



Taking Action on Climate Change in New York: 2017 Update Report

The Current Status of the Recommendations
Proposed in the 2009 Report and 2011 Update

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Introduction

In January 2009, the New York State Bar Association’s (NYSBA) Task Force on Global Warming published a report (2009 Report) that reviewed efforts to address climate change at a variety of levels—statutory, regulatory, and policy—in New York.¹ The 2009 Report further provided a specific list of proposals with respect to initiatives that the State could undertake to help mitigate greenhouse gas (GHG) emissions as well as aid in adapting to the effects of climate change. The proposals were designed to be concrete and cost-effective in a State facing fiscal challenges.

In January 2011, Pace University Law School produced an update to the report (2011 Update), tracking the State’s progress on the recommendations as well as new developments.² The 2011 Update noted that significant progress had been made by the State to address climate change—including the creation of a Climate Action Council and the publication of a Climate Action Plan—and identified some setbacks. With respect to the 2009 Report’s specific proposals, the 2011 Update explained that while several recommendations had been acted upon in whole or in part, the majority of recommendations had not been achieved.

This report now seeks to provide another comprehensive update, tracking the additional progress the State of New York has made on climate change since 2011. As with 2011 Update, it is hoped that “by identifying both progress and failures, the Update will provide a basis for refining and redeveloping the recommendations necessary to continue to advance the urgent objectives of mitigating the impact of climate change for New Yorkers and laying the foundation for the adaptation measures necessary to cope with the inexorable climate change impacts which are already upon us.”³

Important Developments

Hurricane Irene and Superstorm Sandy

In August 2011, Hurricane Irene swept through Upstate New York, devastating communities from the Catskills through the Mohawk Valley, and up to Essex County.⁴ The storm was the

¹ N.Y. STATE BAR ASS’N TASK FORCE ON GLOBAL WARMING, TAKING ACTION IN NEW YORK ON CLIMATE CHANGE (2009) [hereinafter 2009 Report], <https://www.nysba.org/WorkArea/DownloadAsset.aspx?id=26659>.

² JAMES M. VAN NOSTRAND ET AL., PACE LAW SCHOOL, TAKING ACTION IN NEW YORK ON CLIMATE CHANGE: 2011 UPDATE REPORT (2011) [hereinafter 2011 Update], https://www.nysba.org/Sections/Environmental/Task_Force_on_Global_Warming/GWTFUpdateReportDraft012511Unmarked_pdf.html.

³ *Id.* at 1.

⁴ Steve Stanne, *Perfect Storms: How Hurricane Irene and Tropical Storm Lee Slammed NY*, N.Y. STATE CONSERVATIONIST, Aug. 2012, at 8, 10,

worst to hit New York since Tropical Storm Agnes in 1972.⁵ Much of the damage across the state was a result of flooding from extraordinarily heavy rainfall.⁶ On Long Island, a storm surge wreaked additional havoc.⁷ “[Heavy] winds and water-logged soils [on Long Island] brought down many trees, tree limbs and electrical wires; a half-million customers lost power, some for a week or more.”⁸

In October 2012, Superstorm Sandy devastated New York, resulting in economic losses over \$30 billion.⁹ New York City was the hardest hit by the storm’s onshore winds, which reached the city at maximum speeds of 80 miles per hour.¹⁰ The resulting storm surge damaged the City’s Atlantic coastline and lower bay, particularly impacting homes and businesses in the surrounding neighborhoods.¹¹ The Category One hurricane flooded over 51 square miles of New York City, inundating “buildings containing more than 300,000 homes and approximately 23,400 businesses,” as well as most of the City’s critical infrastructure, including hospitals, transportation networks, and key power facilities.¹² Damage to electric utilities left nearly two million people without power.¹³

The impact of Irene and Sandy raised concerns over emergency preparedness and disaster relief and galvanized New York to address the reality of climate change. The short time period between these two devastating storms sparked discussions at the state level on the likelihood of more frequent extreme weather events occurring as a result of climate change. The Governor responded by forming new commissions to better prepare the state for severe storms, to determine how to respond to the immediate aftermath of such events, and to develop a plan for fortifying the state’s infrastructure.¹⁴ Governor Cuomo recognized that the state, as well as the

http://www.dec.ny.gov/docs/administration_pdf/0812perfectstorms.pdf; OFFICE OF THE GOVERNOR, NEW YORK STATE RESPONDS: HURRICANE IRENE AND TROPICAL STORM LEE: ONE YEAR LATER 3 (2012),

<http://www.governor.ny.gov/sites/governor.ny.gov/files/archive/assets/documents/Irene-Lee-One-Year-Report.pdf>.

⁵ See Stanne, *supra* note 7, at 13 (“Flooding from rainfall can be devastating; in this respect, 1972’s tropical storm Agnes, whose costs totaled \$702.5 million (not adjusted for inflation) in New York, probably outdid Irene.”).

⁶ See OFFICE OF THE GOVERNOR, *supra* note 7, at 3–4.

⁷ Stanne, *supra* note 7, at 9–10.

⁸ *Id.* at 10.

⁹ Andrew Cuomo, Op-Ed, *We Will Lead on Climate Change*, N.Y. DAILY NEWS, Nov. 5, 2012, <http://www.nydailynews.com/opinion/lead-climate-change-article-1.1202221>.

¹⁰ NEW YORK CITY, A STRONGER, MORE RESILIENT NEW YORK 11 (2013), http://www.nyc.gov/html/sirr/downloads/pdf/final_report/Ch_1_SandyImpacts_FINAL_singles.pdf.

¹¹ *Id.*

¹² *Id.* at 13.

¹³ *Id.* at 15.

¹⁴ Cuomo, *supra* note 12.

country as a whole, must reduce energy consumption that contributes to climate change, beginning with upgrading building codes and working towards energy reform.¹⁵

Reelection of Governor Cuomo and Actions on Climate Change

In November 2014, Andrew Cuomo was reelected as Governor of New York. Since then, Governor Cuomo has announced New York's continued commitment to combating climate change and reducing greenhouse gas emissions: and acted upon that commitment by directing the New York State Department of Public Service to produce the 2015 State Energy Plan, which established a Clean Energy Standard that 50% of all electricity consumed in New York by 2030 be generated by clean and renewable energy sources.¹⁶ Governor Cuomo also "set the most aggressive climate mitigation target in the nation: to reduce greenhouse gas emissions 40% by 2030 and 80% below 1990 levels by 2050."¹⁷ To achieve these goals, he announced plans to engage fellow members of Regional Greenhouse Gas Initiative, as well as Quebec and California to explore pursuing a North American greenhouse gas cap-and-trade program; dedicated a billion dollars to New York's solar industry through the NY-SUN initiative; called for the installation of renewable energy at all SUNY campuses by 2020; and requested the Public Service Commission to initiate a program called Reforming the Energy Vision "to build a cleaner, more affordable and resilient energy system for all New Yorkers through a combination of new energy policies, state-wide initiatives and regulatory reforms."¹⁸

New York's Reforming the Energy Vision (REV)

In 2014, the Cuomo administration launched New York's Reforming the Energy Vision (REV) initiative to build an integrated energy network served by both central grid power and distributed generation.¹⁹ REV is intended to provide a comprehensive roadmap for building a cleaner, more

¹⁵ *Id.*

¹⁶ Press Release, Office of the Governor, Governor Cuomo Directs Department of Public Service to Begin Process to Enact Clean Energy Standard (Dec. 2, 2015), <https://www.governor.ny.gov/news/governor-cuomo-directs-department-public-service-begin-process-enact-clean-energy-standard>.

¹⁷ Press Release, Office of the Governor, Governor Cuomo, Joined by Vice President Al Gore, Announces New Actions to Reduce Greenhouse Gas Emissions and Lead Nation on Climate Change (Oct. 8, 2015), <https://www.governor.ny.gov/news/governor-cuomo-joined-vice-president-gore-announces-new-actions-reduce-greenhouse-gas-emissions>.

¹⁸ *Id.*

¹⁹ See N.Y. STATE DEP'T OF PUB. SERV., REFORMING THE ENERGY VISION (REV) 1 (2016), <https://www.ny.gov/sites/ny.gov/files/atoms/files/WhitePaperREVMarch2016.pdf>; see also *About the Initiative*, N.Y. STATE DEP'T OF PUB. SERV., <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/CC4F2EFA3A23551585257DEA007DCFE2?OpenDocument> (last visited Feb. 1, 2017).

reliable, and more affordable energy system.²⁰ Under REV state agencies are seeking to integrate renewable energy into the electric power grid and encourage investment by private capital in renewable energy.²¹ More particularly, through REV, the Public Service Commission (PSC) aims to align markets with the regulatory landscape while furthering state policy objectives of producing energy savings for customers, providing opportunities for local power generation, and promoting more efficient use of renewable energy resources.²² The initiative seeks to reassess and alter the way utilities make money, primarily because current utility regulation incentivizes building generation facilities and transmission lines, rather than improving and making more efficient the grid system and resources already leveraged.²³ The new regulatory landscape would create economic incentives for distributed generation that would adequately compensate customers.²⁴ Some of the programs arising out of the REV initiative include the Clean Energy Standard, Clean Energy Fund, NY-SUN, K-Solar, NY Prize, BuildSmart NY, and the NY Green Bank.²⁵

As discussed later in this report, the Clean Energy Standard (CES) adopted by the PSC at the request of the Governor mandates that 50 percent of the State's power be generated from renewable sources by 2030. The CES also imposes an interim milestone whereby utilities are required to procure 30 percent of the power they provide from renewables by 2021. This ambitious new mandate – which was put into place by the PSC on January 25, 2016, is likely to trigger a dramatic increase in renewable energy development in and nearby the State, with many of those projects aimed at developing New York's ample offshore wind resources. The first of those projects – a 90 megawatt wind array to be located 30 miles from the Montauk shoreline – is now getting underway under a contract approved by the Long Island Power Authority board on January 25, 2017.

Community Risk and Resiliency Act

, with²⁶ Governor Cuomo signed the Community Risk and Resiliency Act (CRRA) into effect on September 22, 2014. With the passage of the CRRA, New York has become one of the first

²⁰ N.Y. STATE ENERGY PLANNING BD., THE ENERGY TO LEAD: 2015 NEW YORK STATE ENERGY PLAN 9 (2015) [hereinafter N.Y. STATE ENERGY PLANNING BD., THE ENERGY TO LEAD], <http://energyplan.ny.gov/-/media/nysenergyplan/2015-state-energy-plan.pdf>; *see also The Energy to Lead*, N.Y. STATE ENERGY PLANNING BD., <http://energyplan.ny.gov/> (last visited Feb. 1, 2017).

²¹ N.Y. STATE ENERGY PLANNING BD., THE ENERGY TO LEAD, *supra* note 20, at 7.

²² *About the Initiative*, N.Y. STATE DEP'T OF PUB. SERV., *supra* note 19.

²³ *See* N.Y. STATE ENERGY PLANNING BD., THE ENERGY TO LEAD, *supra* note 20, at 59.

²⁴ *Id.* at 57–58.

²⁵ N.Y. STATE ENERGY PLANNING BD., REFORMING THE ENERGY VISION 2 (2016), <https://www.ny.gov/sites/ny.gov/files/atoms/files/REV42616WHATYOUNEEDTOKNOW.pdf>. For more information on REV, its various proceedings, and resulting programs see *Reforming the Energy Vision (REV)*, N.Y. STATE ENERGY PLANNING BD., <https://rev.ny.gov/> (last visited Feb. 1, 2017).

