

Chapter 14

National and Regional Action and Coordination

Introduction

Successfully mitigating the impacts that climate change will have on New York's people, environment, and economy will require coordinated policy and action by all levels of U.S. government—federal, State, and local. Given the global nature of the climate change challenge, federal government action will be essential to successfully position the American economy in an evolving international marketplace and to enable the United States to lead efforts to achieve a global solution. In addition, strong federal action will create a fertile arena for development of the new technologies that will be needed to achieve the scale of emission reductions needed. Further, federal action will help to establish a level playing field in the domestic economy, ensuring that all states have equal access to the opportunities that will arise from the growth of the clean energy economy and share in bearing any costs to achieve the policy.

In the absence of comprehensive federal climate and clean energy policy, American states have served the time honored role as the laboratories for climate change and clean energy policy development. New York in particular has played a pivotal role among states in climate change policy development and in recognizing that its domestic energy, environment, and economic development interests can be successfully augmented through participation in regional efforts. A regional platform with neighboring states can take advantage of access to larger markets for in-state products and services. The broader supply chain created throughout the region also provides for expanded opportunities for New York consumers. Further, the development of cooperative regional programs offers real proof that success can be achieved on the sub-national level and that certain strategies are perhaps best approached on this regional level, taking account of the local natural and human resources and needs.

State actions are also best accomplished when coordinated with local government activities. Local governments are beginning to assume critical roles in the implementation of various climate strategies. Several county and municipal governments in New York have engaged in climate action planning for their communities, while interest and participation in New York's Climate Smart Communities Program is consistently growing. Indeed, absent local government coordination and cooperation, many of the recommendations and program implementation needs in this statewide strategy could be frustrated. Finally, climate change is, at its core, a global issue that will require the dedicated action and attention by all governments, industries, and citizens. It is imperative over the long-term that the federal government identify and act upon the environmental responsibilities and economic consequences of national climate change policy and do so in a manner that can provide economic advantage. In the absence of an international treaty agreement or U.S. national climate or energy policy, New York State action has and can continue to demonstrate to both the federal government and the international community how creative and effective strategies can be developed at the local level and are appropriately translated for national and international application.

This chapter of the Climate Action Council Interim Report (Interim Report) identifies the necessary policy and programmatic action needed at the federal level as well as the opportunities

posed by working on a regional platform with neighboring states to achieve New York's climate change goals. This discussion will address activities that New York has undertaken at the national and regional level and will identify certain policy options identified through the Climate Action Plan processes that will require development beyond the identified portfolio of state-focused policy options.

The Lay of the Land: Existing and Proposed National and Regional Programs

New York is not preparing a climate plan in a vacuum. New York has been actively engaged in working with regional partners and other national and sub-national jurisdictions in implementing climate change and clean energy programs. Although President Obama supports clean energy and climate protection, his administration has not been able to secure the support of Congress and it faces constant criticism for advancing agency-level climate protection policies. Even in the highly partisan political environment of Washington, DC, the Obama Administration is moving ahead with a number of programs spread across numerous agencies to support development of a low-carbon economy.

Climate Programs

Regional Partnerships

The Regional Greenhouse Gas Initiative (RGGI) is a prime example of an effective regional program that can inform the development of a national policy. Recognizing that electricity flows across state lines, the 10 RGGI states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont) developed a regional cap-and-invest program that limits power sector emissions across the region. Rather than getting mired in the politics of handing out allowances to incumbent polluters, the RGGI states have opted for distributing the allowances via an auction and the states are using the proceeds to stimulate the clean energy economy. The RGGI states are now commencing a program review to evaluate the program's performance and determine what additional changes should be made to improve the program. Similar regional programs are being developed by western states and Canadian provinces (Arizona, British Columbia, California, Manitoba, Montana, New Mexico, Ontario, Oregon, Quebec, Utah, and Washington, with other states, Canadian provinces, and Mexican states as observers) and by midwestern states (Iowa, Illinois, Kansas, Michigan, Minnesota, Wisconsin are members, with additional observer states).

RGGI has advanced several key principles that provide a foundation for a national cap-and-invest program. First, allowances must be recognized as an authorization to pollute the public's atmosphere, and they should be given away to private parties only for truly compelling reasons. The authorization to pollute also represents a very valuable resource that can be sold with the proceeds used to fund efficiency and clean energy programs that reduce electricity bills. Second, very strict criteria and standards for enforcing the integrity and genuineness of offsets is essential to the success of the whole program. Offsets that do not fully offset a complete ton of carbon dioxide would serve as counterfeit credits that threaten the integrity of an emission reduction program. RGGI has done an excellent job of protecting offsets by assuring their legitimacy. Most importantly, RGGI has demonstrated that properly designed market-based mechanisms for emission reductions can be engines, not impediments, to economic growth.

Given the success of their collaboration in the power sector, the RGGI states are also expanding their efforts into the transportation area. Environmental, energy, and transportation agency heads for the ten RGGI participating states, the Commonwealth of Pennsylvania, and the District of Columbia have agreed to form the Transportation and Climate Initiative (TCI), and are collaborating to develop regional strategies to reduce emissions from the transportation sector. One of the first TCI initiatives is evaluation and development of infrastructure needs for a key carbon reduction strategy—increasing the use of electric vehicles.

