Scope for the New York State Energy Plan

February 2025

The New York State Energy Plan ("Plan") is guided by the provisions of Article 6 of the Energy Law. This Plan will assess meeting future energy needs over a fifteen-year horizon through 2040, in a manner that ensures energy system reliability, advances economy-wide decarbonization, and balances objectives around cost, equity, the environment and climate change, public health, and economic development.

In accordance with Article 6 of the Energy Law, the Plan will be guided by the goals and long-range energy planning objectives of:

- Improving the reliability of New York State's energy systems;
- Protecting consumers from market price volatility;
- Minimizing the overall cost of energy services in the state;
- Minimizing public health and environmental impacts, particularly those related to climate change;
- Maximizing energy conservation, energy efficiency, and load management; and
- Supporting economic development and the ability of the state to compete economically.

The 2019 Climate Leadership and Community Protection Act ("Climate Act") – New York State's nation-leading law to reduce greenhouse gas emissions, promote climate change mitigation and adaptation, advance climate justice, and help to grow the state's economy – guided the preparation of the 2022 New York State Climate Action Council Scoping Plan ("Scoping Plan"). Consistent with the Climate Act direction that the State Energy Plan will be informed by recommendations made in the Scoping Plan, this Plan will incorporate and assess energy policy and program recommendations of the Scoping Plan, and as appropriate, the Plan will recommend additional policies, programs, and actions.

This document sets forth a Scope for the Plan, which is informed by public comments received on the issues and policies to consider in the planning proceeding.

Topic Areas to be Developed in the State Energy Plan

Identified through the scoping and public comment process, the topic areas to be discussed and analyzed in the Plan are designed to meet statutory requirements, are informed by recommendations made in the Scoping Plan, and address additional issues identified by the State Energy Planning Board. In the development of the Plan, the Board will assemble and take into consideration relevant studies and plans undertaken by State agencies and authorities, the New York Independent System Operator ("NYISO"), energy transmission and distribution companies, and others. To the extent practicable and feasible, each topic area of the Plan will assess the current status and future outlook; discuss issues, challenges, and options; consider impacts on environmental justice communities and Disadvantaged Communities; discuss findings statewide and for the downstate region and the upstate region; and provide policy recommendations. The Plan will additionally evaluate how various actions interact across sectors and topic areas, including analysis of societal benefits and costs.

I. Overview of the Energy System

The Plan will:

- Provide an integrated overview of New York State's energy systems – including historical trends, current data, and forecasts for energy use, expenditures, and prices disaggregated by fuel type for electricity, fossil natural gas, petroleum products including heating and transportation fuels, coal, and alternative fuels; and
- Provide energy systems data and forecasts on a statewide basis and, to the extent practicable, for the downstate region (comprised of New York City, Long Island, and the Mid- and Lower-Hudson Valley) and the upstate region (comprised of the Capital Region, Western NY, the Finger Lakes, the Southern Tier, Central NY, Mohawk Valley, and the North Country), as defined in Article 6 of the Energy Law.
- Provide an overview of the ability for New York State's energy supply and delivery systems to meet forecast energy demand (for details, see the Electricity, Natural Gas, and other relevant topic areas).

II. Climate Change, Adaptation, and Resiliency

New York's clean energy and climate policies and programs are working toward a reduction in economywide greenhouse gas emissions of 40% by 2030 and 85% by 2050, from 1990 levels. In parallel with ambitious action on climate mitigation, it is likewise critical to understand the impacts of climate change on New York's citizens, infrastructure, and natural resources, and to adapt and build resilience to those impacts.

The Plan will:

- Provide an inventory and forecast of greenhouse gas emissions statewide and across sectors, based on the Statewide Greenhouse Gas Emissions Report;
- Synthesize the latest climate science and trends and discuss the impacts of climate change on the state's natural resources, infrastructure, public health, economy, and energy systems, building upon the NYS Climate Impacts Assessment; and
- For the sectors and topic areas addressed in the Plan, discuss relevant and impactful strategies to accelerate adoption of climate change resiliency and adaptation measures.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate goals and requirements and resiliency and adaptation efforts. Among the issues that the State Energy Planning Board will take under consideration are: how to further our understanding of future climate change and its impacts; the status of ongoing adaptation and resiliency planning across the energy sector; opportunities to inform regional planning through sector-wide vulnerability analyses; and the role of local governments in planning and implementing resilience and adaptation programs and policies.