²⁶ 2014 N.Y. Laws ch. 355.

states to include climate impacts as a part of the state agency decision-making process.²⁷ The CRRA has been lauded as a bipartisan effort that “transforms New York into a national leader on climate change,”²⁸ and “marks a transition in New York State from focusing predominantly on reactive disaster policies to work to proactively reduce risk and increase community resilience.”²⁹

Notably, the CRRA was passed in the State Legislature with virtually no opposition. In fact, “[t]here were no business, policy, advocacy, or other groups that publicly opposed the measure.”³⁰ The bipartisan support was likely due to the impact of recent storms both in New York City and upstate: “Climate impacts aren’t just in the city, they are statewide . . . in both liberal and conservative communities alike.”³¹ The Georgetown Climate Law Center observes that the CRRA is the only legislation in the nation to require climate planning “not just in the state’s coastal areas, but in all 62 counties.”³²

The CRRA has several important provisions, but five of those provisions stand out as the most significant.³³

a. The Department of Environmental Conservation (DEC) Must Adopt Science-Based Sea Level Rise Projections and Update Them Every Five Years

Section 17 of the CRRA modified the Environmental Conservation Law (ECL) by adding section 3-0319, which requires the DEC to “adopt regulations establishing science-based state sea level rise projections.”³⁴ Thereafter, the DEC must update the projections “no less than

²⁷ Michael B. Gerrard, *New Statute Requires State Agencies to Consider Climate Risks*, N.Y.L.J., Nov. 13, 2014, at 3 (“New York has moved into the front rank of states in legally mandating that future climate change be considered in decisions by state agencies.”).

²⁸ Bagley, *supra* note 36 (quoting Bill Ulfelder, executive director of the New York Branch of the Nature Conservancy).

²⁹ Press Release, The Nature Conservancy, Community Risk and Resilience Act Passed in the Senate and Assembly, (June 19, 2014), <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/newyork/newsroom/community-risk-reduction-and-resilience-act-passed-in-the-senate-and-assembly.xml>.

³⁰ Bagley, *supra* note 36.

³¹ *Id.* (quoting Bill Ulfelder, executive director of the New York Branch of the Nature Conservancy).

³² *New York Community Risk and Resiliency Act (S06617B)*, GEORGETOWN CLIMATE CTR., <http://www.georgetownclimate.org/resources/new-york-community-risk-and-resiliency-act-s06617b> (last visited Feb. 1, 2017).

³³ See Gerrard, *supra* note 38. For additional interpretation of the CRRA and its structure, see *New York Community Risk and Resiliency Act (S06617B)*, GEORGETOWN CLIMATE CTR., *supra* note 44.

³⁴ 2014 N.Y. Laws ch. 355, § 17 (to be codified at N.Y. ENVTL. CONSERV. LAW § 3-0319).

every five years.”³⁵ In developing the projections, the DEC relied on ClimAID model outputs³⁶ and other technical reports regarding sea level rise as well as stakeholder outreach.³⁷

The DEC adopted final regulations setting forth the projections required by the statute on February 7, 2017. Those regulations, which are codified at 6 New York Code of Rules and Regulations, Part 490 include tables depicting sea level rise predictions for three regions of New York State: the Mid-Hudson, New York City/the Lower Hudson, and Long Island.³⁸ The predictions are made for time intervals of the 2020s, 2050s, 2080s, and 2100, and include a range of five different statistically significant percentile quantifications of the rate of sea level rise (low, low–medium, medium, medium–high, and high).³⁹ As discussed below, the new DEC sea level regulations can be expected to have a significant effect on project planning in New York State, because the CRRA requires that they be considered by applicants under certain permit and funding programs, and they also will have to be taken into account where relevant in environmental reviews performed under the State Environmental Quality Review Act (SEQRA).

b. State Permitting, Funding, or Facility Siting Decisions Must Factor in Sea Level Rise, Storm Surge, and Flooding

The CRRA requires various state agencies to consider climate change risks due to sea-level rise, storm surges, and flooding in the decision-making⁴⁰ by amending the ECL and other laws to add climate change risks to the enumerated decision-making criteria. The statute specifically requires that the risks of climate change be taken into account in: permitting programs for oil and

³⁵ *Id.*

³⁶ *See id.* at 31 (“The Department is basing its proposed low, low-medium, high-medium and high projections for the three regions on the 10th, 25th, 75th and 90th percentiles of ClimAID model outputs, respectively.”). *See generally* RADLEY M. HORTON ET AL., NYSERDA, CLIMATE CHANGE IN NEW YORK STATE: UPDATING THE 2011 CLIMAID CLIMATE RISK INFORMATION (2014).

³⁷ *Id.*; *see also* N.Y. ENVTL. CONSERV. LAW § 3-0319 (“In adopting such regulations, the department shall consider information including, but not limited to, reports of the Intergovernmental Panel on Climate Change, the National Oceanic Atmospheric Administration Climate Assessment, the Sea Level Rise Task Force report created pursuant to chapter six hundred thirteen of the laws of two thousand seven, projections prepared by the New York City Panel on Climate Change and any other relevant regional, state and local reports.”).

³⁸ 37 N.Y. Reg. at 30 (proposing section 490.4(a)–(c)).

For the Mid-Hudson Region:

2020s, the low projection is 1 inch, the high projection is 9 inches, for the 2050s: 5 - 27”; 2080s: 10 - 54”; 2100: 11 - 71.”

For the New York City/Lower Hudson Region:

2020s: 2 - 10”; 2050s: 8 - 30”; 2080s: 13 - 58”; 2100s: 15 - 75.”

For the Long Island Region:

2020s: 2 - 10”; 2050s: 8 - 30”; 2080s: 13 - 58”; 2100s: 15 - 72.”

³⁹ *Id.*

⁴⁰ 2014 N.Y. Laws §§ 3–9, 12–15.

natural gas wells;⁴¹ eligibility determinations under the Water Pollution Control Revolving Fund;⁴² siting of commercial hazardous waste treatment, storage, and disposal facilities;⁴³ as well as hazardous bulk storage facilities;⁴⁴ and for municipal landfill closure investigation projects.⁴⁵

These risks also must be assessed in connection with: an agreement for the maintenance and operation of urban open space land conservation projects or park projects;⁴⁶ state acquisition of land;⁴⁷ decisions regarding whether to give state assistance to coastal rehabilitation projects;⁴⁸ in the regulations for existing and new petroleum bulk storage facilities;⁴⁹ decisions regarding applications for state funding of local farmland protection programs;⁵⁰ and decisions regarding applications for state funding for drinking water projects.⁵¹ Additionally, the statute makes clear that climate change risks *may* be considered for local waterfront revitalization programs.⁵²

The CRRA also amends the DEC's statutory uniform procedures to require applicants for certain "major projects" to show they have considered climate change risks.⁵³ Those projects include those relating to: the protection of waters; sewerage systems in realty subdivisions; liquefied natural and petroleum gas; mined land reclamation; freshwater wetlands except for those administered by the Adirondack Park Agency; tidal wetlands; and coastal erosion hazard areas.⁵⁴

Clear parallels exist between the CRRA and the State Environmental Quality Review Act (SEQRA).⁵⁵ Conceptually speaking, the CRRA acts in tandem but from a different perspective; in effect, it creates a "reverse environmental impact analysis" requirement.⁵⁶ Instead of requiring consideration of the effect of a proposed action on the environment and climate, the CRRA

⁴¹ *Id.* § 14-a (codified at N.Y. ENVTL. CONSERV. LAW § 23-0305(8-a)).

⁴² *Id.* § 3 (codified at N.Y. ENVTL. CONSERV. LAW § 17-1909(1)(d)(ii)(e)).

⁴³ *Id.* § 4 (codified at N.Y. ENVTL. CONSERV. LAW § 27-1103(2)(i)).

⁴⁴ *Id.* § 5 (codified at N.Y. ENVTL. CONSERV. LAW § 40-0113(1)(b)).

⁴⁵ *Id.* § 8 (codified at N.Y. ENVTL. CONSERV. LAW § 54-0503(3)).

⁴⁶ *Id.* § 7 (codified at N.Y. ENVTL. CONSERV. LAW § 54-0303(2)(a)).

⁴⁷ *Id.* § 6 (codified at N.Y. ENVTL. CONSERV. LAW § 49-0203(3)).

⁴⁸ *Id.* § 11 (codified at N.Y. ENVTL. CONSERV. LAW § 54-1105(1)).

⁴⁹ *Id.* § 9 (codified at N.Y. ENVTL. CONSERV. LAW § 17-1015(1)).

⁵⁰ *Id.* § 12 (codified at N.Y. AGRIC. & MKTS. LAW § 325).

⁵¹ *Id.* § 13 (codified at N.Y. PUB. HEALTH LAW § 1161).

⁵² *Id.* § 10 (codified at N.Y. ENVTL. CONSERV. LAW § 54-1101(5)).

⁵³ *Id.* § 15 (codified at N.Y. ENVTL. CONSERV. LAW § 70-0117(9)). The ECL recognizes two types of projects: minor and major. A "minor project" is "a proposed project which by its nature and with respect to its location will not have a significant impact on the environment and will not exceed criteria established in rules and regulations adopted by the [DEC]." N.Y. ENVTL. CONSERV. LAW § 70-0105(3). Generally speaking, an application for a minor project is subject to lighter procedural requirements than major projects. *See id.* § 70-0111.

⁵⁴ *See* N.Y. ENVTL. CONSERV. LAW §§ 70-0117(9), 70-0107(3)(a), (f), (h), (i), (j), (k), (m).

⁵⁵ *See* N.Y. ENVTL. CONSERV. LAW §§ 8-0101 to 8-0117.

⁵⁶ *See* Michael B. Gerrard, *Reverse Environmental Impact Analysis: Effect of Climate Change on Projects*, N.Y.L.J., Mar. 8, 2012, at 3, *cited in* Gerrard, *supra* note 38.

“begins from the other end, requiring that agencies consider the future impacts of climate risks on the projects they may fund or permit.”⁵⁷ However, even prior to the passage of the CRRA it had been recognized that sound practice under SEQRA required consideration of such risks to the extent relevant. ⁵⁸ However, the CRRA eliminates any lingering uncertainty on this score with respect to the programs the statute addresses.

c. Mitigation of Risk Due to Sea Level Rise, Storm Surge, and Flooding Is Added to the List of Smart Growth Criteria

The CRRA amends the Smart Growth Public Infrastructure Policy Act (SGPIPA)⁵⁹ to add “mitigat[ion] [of] future physical climate risk due to sea level rise, and/or storm surges and/or flooding” as a new smart growth public infrastructure criterion.⁶⁰ Passed in 2010 in an effort to “minimiz[e] the unnecessary cost of sprawl development,”⁶¹ SGPIPA initially required certain state agencies to consider ten smart growth criteria when approving, supporting, funding, and undertaking public infrastructure projects.⁶² The CRRA thus adds an eleventh criterion to any consistency evaluation required under section 6-0107 of SGPIPA.⁶³ In other words, all consistency evaluations now must consider sea level rise, storm surge, and flooding. The DEC anticipates its new regulations regarding sea level rise projections will be useful to agencies

⁵⁷ Susan E. Golden, *New York Community Risk and Resiliency Act*, VENABLE LLP (Oct. 10, 2014), <https://www.venable.com/new-york-community-risk-and-resiliency-act-10-10-2014/>.

⁵⁸ See Gerrard, *supra* note 38; Ethan I. Strell, *New York Environmental Impact Statements Beginning to Address Climate Resiliency*, 25 ENVTL. L. N.Y. 205, 205 (2014) (“In the past year, most New York City environmental impact reviews for projects located in floodplains have explicitly addressed adaptation to climate change, and several [environmental impact statements] in other parts of the state have also discussed how a changing climate may affect the proposed project.”), <http://web.law.columbia.edu/sites/default/files/microsites/climate-change/files/Publications/Fellows/strell.pdf>.

⁵⁹ 2010 N.Y. Laws ch. 433 (codified at N.Y. ENVTL. CONSERV. LAW art. 6).

⁶⁰ 2014 N.Y. Laws ch. 355, § 2 (codified at N.Y. ENVTL. CONSERV. LAW § 6-0107(2)(k)).

⁶¹ See 2010 N.Y. Laws ch. 433, § 1 (codified at N.Y. ENVTL. CONSERV. LAW § 6-0105).