The Interim Report discusses several strategies that can be implemented on a regional level to maximize the climate benefits and avoid emissions leakage and competitive disadvantages to in-state industries. Among the strategies that are considered for regional implementation are a regional cap-and-invest program that would build upon the strong RGGI foundation (PSD-6), a regional low-carbon fuel standard (TLU-4), and regional pricing mechanisms for the transportation sector (TLU-12). In addition, the interim report recognizes that other policies to be implemented on a state level would benefit from regional implementation, including the low-carbon portfolio standard (PSD-6).

Ultimately, strong regional programs present a powerful model and foundation for federal and even international action. For example, regional cap-and-invest programs like RGGI and the Western Climate Initiative can be linked to form the foundation of a national climate program that would be implemented by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act or legislated by Congress. By acting first to develop the regional templates, New York and its regional partners are well-positioned to prosper under the eventual federal program. New York and other RGGI and western states are also participating in the International Carbon Action Partnership (ICAP), with a goal of developing the basis for an international market-based approach to reducing carbon emissions. New York's participation in ICAP helps to build support for international climate efforts.

Federal Climate Legislation

Congress has tried repeatedly to enact climate legislation in recent years. Each of the proposed bills was based on the common architecture of an economy-wide national cap-and-trade program that would be administered at a federal level. Each of the bills would establish an emissions cap that declines each year until the cap in 2050 is 17–20 percent of the initial cap. Each year, allowances up to the level of the cap would be issued. In early years, most of those allowances would be issued for free to various stakeholders while, in later years, most of the allowances would be auctioned, with proceeds being used to support the goals of the program. Compliance could also be achieved through offsets, which are emission reductions from outside the program, either domestic or international. These bills also included various complementary programs, including transportation measures and support for low-carbon technologies such as carbon capture and sequestration and renewable energy. The bills usually recognized a role for the states in achieving the climate goals, but many of them sought to preempt or displace state cap-and-trade programs, at least temporarily.

To date, these efforts have met with mixed success. In a close vote, split along party lines, the House of Representatives in 2009 passed the American Clean Energy and Security Act, to establish a national cap-and-trade program that would meet a target of reducing national emissions 83 percent by 2050 from a 2005 baseline (essentially the same as the goal of Governor

Paterson's Executive Order 24). Senate efforts to enact similar legislation, however, have all been unsuccessful.

It is unknown what form future federal legislative efforts will assume. When such legislation is finally enacted, New York will need to reevaluate the strategies that are in place to address climate change to identify those that should be altered or required to be discontinued as a result of the federal legislation. A comprehensive federal climate program that is designed to achieve the same level of reductions as New York's climate plan will lessen the need for several of the policy options identified in this Interim Report. Many of the strategies discussed in this Interim Report, however, will continue to have significant value both in achieving climate goals and in building a clean energy economy in New York and enabling New Yorkers to thrive in a climate-constrained world.

Regulation under the Clean Air Act

EPA has begun implementing regulations to reduce greenhouse gas (GHG) emissions, based on the Supreme Court's decision in *Massachusetts v. EPA* that carbon dioxide and other GHGs are air pollutants under the Clean Air Act. Earlier this year, EPA issued a determination that GHGs endanger public health and the environment, setting the stage for a variety of regulatory measures. First, EPA promulgated emission standards for automobiles and other light-duty vehicles for 2012–2016, and the Obama Administration has announced that EPA will be extending those standards to future years and heavy duty vehicles. Second, EPA has issued regulations that would govern major new sources of GHG emissions, which will have to implement the best available control technology for reducing such emissions.

In the absence of federal legislation, EPA can expand these efforts to include emission standards for new and existing power plants and industrial sources. In the coming years, EPA may issue new source standards under section 111 of the Clean Air Act for new cement plants, refineries and utility boilers, among other source categories. When it issues such standards governing GHG emissions from new sources, EPA is required to issue guidelines to the states for regulating such emissions from existing sources. Such state standards could take the form of plant-specific requirements or allowance-based programs if EPA determines that such market mechanisms constitute the best emission reduction system that has been demonstrated. In addition, the Clean Air Act provides states with the ability to implement programs to control such sources if it can demonstrate that its approach would achieve greater emission reductions than implementation of EPA's guidelines.

New York supports EPA's use of its recognized authority to complement and strengthen other regulatory measures identified in this report. In the transportation sector, stronger emission standards set by EPA are a critical tool for reducing GHG emissions because New York does not have authority to set its own emission standards (although it can adopt standards set by California). Regarding stationary sources, EPA programs that require all states to achieve emission reductions from existing sources will not only reduce national emissions more than New York can achieve acting alone or in partnership with other states, but they will also help to level the playing field on which New York industries compete with those in other states.

Federal Energy Programs

Energy Research and Development

Successful models of federally supported research and development activities include Energy Frontier Research Centers (EFRCs), Advanced Research Projects Agency-Energy (ARPA-E), and Energy Innovation Hubs. EFRCs target early stage research by leading researchers and are funded over a multi-year period at \$25 million per year, aiming to solve grand challenges in the energy space. ARPA-E employs a more entrepreneurial funding model targeted at further developing cutting-edge technologies that are often considered high-risk technologies. Energy Innovation Hubs complement these two programs by supporting collaborative cross-disciplinary teams in priority technology areas to help speed the commercialization of the technologies. In addition to providing direct support for research and development activities, the federal government can encourage private investment by providing tax credits for investments in energy research and development.