III. Environmental Justice and Climate Justice

New York's policies and programs seek to promote environmental justice and to ensure that frontline communities equitably benefit from the state's clean energy transition. These policies and programs work to address the structural disadvantages that have caused historically marginalized communities (e.g., people of color, indigenous people, low-income communities, women) to bear a disproportionate burden of the impacts of pollution and climate change.

The Plan will:

- Examine impacts from the energy sector on issues faced by Disadvantaged Communities, as identified by the criteria adopted by the Climate Justice Working Group under the Climate Act;
- Discuss mechanisms to ensure the fair treatment and meaningful involvement of all people in State energy-related decision making, policies, and programs;
- Describe progress on the Climate Act's requirement that at least 35% with a goal of 40% of the benefits of the investments in clean energy and energy efficiency and related co-benefits accrue to Disadvantaged Communities, including description of the metrics and methods used to measure these benefits; and
- For each topic area in the Plan, assess current and additional actions to deliver investments and co-benefits to Disadvantaged Communities, and to improve the health, economic, and environmental well-being of Disadvantaged Communities affected by the energy sector.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to advance environmental justice and climate justice. Among the issues that the State Energy Planning Board will take under consideration are: reducing localized, disparate environmental impacts identified as resulting from the energy sector; environmental and climate justice impacts of current State policies and programs and those under consideration in the Plan; methods to collect data and to measure meaningful impacts on Disadvantaged Communities, including community air monitoring efforts; and strategies for community outreach, education, and meaningful involvement among Disadvantaged Community stakeholders that can inform the design of State programs and support local benefits from clean energy projects. Among the considerations the Board will consider are: improved air quality and public health outcomes; energy affordability and ways to reduce the financial burden of energy costs; economic development aligned with community priorities ; participation in the clean energy economy, including access to quality jobs in safe work environments; equitable access to clean energy programs and services for residents, businesses, and institutions; equitable access to climate resilient infrastructure; improved housing quality and affordability; and increased low- and zero-emission transportation and mobility options.

IV. Clean Energy Jobs and a Just Transition

A core objective of New York's climate and energy agenda is to ensure the advancement of a clean energy economy that results in economic development and job opportunities across New York and a just and equitable transition for New York's existing and emerging workforce.

The Plan will:

- Provide a workforce analysis including summary statistics, trends and forecasts for energy jobs, and key workforce metrics in the context of the State's growing clean energy economy;
- Identify workforce assets and needs to support the future energy system;
- Discuss current workforce development, training, educational initiatives, and related strategies for public engagement and identify opportunities to improve these initiatives to meet future energy system workforce needs;
- Discuss opportunities, challenges, and uncertainties with respect to hiring and skills development for clean energy jobs;
- Evaluate progress on policy priorities for a just transition, as identified by the Just Transition Working Group and outlined in the Scoping Plan; and

- Discuss continued coordination across State agencies to implement initiatives, such as the New York State Department of Labor's Office of Just Energy Transition (OJET), New York Power Authority (NYPA), New York Energy Research and Development Authority (NYSERDA), Empire State Development's Office of Strategic Workforce Development (OSWD), and the State University of New York (SUNY).

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: the application of labor standards to promote job quality and financial benefits for the state; regional energy employment dynamics; workforce impacts on utility and energy infrastructure workers; the siting of clean energy job training centers and workforce development programs; workforce development and training initiatives to support the hiring of workers from Disadvantaged Communities and Priority Populations, including displaced and transitioning workers; and investments to expand clean energy and emerging workforce opportunities, focusing on areas of future growth including offshore wind, electric vehicle charging, building decarbonization, solar development, energy storage, alternative fuels, and emerging technologies.

V. Clean Energy Innovation and Economic Development

New York State's support for clean energy innovation drives multiple benefits such as demonstrating the value of emerging technologies, generating in-state jobs, and economic development. The clean energy transition both in New York and globally provides the opportunity for New York-based manufacturers and companies to develop new products and expand their clients, including to meet sizeable regional needs across the energy, transportation, and buildings sectors.