⁶² *Id.* (codified at N.Y. ENVTL. CONSERV. LAW § 6-0107(2)). In fact, “no state infrastructure agency shall approve, undertake, support or finance a public infrastructure project, including providing grants, awards, loans or assistance programs, unless, to the extent practicable, it is consistent with the relevant criteria specified in subdivision two of this section.” N.Y. ENVTL. CONSERV. LAW § 6-0107(1). At least one New York State Department refers to decision-making process as a “consistency evaluation.” See *NYSDOT Implementation of the Smart Growth Public Infrastructure Policy Act (SGPIPA)*, N.Y. STATE DEP’T OF TRANSP., <https://www.dot.ny.gov/programs/smart-planning/smartgrowth-law> (last visited Feb. 1, 2017) (“The Act is intended to minimize the unnecessary cost of sprawl development and requires State infrastructure agencies, including NYSDOT, to ensure public infrastructure projects undergo a *consistency evaluation* and attestation using the eleven Smart Growth criteria specified in the Act.” (Emphasis added.)).

⁶³ See N.Y. ENVTL. CONSERV. LAW § 6-0107(2).

performing a consistency evaluation.⁶⁴

d. The Department of State Must Develop Model Local Laws that Include Consideration of Risk from Sea Level Rise, Storm Surge, and Flooding

The CRRA also contemplates local governments will take future physical climate risks into consideration: it directs the Department of State (DOS) to “prepare model local laws that include consideration of future physical climate risk due to sea level rise, and/or storm surges and/or flooding . . . and . . . make such laws available to municipalities.”⁶⁵ DOS shall develop these model local laws in cooperation with DEC and base the laws on predictions of extreme weather using hazard risk analysis.⁶⁶ There is, however, no timeline for drafting these or requirement for adoption by communities.⁶⁷ Therefore, the usefulness of such model laws remains to be seen.

e. DEC Must Develop Guidance on the Use of Resiliency Measures that Utilize Natural Resources and Processes to Reduce Risk

Section 16 of CRRA also requires that DEC, in consultation with DOS, prepare “guidance on the implementation” of the CRRA using “relevant data sets and risk analysis tools . . . predicting the likelihood of future extreme weather events.”⁶⁸ Additionally, the DEC and DOS must develop guidance “on the use of resiliency measures that utilize natural resources and natural processes to reduce risk.”⁶⁹ According to the DEC, this process is in its beginning stages, and no information has been released regarding its progress.⁷⁰

⁶⁴ See N.Y. STATE DEP’T OF ENVTL. CONSERVATION, REGULATORY IMPACT STATEMENT, 6 NYCRR PART 490, PROJECTED SEA-LEVEL RISE 2 (2015), http://www.dec.ny.gov/docs/administration_pdf/risslr.pdf (“CRRA also amends [SGPIPA] to add an additional smart growth criterion regarding mitigation of future climate physical risk. Adoption of Part 490 will help to ensure that sea-level rise projections are incorporated into decision-making processes in a consistent, transparent manner and will contribute to regulatory certainty.”).

⁶⁵ 2014 N.Y. Laws ch. 355, § 14.

⁶⁶ *Id.*

⁶⁷ Gerrard, *supra* note 38.

⁶⁸ 2014 N.Y. Laws ch. 355, § 16.

⁶⁹ *Id.*

⁷⁰ See N.Y. STATE DEP’T OF ENVTL. CONSERVATION, *supra* note 45 (“The state agencies responsible for implementing CRRA are currently identifying information needs and organizing staff teams to develop guidance required by CRRA. These agencies anticipate providing regular updates on progress and providing opportunities for public input beginning in late 2015 and continuing through 2016.”).

Transportation & Climate Initiative of the Northeast and Mid-Atlantic States

A substantial portion—30 to 40%—of GHG emissions come from transportation.⁷¹ The Transportation and Climate Initiative of the Northeast and Mid-Atlantic States (TCI) seeks to address this issue through a variety of efforts.⁷² TCI is a multi-state climate initiative that includes Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.⁷³ The Georgetown Climate Center (GCC) facilitates the TCI.

Formed in June 2010 and building upon the Regional Greenhouse Gas Initiative (RGGI) and the 2009 proposal for a regional low-carbon fuel standard,⁷⁴ TCI “seeks to develop the clean energy economy and reduce oil dependence and greenhouse gas emissions from the transportation sector.”⁷⁵ State and district agencies, all of which are involved on a self-directed basis, steer TCI.

TCI’s initiatives are organized into four core work areas: (1) Clean Vehicles and Fuels; (2) Sustainable Communities; (3) Freight Efficiency; and (4) Information and Communication Technologies.⁷⁶ Together, all four of these work areas aim to implement crucial innovations in furtherance of reducing emissions from the transportation sector. The complexity of the problem dictates the inherent intricacies and multiple facets of the solution, as can be seen from the

⁷¹ See *Multi-State Climate Initiatives*, CENTER FOR ENERGY AND CLIMATE SOLUTIONS, <http://www.c2es.org/us-states-regions/regional-climate-initiatives> (last visited Feb. 1, 2017) (“Transportation currently accounts for roughly 40 percent of greenhouse gas emissions in the U.S. Mid-Atlantic and Northeast.”); TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, DECLARATION OF INTENT, <http://www.transportationandclimate.org/sites/default/files/TCI-declaration.pdf> (“We further recognize that that the transportation sector contributes approximately 30 percent of the greenhouse gas emissions in the Mid-Atlantic and Northeast Regions of the United States.”).

⁷² *About Us*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/content/about-us> (last visited Feb. 1, 2017).

⁷³ *Id.*

⁷⁴ See TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, DECLARATION OF INTENT, *supra* note 89. The RGGI establishes the region’s cap-and-trade program. See REG’L GREENHOUSE GAS INITIATIVE, <https://www.rggi.org/> (last visited Feb. 1, 2017) (“The [RGGI] is the first mandatory market-based program in the United States to reduce greenhouse gas emissions. RGGI is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont to cap and reduce CO₂ emissions from the power sector.”). A regional low carbon fuel standard has been proposed but not adopted. See Memorandum of Understanding, Northeast and Mid-Atlantic Low Carbon Fuel Standard (Dec. 30, 2009).

⁷⁵ *About Us*, TRANSPORTATION & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, *supra* note 90.

⁷⁶ *Id.*

above. To its credit, New York has made a strong commitment to these initiatives, and the years ahead will reveal the extent of its success.

a. Clean Vehicles and Fuels

i. Northeast Electric Vehicle Network

One of this work area's major accomplishments thus far has been the launch of the Northeast Electric Vehicle Network (NEVN).⁷⁷ The list of participating states includes all of those in TCI plus select communities in Maine.⁷⁸ NEVN was created in 2011 and lays the groundwork for deployment of electric vehicles and associated environmental and employment benefits in the region.⁷⁹ This groundwork consists of four major initiatives:

- Developing partnerships needed in both the public and private sector to build a robust network of charging stations throughout the region;
- Encouraging the streamlining of permits for the installation of home and public charging stations and removing other barriers;
- Coordinating regional, state, and local planning to ensure that charging stations are placed in locations that maximize both local and regional travel; and
- Ensuring a consistent experience for electric vehicle users.⁸⁰

There are already 1,700 public charging stations in the region.⁸¹ Impressively, NYSERDA notes that there are already more than 1,100 electric-vehicle charging stations in New York alone, en route to a goal of having more than 3,000 stations in New York by 2018.⁸² A unique feature of the NEVN website is a tool called "Find an EV Charging Station Near You," which generates a map of the TCI region with blue-and-yellow lightning icons marking the locations of chargers

⁷⁷ *Northeast Electric Vehicle Network*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/content/northeast-electric-vehicle-network> (last visited Feb. 1, 2017).

⁷⁸ *Id.*

⁷⁹ *See Agreement of the Northeast and Mid-Atlantic States to Develop a Northeast Electric Vehicle Network and Promote Alternative Transportation Fuels* (Oct. 19, 2011), <http://www.transportationandclimate.org/sites/www.transportationandclimate.org/files/northeast-electric-vehicle-network-agreement.pdf>.

⁸⁰ *See Northeast Electric Vehicle Network in Action*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/northeast-electric-vehicle-network-action> (last visited Feb. 1, 2017).

⁸¹ *Northeast Electric Vehicle Network*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, *supra* note 95. According to the NEVN: "The [NEVN] will enable travelers to drive their plug-in cars and trucks from northern New England to D.C. and everywhere in between." *Id.*

⁸² *See ChargeNY*, NYSERDA, <http://www.nysesda.ny.gov/All-Programs/Programs/ChargeNY> (last visited Feb. 1, 2017).

when the user enters an area code or state.⁸³ An informative assortment of documents with robust content regarding the siting, equipment required, incentives, related planning and policy information, and building and electrical codes necessary for electric vehicles (including model codes from Vancouver, Oregon, and Los Angeles) is also available on the NEVN website for further reference.⁸⁴

Funding for NEVN comes from a roughly \$1 million “Electric Vehicle Readiness” grant from the DOE Clean Cities Initiative to NYSERDA on behalf of TCI.⁸⁵ In contrast to some of the other TCI Initiatives, NEVN is action-oriented and has evolved beyond the research phase. Evidence of this success can be found in the fact that the U.S. Department of Transportation recently designated several highways in the Northeast, including several highways in New York, as “alternative fuels corridors.”⁸⁶ The goal of the U.S. Department of Transportation’s designations is “establishing a national network of alternative fueling and charging infrastructure along national highway system corridors.”⁸⁷ As impressive as the progress being made by NEVN and other initiatives sparked by DOE’s Clean Cities grant program may be, it is likely that under

⁸³ For instance, searching for stations in New York reveals clusters throughout the state. *See Find an EV Charging Station Near You*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, http://www.transportationandclimate.org/content/find-ev-charging-station-near-you?field_zip_value=&field_state_value=NY (last visited Feb. 1, 2017).

⁸⁴ *Northeast Electric Vehicle Network Documents*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/northeast-electric-vehicle-network-documents> (last visited Feb. 1, 2017). For example, NEVN’s document collection includes a “menu” of electric vehicle incentives compiled by TCI, *see* TRANSPORTATION & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, MENU OF PLUG-IN ELECTRIC VEHICLE INCENTIVES (2013), http://www.transportationandclimate.org/sites/default/files/Menu%20of%20Plug-In%20EV%20Incentives_Final.pdf, and an analysis of how building and electric codes relate to electric vehicles, *see* NYSERDA & TRANSPORTATION & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, E-V READY CODES FOR THE BUILT ENVIRONMENT (2012), http://www.transportationandclimate.org/sites/default/files/EV-Ready_Codes_for_the_Built_Environment_0.pdf.

⁸⁵ *About Us*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, *supra* note 90; *Search Clean Cities Projects*, U.S. DEP’T OF ENERGY, https://cleancities.energy.gov/partnerships/search?project_search=Electric+Vehicle+Community+Readiness (last visited Feb. 1, 2017) (noting the NEVN was awarded a \$992,784 grant).

⁸⁶ *U.S. Department of Transportation Designates Electric Vehicles Corridors in the Transportation and Climate Initiative Region*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/us-department-transportation-designates-electric-vehicles-corridors-transportation-and-climate> (last visited Feb. 1, 2017).