Federal Subsidies and Other Measures to Support Energy Projects

The federal government—primarily the U.S. Department of Energy (DOE)—devotes substantial resources to the support of all types of energy projects, including renewable energy, nuclear power, carbon capture and sequestration and even fossil fuel extraction. Examples include:

- Production tax credits and investment tax credits constitute a primary means of federal support for renewable energy projects, but the availability of such credits will expire in 2011 unless they are extended by Congress.
- Loan guaranties for new nuclear plants; nuclear energy also benefits from the liability framework provided by the Price-Anderson Act, pursuant to which the federal government backstops the liability of plant owners for plant accidents.
- DOE support for carbon capture and sequestration (CCS), including the FutureGen project, which is intended to demonstrate the success of CCS at a commercial scale, and numerous grants nationwide for CCS applications.
- Support for fossil fuel extraction in the form of favorable tax treatment and access to federal lands and waters at below market lease rates.
- Tax credits for homeowners and businesses to purchase energy efficient products and vehicles, and renewable systems (solar, wind, and geothermal).

The federal government's loan guarantee and tax credit programs have been effective in advancing new technologies in the marketplace. These programs are critical to helping mitigate investment risk and spurring private financing of large-scale demonstrations and manufacturing facilities of new technologies that would otherwise have been difficult to secure. Available tax credits are helping homeowners and businesses overcome the cost barriers to purchase of efficiency and renewable technologies. Over the next few years, as the nation continues to grapple with an underperforming economy, financing for large infrastructure projects and investment in energy efficient and clean technologies is expected to remain tight, thereby making these federal programs all the more necessary to bringing clean energy technologies to market. Several of these tax credits are set to expire and Congress should look to extend those where the market has not yet matured to the point where purchases are being made routinely by consumers

Recommendations for National and Regional Efforts to Advance New York's 80 by 50 Goal

For some climate policies, it will be to New York's advantage to be a first mover, taking advantage of economic opportunities and enhancing quality of life. For other policies, meeting the climate challenge requires more than action by New York alone. As reflected in many of the policies in the Interim Report, New York will pursue regional partnerships that achieve more change, in a more equitable manner, than New York acting alone. In the near future, however, substantial emission reductions will be needed nationwide and internationally to mitigate the profound damage from climate change. National efforts will not only help to achieve the climate goals underlying this effort, but they will also enable New York businesses to compete on a level playing field with their competitors in other states and nations. Therefore, the adoption of comprehensive policies by the federal government is a high priority for New York.

Many of the measures identified in this interim report are also effective in reducing emissions when implemented on a regional scale. Regional programs result in more emission reductions, they help to maintain a level playing field, and they limit the emission leakage that can result from some State programs. Leakage occurs when, as a result of a State program, some emitting activity moves to other states or sectors that are not covered by the program at issue, sometimes resulting in overall higher levels of carbon emissions. This unintended consequence of state-based or regional approaches can be effectively limited or eliminated when program requirements are dispersed over the broadest possible universe of program participants.

Participation by New York in national and regional programs can result in greater reductions at a lower marginal cost than programs implemented by a single state. New York should take advantage of the financial resources offered by the federal government to support clean energy deployment in New York, with its attendant economic benefits. New York should also seek to leverage federal research and development investments to develop the technologies needed to achieve the 80 by 50 goal. More detailed opportunities for such collaboration are described below.

New York should seek the implementation of national or regional market mechanisms to price carbon and reduce emissions.

Lack of specific action by the federal government has maintained the status of GHG emissions as an economic and environmental externality to the economy. Externalities arise when market actors who are responsible for a negative consequence, in this case the climate change resultant from GHG emissions, are not provided sufficient information, incentive, or economic signal to change behaviors to account for the externality. Thus, a fundamental goal of climate policy is to establish an economic price on carbon emissions from all sectors as a means to internalize the externality. Placing a price on carbon enables economic actors to assess market options based on the going-forward cost they will incur as a result of their GHG emissions, and determine the optimal activity to manage such costs. As a result, the environmental and climate damages associated with GHG emissions will be fully incorporated into economic decision making.

Federal inaction to date has created a large degree of uncertainty regarding future carbon pricing, resulting in a high-risk business environment and frustrating development of alternate technologies. For example, GE's CEO Jeffrey Immelt, long a proponent of national climate

policy action, recently stated that, “the U.S. needs to establish a long-term price signal on carbon emissions in order for companies to provide appropriate funding for innovation regardless of fuel, as well as revive nuclear energy.”¹

Carbon pricing can take a variety of forms, including regulatory mechanisms, such as a carbon tax, regulatory fees and permit requirements, or market-based mechanisms such as cap-and-trade or cap-and-invest programs. Although these mechanisms differ in policy design and program specifics, they all have the same effect of accounting for damages associated with GHG emissions. Given the relative large contribution of carbon emissions from energy-using activities, identifying and internalizing the cost of carbon in energy consumption should drive increased energy efficiency and investment in lower-carbon emitting energy sources. As a result, establishing a price on carbon will allow markets to contribute to solving the problem of GHG emissions.