The Plan will:

- Assess policies, programs, and funding mechanisms to stimulate energy research and development, support business and market development of emerging clean energy technologies, and bridge the gaps to full commercialization of new products that support clean energy needs;
- Discuss how New York can accelerate the development of clean energy industries and products, facilitate coordination between universities and industries, and encourage the growth of regional and statewide technology partnerships;
- Discuss how New York can continue to develop an in-state supply chain of clean energy businesses; and
- Assess future energy needs to support strategic economic growth in New York.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: public-private partnerships and similar approaches to ensure access to adequate investment capital to grow clean energy innovation, research and development (R&D), and manufacturing in New York; opportunities to leverage that growth in national and international markets; regional economic development opportunities, including existing community development programs, with a focus on unlocking opportunities in underutilized or economically distressed areas; innovation market mapping to determine opportunities for incubators, industry partnerships, workforce development, and similar opportunities; a framework to prioritize specific State-supported market engagements and activities to maximize impact; the equitable distribution of benefits from innovation and economic development; support for Minority and Women-Owned Business Enterprise (MWBE) participation in energy infrastructure projects and clean energy economic development; and coordination of State and federal investments to support clean energy economic development goals. The Board will consider the growth of strategic, energy-intensive industries and energy sector strategies to affordably meet and manage the associated energy demands.

VI. Electricity

New York State is transforming the way that the state's power sector and consumers generate, deliver, and use electricity – while ensuring a future electric grid that is dynamic, reliable, and resilient to climate change and extreme weather events. The Climate Act requires that 70% of statewide electricity come from renewable energy sources by 2030 and that the State achieve a zero-emission electricity system by 2040. The Climate Act and subsequent State targets set deployment goals of 6 gigawatts of distributed solar by 2025, 10 gigawatts of distributed solar by 2030, 6 gigawatts of energy storage by 2030, and 9 gigawatts of offshore wind by 2035. In the coming years, New York State also anticipates major growth in electric demand driven by large economic development projects and widespread electrification of transportation and buildings. During the transformation of New York's electricity sector, several reliability challenges must be successfully managed, including changing patterns of demand and the variety of generation resources and associated resource attributes for balancing generation and demand.

i. Electricity Demand, Supply, and System Reliability and Resiliency

The Plan will:

- Provide historical, current, and forecasted trends in electricity load and supply requirements by region and for the State as a whole, including the amount of capacity needed to provide for adequate reserve margins and reliability and accounting for projected climate conditions;
- Assess scenarios for the possible future generation supply portfolio, accounting for fuel diversity, expansion of renewable resources, demand-side resources including energy efficiency, flexible resources, and the role of advanced clean energy technologies and dispatchable emission-free resources;
- Assess the New York State bulk power transmission, local transmission, and distribution system infrastructure, including areas of system constraint and needed upgrades and investments;
- Discuss the opportunities, attributes, and challenges associated with the deployment of various options for dispatchable emission-free resources to enable a zero-emission grid, such as long-duration energy storage, advanced nuclear, thermal generation with alternative fuel, fuel cells, and other advanced clean energy technologies;
- Discuss changes in electricity market structures that can maintain reliability while promoting affordability and clean energy policy objectives;

- Discuss options to prepare for and address vulnerabilities posed by climate change and extreme weather risks in the energy sector, including the current status of climate resilience and adaptation measures incorporated or planned as applied to energy infrastructure and investments;
- Assess the current and projected reliability of the state's electric power system, taking into account changes in the system and technology as well as potential changes in energy markets and policies and climate (e.g., increased future average temperature, increased number of heat waves);
- Discuss options to address any identified reliability needs or risks; and
- Discuss technologies and practices for modernizing the state's electricity system, including to maintain its reliability, resilience, and efficiency; to utilize demand-side resources and flexible resources; to facilitate the integration of renewable energy and resources that will be needed to achieve a zero-emission grid.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. It will be developed in consultation with the NYISO and will include synthesis of NYISO reliability planning studies and relevant studies conducted by New York's electric utilities. Among the issues that the State Energy Planning Board will take under consideration are: projected impacts of climate change on electricity demand, generation, delivery, and system reliability and resilience; appropriate reliability metrics and criteria; impacts of demand-side resources including energy efficiency, flexible resources, electrification, and new large loads (such as industrial facilities and data centers) on electricity demand and supply requirements; impacts on ratepayers, control and dispatchability of intermittent resources with balancing resources (such as energy storage); and strategies to accelerate innovation, commercialization, and deployment of dispatchable emission-free resources. The Board will consider needs for bulk power transmission, local transmission, and distribution upgrades, including to accommodate renewable resources and to improve reliability and resilience; strategies to build and operate a transmission and distribution system, including interregional transmission connections and offshore wind transmission networks, that reduces consumer costs and maximizes the usefulness of new and existing infrastructure; supply chain issues and constraints and their impact on timelines for grid enhancement projects; and accommodation of new electric generation facilities, repowering of existing facilities, and options to retire or repurpose existing fossil fuel electric generation facilities. The Board further will consider market designs, products, and price signals to facilitate system efficiency and reliability; advanced metering infrastructure; and customer and system data access. For the electricity sector overall, the Board will carefully consider energy affordability impacts and ways to reduce energy cost burdens, with specific attention to low-income households.