⁸⁷ *Alternative Fuel Corridors*, FED. HIGHWAY ADMIN., http://www.fhwa.dot.gov/environment/alternative_fuel_corridors/ (last visited Feb. 1, 2017).

the budget proposed by the Trump Administration funding for the program will be sharply reduced, by as much as 32 percent according to some reports.⁸⁸

ii. Zero-Emission Vehicle Action Plan

The Multi-State Zero-Emission Vehicle Task Force was built around the hope that zero-emission vehicles (ZEVs) have a large part to play in the future of emissions reduction.⁸⁹ In October 2013, New York joined seven other states in signing a Memorandum of Agreement committing to implementing a ZEV plan.⁹⁰ The following May saw the release of the Multi-State ZEV Action Plan, the main goal of which is to put 3.3 million ZEVs on the roads of each member state through “market preparation and growth.”⁹¹ The plan includes the following car models: pure battery-electric vehicles; plug-in hybrid electric vehicles; and hydrogen fuel cell electric vehicles.⁹²

Governor Cuomo stated that New York will support the effort “through the [ChargeNY] Initiative by installing 3,000 electric vehicle charging stations – vital to the growth of a completely wired Northeast Corridor.”⁹³ In addition, the ChargeNY initiative is working to bolster the ZEV market by developing best practices guides for municipalities, reducing regulatory obstacles that had hindered the installation of charging stations, educating the community about ZEVs and charging stations, and providing other incentives for ZEVs.⁹⁴

However, challenges exist to greater ZEV adoption remain, including financial, infrastructural, and informational challenges.⁹⁵ To address some of these issues, TCI convened a workshop

⁸⁸ *U.S DOE’s Budget Request Reduces Funding for Clean Cities Program*, NGV America News, <http://ngv.com/u-s-does-2017-budget-request-reduces-funding-for-clean-cities-program/>

⁸⁹ *About the ZEV Task Force*, MULTI-STATE ZEV TASK FORCE, <http://www.zevstates.us/about-us/> (last visited Feb. 1, 2017).

⁹⁰ State Zero-Emission Vehicle Programs Memorandum of Understanding (Oct. 24, 2013), <http://www.nescaum.org/documents/zev-mou-8-governors-signed-20131024.pdf/>. Partner states to the ZEV include California, Connecticut, Maryland, Massachusetts, New York, Oregon, Rhode Island and Vermont.

⁹¹ MULTI-STATE ZEV TASK FORCE, MULTI-STATE ZEV ACTION PLAN 3 (2014), <http://www.nescaum.org/topics/zero-emission-vehicles/multi-state-zev-action-plan>.

⁹² *Id.* at 2. For further description of the differences between types of ZEVs, see CHARLES ZHU AND NICK NIGRO, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC, PLUG-IN ELECTRIC VEHICLE DEPLOYMENT IN THE NORTHEAST: A MARKET OVERVIEW AND LITERATURE REVIEW 8–9 (2012), http://www.transportationandclimate.org/sites/default/files/TCI-EV-Lit-Review_0.pdf.

⁹³ Press Release, Northeast States for Coordinated Air Use Management, 8 State Alliance Releases Plan to Put 3.3 Million Zero-Emission Vehicles on the Road (May 29, 2014), <http://www.nescaum.org/topics/zero-emission-vehicles/press-release-8-state-alliance-releases-plan-to-put-3-3-million-zero-emission-vehicles-on-the-road>.

⁹⁴ See *ChargeNY*, NYSERDA, *supra* note 100.

⁹⁵ CASSANDRA POWERS, GEORGETOWN CLIMATE CTR., SUPPORTING THE PLUG-IN ELECTRIC VEHICLE MARKET: BEST PRACTICES FROM STATE PEV PROGRAMS 1 (2014),

about plug-in vehicles in Boston in June 2014.⁹⁶ The following January, the GCC released a report reflecting best practices discussed at this workshop for the implementation of state plug-in vehicle programs.⁹⁷

b. Sustainable Communities

With its sustainable communities work area, TCI aims to “develop state-level tools and policies that promote more sustainable communities throughout the region.”⁹⁸ The sustainable communities work area of TCI is research based and aims to establish cross-state common indicators to measure environmental and economic progress of state-level efforts.⁹⁹ This regional orientation allows participating states to uniformly track benefits and outcomes of sustainable communities policies.

Research produced by the GCC and Edward J. Bloustein School of Planning and Public Policy at Rutgers University in consultation with the twelve TCI jurisdictions have isolated eleven common indicators for the purposes of gauging these improvements:

- Transportation-related GHG emissions
- Energy consumption in the transportation sector
- Travel mode share (drive-alone, transit, walking, biking, etc.)
- Proportion of development (jobs, housing) occurring inside or outside developed areas or designated growth areas
- Acres of agricultural or natural lands developed annually per new resident
- Proximity to amenities (shopping, healthcare, fresh food, recreation, etc.)
- Proportion of jobs or housing near transit
- Transportation investments by mode (i.e. highway, pedestrian or bicycle, transit, freight) and type (i.e. operations/maintenance, state of good repair, safety, capacity expansion)
- Return on investment from transportation projects
- Combined housing and transportation cost as a proportion of area median income
- Health impacts of transportation emissions¹⁰⁰

<http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/GCC-Supporting-PEV-Market-December-2014.pdf>.

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Sustainable Communities*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/content/sustainable-communities> (last visited Feb. 1, 2017).

⁹⁹ *Measuring Sustainability*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/node/34> (last visited Feb. 1, 2017).

¹⁰⁰ See EDWARD J. BLOUSTEIN SCH. OF PLANNING & PUB. POLICY, OVERVIEW OF THE TRANSPORTATION & CLIMATE INITIATIVE SUSTAINABLE COMMUNITIES SCOPING PAPERS 1 [hereinafter EDWARD J. BLOUSTEIN SCH. OF PLANNING & PUB. POLICY, OVERVIEW OF THE TCI SCOPING PAPERS],

<http://www.transportationandclimate.org/sites/www.transportationandclimate.org/files/tci-sustainable-communities-scoping-papers-overview.pdf>; see also JON A. CARNEGIE, EDWARD J.

Research and scoping papers by the Bloustein School of Planning and Public Policy have demonstrated that some of these indicators are better suited to implementation than others.¹⁰¹ Thus, TCI has organized the indicators into three tiers according to their utility and need for either additional refinement or modification at the state level.¹⁰² For each tier, TCI described what potential strategies could be used to support them and identified how some already have been utilized for policymaking in TCI jurisdictions.¹⁰³

The first tier, containing the “most promising” indicators, includes: (1) transportation-related GHG emissions; (2) energy consumption in the transportation sector; and (3) travel mode share.¹⁰⁴ The first two indicators—transportation-related GHG emissions and energy consumption in the transportation sector—are especially promising because they are “relatively easy to calculate using energy use data” and reductions in transportation-related greenhouse gas emissions are a “direct measure of [TCI’s] progress.”¹⁰⁵ Transportation-related GHG emissions and energy consumption in the transportation sector are naturally considered in tandem since “[e]nergy consumption in the transportation sector is often a proxy for emissions.”¹⁰⁶ These first two indicators have been used to support initiatives in Massachusetts, Vermont, and New York.¹⁰⁷ The last indicator of this cohort, travel mode share, “describes the proportion of trips taken by various means and can help gauge the extent to which viable transportation alternatives exist.”¹⁰⁸ As with the first two indicators, travel mode share is easily calculable based on readily available survey and geographic information system data.¹⁰⁹ It has been used to support initiatives in Maryland, New Jersey, New Hampshire, and Massachusetts.¹¹⁰

BLOUSTEIN SCH. OF PLANNING & PUB. POLICY, TCI METRIC RESEARCH PROJECT: WORKING TOWARD A COMMON SET OF INDICATORS (2012).

¹⁰¹ See EDWARD J. BLOUSTEIN SCH. OF PLANNING & PUB. POLICY, OVERVIEW OF THE TCI SCOPING PAPERS, *supra* note 117, at 1–2 (“The scoping papers reveal that certain indicators would be easier to calculate than others, due to availability of the data, ease of data collection, and the extent to which data are already being used to inform existing state policies.”).

¹⁰² See *id.* at 2–7.

¹⁰³ See *id.*

¹⁰⁴ *Id.* at 2.

¹⁰⁵ *Id.* This is not to say TCI does not contemplate some further or continuing refinement for these indicators; as TCI notes, the fact of interstate travel, for instance, limits the efficacy to using fuel sales as a proxy for transportation-related GHG emissions in the state, and, conversely, merely estimating the miles travelled by passenger vehicles may not account for the sometimes significant GHG emissions generated by rail and bus. See *id.*

¹⁰⁶ *Id.*

¹⁰⁷ See *id.* (identifying Massachusetts’s Global Warming Solutions Act, Vermont’s Comprehensive Energy Plan, and New York State’s Transportation Master Plan for 2030 as examples).

¹⁰⁸ *Id.* at 3.

¹⁰⁹ *Id.*

¹¹⁰ See *id.* (identifying the Maryland Department of Transportation’s Annual Attainment Report on Transportation System Performance, New Jersey’s Transit Village Program, the New

The second tier—indicators “requiring substantial data modification or processing”—includes: (4) the proportion of development occurring inside (or outside) developed or designated growth areas; (5) agricultural or natural lands developed annually per new resident; (6) proximity to amenities; (7) proportion of jobs or housing near transit; and (8) investment by mode.¹¹¹ All of these factors show promise but require further refinement in terms of how data is collected or measured. Jurisdictional and geographic differences throughout the TCI region account for some of the limitations TCI identified in these factors. For instance, indicators 4 and 5 “assess whether growth is happening in ways that are conducive to ‘smart growth’ or in ways that are likely to increase per-capita [vehicle miles travelled] and GHG emissions,” but TCI notes that states may want to modify data inputs based on “[d]ifferent legal structures surrounding land use, designated growth areas, and protected land areas as well as varied data collection methods.”¹¹² Similarly, indicator 8, which analyzes investment in public transit or active modes of travel like biking and walking, can provide a valuable measure of progress on reducing vehicle miles traveled and GHG emissions; but TCI expects that states may collect investment data differently.¹¹³ Implicit in TCI’s recognition of the limits of second tier indicators is the recognition that an indicator that first requires new collection of data is necessarily limited in terms of implementation. Moreover, TCI contemplates that the availability of data relating to the proximity of amenities and the proportion of housing and jobs near transit may “vary significantly across the TCI region” and, in any event, “fail to capture physical or social barriers that prevent easy access to amenities.”¹¹⁴ Nonetheless, these indicators have been successfully utilized to support various initiatives in Maryland and New Jersey.¹¹⁵

The last tier of indicators are those “needing refinement or additional information,” which includes: (9) combined housing and transportation cost as a proportion of area median income; (10) return on investment; and (11) health benefits.¹¹⁶ As with the second tier of indicators, TCI recognizes that these latter indicators have significant potential; however, each third tier indicator suffers from drawbacks beyond mere data collection or state modification. For example, while the combined cost of housing and transportation as a proportion of area median income may be easily ascertainable, TCI recognizes the need for exploration of how to use the indicator beyond the neighborhood level.¹¹⁷ Additionally, return-on-investment calculations

Hampshire Department of Transportation’s Balanced Scorecard, and Massachusetts’s GreenDOT Policy and Plan as examples).

¹¹¹ *See id.* at 3–5.

¹¹² *Id.* at 3–4.

¹¹³ *Id.* at 5.

¹¹⁴ *Id.*

¹¹⁵ *Id.* at 3–4 (identifying Maryland’s PlanMaryland and 12 Visions, and the New Jersey Department of Environmental Protection’s Environmental Trends Tracking as examples of indicators 4 and 5 put to use; Maryland’s PlanMaryland and 12 Visions, and New Jersey’s State Strategic Plan as examples of indicators 6 and 7 put to use; and New Jersey’s “Fix It First” Policy as an example of indicator 8 put to use).

¹¹⁶ *Id.* at 5–7.

¹¹⁷ *Id.* at 5. However, TCI notes this factor was successfully used by Mercer County, New Jersey in the 2010 update of its Master Plan. *Id.*

have historically failed to capture social and environmental benefits, and measuring the health of a community may not be a meaningful indicator standing alone.¹¹⁸

A deeper discussion of the potential strategies that each indicator could support are beyond the scope of this Update, but the project overview and the TCI Scoping Paper Series provide a further exploration of these topics.¹¹⁹

c. Freight Efficiency

In recognition of the contribution of the movement of freight to climate change, this work area focuses on increasing the efficiency of the movement of goods through the TCI region. It aims to: (1) promote sustainable economic development; (2) minimize traffic congestion; and (3) reduce greenhouse gas emissions through more efficient goods movement and technology.¹²⁰

A major milestone thus far in this work area has been the commissioning and completion of a quantitative study by Dr. James Winebrake of the Rochester Institute of Technology on the patterns and distribution of freight movement in the TCI region.¹²¹ Reducing freight flow is important because “freight is closely tied to economic growth” and “[f]or every trillion dollar increase in GDP, we expect an additional ~140 billion ton-miles.”¹²² This study revealed that 87% of freight transported within the TCI states was moved by heavy trucks—one of the most energy- and GHG-intensive modes of freight transportation.¹²³ New York also has the second-heaviest weight of freight flows in the Northeast (only Pennsylvania has heavier).¹²⁴

The study also identifies ways to reduce energy and emissions through two frameworks. One framework presents “options for emissions reductions from freight” and another “evaluates trade-offs across important criteria” like “cost, time-of-delivery, [and] emissions.”¹²⁵ Dr. Winebrake has presented his findings several times, and TCI notes the study received a “positive response” and that “a follow-up study was proposed that would a) explore the energy use and emissions associated with the freight movement throughout the region, and b) identify freight

¹¹⁸ See *id.* at 6, 7.