Market-based solutions are often preferred to regulatory solutions because they can be economically efficient if properly designed. This efficiency maximizes net societal benefits by decreasing emissions in the least-cost way. Rather than forcing emission reduction through uniform technology mandates, market solutions allow market actors flexibility to select least-cost methods of emission reduction. Not only do market mechanisms increase efficiency but placing a price on emissions can also establish strong incentives for technological innovation. Market-based solutions have been successful in several environmental programs, albeit at a smaller scale than is needed to achieve climate mitigation goals, including chlorofluorocarbon trading for stratospheric ozone protection, sulfur dioxide trading under the U.S. Clean Air Act to combat acid rain, and nitrogen oxide trading to reduce smog in the eastern United States. Given the broad impact of these environmental needs and the comparative wide-scale impact of carbon emissions on climate change, use of market-based solutions has become a preferred option in the climate policy dialogue.

New York and its interested stakeholders should continue to advocate for federal legislation that helps to achieve climate goals, treats all states equitably, and establishes the strong federal-state partnership that is needed to fully address climate change, ensuring that State efforts continue to have value in the context of a national cap on emissions and that early adopter states/regions do not get penalized under a federal program. Also important is to develop a national policy that maintains the integrity of market signals by allocating allowances based on economic principles, not political reasons.

Until a comprehensive federal program is in place, statewide and regional policies seeking to develop price signals serve as important early steps in the process to establish national programs and can provide the building blocks for such national efforts. When EPA evaluates how best to use its authority under the Clean Air Act to regulate GHG emissions, it should seek to build on the success of RGGI and the other regional programs. Coordinated regional programs can serve as the foundation for a homogenous national carbon market that will create a more level playing field for businesses and industry across the country. Coordinated regional policies can also reduce the emission leakage that occurs if emission reductions in one area are offset by an

¹Albany Times-Union, *U.S. energy policy is 'stupid,' Immelt says*. Kim Chipman and Rachel Layne. Bloomberg News. Sept. 24, 2010.

increase in emissions in another. In electricity and other markets, uneven application of carbon price signals could create competitive disadvantage, raise prices for some consumers over others and fail to fully achieve the desired GHG emissions reductions.

Ultimately, an international market-based approach to reducing GHG emissions will provide the most cost-effective means of reducing emissions in an equitable manner. New York should continue to work with other states, nations, and other sub-national entities to create the foundation for an international carbon market. New York's participation in ICAP is an effective way to develop that common approaches and metrics that will be essential to the functioning of an international carbon market.

Leveraging the opportunities available under federal programs can help create a robust market demand for clean energy.

Federal policy plays an essential role in the development of clean energy in the United States and in New York specifically. Federal programs can help create demand for clean energy and facilitate the development of the supplies to meet the demand. Ultimately, a vigorous national renewable electricity standard could be a strong driver of such development. In the nearer term, New York should seek to leverage the opportunities that are provided by existing federal programs such as the availability of investment tax credits and production tax credits.

National Renewable Electricity Standard

Like a national market-based GHG reduction program, a strong national renewable energy standard will create strong market incentives for the development of clean energy resources, leading to innovation and cost reduction. A national standard must build upon existing state measures and should not be designed in an inflexible manner that prejudices New York and other early movers. If structured appropriately, a national program for renewable energy purchase requirements will help to level the playing field among the states. It should not be structured in a way that creates economic disparities or favors the economic development needs of one state or region over another.

Any national renewable electricity program that is predicated on the long-range transmission of electricity must consider the technical feasibility of the transmission and distribution system to deliver such energy without eroding local reliability rules and standards. Unintended consequences that could frustrate climate initiatives should be avoided. For example, although transmission upgrades can help provide a larger market for clean energy technologies and services, they should not be allowed to interfere with expanded opportunity for renewable energy businesses located in New York.

Continued Production and Investment Tax Credits

The availability of production and investment tax credits for renewable energy projects has been a major stimulus for renewable energy development. At the same time, however, these programs often serve to complicate the financing of renewable energy development by businesses that may not have an existing tax liability to offset with the credits. Nevertheless, if an energy transaction is properly designed to take advantage of the credits, it can lead to the deployment of renewable energy in New York in support of the goals of this plan. New York agencies and authorities should be mindful of the opportunities and limitations and support New York businesses in their efforts to reap the benefits of these federal programs.

These credit programs are due to expire in 2011, absent an extension by Congress. Although New York should advocate for the extension of such programs and it should also consider accelerating the implementation of the current renewable portfolio standard to take advantage of the credits while they still exist.

Federal Support for State and Local Weatherization and Efficiency Programs

U.S. Department of Energy programs such as the State Energy Program and Weatherization Assistance Program provide states with annual funds to deploy commercially available technologies into the marketplace. These programs experienced a large increase under the American Recovery and Reinvestment Act (ARRA), and state programs were ramped-up accordingly. A new Energy Efficiency Conservation Block grant program was introduced under ARRA that provides states and local governments with funding for local projects. These types of programs, which can be tailored by each state to address its own needs, are an important source of ongoing base revenue. A mechanism to sustain federal funds for these critical programs at a robust level post-ARRA should be pursued. Falling back to the low historical appropriation levels does not allow New York and its local governments to take advantage of the infrastructure that has been built for delivery of these federal programs.

National electricity transmission policy should facilitate achievement of New York's climate goals.

Considerable debate has resulted from the development of national energy policies that seek to advance national program goals, for example national electric reliability standards or renewable energy programs, but do so in a manner that takes away from traditional state powers and authority. A more robust national transmission grid can help to achieve national climate goals in the long run but the development of a national grid must proceed in a manner that does not interfere with state climate goals and local renewable energy development.

