

Executive Summary

New York State Climate Action Plan

Interim Report

The Challenge and the Opportunity

Climate change, resulting primarily from the combustion of fossil fuels and other human activities, is a significant threat to our environment, economy, and communities. Climate change is already occurring; its adverse effects are well documented across the globe and throughout our region. That realization, combined with the economic and national security vulnerability associated with our current, finite, fossil-based energy system, has created a sense of urgency in advancing a sustainable low-carbon energy future.



Rooftop solar panels provide renewable power for many buildings across New York State. Here, the array on the Dormitory Authority's Albany headquarters. (Photo courtesy of DASNY)

New York State can turn this challenge into an opportunity by working aggressively to become a hub of the new clean energy economy and by making policies and investments that bring low-carbon choices to our citizens and future generations. Success will bring dramatic co-benefits in economic development, jobs, technological innovation, energy security, and cleaner air and water.

New York has shown leadership in clean energy policy, and is taking actions to reduce emissions of the greenhouse gases (GHGs) that cause human-induced climate change. Governor Paterson's issuance of Executive Order 24 in August 2009 formally established a State goal of reducing GHG emissions 80 percent below 1990 levels by 2050 (or 80 by 50), and named the Climate Action Council to determine how to meet the goal. The Council was also tasked with developing a plan to increase New York's resiliency to a rapidly changing climate.

State agencies then launched a process that has brought together more than 100 technical experts and stakeholders and the broader public to define a vision of New York that can achieve this aggressive goal, to identify and examine both mitigation and adaptation policy options, and to analyze the costs and benefits of adopting these policies.

While the climate planning process is not complete, and in many ways will be an ongoing effort, the initial analysis documented in this Climate Action Plan Interim Report makes clear that achieving the 2050 GHG reduction goal will require dramatic change. New York State's government, its residents, and businesses must embrace the goal of wise use of clean energy. To meet this goal, we must transform the way we make and use energy—we must maximize efficiency and make a major shift toward zero-GHG emissions in electricity generation, smart electric transmission and

New York could become a hub of clean technology industry and innovation – creating good jobs for New Yorkers.

distribution systems, low-carbon buildings, and zero-emission vehicles, and increase options for alternative modes of travel and land use.

Reducing Greenhouse Gas Emissions in New York State

A variety of policy options and strategies can build on New York's experience in advancing clean energy and further reduce GHG emissions in New York State, while providing other benefits to New Yorkers.

- **Buildings and Industry Sector Policy Options:** Substantially reduce GHG emissions from the existing building stock, which will be in place for years to come, and ensure that new buildings meet the highest performance standards. To maintain a robust economy, we will need to ensure that our industrial sector can grow and be economically



The village and town of Ossining, both Climate Smart Communities, serve residents with a new library, the state's first public building to meet the Leadership in Energy and Environmental Design (LEED) standard. (Photo courtesy of Amiaga Photo, Inc)

competitive, while reducing GHG emissions per unit output. Policy options include enhanced performance-based building codes and appliance standards; building commissioning; and additional consumer incentives for efficiency and renewable energy. The combination of voluntary incentives and aggressive codes and standards, along with new financing mechanisms and critical enabling policies (such as education and outreach, electric rate

design, workforce development, and technology research and development), could lead to a substantial reduction in emissions in this sector over time. This sector is the largest source of GHGs in New York, accounting for about 40 percent of the state's GHG emissions.



Hybrid electric buses reduce GHG emissions and fuel costs for New York City's public transportation fleet. The world's first hybrid electric bus was developed in New York State through a public-private partnership.

- **Transportation and Land Use Sector Policy Options:** Reduce the GHG intensity of fuel, improve vehicular efficiency, and improve travel and system efficiency. Policy options include the continued development of a regional low-carbon fuel standard; more aggressive efficiency and carbon dioxide (CO₂) vehicle standards; light-duty and heavy-duty vehicle incentives or disincentives to promote efficiency, e.g., feebate; demand-

management investments; and smart growth practices. Electrification of our transportation sector holds great promise in both reducing GHG emissions in New York and reducing the petroleum dependency of this sector. Investments in transit and high-speed rail appear to offer additional opportunities to reduce GHG emissions and enable a low-carbon future, while providing very significant co-benefits. These policies could reduce GHG emissions from the fastest growing source of emissions in our economy—transportation.