¹¹⁹ All seven research papers in this series prepared by the Bloustein School at Rutgers University are available for download at <http://www.transportationandclimate.org/indicators-measure-progress-promoting-sustainable-communities> (last visited Feb. 1, 2017).

¹²⁰ *Freight Efficiency*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/content/freight> (last visited Feb. 1, 2017).

¹²¹ James J. Winebrake, PhD, Rochester Inst. of Tech., *Achieving Emissions Reductions in the Freight Sector: Understanding Freight Flows and Exploring Reduction Options*, (Mar. 21, 2012), <http://www.transportationandclimate.org/sites/default/files/Freight%20Seminar%20Presentation.pdf>.

¹²² See *id.* at 4, 5. A ton-mile is a unit of transportation measurement referring to a ton of freight transported one mile.

¹²³ See *id.* at 4, 10.

¹²⁴ *Id.* at 13.

¹²⁵ *Id.* at 16.

routes by vehicle miles traveled . . . and time to market . . . to determine potential transportation improvements in specific areas.”¹²⁶

d. Information and Communication Technologies

This work area focuses on how states can use technology to make systemic operational improvements and provide information to travelers in order to reduce the GHG impact of the transportation sector. TCI lists nine goals that it will use emerging technologies to advance. These include: (1) promoting transit use through information technologies; (2) encouraging travelers to use real-time information offered in 511 and other systems to reduce their travel times; (3) improving bus scheduling and routing; (4) reducing travel times and traffic congestion; (5) reducing idling and unproductive run times for trucks and other heavy-duty vehicles; (6) introducing new ways of collecting and disseminating travel data; (7) reducing the cost of vehicle ownership; (8) improving public safety; and (9) expanding consumer travel choices.¹²⁷

i. *American Public Transit Association v. ArrivalStar S.A.*: Real-Time Vehicle Information Lawsuit Settlement

As acknowledged above, the robust use of public transportation is vital to the reduction of greenhouse gas emissions. “Transit apps can help increase or maintain ridership, which helps reduce automobile traffic, which is a major source of emissions.”¹²⁸ Until recently, however, a very real threat of lawsuits against public agencies nationwide hindered the use of real-time transit data and the creation of transit app services.¹²⁹ The chilling effect on public agencies has been palpable.¹³⁰

The entity responsible for bringing these suits was ArrivalStar, a Luxembourg-based company that holds exclusive licensing rights to thirty-four patents relating to the provision of real-time traffic information.¹³¹ From 2010 to 2012, ArrivalStar brought patent infringement suits against ten state and regional transit authorities.¹³² All were settled or dismissed within months except

¹²⁶ *Freight Movement in the Northeast*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/content/freight-movement-northeast> (last visited Feb. 1, 2017).

¹²⁷ *Information and Communication Technology*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/content/information-and-communication-technology> (last visited Feb. 1, 2017).

¹²⁸ Emily Badger, *Why is a Patent Troll in Luxembourg Suing U.S. Public Transit Agencies?*, CITYLAB, Apr. 23, 2012, <http://www.citylab.com/tech/2012/04/why-patent-troll-luxembourg-suing-us-public-transit-agencies/1819/>.

¹²⁹ *Id.*

¹³⁰ *See id.*

¹³¹ *Id.* Another entity, Melvino Technologies, Ltd., actually holds the patents, and the two entities act in concert. *See id.*

¹³² *See* Complaint at 6–7, Am. Pub. Transp. Ass’n v. ArrivalStar S.A., No. 1:13-cv-04375-ALC at 7 (S.D.N.Y. filed June 25, 2013),

one.¹³³ In response to a continuing threat of litigation, the American Public Transit Association (APTA), a coalition of transit stakeholders including almost all U.S. public transportation agencies, filed a complaint in federal district court in 2013 seeking a declaratory judgment against ArrivalStar.¹³⁴ The complaint alleges that the goal of these suits was “not to seek remedy for a legitimate claim, but rather to settle for an amount below the cost to each defendant to defend itself in court.”¹³⁵ Indeed, ArrivalStar typically settled its suits against public agencies for amounts between \$50,000 and \$75,000.¹³⁶

Since ArrivalStar’s approach involved suing public agencies for relatively small dollar amounts to elicit quick settlement, none of the public agencies were “stepping back and seeing how big the picture was.”¹³⁷ In response, the GCC “compiled a file of all the relevant patents and known lawsuits, as well as potential legal defenses that might be used to counter them.”¹³⁸ Thus, the GCC assisted in identifying issues and solutions to curtail these threatened lawsuits against public agencies that used real-time traffic information to keep commuters up-to-date about bus and train arrivals/departures.¹³⁹

Filed by the Public Patent Foundation at Cardozo School of Law as attorneys for APTA, the complaint enumerated five theories of relief including immunity from patent infringement suits under the Eleventh Amendment for state and regional public transportation authorities¹⁴⁰ and the

<http://www.apta.com/mediacenter/Documents/APTA%20v%20ArrivalStar%20-%20Complaint%20%28STAMPED%29.pdf>.

¹³³ *Id.* at 1, 4.

¹³⁴ *Id.* at 7. Even the one case that did not settle quickly did not proceed to trial. *See id.*; Joe Mullin, *A New Target for Tech Patent Trolls: Cash-Strapped American Cities*, ARS TECHNICA (Mar. 15, 2012), <https://arstechnica.com/tech-policy/2012/03/a-new-low-for-patent-trolls-targeting-cash-strapped-cities/> (“ArrivalStar has racked up dozens of licensees, all without going anywhere near trial. Only one of its lawsuits even made it to the ‘claim construction’ phase.”).

¹³⁵ Complaint, *supra* note 149, at 7. “Patent litigation is notoriously expensive.” Gaia Bernstein, *The Rise of the End User in Patent Litigation*, 55 B.C. L. REV. 1443, 1483 (2014). Even for cases with less at stake, the cost of litigation can easily soar above \$1,000,000. *See id.*

¹³⁶ *See* Mullin, *supra* note 151 (“[An attorney for ArrivalStar] said his client typically looks for between \$50,000 and \$75,000 from the public transit systems”); Bernstein, *supra* note 152, at 1457.

¹³⁷ Badger, *supra* note 145 (quoting Vicki Arroyo, Executive Director of the Georgetown Climate Center).

¹³⁸ *Id.* The Electronic Frontier Foundation also searched for prior art, which could invalidate the patents. *Id.*

¹³⁹ *ArrivalStar Agrees to Stop Suing Public Agencies Over Use of Real-Time Travel Data*, GEORGETOWN CLIMATE CTR., <http://www.georgetownclimate.org/arrivalstar-agrees-to-stop-suing-public-transit-agencies-over-use-of-real-time-travel-data> (Aug. 26, 2013) (describing GCC’s role in identifying the problem and subsequent development of legal and policy research, convening of interested stakeholders and legal experts, and raising of the issue with federal policy makers).

¹⁴⁰ Complaint, *supra* note 149, at 9.

invalidity and unenforceability of ArrivalStar’s patents.¹⁴¹ In August 2013, APTA announced the case had been settled: ArrivalStar “‘‘agreed not to make any future patent infringement claims against any of APTA’s public transportation agency members or any vendors providing goods and services to APTA public transportation agency members.’’’¹⁴²

e. Market-Based Policies to Cut GHG Emissions from Transportation

In November 2015, six TCI member jurisdictions announced their intention to work towards a regional agreement that will use “market-based policies to achieve significant reductions in greenhouse gas emissions and other pollution from the transportation sector.”¹⁴³ New York DEC Commissioner Basil Seggos praised the announcement, saying: “Today we are taking an important step toward reaching our State Energy Plan goals to reduce carbon emissions 40% by 2030, as we work with our northeast partners to consider ways to expand clean energy markets while reducing emissions from transportation.”¹⁴⁴

A report released by the GCC accompanying this announcement finds that the Northeast and Mid-Atlantic region is on track to achieve a 29% reduction in GHG emissions from the 2011 levels for the transportation sector by 2030 (with currently existing policies).¹⁴⁵ The report goes further, however, and presents additional strategies to achieve a total reduction of 31–40%.¹⁴⁶ Substantial increases in savings, earnings, jobs, and public health improvements come along with this.¹⁴⁷ The outlined methodologies, state the authors, will promote the “80 percent reduction by 2050 from 1990 levels” goal commonly adopted by various state and regional bodies.¹⁴⁸

¹⁴¹ *Id.* at 10–11.

¹⁴² Press Release, APTA, APTA Announces Settlement with ArrivalStar: Frivolous Patent Infringement Claims Against APTA Members Will Stop (Aug. 21, 2013), http://www.apta.com/mediacenter/pressreleases/2013/Pages/130821_Patent.aspx (quoting Michael Melaniphy, APTA President and CEO).

¹⁴³ *Five Northeast States and DC Announce They Will Work Together to Develop Potential Market-Based Policies To Cut Greenhouse Gas Emissions From Transportation*, TRANSP. & CLIMATE INITIATIVE OF THE NORTHEAST & MID-ATLANTIC STATES, <http://www.transportationandclimate.org/five-northeast-states-and-dc-announce-they-will-work-together-develop-potential-market-based> (last visited Feb. 1, 2017). The six jurisdictions are: Connecticut, Delaware, the District of Columbia, New York, Rhode Island, and Vermont. *Id.* Although other TCI jurisdictions have not signed on, the joint statement approved by the six jurisdictions expressly mentioned the TCI. *Id.*

¹⁴⁴ *Id.* (quoting New York DEC Acting Commissioner Basil Seggos); *see also* N.Y. STATE ENERGY PLANNING BD., *THE ENERGY TO LEAD*, *supra* note 20, at 112 (noting a 40% reduction in GHG emissions from 1990 levels as one of the energy plan’s 2030 targets).

¹⁴⁵ *See* GABE PACYNIAC ET AL., GEORGETOWN CLIMATE CTR., *REDUCING GREENHOUSE GAS EMISSIONS FROM TRANSPORTATION: OPPORTUNITIES IN THE NORTHEAST AND MID-ATLANTIC* 2, 17 (2015), http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/GCC-Reducing_GHG_Emissions_from_Transportation-11.24.15.pdf.

¹⁴⁶ *Id.* at 2, 26, 33.

¹⁴⁷ *Id.* at 2, 33.

¹⁴⁸ *Id.* at 2.