One such controversy revolves around legislative proposals that would expand the authority of the Federal Energy Regulatory Commission (FERC) to override state authority to site transmission lines where such lines are proposed in areas of designated national interest. The Energy Policy Act of 2005 directed the Department of Energy to identify national interest electric transmission corridors (NIETCs), wherein FERC received new authority to approve transmission projects located within a designated NIETC that fail to receive state approval within a one-year time period. Such new backstop approvals could potentially override state-based decision-making, which is more accountable to local needs and concerns. While the NIETCs were identified in the context of augmenting system reliability, recent legislative proposals would expand this FERC backstop authority beyond the NIETC designation to include transmission projects to support national renewable electricity standard objectives.

In addition, FERC decision-making on cost allocation for multi-state projects has centered on what is known as the beneficiary pays principle. On a generalized basis, FERC will allocate the costs of a transmission project among the universe of designated beneficiaries in proportion to an administratively-determined benefit. In some cases, costs may be allocated among end-users, who may benefit from new energy supply sources, and generators, who may benefit from access to new markets. However, in many instances, FERC has designated the end-user as the sole beneficiary, making it fully liable for the total costs of transmission projects.

This combination of expanded FERC backstop authority and a beneficiary pays policy could have negative ramifications for New York and northeastern electric energy markets and potentially frustrate renewable energy and climate policy objectives. Predicating a national renewable energy policy on the long-range transmission of energy from certain qualifying renewable resources (e.g., wind resources located in midwestern states) to remote load that must meet the procurement requirements of the new program interferes with state sovereignty and can stifle the development of renewable energy in the consuming markets. Thus, expansion of regulatory decision-making at FERC to facilitate this outcome is likely to interfere with New York's own policy objectives to develop renewable energy resources and achieve in-state economic development. Further, long-range transmission of remote energy resources may not be delivered at an advantageous price and all potential costs of a renewable energy strategy should be considered prior to development of a program platform that creates inequities. Finally, if done too soon—before the renewable resources are developed in the midwestern states—the opening of new transmission capacity from the Midwest to the Northeast may also open new markets for highly carbon-intensive coal-based generation, thereby increasing emissions, frustrating northeastern climate policies, and interfering with the goal of reducing the leakage of emissions from RGGI and other climate programs in the northeast.

Federal agencies should cooperate to create and implement regulatory frameworks that foster energy efficiency and distributed renewable energy.

Federal policies fundamentally affect climate action activities at state and local levels. Such federal regulatory action must coordinate among the necessary federal agencies and entities to ensure success of new program structures and retain existing state-based policies and authorities as new national programs are created.

Property Assessed Clean Energy (PACE) financing seeks to address and overcome the most common obstacles inhibiting greater energy efficiency investment and retrofits. These include the sizable upfront costs, lack of appropriate financing and lengthy payback periods that may extend beyond the ownership of the home. Unlike a typical mortgage or loan, PACE loans are provided by local governments and municipalities rather than banks and are designed to be paid back to the local government through a property tax lien by a separate fee added to a home's property tax bill. As a result, the loan is tied to the property rather than the person who initially took out the loan. When the property is sold, the remaining energy efficiency and retrofit payments are then paid by the new owner. Furthermore, the payments are structured so that they are less than the savings associated with decreased utility bills, thus representing a net increase in disposable income.

PACE programs achieved considerable early success and adoption quickly spread across the country. The program originated in the city of Berkeley, California in 2008 and, as of June 2, 2010, there were 23 states with PACE legislation or pre-existing authority and 5 states with pending legislation. New York State has enacted a PACE financing program and several municipalities are in the process of designing and implementing local initiatives. The Obama administration supported the program as a key component of the American Recovery and Reinvestment Act of 2009 and the "Recovery through Retrofit" program that provides federal funding for PACE programs.

Despite this support, concerns with the interaction of PACE liens with more traditional home mortgages have affected the confidence of federal lenders Fannie Mae and Freddie Mac to advance this instrument. The mortgage companies' federal regulator, the Federal Housing Finance Agency (FHFA), has advised the mortgage lenders that they cannot lend to participants in PACE financing programs nor can an existing homeowner with a Fannie/Freddie mortgage join in a PACE program. With the two federally regulated companies owning about half of all U.S. mortgages, industry practices will likely follow suit and put an end to PACE financing.

This recent development regarding PACE programs highlights the contrary policies currently found at the federal level. Without a national energy policy applied across all sectors and branches of government, there will continue to be confusion and counteractive policies in place. Without an overarching federal policy in place, political and economic uncertainty will continue to restrain programs and investments that promise considerable economic, environmental, and social benefits. As New York has an interest in advancing the PACE program, the State should advocate for resolution of the FHFA concerns in a manner that preserves the value of the PACE program without negatively affecting the lending market.

New York should actively participate in national market transformation initiatives

To achieve the 80 by 50 goal, the most efficient products and supporting services must make their way into the market. This is best accomplished through joint action by states and the federal government to encourage the entire supply chain to produce, distribute, install, and service equipment to the highest efficiency and quality standards. Efforts should focus on a continuing process to assess the efficiency levels of products on the market and partnerships with industry to ratchet up efficiency and incorporate new technology solutions as rapidly as possible. Companies that sell and install such equipment must be trained and certified to ensure quality and certainty that measures are achieving their efficiency potential. Organizations such as the Consortium for Energy Efficiency, American Council for an Energy Efficient Economy, and Alliance to Save Energy and others work nationally to develop consensus around voluntary standards and market transformation strategies designed to accelerate efficiency. It is vital that New York continue to be a leader in this process and to push for introduction of advanced energy codes and product standards that raise the floor on efficiency, complemented by an evolving set of strategies that supports above-code actions. These types of market interventions must be sustained over the long term to avoid backsliding, and to be able to incorporate new technologies that will emerge in the future.