ii. Renewable Resources for Electricity Generation

The Plan will:

- Assess the market potential for renewable electricity generation resources to meet needs in the electricity sector, including large-scale renewables (solar, land-based wind, hydropower, and offshore wind) and distributed generation;
- Evaluate progress towards meeting New York's renewable energy targets and zero emission goals set for the electricity sector, building upon the 2024 Draft Clean Energy Standard Biennial Review;
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to promote deployment of large-scale renewables;
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to promote deployment of distributed generation;

- Examine the role of policy, regulation, and finance as well as research and development in encouraging deployment and investment in large-scale renewable resources and distributed generation; and
- Balance the development of large-scale renewable energy and distributed generation with preservation of open space, agricultural land, and other siting considerations.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: clean energy siting, land use, and community acceptance; permitting processes including the implementation of New York's Renewable Action Through Project Interconnection and Deployment (RAPID) Act; grid interconnection process, standards, and capacity; transmission and distribution upgrades to accommodate renewable and distributed energy resources; incentives and financing to encourage deployment; additional strategies to meet New York's Clean Energy Standard; encouragement of community choice aggregation programs with strong consumer protections; rate design and compensation for renewable resources, including value-based compensation; and system and customer data access. The Board further will consider the availability and effectiveness of federal incentives and federal, state, and local coordination on clean energy projects.

iii. **Energy Storage and Flexible Resources**

The Plan will:

- Assess the various combination of services (known as "use cases") and the market potential for energy storage technologies to provide the electricity system with dispatchable, flexible capacity that supports increased system reliability and a more efficient build out of renewable generation, and to provide end users with flexibility and resiliency benefits;
- Evaluate progress in meeting New York's energy storage targets;
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to promote energy storage deployment, for large-scale storage and behind-the-meter applications, and to advance energy storage innovation;
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to promote the improved integration of flexible resources (such as energy storage, demand response, virtual power plants, participation of new large flexible loads) into grid planning and grid operations; and
- Examine the role of policy, regulation, and finance as well as research and development in encouraging deployment, grid integration, and investment in energy storage and other flexible resources.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: utility planning and procurement processes; siting and community acceptance, including options to repurpose existing fossil fuel generation facilities to support the future energy grid; permitting processes; grid interconnection standards for bidirectional resources; codes, standards, and practices for the fire safety of stationary battery energy storage systems; incentives and financing to encourage deployment; market and rate design and compensation for energy storage and flexibility services, including opportunities for value-based compensation at both the wholesale and retail levels; examination of energy storage as a transmission asset; opportunities for customer savings and benefits from flexibility services; advancements in smart grid technologies and metering infrastructure; physical and cyber security protocols; and system and customer data access.

VII. Nuclear Energy

Nuclear power generation provides reliable baseload electricity and is zero-emission — attributes that are valued under New York's current energy policies. Yet at the same time, nuclear power generation technologies are complex, with potential impacts on host communities and questions relating to the long-term impacts of nuclear waste on public health and the environment.

The Plan will:

- Assess the contribution and value of the existing nuclear fleet in meeting New York's energy, capacity, and reliability requirements;
- Examine the implications of decommissioning, including long-term waste storage and disposal;
- Explore the potential role of advanced nuclear technologies in the power sector, including small-scale and modular units;
- Explore the potential role of nuclear-powered clean hydrogen production, whether through water electrolysis in existing nuclear facilities or in future nuclear units; and
- Discuss the opportunities and considerations necessary for deployment of advanced nuclear technologies for applications including power generation, hydrogen production, remote locations, behind-the-meter electricity for energy-intensive activities, and heat for industrial processes and district heating.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the Board will take under consideration are: existing regulatory and policy structures; available technology and the development timeframe and risks for new technologies; impacts on economic growth; public health, safety, security, and emergency planning considerations; environmental impacts and nuclear waste management, including the cost of waste management; siting and community acceptance; permitting processes; land use considerations; financing considerations, including cost overrun insurance; environmental and climate justice impacts; supply chain concerns and opportunities; and job impacts and workforce development implications. The Board also will consider opportunities to leverage federal legislation and funding.