Fracking Ban

In 2008, Governor David A. Paterson directed the DEC to conduct an environmental review of high-volume hydraulic fracturing (HVHF), also known as fracking.¹⁴⁹ During the preliminary phases of the environmental review process, Governor Paterson issued Executive Order 41 in 2010, imposing a moratorium on HVHF in the state pending the outcome of DEC's environmental review.¹⁵⁰

Following DEC's release of its draft environmental impact statement in 2012, the Department of Health (DOH) commenced a public health review in response to DEC's request that DOH review the health impacts of HVHF disclosed in the draft environmental impact statement.¹⁵¹ DOH concluded "there are significant uncertainties about the kinds of adverse health outcomes that may be associated with HVHF, the likelihood of the occurrence of adverse health outcomes, and the effectiveness of some of the mitigation measures in reducing or preventing environmental impacts which could adversely affect public health."¹⁵² Consequently, DOH recommended that "[u]ntil the science provides sufficient information to determine the level of risk to public health from HVHF and whether the risks can be adequately managed, HVHF should not proceed in New York State."¹⁵³

On June 29, 2015, DEC issued its formal findings on HVHF, finalizing the environmental review process under SEQRA, and officially prohibiting fracking throughout New York State as recommended by DOH.¹⁵⁴ DEC's findings disclose a variety of significant environmental impacts associated with fracking including: contamination of surface water, ground water, and wetlands from well injections, spills and increased storm water runoff; loss of habitat and habitat fragmentation due to the grading and clearing of the natural environment, as well as the

¹⁴⁹ See N.Y. Exec. Order No. 41 (Dec. 13, 2010), N.Y. COMP. CODES R. & REGS. tit. 9, § 7.41, <http://docs.dos.ny.gov/info/register/2011/jan12/pdfs/execorders.pdf>. HVHF is a technique for extracting natural gas from subsurface rock that generally involves drilling wells thousands of feet into bedrock and injecting a mixture of water and chemicals into the well bore, causing the underlying natural gas to rise to the surface for capture. *The Process of Hydraulic Fracturing*, EPA, <https://www.epa.gov/hydraulicfracturing/process-hydraulic-fracturing> (last visited Feb. 1, 2017).

¹⁵⁰ See N.Y. Exec. Order No. 41, *supra* note 168; N.Y. STATE DEP'T OF ENVTL. CONSERVATION, FINAL SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT ON THE OIL, GAS AND SOLUTION MINING REGULATORY PROGRAM FINDING STATEMENT, 1–2 (2015), http://www.dec.ny.gov/docs/materials_minerals_pdf/findingstatehvhf62015.pdf.

¹⁵¹ N.Y. STATE DEP'T OF HEALTH, A PUBLIC HEALTH REVIEW OF HIGH VOLUME HYDRAULIC FRACTURING FOR SHALE GAS DEVELOPMENT 1 (2014), http://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf.

¹⁵² *Id.* at 11.

¹⁵³ *Id.*

¹⁵⁴ See N.Y. STATE DEP'T OF ENVTL. CONSERVATION, *supra* note 169, at 42; Press Release, N.Y. State Dep't of Env'tl. Conservation, New York State Officially Prohibits High-Volume Hydraulic Fracturing: DEC issues Finding Statement Concluding Extensive Seven-Year Review (June 29, 2015), <http://www.dec.ny.gov/press/102337.html>.

construction of wells, access roads, structures and pipelines; increased air pollution and greenhouse gas emissions associated with the extraction process, transportation and eventual combustion of natural gas; uncertainty about whether HVHF increases the frequency or magnitude of seismic events; noise pollution and the destruction of visual resources; and changes to community character resulting from the conversion of rural or open space into HVHF facilities.¹⁵⁵ DEC justified the prohibition based on its finding that “there are no feasible or prudent alternatives that would adequately avoid or minimize adverse environmental impacts and that address the scientific uncertainties and risks to public health from [HVHF].”¹⁵⁶ According to DEC, the fracking ban is necessary in order to “avoid[] adverse environmental impacts to the maximum extent practicable” while “achiev[ing] the appropriate balance between the protection of the environment and the need to accommodate social and economic considerations.”¹⁵⁷

Updates to 2011 Report

Buildings & Energy

1. Improve New York’s Current Incentives Regarding Energy Efficiency in Buildings

a. Centralize Information Concerning Energy Efficiency Incentives

The 2009 Report observed that New York has so many tax credits and other incentives for green buildings that the complex eligibility rules are difficult to decipher.¹⁵⁸ It recommended establishing a centralized clearinghouse for this information, including a toll-free hotline or website to provide information, answer questions and assist in the application process.¹⁵⁹ The 2011 Report noted that the NYSERDA website failed to provide a section specific to residents and noted that the information about programs remained diffuse and difficult to access.¹⁶⁰

2017 Update:

NYSERDA has addressed these concerns and developed a more user friendly website.¹⁶¹ The current configuration of the website includes user-targeted sections with information pertaining

¹⁵⁵ See N.Y. STATE DEP’T OF ENVTL. CONSERVATION, *supra* note 169, at 9–29.

¹⁵⁶ *Id.* at 42.

¹⁵⁷ *Id.* at 42–43.

¹⁵⁸ 2009 Report, *supra* note 1, at 35.

¹⁵⁹ *Id.*

¹⁶⁰ 2011 Update, *supra* note 2, at 2.

¹⁶¹ See *Programs & Services*, NYSERDA, <http://www.nyserda.ny.gov/All-Programs> (last visited Feb. 1, 2017).

to “Business & Industry,” “Communities & Governments,” “Residents & Homeowners,” “Partners & Investors,” and “Cleantech & Innovation.”¹⁶²

b. Update Building Energy Codes More Swiftly & Provide Incentives for Local Code Enforcement

New York updates its State Energy Code every three years, and the DOS has reduced the review period from twelve to three months to expedite this process.¹⁶³ The 2009 Report recommended that other state agencies involved in the Energy Code review process follow DOS’s lead and streamline their own processes.¹⁶⁴ Additionally, some municipalities do not properly enforce the Energy Code.¹⁶⁵ The 2009 Report recommended that New York provide incentives for proper training and enforcement and consider including energy conservation themes in the training.¹⁶⁶ A surcharge on fire insurance policies had been collected to fund code enforcement, but these funds have since been diverted to the General Fund.¹⁶⁷

The 2011 report also noted that, in response to the American Recovery and Reinvestment Act of 2009, the State Fire Prevention and Building Code Council adopted a rule establishing the 2010 Energy Conservation Construction Code of New York State.¹⁶⁸ Additionally, the 2011 update recognized that DOS planned on conducting 1,000 training sessions, including “one-on-one training to code officials and design professionals,” but noted that there was still not “funding in place to assist municipalities in code training or enforcement.”¹⁶⁹

2017 Update:

Green building codes set a standard for all new construction and major modifications for buildings that can have a long-term effect on reducing energy use and greenhouse gas emissions in a community. Although New York updates its State Building and Energy Codes every three years, it remains a generation behind the model codes. For example, New York is using the 2010 American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) Commercial Building Energy Code and the 2009 Residential Energy Code, where in both cases, there are 2012 and 2015 Code updates available.¹⁷⁰ The New York legislature should mandate that the State Fire Prevention and Building Code Council adopt a more aggressive schedule incorporating the latest building and energy code standards.

¹⁶² *Id.*

¹⁶³ See 2009 Report, *supra* note 1, at 36.

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ 2011 Update, *supra* note 2, at 3.

¹⁶⁹ *Id.* at 3–4.

¹⁷⁰ *Status of State Energy Code Adoption*, U.S. DEP’T OF ENERGY, <https://www.energycodes.gov/status-state-energy-code-adoption> (last visited Feb. 1, 2017). According to the U.S. Department of Energy, as of April 2016, Vermont and Alabama are the only states, along with Washington D.C., that has adopted the most recent commercial and residential building energy codes. *Id.*

Absent state action, local governments may choose to reference existing standards such as LEED, Energy Star, ICC-IGCC 2012 or ASHRAE Standard 189.1 or may choose to establish its own standards, but those standards must not be inconsistent with the State Energy Conservation Construction Code.¹⁷¹ NYSERDA and DOS should provide technical assistance and incentives to municipalities that seek to incorporate greener building codes.

c. Expedite Processing for Climate-Friendly Projects

The 2009 Report recommended that New York should allow “climate-friendly” projects to “move to the front of the line” when undergoing state review and that municipalities should be authorized to do the same.¹⁷² It stated that there should be clear criteria as to what sort of projects would qualify for this treatment.¹⁷³ The 2011 report noted that this recommendation had not been implemented in any way.¹⁷⁴

2017 Update:

Unfortunately, the State does not appear to be implementing this recommendation in its projects. However, the development of Regional Sustainability Plans through NYSERDA’s Cleaner, Greener Communities Program,¹⁷⁵ and the evolution of DEC’s Climate Smart Communities program¹⁷⁶ are important steps forward. Notably, the Climate Smart Communities program evolved from a simple pledge to providing municipalities with resources to reduce greenhouse gas emissions and adapt to climate change.¹⁷⁷ Additional appropriations must be made to assist municipalities with planning and funding the implementation of climate friendly projects.

d. Prioritizing Energy Efficiency Incentives for Affordable Housing

The 2009 Report recommended that New York should prioritize energy efficiency incentives for those buildings that provide affordable housing.¹⁷⁸ The 2011 Report noted that NYSERDA has a webpage regarding the New York Energy Smart Multifamily Performance Program, in which implementation of an energy efficiency program in existing buildings and adherence to specific targets can make a building owner eligible for incentives.¹⁷⁹ Additionally, new building projects that consist of five or more residential buildings that will house low-income individuals may be eligible for the “Green Affordable Housing Component,” which provides “technical assistance to

¹⁷¹ See N.Y. ENERGY Law § 11-109(1).

¹⁷² See 2009 Report, *supra* note 1, at 37.

¹⁷³ *Id.*

¹⁷⁴ 2011 Update, *supra* note 2, at 4.

¹⁷⁵ *RFP 2391 Cleaner, Greener Communities Regional Sustainability Planning Program*, NYSERDA, <https://www.nyserda.ny.gov/Funding-Opportunities/Closed-Funding-Opportunities/RFP-2391-Cleaner-Greener-Communities-Regional-Sustainability-Planning-Program.aspx> (last visited Feb. 1, 2017).

¹⁷⁶ See *Community Action on Climate Change*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/76483.html> (last visited Feb. 1, 2017).

¹⁷⁷ See *id.*

¹⁷⁸ See 2009 Report, *supra* note 1, at 37.

¹⁷⁹ 2011 Update, *supra* note 2, at 5.

improve the energy efficiency, health, safety, and security of these projects as they are planned, designed, and constructed.”¹⁸⁰ In addition to the regular incentives for new buildings, building projects in this program are eligible for further incentives “for the installation of green building features, and will be required to gain LEED Certification at the Silver level.”¹⁸¹

2017 Update:

Affordable housing continues to be a problem in New York City and the surrounding counties while high energy costs are problematic throughout the State. In addition to expanding existing programs, the State should link NYSEERDA with the other affordable housing programs administered by NYS Homes and Community Renewal and by municipal and nonprofit program partners throughout the State.

An important role could be played by the Energy Improvement Corporation (EIC), which is a not-for-profit local development corporation established specifically to increase the demand for energy efficiency and renewable energy building upgrades.¹⁸² With a growing base of member municipalities, EIC offers the Energize NY Finance Program, which is New York State’s Property Assessed Clean Energy (PACE) finance program.¹⁸³ PACE financing is made available to eligible property owners to provide financing for property improvements that lower energy consumption.¹⁸⁴ In addition, EIC offers the Energize NY Commercial and Residential Programs to assist property owners through the energy upgrade process.¹⁸⁵

2. Enhance New York’s Renewable Portfolio Standard

The State of New York has had some form of Renewable Portfolio Standard (RPS), generally defined as a policy seeking to increase the proportion of renewable electricity used by retail customers, since 2004.¹⁸⁶ RPS targets are organized into two tiers: (1) the “Main Tier,” which includes large-scale generators that sell power to the wholesale grid or in some cases generate electricity for on-site use; and (2) the “Customer-Sited Tier” (CST), which involves incentives, solicitations, and other support mechanisms for small-scale generators of wind or solar in the

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² *Energy Improvement Corporation*, ENERGIZE NY, <http://energizeny.org/eic> (last visited Feb. 1, 2017).

¹⁸³ *Energize NY Finance*, ENERGIZE NY, <http://commercial.energizeny.org/energize-ny-finance> (last visited July 26, 2016).

¹⁸⁴ *See id.*

¹⁸⁵ *Energy Improvement Corporation*, ENERGIZE NY, *supra* note 201.