New York should take advantage of the federal government's advanced energy technology investment policy.

The significance of the 80 by 50 goal calls not only for accelerated deployment of the many existing low-carbon energy technologies and products that are currently available today, but also for the research and development of new energy technologies that can be deployed in the future to help meet the climate change challenge. Specific research and development needs to achieve a near-zero, low-carbon future are identified further in Chapter 10 of this Interim Report. The development of new clean energy technologies requires a substantial and sustained commitment from the federal government, similar to its level of research investment in other areas, such as health care and defense.

In testimony before the U.S. Senate Committee on Energy and Natural Resources in 2009, DOE Secretary Steven Chu remarked on the importance of federally supported energy research and development, saying “[w]e have many technologies in hand today to begin a transition to a low-carbon economy, and we are accelerating that work through the Recovery Act. But, over the long-term, we will need breakthroughs and better technologies to make the steep reductions in GHG emissions we need.”² Secretary Chu went on to stress the importance of early stage technology investment, saying “It is imperative that government provide R&D funding, especially at the front end when private investments would not recoup the full value of the shared social good or when a new technology would displace an embedded way of doing business.” Providing such support is especially critical given the current economic climate, where private companies are focusing their limited resources on shorter term, lower risk investments to advance their current technologies. New York supports the recent expansion of federal funding for energy technology research, development, demonstration and commercial deployment, and should advocate for sustained increased levels of federal support to accelerate the development of such technologies. New York should also seek to facilitate federal funding of research and development in New York, enabling New York to benefit from the associated economic opportunities for development of the clean energy economy.

Federal investment in, and support for, nuclear technology and carbon capture and sequestration will help New York achieve its climate protection goals.

In the short term, low-carbon renewable technologies will play a major role in transformation of New York’s energy sector. In the longer run, advances in low-carbon baseload power technologies—such as carbon capture and sequestration (CCS) for fossil fuel-based technologies and new nuclear power technologies—will help to achieve a diverse energy portfolio that fosters carbon emission reductions in the long-term, while providing the needed levels of system reliability. The further development and deployment of these baseload technologies will assist in achieving the State’s 80 by 50 goals while also preserving system reliability. Given the substantial financial commitment needed to advance the technology in these areas, the federal government is best positioned to make the necessary investments. However, New York should seek to take advantage of federal research dollars to fund research, development, and deployment of these technologies in New York.

Nuclear Energy

The federal government plays an essential role in the development of nuclear energy. The U.S. Nuclear Regulatory Commission (NRC) has exclusive jurisdiction over the siting of new nuclear plants. Moreover, the cost of new plants, the need for a permanent depository for radioactive used fuel, and the international implications of potential nuclear proliferation are all issues beyond the control of New York and other states. The strong federal role is also manifested by the Price-Anderson Act, which provides a federal backstop for nuclear liability, by the federal legislation that requires establishment of a permanent storage facility and by the substantial federal loan guaranties for new nuclear power.

The longstanding issues surrounding the reprocessing or disposal of used nuclear fuel and the decommissioning of nuclear units are particularly critical. New York awaits the results of the

² Statement of Steven Chu, Secretary of Energy, Before the Committee on Energy and Natural Resources, United States Senate. January 21, 2009. http://energy.senate.gov/public/_files/ChuTestimony.pdf

blue ribbon panel that is developing recommendations for dealing with high level radioactive waste now that Yucca Mountain is no longer a viable alternative. The issue of waste disposal must be addressed by the federal government before nuclear power is to play a role in a clean energy economy.

The recent applications to the NRC for new reactor development have all been for large scale units of several hundred megawatts. Many smaller scale reactors, however, are being developed and several are in service outside of the United States. Designs such as the Westinghouse IRIS unit feature enhanced safety, simplicity, and competitive economics and the GE-Hitachi PRISM unit is a below grade unit that uses recycled spent fuel from other plants and features passive cooling providing for greater safety and security. Commercial development of smaller units is desirable from several aspects including greater market penetration by many more developers, as the financial capital requirements are much lower and the ability to site units where most needed for load and voltage support. Small nuclear units may also be received more favorably by local communities because of the shorter construction time (less disruption), enhanced safety and security features, and potentially less burden on emergency preparedness organizations. The further development and deployment of this technology could be facilitated by federal economic incentives and loan guarantees and by the pre-approval of reactor designs, allowing for the expedited review of applications administered by the NRC.

Carbon Capture and Sequestration

The federal government supports the continued use of coal in the nation's fuel mix because it is a domestic fuel that limits reliance on foreign sources of energy. Coal mining is also a major economic driver in the Appalachian states and the northern Rockies. However, coal-fired power plants have carbon emissions that are more than double those of efficient natural gas-fired plants of a similar capacity. In an economy that is based on the 80 by 50 goal, coal can only be continued as a fuel if CCS is made commercially available. Therefore, the federal Department of Energy has devoted substantial sums to developing CCS technology.