VIII. Fossil Fuels

New York's Scoping Plan indicates that achieving the State's greenhouse gas emissions limits will require deep reductions in fossil fuel use, including both petroleum fuels and natural gas, and the strategic downsizing and decarbonization of the gas system. A well-planned and strategic transition from reliance on fossil fuels to a clean energy economy will involve coordination across multiple sectors. An additional challenge in long-term planning is to strike a balance among multiple competing objectives, including maintaining safety and reliability, reducing public health and environmental impacts, advancing a transition that is equitable for workers and consumers, and the affordability of energy services.

i. **Natural Gas**

The Plan will:

- Provide historical, current, and forecasted trends in demand for natural gas by region and in the State as a whole;
- Assess production trends (regional, national, and global) in natural gas markets;
- Examine existing and projected natural gas supply sources, pipeline and storage capabilities, and delivery infrastructure, including areas of gas system constraints (within New York State as well as upstream and interstate) and possible supply-side and demand-side (non-pipes) alternatives to address such constraints;
- Assess current and projected gas system reliability needs, with attention to how clean energy policies will change needs for electricity generation and patterns of demand in the residential, commercial, and industrial sectors;
- Assess the potential use of alternative fuels such as renewable natural gas (RNG) and green hydrogen in the gas system (see Alternative Fuels);
- Discuss the importance of and associated technologies and practices for maintaining and improving the safety, reliability, and resilience of the gas system as it transitions; and
- Discuss the interdependency of the electricity and gas systems in transitioning toward a decarbonized energy system.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements, including establishing clear targets and a timeline for the gas system transition. Among the issues that the State Energy Planning Board will take under consideration are: the strategic downsizing of substantial portions of the gas system; long-term gas utility planning and opportunities to integrate electric and gas planning; impacts of energy efficiency, electrification, fuel switching between gas and delivered fuels, demand response, and large-scale industrial development on changing patterns of gas use; the deployment of non-pipe alternatives, building electrification and thermal energy networks, and other demand management strategies to reduce the need for gas system infrastructure; impacts on ratepayers, rate design and innovative cost recovery options; and the impact of the gas system transition on the gas system workforce, economic development, and hard-to-electrify gas users. The Board further will consider the potential for alternative fuels to meet strategic needs and policy objectives; the reduction of methane leakage from the gas system; and the reduction of methane emissions from the gas supply chain, including associated regulatory actions and the voluntary standards and costs associated with certified (or differentiated) natural gas. The Board will carefully consider energy affordability impacts and ways to reduce energy cost burdens, with specific attention to low-income households. In addition, the Board will consider legislative and regulatory actions to effectuate the strategic downsizing of the gas system, to address the financial challenges of transition in part through reforming the business model of gas utilities (local distribution companies), and to adopt market-based emissions reduction mechanisms.

ii. **Petroleum Fuels**

The Plan will:

- Provide historical, current, and forecasted trends in demand for petroleum fuels and petroleum products, including distillate fuels, gasoline, propane, residual fuels, and jet fuels, by sector, region, and in the State as a whole;
- Assess petroleum markets, including trends in global production of crude oil as well as markets for refined products used in the State's energy systems;
- Examine existing and future supply sources, pipeline and storage capabilities, delivery infrastructure, and system reliability needs, with attention to how clean energy policies will change needs for electricity generation and patterns of demand in the residential, commercial, industrial, and transportation sectors;
- Consider the potential use of alternative fuels, such as renewable diesel, as a replacement for traditional petroleum fuels (see Alternative Fuels); and
- Discuss the importance of and associated technologies and practices for maintaining and improving the safety, reliability, and resilience of the State's petroleum and delivered fuels system.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: fuels consumption outside of the electricity sector; the reduction of greenhouse gas emissions from the petroleum supply chain, including associated regulatory actions; and a just transition for workers in the petroleum and delivered fuels sector. The Board will carefully consider energy affordability impacts and ways to reduce energy cost burdens, with specific attention to low-income households. The Board also will consider legislative and regulatory actions to adopt market-based emissions reduction mechanisms.