¹⁸⁶ *See Order Regarding Retail Renewable Portfolio Standard, Retail Renewable Energy Portfolio Standard*, Case 03-E-0188 (N.Y. Pub. Serv. Comm’n Sept. 24, 2004). For a timeline of major events in the RPS proceeding, see *03-E-0188: Renewable Portfolio Standard*, N.Y. STATE DEP’T OF PUB. SERV., <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/1008ED2F934294AE85257687006F38BD?OpenDocument> (last visited Feb. 1, 2017).

residential, commercial, or government context.¹⁸⁷ In implementing the RPS, the PSC has solicited large-scale renewable projects via a central procurement model, while offering CST incentives based upon competitive applications following a program opportunity notice.¹⁸⁸

The 2009 Report recommended that New York raise its RPS to at least 30% by 2015.¹⁸⁹ As stated in the 2011 Update, the PSC acted upon this recommendation in an order issued in January 2010, establishing a new RPS goal of 30% by 2015.¹⁹⁰ Addressing concerns regarding geographic imbalances in distribution of RPS funding and project siting, the PSC also authorized a budget of up to thirty million dollars annually through 2015 for Main Tier projects located downstate, including solar, anaerobic digesters, and fuel cells.¹⁹¹

2017 Update:

The RPS Main Tier and CST programs were authorized to operate through December 31, 2015, to support the State's goal of 30% renewable energy by 2015.¹⁹² "Through eleven solicitations, the Main Tier has 81 active projects under contract totaling 2,421 [megawatts (MW)] of new renewable capacity," or enough to "supply [clean power to] over 825,000 average-sized homes per year."¹⁹³ However, by 2013, renewable-sourced electricity accounted for less than half of the 2015 goal.¹⁹⁴ And in 2017, only an estimated 23% of the State's electricity comes from renewable sources. The largest contributor remains traditional hydroelectric while wind,

¹⁸⁷ See 03-E-0188: *Renewable Portfolio Standard*, N.Y. STATE DEP'T OF PUB. SERV., *supra* note 205. NYSERDA acknowledges a third tier, "other market activities," which includes individuals and businesses that choose to support renewable energy. See *New York Renewable Portfolio Standard*, NYSERDA, <http://www.nysERDA.ny.gov/About/Renewable-Portfolio-Standard> (last visited Feb. 1, 2017); see also NYSERDA, *NEW YORK STATE RENEWABLE PORTFOLIO STANDARD ANNUAL PERFORMANCE REPORT THROUGH DECEMBER 31, 2015* 5 (2016) (discussing a "voluntary market" for renewable energy).

¹⁸⁸ See 03-E-0188: *Renewable Portfolio Standard*, N.Y. STATE DEP'T OF PUB. SERV., *supra* note 205.

¹⁸⁹ 2009 Report, *supra* note 1, at 38.

¹⁹⁰ Order Establishing New RPS Goal and Resolving Main Tier Issues at 10, Retail Renewable Portfolio Standard, Case 03-E-0188 (N.Y. Pub. Serv. Comm'n Jan. 8, 2010); 2011 Update, *supra* note 2, at 5.

¹⁹¹ Order Establishing New RPS Goal and Resolving Main Tier Issues, *supra* note 209, at 16–17; see also Order Authorizing Customer-Sited Tier Program Through 2015 and Resolving Geographic Balance and Other Issues Pertaining to the RPS Program, Renewable Portfolio Standard, Case 03-E-0188 (N.Y. Pub. Serv. Comm'n Apr. 2, 2010).

¹⁹² See Order Establishing New RPS Goal and Resolving Main Tier Issues, *supra* note 209, at 14.

¹⁹³ *Renewable Portfolio Standard*, NYSERDA, <https://www.nysERDA.ny.gov/All-Programs/Programs/Clean-Energy-Standard/Renewable-Portfolio-Standard> (last visited Feb. 1, 2017).

¹⁹⁴ See Order Commencing Proceeding at 2 n.3, Clean Energy Fund, Case 14-M-0094 (N.Y. Pub. Serv. Comm'n May 8, 2014).

biomass, and solar account for a smaller proportion.¹⁹⁵ The current status of the RPS is tied to a number of new proceedings that the Department of Public Service (DPS) and other governing bodies have undertaken in recent years.

For instance, in June 2015, the New York State Energy Planning Board replaced the 2009 State Energy Plan with a new State Energy Plan that would complement and implement Reforming Energy Vision.¹⁹⁶ The 2015 State Energy Plan includes three overarching clean energy goals for the year 2030: (1) a renewable-energy goal to achieve 50% energy generation from renewable energy sources; (2) a carbon-reduction goal of 40% reduction in GHG emissions from 1990 levels; and (3) an efficiency goal of 600 trillion British thermal units (Btu) increase in statewide energy efficiency.¹⁹⁷ These are some of the nation's most ambitious clean energy targets for 2030.¹⁹⁸

Subsequently, in November 2015, Governor Cuomo directed the DPS to commence proceedings to establish a Clean Energy Standard (CES) to implement the goal of 50% renewable energy generation by 2030, supplanting the RPS.¹⁹⁹ Referencing the international climate negotiations in Paris, the Governor noted that the CES was important to set the right example and to cost effectively and efficiently achieve the State's environmental emissions objectives.²⁰⁰ In January 2016, the PSC issued an order expanding the scope of its Large-Scale Renewables proceeding, a separate track within REV, to consider a CES.²⁰¹

¹⁹⁵ *How New York Uses Renewable Energy*, N.Y. STATE DEP'T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/83070.html> (last visited Feb. 1, 2017).

¹⁹⁶ *See generally* N.Y. STATE ENERGY PLANNING BD., *THE ENERGY TO LEAD*, *supra* note 20. The PSC is required to take steps to render decisions and policies that are reasonably consistent with the State Energy Plan. N.Y. ENERGY LAW § 6-104(5)(b) (McKinney 2015).

¹⁹⁷ *Id.* at 112.

¹⁹⁸ *See* Press Release, Office of the Governor, *supra* note 5.

¹⁹⁹ Letter from Gov. Andrew M. Cuomo to the Aubrey Zibelman, CEO, N.Y. State Dep't of Pub. Serv. (Dec. 2, 2015), https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/Renewable_Energy_Letter.pdf.

²⁰⁰ *Id.* In his letter, Governor Cuomo also noted that "elimination of upstate nuclear facilities, operating under valid federal licenses would eviscerate the emissions reduction achieved through the State's renewable energy programs," and he indicated that continued support for these sources of electricity should remain distinct from the renewable energy goal. *Id.* The DPS has accordingly expanded the scope of its CES proceedings to include maintenance of non-emitting nuclear generation. Order Expanding Scope of Proceeding and Seeking Comments at 5–7, Implementation of a Large-Scale Renewable Program, Case 15-E-0302 (N.Y. Pub. Serv. Comm'n Jan. 21 2016).

²⁰¹ Order Expanding Scope of Proceeding and Seeking Comments, *supra* note 219, at 5–6. As directed by the Commission, DPS issued a Staff White Paper in January 2016 discussing the policy objectives of the CES, compliance mechanisms, and the role of tiers in implementation. *See* N.Y. STATE DEP'T OF PUB. SERV., *STAFF WHITE PAPER ON CLEAN ENERGY STANDARD 2–4* (2016).

On August 1, 2016, the PSC adopted the CES.²⁰² Under the CES, New York is expected to procure 9,347,020 MWh of electricity from large-scale renewable sources by 2021.²⁰³ Additionally, the PSC acknowledged the vast potential for offshore wind energy in New York and requested that NYSERDA determine the appropriate ways to fully take advantage of offshore wind's potential.²⁰⁴ Recognizing that abruptly shuttering nuclear facilities in upstate New York would risk drastically increasing the reliance on nonrenewable fossil fuels like natural gas, the PSD opted to subsidize upstate nuclear facilities as a bridge over the next twelve years while more renewable sources are fully implemented and integrated.²⁰⁵

Also relevant to the progress of the new CES is the recent creation of a Clean Energy Fund (CEF).²⁰⁶ In January 2016, the PSC approved the CEF, based upon a formal proposal from NYSERDA, for \$5.322 billion over ten years.²⁰⁷ Consistent with the new direction of New York's energy system in the context of REV, the CEF envisions a more market-focused system, subject to a transparent upper limit on ratepayer collections.²⁰⁸ NYSERDA submitted an Investment Plan for the Market Development and Innovation & Research portfolios of the CEF on February 22, 2016.²⁰⁹ The Investment Plan thus far indicates that the CEF will be used to leverage new investments under the CES and provide essential continued funding for Customer-

²⁰² Order Adopting a Clean Energy Standard 154, Large-Scale Renewable Program and a Clean Energy Standard, Case 15-E-0302 (N.Y. Pub. Serv. Comm'n Aug. 1, 2016).

²⁰³ *Id.* at 16.

²⁰⁴ *Id.* at 17. As noted above, a 90 megawatt wind array to be located 30 miles from the Montauk shoreline was approved by the Long Island Power Authority board on January 25, 2017.

²⁰⁵ *Id.* at 19–20. Governor Cuomo has announced that the Indian Nuclear Power Plant in Buchanan, NY, will be closed by 2021.

²⁰⁶ Order Authorizing the Clean Energy Fund Framework, Clean Energy Fund, Case 14-M-0094 (N.Y. Pub. Serv. Comm'n Jan. 21, 2016); Order Instituting Proceeding, Clean Energy Fund, Case 14-M-0094 (N.Y. Pub. Serv. Comm'n May 8, 2014); *see also* Press Release, Office of the Governor, Governor Cuomo Launches \$5 Billion Clean Energy Fund to Grow New York's Clean Energy Economy, NYSERDA (Jan. 21, 2016), <https://www.governor.ny.gov/news/governor-cuomo-launches-5-billion-clean-energy-fund-grow-new-york-s-clean-energy-economy>.

²⁰⁷ Order Authorizing the Clean Energy Fund Framework, *supra* note 225, at 106. The CEF has four main components: A Market Development portfolio, budgeted for \$3.43 billion, will facilitate on-site clean energy technologies and dedicate a portion of the fund to low-to-moderate income initiatives. *See id.* at 20, 106, 108 & app. E. The Innovation and Research division will support environmental and business research with a focus on smart grids, distributed generation, and transportation. *See id.* at 20, 106. NY-Sun is a comprehensive effort to promote sustainable and subsidy-free solar electric industry in the State. *See id.* at 20, 106. Lastly, the NY Green Bank is a state-sponsored finance entity providing support to overcome market barriers and leverage private sector investment. *See id.* at 20, 106.

²⁰⁸ *See id.* at 1–4, 15–18; Order Instituting Proceeding, *supra* note 225, at 5–6.

²⁰⁹ *See* NYSERDA, Clean Energy Fund Investment Plan: Resource Acquisition Transition Chapter, Clean Energy Fund, Case 14-M-0094 (rev. Feb. 22, 2016); *see also* NYSERDA, Clean Energy Fund Investment Plan: Budget Accounting and Benefits Chapter, Clean Energy Fund, Case 14-M-0094 (rev. Feb. 22, 2016).

Sited Tier programs (including for solar, small wind, anaerobic digesters, and fuel cells) and energy efficiency programs to help transition these programs into the new regulatory and market framework developed by the REV proceeding.²¹⁰ DPS staff approved the Investment Plan on May 23, 2016.²¹¹

3. Authorize the Public Service Commission to Require Time-of-Use Pricing

The 2009 Report urged New York to pass a bill to reauthorize PSC to require time-of-use pricing.²¹² “Time-of-use pricing is a method by which the price of electricity charged consumers varies with the time of day, which allows the price to more closely track the actual cost of producing electricity in each hour.”²¹³ This permits consumers to make energy efficient and cost-effective choices by “shifting their usage from peak periods when prices are highest to non-peak periods when prices are lower.”²¹⁴ While large utilities must offer time-of-use pricing, the 2009 Report noted the PSC previously had the power to mandate time-of-use pricing actually be used if in the public interest.²¹⁵ However, the provision was deleted in 1997.²¹⁶ The 2011 Update noted that while no such bill had passed, numerous studies and reports in the interim had explored the value of time-of-pricing.²¹⁷

2017 Update:

Unfortunately, the State Legislature has still not reauthorized the PSC to require time-of-use pricing.²¹⁸ However, the PSC has taken steps to encourage opt-in time-of-use pricing.²¹⁹ The PSC’s action remains tentative and preliminary; however, PSC directed staff to study the efficacy of time-of-use pricing further as well as incentives to increase the rate at which customers opt in to time-of-use pricing.²²⁰ Additionally, the PSC ordered each utility to propose

²¹⁰ See NYSERDA, Clean Energy Fund Investment Plan: Resource Acquisition Transition Chapter, *supra* note 228, at 70–85.