New York's climate planning process recognizes that to continue generating electricity with fossil fuels means that CCS technology may play a critical role. Eventual coupling of efficient combined cycle natural gas technology with CCS will result in even lower emission rates than coal with CCS and will reduce the attendant environmental concerns associated with coal-fired generation, including emissions of mercury, sulfur dioxide, and other pollutants, and coal waste ponds. Therefore, New York could seek to take advantage of the federal research and development activities directed at CCS and will focus a portion of its own limited research and development funding on New York-specific development activities, including assessment of potential storage facilities and pilot projects involving gas-fired plants.

Regional and national transportation initiatives will be essential to achieving New York's climate goals.

The Transportation and Land Use (TLU) Technical Work Group has identified and discussed the inherent value of national and regional action on transportation policy needs, identifying critical work on several fronts. New York has already taken action on several of these initiatives, as permitted within its state authorities and powers. Specific recommendations for national action or expansion of regional activity are identified below.

More generally, New York should continue to engage federal agencies in developing national transportation strategies that facilitate the transformation of the transportation sector nationally. For example, New York has been and should continue to advocate for a change in existing federal funding formulas to increase the direction of federal investment to low-GHG transportation modes and raise the proportion of federal funds for transit, rail, and other modes that reduce GHG emissions.

Vehicle Standards

As mentioned above, the EPA has issued GHG emission standards for model years 2012-16 and has indicated an intention to strengthen these standards further in future years. Complementing EPA action, the U.S. Department of Transportation (DOT) has issued corporate average fuel economy standards (CAFE) that are commensurate with EPA's GHG emission standards. Taking into account the emissions inventory forecasts for activities covered by these regulations, ever-stronger GHG emissions and CAFE standards will be essential for New York to achieve its own statewide emission reductions. New York should actively participate in actions by these federal agencies to continuously advance standards that are consistent with the State's 80 by 50 emissions reduction needs from this sector over time.

Recognizing that national standards are a floor for performance, New York should continue to exercise its authority to work with California and other states to develop and adopt stricter California standards, as necessary to achieve climate goals. For example, Governor Paterson was recently joined by eight other governors (Maine, Massachusetts, Vermont, Pennsylvania, Maryland, Oregon, Washington, and New Mexico) in advocating for more aggressive vehicle standards starting in 2016, when the current standards are fully implemented, thus setting the stage for the next level of federal government action.

Low-Carbon Fuels

New York State is currently working with 10 other northeastern states to develop a regional framework for a low-carbon fuel standard, which would set standards for the carbon intensity of transportation fuels in the region and encourage the development and use of lower carbon fuels. As with the RGGI program and other activities in the TCI program, development of a region-wide low-carbon fuel standard (LCFS) can serve as an example of how regional market development can set the stage for national action. In addition to working on a regional platform, New York should seek to transfer program successes to shape a national program. Because transportation fuels markets are responsive to global market dynamics, a LCFS that is implemented on a broader scale will have more of an effect on the broader market for fuels. A national program would have to incorporate the concerns for sustainable biofuels that have been raised by New York in the regional LCFS process.

Regional Transportation Pricing Strategies

As described in the TLU chapter, a number of transportation and land use initiatives that can be adopted by New York would be more productive if implemented on a regional or national scale. For example, a multi-state transportation cap-and-trade program could develop a credit-based program wherein appropriate entities that provide transportation fuels to consumer markets would be permitted to hold and trade credits for the GHG emissions represented from the fuels they sell into the market. As with the RGGI program, such credits could be auctioned, with revenue contributing to public transportation and transportation system efficiency improvements.

Other identified policies worth pursuing on a regional basis include collaboration on implementing pay-as-you-drive insurance or other pricing mechanisms that encourage reductions in vehicle miles traveled and that can be implemented in a manner to replace or supplement gasoline taxes. New York should continue to examine and develop appropriate policies with other regional partners.

Regional Rail Initiatives

By its nature, expansion of rail-based transportation options (both passenger and freight) should be pursued on a regional and/or national level. On a regional level, New York should engage neighboring states to plan and invest in infrastructure to support both high speed rail and freight initiatives, both of which should be designed to shift passengers and goods from air and roads to rail. New York should continue to work with its partners in the TCI to further develop a three-year work plan for freight initiatives, including the development of long-term approaches to move freight effectively and efficiently through the region while promoting economic growth, enhancing communities, and addressing GHG emissions. With respect to high speed rail, New York should continue to work with the Northeast Corridor Group to explore and develop options for implementation of high speed rail technologies and service among northeastern states, including intra-state New York services that link with regional services.

New York should advocate for strict national standards for new products and sources of greenhouse gas emissions.

In many areas—appliances, vehicles, and new sources of air pollution—the baseline efficiency or emission standards are set by the federal government. Recognizing that efficiency and emission reductions are achieved most effectively when incorporated into initial designs, these standards should be set at levels that will achieve the most substantial emission reductions from the outset. For example, the Department of Energy should be encouraged to set the most stringent efficiency standards for new appliances and electronic products and, as explained above, EPA and the U.S. Department of Transportation should set vehicle and emission standards respectively that support the national transition to a low-carbon transportation sector.

In many cases, more stringent state standards are preempted. Therefore, unless the federal government ensures that new products are highly efficient, it may be difficult for New York to meet its climate goals.

National education policy to foster innovation and technology is important to achieving New York's climate protection goals.