IX. Alternative Fuels

Alternative fuels such as hydrogen, RNG, biogas, biofuels, and other bio-based fuel and synthetic fuel products have the potential to replace some fossil fuel use, particularly for hard-to-decarbonize end uses, to lower greenhouse gas emissions. Yet further analysis, research, and technological development is needed to determine the feasibility, climate impacts, and environmental and health impacts of alternative fuels, as is recognized in the Scoping Plan. Article 6 of the Energy Law requires that the Plan identify and assess emerging trends in energy supply and demand as well as the costs, risks, benefits, uncertainties, and market potential of energy supply source alternatives including alternative fuels.

The Plan will:

- Provide information on current and forecasted demand for alternative fuels in a decarbonized energy system and assess the potential for in-state and regional supplies and costs of alternative fuels;
- Examine the potential greenhouse gas emissions, air quality, and health impacts of alternative fuels and best practices or end-uses for minimizing and mitigating any impacts, including localized or cumulative impacts in Disadvantaged Communities and frontline communities;
- Examine existing delivery and pipeline infrastructure, storage capabilities and safety and the potential for leveraging the existing infrastructure for use of alternative fuels;
- Develop guidelines to prioritize utilization of alternative fuels and feedstocks with the lowest greenhouse gas emissions, accounting for reduction in methane emissions from agriculture or food waste, the lowest air quality impacts, and affordable cost;
- Discuss opportunities, challenges, uncertainties, and best practices to target the use of alternative fuels to strategic end-uses where electrification is not a viable option, or to maintain or enhance reliability, resilience, or affordability in a decarbonized energy system; and
- Examine the role of federal and State policy, regulation, and tax and finance, as well as research and development in encouraging the strategic use of and investment in alternative fuels.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: potential uses of alternative fuels in energy sectors where electrification is not yet feasible or to improve reliability and resilience; the potential for negative or positive impacts on other economic sectors, such as waste management or agriculture; research on fugitive emissions (leaks) of hydrogen and methane and associated climate and safety impacts; and research on pollution controls that reduce/eliminate co-pollutant or greenhouse gas emissions from combustion of alternative fuels. The Board will carefully consider energy affordability impacts and ways to reduce energy cost burdens, with specific attention to low-income households.

X. Buildings and Industry

New York's policies and programs are working to reduce end-use energy consumption in buildings and industrial facilities by 185 trillion British thermal units (Btu), an all-fuels target designed to drive energy savings across electricity, natural gas, and petroleum fuels. The State also has set a goal of two million climate-friendly homes that are efficiently electrified or electrification-ready, including over 800,000 climate-friendly homes that are affordable for low- and moderate-income (LMI) households.

The Plan will:

- Evaluate progress in meeting New York's end-use energy savings target;
- Assess the market potential for energy efficiency and end-use electrification to meet the energy services needs in the residential, commercial, and institutional buildings sector and in the industrial sector, as well as the potential for strategic use of alternative fuels in these sectors;
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to encourage adoption of energy efficiency, load management, and end-use electrification in residential buildings, including to meet the State's climate-friendly homes goal;
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to encourage adoption of energy efficiency, load management, and end-use electrification in commercial and institutional buildings;
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to encourage adoption of energy efficiency, end-use electrification, alternative fuels and feedstocks, and carbon capture and storage in industrial facilities;
- Discuss potential climate resilience benefits of energy efficiency and end-use electrification; and
- Examine the role of policy, regulatory, and financing mechanisms as well as research and development in encouraging adoption and investment in energy efficiency and decarbonization.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: employing a strategic approach to incentives offered for energy efficiency and end-use electrification; dedicated financial support for energy efficiency, electrification, and related health and safety upgrades for low- and moderate-income households and affordable housing; phased electrification approaches in existing buildings; leading by example through energy savings projects and new construction practices in State buildings and facilities, including progress under Executive Order 22; industrial process efficiency and emerging technologies to decarbonize industrial process heat; neighborhood-scale strategies to decarbonize buildings and manage energy demand including the deployment of low-carbon thermal energy networks at the campus, community, and utility scale; grid-interactive efficient buildings; rate design options; advanced metering infrastructure; and customer data access. The Board will carefully consider impacts on energy affordability and ways to reduce energy cost burdens while advancing decarbonization, with attention to preserving and supporting housing affordability and specific attention to low-income households. In addition, the Board will consider legislative and regulatory actions associated with the gas system transition; for building energy benchmarking, labeling, and building performance standards that promote the energy-efficient operation of buildings; for building and energy codes and appliance standards; to reduce embodied carbon emissions in construction projects and construction materials; and to adopt market-based emissions reduction mechanisms.