- **Power Supply and Delivery Sector Policy Options:**

Accelerate the introduction of zero- or low-carbon sources of power, such as renewable energy and potentially nuclear energy, while maintaining the reliability of the electric grid. Policy options include a more aggressive renewable portfolio standard potentially evolving into a low-carbon portfolio standard; expansion of the Regional Greenhouse Gas Initiative; GHG emission standards for new power plants; policies to facilitate the siting of new power plants; and policies to encourage repowering of existing fossil fuel plants. These policies, combined with investments to improve and maintain the performance of the grid (e.g., transmission and distribution network upgrading, energy storage) could reduce the GHG emissions from this important sector, which is the backbone of a low-carbon future.



The 321-MW Maple Ridge Wind Farm in Lewis County, New York is one of the largest wind farms east of the Mississippi River.

- **Agriculture, Forestry, and Waste Sector Policy Options:** Promoting sustainable production and conversion of biomass feedstocks; improving land management to maximize carbon uptake; supporting on-farm renewable energy and energy efficiency; increasing the availability of locally produced foods; and reducing waste are some of the key policies in this sector. While a small source of GHG emissions in New York, this sector is unique in that it can serve as a sink for carbon and as a potential source for low-carbon biofuels.

This Interim Report also presents preliminary quantitative analysis of the costs, savings, and GHG emission reduction potential for individual mitigation policy options relative to a mid-point 40 by 30 benchmark target, i.e., 40 percent reduction in GHG emissions by 2030. While further economic analysis is needed, some general observations can be made from the analysis to date:

- No single policy can deliver the level of emission reduction needed to achieve a 40 by 30 target. A portfolio of policies will be needed to reduce emissions from the many different GHG sources throughout our economy.
- A linear path to achieving 80 by 50 may not be feasible nor optimal for a state like New York, which is already one of the most carbon-efficient states in the country on a per capita basis. We may need to ratchet up the stringency of the policies over time to increase the rate of emission reduction as technologies and markets mature.
- There are a number of policies—particularly in the Buildings, Industry, and Transportation sectors—that represent cost-effective ways to take a meaningful step toward a low-carbon future. These “No Regrets” policies, which are primarily efficiency policies, represent

options for early action. Further analysis of benefits and costs, and strategies to finance and/or fund, will be needed.

- Energy efficiency policies alone, however, will not deliver the level of emission reduction needed to achieve a 40 by 30 target (and ultimately 80 by 50). To make appreciable progress toward these aggressive goals and to break our dependence on finite fossil-fuel resources, the State will need to continue to strategically advance low-carbon energy supply-side policies and infrastructure investments, particularly focusing on policies that provide significant co-benefits to New Yorkers (e.g., improvements in local air quality, opportunities for economic development, and job creation).

As a single state attempting to address a global problem, maximizing the co-benefits in New York State associated with GHG mitigation policies will be necessary to maintain public support for GHG reduction investments.

New York will need to work in partnership with other states to craft regional solutions, and to have the federal government as an active and financially supportive partner.

Creating the clean energy economy requires clear and consistent public policies, and sustained and significant public and private investment. To achieve aggressive GHG reduction goals and reap the benefits, New York will need to be resolute in pursuing forward-looking policies and continuing to advance technology. New York will need to work in partnership with other states to craft regional solutions, and to have the federal government as an active and financially supportive partner.

To turn climate policy into an engine for economic growth, we will need to ensure that the State's economic development policies are focused on emerging growth markets; that State policies foster a robust technology development and commercialization system; that we have a skilled workforce and a dynamic workforce development system; and that public and private sectors are fully engaged as partners.