Integral to any economic policy that relies on innovation and technology advances in the energy and climate sciences area is an education policy that fosters interest in and provides sufficient opportunity and support for education programs in sciences, technology, engineering, and math (STEM) subjects.

Primary and secondary education opportunities have been given some modest support. The President's Council of Advisors on Science and Technology (PCAST) has advocated for an Educate to Innovate program, designed to provide support for these STEM education programs, to increase and expand the country's academic base, and to inspire young students to develop an interest in technical studies. New York should support the current PCAST recommendations as the baseline of support for primary and secondary education programs.

Support for primary and secondary education is only one piece of a long-term education policy that is needed to maintain the nation's competitive position among emerging economies throughout the world. Ensuring the strength of university programs and U.S. research institutions in the STEM subjects, especially with respect to advanced energy technologies, is equally fundamental to the development of a strategic American advantage in the clean energy and climate change arena. Strong national policies in this area are likely to benefit New York, given the concentration of existing academic and research institutions already thriving in the State. A high level of this academic and research activity is needed to attract the private technology development, and manufacturing opportunities that seek academic partnership to foster the innovation needed for technology, product, and services development. Continued federal support and focus on STEM research and advanced education will assist New York in maintaining this high level of activity.

The federal government should foster infrastructure investments that advance climate change program objectives.

A primary function of the federal government is to foster investment in essential infrastructure systems that permit individual citizens to live in a healthy and modern environment. At various times in the past, these massive investments have been focused on advancing technologies, transportation options and human services— such as roads, bridges, railroads, water systems, energy systems, housing, information, and telecommunications systems—to accommodate a growing population and an expanding economy. From these infrastructure investments, private industry was able to make investments for products and services, confident in the ability to move goods to all parts of the country and for export. This infrastructure also provided a level of economic efficiency that allowed the United States to gain economic advantage over most, if not all, other nations. Indeed, the 20th century American economic miracle would not have been possible without the developed infrastructure, in large part supported by the federal government.

While these 20th century investments have served their purpose, the nation is faced with new infrastructure needs that will be critical for the economy of the 21st century. The systems that are in place formed the foundation of an economy dependent upon carbon-based fuel resources. Going forward, investments should be directed to systems that require a lower-intensity fuel input or energy output. Major low-carbon infrastructure investments, such as high speed rail or electric vehicle charging systems, will require a strong commitment going forward. The federal government also has a significant role to play in the build-out of the nation's electricity infrastructure. Just as the government took the lead in investing in the interstate highway system, it should seek to develop a more intelligent electricity grid that is capable of better transmitting power from the source of generation to use, adapting to unexpected events, and incorporating large amounts of renewable energy resources.

Given the long life of infrastructure, the federal government should now begin to account for the carbon-reduction needs over the life of infrastructure investments. Continued commitments and assistance from the federal government should be assessed through a lens that accounts for the 40-year need to de-carbonize the economy, and seeks out strategic opportunities. Such assessments should develop a shadow price for carbon—in the absence of market or other price signals—that would be used in analyzing costs and benefits of alternative policy and investment options. In addition to changes in the decision making required for federal infrastructure

investment, the federal government should also initiate a process to reprioritize near-term project and program activity throughout all administrative agencies of the government.

Federal and state policy should engage localities and communities as active participants in achieving climate goals.

Many of the policies recommended for further consideration require the active participation of local communities. Engagement of municipalities will be particularly critical given the local government roles in transportation planning and land use decisions. In a home rule state such as New York, with land use planning and control powers disbursed among more than 1600 municipalities, it can be difficult to develop regional solutions to sprawl and other smart growth issues without community participation.

However, many local governments lack the financial means, mechanisms, personnel, or expertise to undertake many climate actions. Federal and state programs, such as New York State's Climate Smart Communities program, can encourage and facilitate local action by providing funding, technical resources, practical assistance, and consistent tracking and reporting of successes and barriers.

Local governments also serve critical liaison roles with community organization and action, thus helping to expand citizen participation in the realization of climate strategies and goals. Local government actions are amplified as they are often adopted by residents, businesses and other organizations within a community, and local governments can be effective in actively encouraging behavioral change in residents.

New York should support efforts to achieve an international solution to climate change. Ultimately, a solution for climate change will require the participation of all of the world's community of nations. New York recognizes this truth and is committed to act. But climate change will not be solved by the actions of New York and other nations acting alone. Therefore, New York can play a critical role in providing an example of the policies that can be implemented worldwide to mitigate climate change.

Although the development of an international solution can be a painstaking process that takes decades of effort, New York should engage in efforts to achieve that goal. In addition to supporting the federal government's efforts to negotiate an international solution, New York can advocate more directly by engaging other nations and international actors and educating them about New York's own experiences in mitigating climate change while building economic opportunities.

New York and other states have already played an active role in supporting the federal government's efforts to obtain an international solution to climate change. State-level action is even more critical now that Congress has abandoned any efforts to pass climate legislation.

Conclusion

Achieving a comprehensive solution to global climate change requires New York to collaborate with regional partners and the federal government on emission reduction strategies, and to seek action across the community of nations. Although comprehensive federal legislation is

preferable, until such legislation is in place, the federal government should seek to target its broad suite of policies and programs towards the goal of reducing carbon emissions. Towards that end, federal policies should promote low-carbon behavior, not the continued exploitation of, and reliance upon, fossil fuels.