XI. Transportation

New York's policies and programs are working toward the following Zero Emission Vehicle requirements: 100 percent of light-duty vehicle sales by 2035; 100 percent of all new school bus purchases by 2027; 100 percent of all school buses operating in the state by 2035; and 100 percent of medium- and heavy-duty vehicles sales by 2045. Additionally, New York is committed to reduce transportation emissions by enhancing access to public transportation and other forms of mobility and promoting mobility-oriented development.

The Plan will:

- Provide information and trends related to the existing transportation system, including highway, electric vehicle adoption and infrastructure, transit, rail, port, pedestrian, cycling, and other transportation modes;
- Assess the impact of increased electrification of the transportation system on electricity demand and usage patterns;
- Assess the infrastructure and grid planning needs to enable widespread adoption of zero-emission vehicles and non-road engines (such as for freight facilities and ports, construction, agricultural, and industrial uses);
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to encourage the adoption of electric vehicles and alternative transportation fuels, such as advanced biofuels and hydrogen;
- Discuss opportunities, challenges, uncertainties, and the State's role in initiatives to promote the use of transit, bicycling, and walking and to reduce vehicle miles traveled, including through transportation demand management and the integration of land use and transportation planning;
- Discuss opportunities, challenges, and the State's role in promoting energy efficiency and reducing embodied carbon emissions in the construction and maintenance of the transportation system; and
- Discuss preparedness and planning for emergency transportation operations and hazard mitigation;
- Examine the role of policy, regulation, and finance in reducing transportation-related greenhouse gas emissions while facilitating reliable and equitable access to safe mobility, especially in disadvantaged communities.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: further electrification of light-duty vehicles, medium- and heavy-duty vehicles, micromobility options (e-bikes and e-scooters), and non-road equipment, as well as associated infrastructure development and rate design; leading by example in the decarbonization of State fleets; access to and infrastructure development for active mobility (biking and walking) and shared mobility options; public transit expansion; transportation demand management; traffic volume impacts, especially from commercial fleets; transportation preparedness for emergency response and hazard mitigation; resiliency of the transportation system in extreme weather; the need for technician training, especially in disadvantaged communities; and regional collaborations and policies. The Board will carefully consider affordability impacts and ways to reduce cost burdens while reducing transportation-related emissions and enhancing access to mobility, with specific attention to disadvantaged communities. The Board will further consider improving medium and heavy-duty vehicle efficiency; advanced battery technologies; advanced biofuels; and connected vehicles and autonomous vehicles. In addition, the Board will consider legislative and regulatory actions to adopt market-based emissions reduction mechanisms.

XII. Smart Growth

Article 6 of the Energy Law directs assessment of the ability of urban planning alternatives, including but not limited to smart growth, to reduce energy and transportation fuel demand.

The Plan will:

- Discuss smart growth principles, applications, and benefits;
- Examine market and demographic trends that support the implementation of smart growth strategies; and
- Examine the ways in which smart growth principles can support reductions in energy use, increases in clean energy siting and installation, greater energy efficiency across sectors, and improved public health and environmental outcomes.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's climate and energy goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: the role of planning and zoning in informing how efficiently energy is used in a community, including the development or redevelopment of compact, mixed-use, and multifamily development, particularly in municipal centers; the reduction in vehicle miles traveled; the increase in transit use; the benefits of the expansion of onsite solar, distributed energy, energy storage, and thermal energy network installations that serve a critical mass of customers; encouraging the integration of land use and transportation planning; encouraging the redevelopment of existing buildings, including historic buildings, to reduce embodied carbon; and using green infrastructure to reduce energy use and greenhouse gas emissions attributable to water treatment facilities and to minimize the effects of extreme heat.

XIII. Emergency Preparedness and Security

New York State recognizes the importance of assessing and mitigating risks to the state's energy systems and ensuring equitable outcomes for all communities. The State's commitment to a safer, more resilient future is reflected in Article 6 of the Energy Law, in the Scoping Plan, and in the New York State Comprehensive Emergency Management Plan.

The Plan will:

- Review and assess the impacts of natural, climate-related, technological, and human threats to the State's energy systems, fuel supplies, and generating modes as they exist today and as the State moves towards a clean energy system;
- Examine the State's contingency planning processes, including emergency preparedness and redundancy planning and proactive response to disruptions (originating from both in-state and out-of-state) while maintaining critical operations; and
- Discusses measures to protect New York's energy systems from physical and cyber threats, manage emergencies, as well as ensure effective communication and coordination during response efforts to safeguard the State's energy supply.

