:00	Brookhaven Town Hall, Brookhaven
April 12, 4:00	Binghamton University, Binghamton
April 14, 4:00	Empire State Plaza, Albany
April 26, 4:00	SUNY-ESF, Syracuse
April 27, 3:30	Buffalo & Erie County Public Library, Buffalo
May 3, 4:00	NYC City College of Technology, Brooklyn
May 7, 10:00am	Virtual
May 10, 4:00	The Wild Center, Tupper Lake
May 11, 4:00	Virtual

## Written comment submissions:

- Comment form at [Climate Act website](#)
- Email to [scopingplan@nyserda.ny.gov](mailto:scopingplan@nyserda.ny.gov)
- U.S. mail sent to Draft Scoping Plan Comments, NYSERDA, 17 Columbia Circle, Albany, NY 12203

**Comment period ends June 10, 2022**

**See <https://climate.ny.gov/CAC-Meetings-and-Materials> for venue and pre-registration information, webcast for viewing in-person hearings, and links to virtual hearings**