Managing the Risks in New York State Associated with a Changing Climate

Climate change has already put in motion certain environmental impacts in New York, and further changes are likely. According to the latest assessment from a team of scientists at the NASA Goddard Institute, Columbia University, Cornell University, and the City University of New York—the average air and water temperatures in New York and the region are projected to increase significantly over the coming decades and heat waves are expected to become more frequent and more intense. Summertime rain is expected to fall more often as heavy downpours, leading to more flooding; at the same time, the periods between these rainstorms are likely to be drier, leading to droughts. By the year 2100, sea levels along our coast and the Hudson River estuary are projected to rise between 12 and 55 inches, increasing storm-related coastal flooding. The projected rate of change in our climate is unprecedented in our human history. And only through aggressive global action will we be able to change this path.

Measures to increase the resilience of our communities must begin now. Common sense actions, such as vulnerability assessments and emergency preparedness, are required to protect a range of



A 400-kW fuel cell (grey box) meets 85 percent of the energy needs of this Price Chopper supermarket in Albany. The installation reduces the building's carbon footprint by 71 tons, provides energy security for perishable items, and saves more than 4 million gallons of water each year. (Photo courtesy of UTC Power)

sectors, from agriculture to public health to utilities. Adaptation can be thought of simply as responsible planning, incorporating the most current information about projected climate change into a variety of decisions. This Interim Report identifies a number of policy options and actions that could increase the resiliency our natural systems, our built environment, and key economic sectors—focusing on agriculture, vulnerable coastal zones, ecosystems, water resources, energy infrastructure, public health, telecommunications and information infrastructure, and transportation.

Public and private entities will need to assess whether new investments in infrastructure, particularly long-lived infrastructure like power plants and transportation, will be consistent with a low-carbon future, both in terms of GHG emissions and in terms of vulnerability to a changing climate. We should avoid investments that are not highly adapted to a modified climate, such as infrastructure sited in low-lying floodplains.

Managing Uncertainty and Taking the Long View

While some of the policy options offered for consideration in this Interim Report rely on technologies that are still rapidly evolving, others make use of technologies readily available today, such as energy efficiency measures in new and existing buildings, wind, and solar power, investments in public transportation systems, and smart land-use planning that, by promoting mixed use and transportation-centered development, naturally results in less vehicle travel. New York can begin now to consider climate change in decisions, setting us on the path to a low-carbon, climate-resilient future.

Responding to the challenge of climate change is an imperative for government. Effective response includes reducing emissions, unleashing innovation, capitalizing on the economic opportunity of a clean energy economy, reducing reliance on petroleum (stemming the flow of billions of energy dollars out of state), and helping communities become as well-prepared and resilient to climate change as possible. Significant economic and environmental co-benefits will flow from this response, satisfying important economic and public health goals.

Climate change will affect New York's economy, communities, and natural systems. Measures to increase resiliency must begin now.

An effective response will not be easy. It will require long-term dedication and a willingness to make the public and private investments to keep moving in the right direction (especially

challenging in today's fiscal climate). But ignoring the need for action will be dramatically more costly over the long term, and New York will miss a great opportunity to be in the forefront of the emerging low-carbon, clean energy economy.

Next Steps

With this Interim Report, the Climate Action Council is seeking stakeholder and public response to the initial climate action planning work, including input on the mitigation and adaptation policy options. During 2011, work will continue to complete the required analyses of the policy options, which will inform a final Climate Action Plan.

New York State will then need to develop more specific near-term implementation strategies to effectuate policy and practice. The State will need to establish clear targets and evaluate progress toward those targets. A mechanism to update this long-term plan on a regular basis will be needed, as the technology, the state-of-science, and the broader public policy environment will continue to change.

Further, given the strong linkages between GHG emissions and energy policy, strategies to reduce GHG emissions will also need to be considered further in the development of New York's State Energy Plan as well as in other planning processes, such as State implementation plans for various co-pollutants.

The recently enacted Article 6 of the Energy Law requires the State Energy Plan to include an inventory of greenhouse gas emissions, and strategies for facilitating and accelerating the use of low-carbon energy sources and carbon mitigation measures. Thus, the State Energy Plan will become a mechanism to deliberate and advance appropriate energy policy that fully accounts for the climate change impacts from New York energy production and use.