The analysis supporting the Plan will provide the foundation for an assessment of current policies and programs as well as the consideration of additional actions to further the State's goals and requirements. Among the issues that the State Energy Planning Board will take under consideration are: all-hazards preparedness strategies, enhancing defense and protection of the energy system from evolving physical and cyber intrusions; preparedness, resilience, and response actions for severe weather and other challenges posed by climate change; and policies and programs to reduce human risks associated with new patterns of thermal extremes, with specific attention to vulnerable populations and communities.

XIV. Assessment of Impacts of the Plan

Article 6 of the Energy Law directs assessment of the impacts of Plan implementation upon economic development, health, safety and welfare, environmental quality, and energy costs for consumers, specifically low-income consumers. In addition, the Plan will include a technical analysis of alternative pathways for New York's energy sectors through 2040, to inform and assess strategies for the State to ensure reliable, affordable, and clean energy that supports the growth of New York's economy and progress toward climate goals.

i. Economic Development Impacts

The Plan will:

- Assess the potential economic development impacts of energy production, distribution, end-use, and clean energy investments on in-state economic development and jobs, consistent with the policies included in the Plan;
- Evaluate potential strategies for reducing economic development risks from the policies included in the Plan and explore opportunities for improving economic development outcomes from the Plan;
- Discuss New York's economic development policies and initiatives that relate to the energy sector and how these policies meet New York's energy and economic goals; and
- Consider how economic development opportunities can be leveraged to advance the State's clean energy goals, and vice versa.

ii. Health Impacts

The Plan will:

- Assess the potential health effects of the policies included in the Plan, including changes in various energy sector combustion emissions and other relevant effects where practicable;
- Evaluate potential strategies for reducing negative health impacts of the policies included in the Plan and explore opportunities for improving health outcomes related to the Plan;
- Examine community health impacts in the development of energy facilities and infrastructure;
- Discuss the health effects of the Plan in vulnerable communities and Disadvantaged Communities;
- Consider how clean energy resources, as well as energy market changes and other policies in the electricity, buildings, transportation, and industrial sectors, can contribute to or mitigate potential health impacts, including health co-benefits associated with reduced combustion and other changes aimed at reducing greenhouse gas emissions.

iii. Environmental Impacts

The Plan will:

- Assess the potential effects of the policies included in the Plan on the state's environment and natural resources.
- Evaluate potential strategies for reducing negative environmental impacts of the policies included in the Plan and explore opportunities for improving environmental outcomes related to the Plan;
- Discuss the impacts on environmental justice communities and Disadvantaged Communities;
- Consider how clean energy resources, as well as energy market changes in the electricity, buildings, transportation, and industrial sectors can contribute to or mitigate potential impacts on the environment and natural resources.

iv. Energy Affordability Impacts

The Plan will:

- Assess the potential effects of the policies included in the Plan on energy costs for consumers, with specific attention to impacts on energy, housing, and transportation costs for low-income households and Disadvantaged Communities;
- Evaluate potential strategies to minimize increases in the overall cost of energy services and explore opportunities related to the Plan to support affordability, to reduce energy cost burdens including with electrification, and to reduce customer arrearages; and
- Identify barriers that inhibit access to affordable clean energy and energy efficiency services for low- and moderate-income households and Disadvantaged Communities and explore opportunities to improve access.

XV. Local, Regional, and Federal Action and Collaboration

i. Local Level Action

The Plan will:

- Discuss the role of local government in energy and related climate planning and decision making;
- Explore best practices and issue areas for local/State coordination and engagement in energy planning and decision making that can support economic growth and benefit Disadvantaged Communities;
- Consider local energy planning, zoning, and ordinances and the development of local clean energy resources.

ii. Regional Level Action

The Plan will:

- Explore best practices and issue areas for regional coordination and engagement in energy and related climate planning and decision making, including the role of Indigenous Nations; and
- Consider the regional policy landscapes and identify opportunities to expand New York's position in the larger clean energy supply chain and advance the State's clean energy goals.

iii. Federal Level Action

The Plan will:

- Discuss the role of the federal government in energy and related climate planning and decision making;
- Explore best practices and issue areas for federal/State coordination and engagement in energy planning and energy financing; and
- Consider the national policy landscapes and identify opportunities to expand New York's position in the larger clean energy supply chain and advance the State's clean energy goals.