²¹¹ Letter from Christina Palmero, Dir., Office of Clean Energy, N.Y. State Dep’t of Pub. Serv. to Valerie S. Milonovich, Senior Counsel, NYSERDA (May 23, 2016).

²¹² 2009 Report, *supra* note 1, at 39.

²¹³ *Id.*

²¹⁴ *Id.*

²¹⁵ *Id.* The provision read in pertinent part: “Nothing in this section [permitting large utilities to offer time-of-use pricing] shall prohibit the commission from mandating such time of use rates where it deems such rates to be in the public interest.” N.Y. PUB. SERV. LAW § 66(27)(a) (McKinney 1995).

²¹⁶ 2009 Report, *supra* note 1, at 39; *see* 1997 N.Y. Laws ch. 307 (striking “Nothing in this section shall prohibit the commission from mandating such time of use rates where it deems such rates to be in the public interest” from N.Y. PUB. SERV. LAW § 66(27)(a)).

²¹⁷ 2011 Update, *supra* note 2, at 6–7.

²¹⁸ See N.Y. PUB. SERV. LAW § 66(27) (McKinney 2015).

²¹⁹ See Order Adopting a Ratemaking and Utility Revenue Model Policy Framework at 156–57, Reforming the Energy Vision, Case 14-M-0101 (N.Y. Pub. Serv. Comm’n May 19, 2016).

²²⁰ See *id.* at App. A, pg. 5.

revisions to its voluntary time-of-use pricing for mass market customers with next rate filing.²²¹ Finally, the PSC acknowledged other options that may increase customer opt-in rates for time-of-use pricing, such as “shadow billing,” which would show the customer what they would have paid under a time-of-use billing structure.²²²

In the absence of the power to require time-of-use pricing (and the actual requirement that New York’s utilities employ time-of-use pricing), these reforms can go a long way to bringing New York closer to the national average for customer opt-in rates for time-of-use pricing: New York has a particularly low rate of customers who opt in to time-of-use pricing: “While nationwide averages of opt-in [time-of-use] enrollment rates are approximately 25%, adoption rates for New York utilities range between 0.1% and 1.9%.”²²³ Consonant with REV’s revolutionary approach, the *Order Adopting a Ratemaking and Utility Revenue Model Policy Framework* is a broad change in the incentive structure for utilities, from one that incented a traditional centralized system to one that encourages distributed generation, evolving technological and environmental factors, and aligning utility profits with customer-oriented objectives.²²⁴

4. Provide Incentives for the Installation of Smart Meters

The 2009 Report recommended that New York should provide financial incentives for power companies to install smart meters, particularly if their cost-effectiveness remained in doubt.²²⁵ A smart meter is “any time-based meter and related communication equipment that measures and records electricity usage data on a time-differentiated basis in at least [twenty-four] separate time segments per day.”²²⁶ Smart meters permit information exchange between the power provider and the consumer’s meter; consequently, smart meters are integral to the full implementation of time-of-use pricing, described above.²²⁷ As of 2009, all customers were allowed to install smart meters, but only the largest commercial and industrial electric customers were required to.²²⁸

²²¹ *Id.* at 155–56.

²²² *Id.* at 134.

²²³ *Id.* at 133 (citing PETER CAPPERS ET AL., LAWRENCE BERKLEY NATIONAL LABORATORY, AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009: INTERIM REPORT ON CUSTOMER ACCEPTANCE, RETENTION, AND RESPONSE TO TIME-BASED RATES FROM THE CONSUMER BEHAVIOR STUDIES, LBNL-183209 (2015), https://emp.lbl.gov/sites/all/files/lbnl-183029_0.pdf, and Ahmad Faruqui et al., *Smart by Default*, PUB. UTILS. FORTNIGHTLY, Aug. 2014, <http://www.fortnightly.com/fortnightly/2014/08/smart-default>).

²²⁴ *Id.* at 11; see also N.Y. STATE DEP’T OF PUB. SERV., STAFF WHITE PAPER ON RATEMAKING AND UTILITY BUSINESS MODELS 27 (2015).

²²⁵ 2009 Report, *supra* note 1, at 40.

²²⁶ *Id.* As the 2009 Report points out, “smart meter” is defined in the Internal Revenue Code. See 26 U.S.C. § 168(i)(18) (2012).

²²⁷ See 2009 Report, *supra* note 1, at 39, 40 (“Customers must have ‘advanced’ or smart meters to take advantage of time-of-use pricing.”).

²²⁸ *Id.* at 40.

The 2011 Update noted that, like time-of-use pricing, a number of interim reports had acknowledged smart meters, but that no concrete progress had been made.²²⁹

2017 Update:

As noted in the 2011 Update, there remains a dearth of financial incentives particularized to the installation of smart meters. However, the PSC recently approved Consolidated Edison (ConEd)'s business plan for an advanced metering infrastructure.²³⁰ As a part of the business plan, ConEd plans to install more than 3.5 million electric smart meters and 1.2 million gas smart meters by the end of 2022.²³¹ The project will cost \$1.285 billion,²³² but the business plan, and the PSC's approval of it, show that the installation of smart meters can be profitable and economically beneficial to consumers even in the absence of formal financial incentives for their installation: over a twenty-year period, ConEd estimates a net benefit of its smart meters of more than a billion dollars.²³³ Additionally, the PSC is optimistic about the program: "If implemented successfully, [advanced metering infrastructure] will have a positive impact not only on customer costs, but will also provide substantial benefits to the environment by minimizing GHG emissions from fossil fuels and the potential need for new central station generators that consume fossil fuels."²³⁴

5. Require Electric Sub-Metering in All Buildings

The 2009 Report urged the State Legislature to amend the Public Service Law to require sub-metering in all multi-unit buildings.²³⁵ The value of mandatory sub-metering is straightforward: it "will encourage consumers to use electricity wisely by providing them appropriate price signals to minimize their consumption."²³⁶ The 2011 Update noted the State Legislature had not

²²⁹ 2011 Update, *supra* note 2, at 8.

²³⁰ Order Approving Advanced Metering Infrastructure Business Plan Subject to Conditions, Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service, Case 15-E-0050 (N.Y. Pub. Serv. Comm'n Mar. 17, 2016).

²³¹ *Id.* at 6; *see also* Katherine Tweed, *New York Prepares for Millions of Smart Meters Under REV*, GREENTECH MEDIA, Oct. 29, 2015, <http://www.greentechmedia.com/articles/read/new-york-prepares-for-millions-of-smart-meters-under-rev>.

²³² Order Approving Advanced Metering Infrastructure Business Plan Subject to Conditions, *supra* note 249, at 4.

²³³ *Id.* at 5.

²³⁴ *Id.* at 20.

²³⁵ 2009 Report, *supra* note 1, at 41. Since 1977, sub-metering has been required in all newly constructed multi-unit buildings. *Id.* As the 2009 Report point out, this requirement is less effective in some municipalities like New York City where many of the buildings were constructed prior to 1977. *Id.*

²³⁶ *Id.* Two New York City case studies that focused on multifamily buildings demonstrate the positive effects upgrading to electricity sub-metering can have on building owners and tenants. *See* NYSEDA, CASE STUDY – TOWER EAST, <http://www.nyseda.ny.gov/-/media/Files/Publications/Case-Studies/Submetering-Multifamily-Buildings/towereast-cs.pdf> (noting sub-metering "can reduce building-wide energy consumption by up to 20%");

acted on the 2009 recommendation.²³⁷ Additionally, the 2011 Update recommended a regional and national survey of sub-metering to determine what techniques would be most efficient to enforce in New York.²³⁸

2017 Update:

The State Legislature still has not amended the Public Service Law to require electric sub-metering in all buildings. However, New York City's Local Law 88, part of Mayor Bloomberg's Greener, Greater, Buildings Plan, generally speaking now requires sub-metering for buildings that are 50,000 square feet or greater.²³⁹ In buildings covered by Local Law 88, certain tenant spaces must be equipped with sub-meters beginning on January 1, 2025.²⁴⁰ The State should take note of New York City's plan and implement key initiatives to further encourage energy efficiency and conservation methods.

Although New York State does not require electric sub-metering in all buildings, NYSERDA has previously offered financial incentives that pay for up to 50% of the cost of sub-meters, up to \$250 per unit.²⁴¹ As of 2016, NYSERDA provided some incentives for sub-meters in multifamily buildings, but not at the previous level.²⁴²

NYSERDA, CASE STUDY – PARK CITY ESTATES, <http://www.nyserda.ny.gov/-/media/Files/Publications/Case-Studies/Submetering-Multifamily-Buildings/parkcity-cs.pdf> (“Following the submetering conversion and other energy-saving initiatives, the building cut maintenance costs by 15%.”).

²³⁷ 2011 Update, *supra* note 2, at 8.

²³⁸ *Id.*

²³⁹ 2009 N.Y.C. Local Law 88, http://www1.nyc.gov/assets/buildings/local_laws/ll88of2009.pdf; *see also* MAYOR'S OFFICE OF SUSTAINABILITY, *Greener, Greater Buildings Program*, NYC.GOV, <http://www.nyc.gov/html/gbee/html/plan/plan.shtml> (last visited Feb. 1, 2017). Local Law 88 also requires sub-metering for “two or more buildings on the same tax lot that together exceed 100,000 gross square feet.” 2009 N.Y.C. Local Law 88.

²⁴⁰ A “covered tenant space” is a space “larger than 10,000 gross square feet (929 m²) on one or more floors of a covered building let or sublet to the same person” or one “floor of a covered building larger than 10,000 gross square feet (929 m²) consisting of tenant spaces let or sublet to two or more different persons.” 2009 N.Y.C. Local Law 88. “If the covered tenant space is a floor with multiple tenancies, each tenancy that is 10,000 gross square feet (929 m²) or less shall (i) have a separate sub-meter, (ii) share a sub-meter with other tenant spaces on the floor, or (iii) share a sub-meter covering the entire floor.” *Id.*

²⁴¹ *See* NYSERDA, ADVANCED SUBMETERING PROGRAM APPLICATION (2014).

²⁴² Conference call held on Sept. 20, 2016 with Mr. Dean Zias, Project Manager with NYSERDA; *see also* *Comprehensive Option for Multifamily Affordable Buildings*, NYSERDA, <https://www.nyserda.ny.gov/All-Programs/Programs/MPP-Existing-Buildings/Comprehensive-Option> (last visited Feb. 1, 2017).

6. Amend the Energy Code to Cover More Building Renovations

The 2009 Report lamented that many building renovations did not need to comply with the Energy Code because the Code limited its coverage to “substantial” renovations—ones that involved the replacement of more than 50% of a “building subsystem.”²⁴³ The 2011 Update observed that the State Fire Prevention and Building Code Council established the Energy Conservation Construction Code of New York State (ECCCNYS) in 2010, replacing the old code and rejecting the prior 50% rule.²⁴⁴ In addition, the 2011 Update explained that the latest initiatives by New York will assist in producing compliant buildings, and enforcement of the ECCCNYS.²⁴⁵ The 2011 Update noted the 2010 ECCCNYS established minimum requirements for energy-efficient buildings using prescriptive and performance-related provisions.²⁴⁶

2017 Update:

In November 2014 the New York State Fire Prevention and Building Code Council voted to adopt an update to the commercial provision of the ECCCNYS.²⁴⁷ The 2014 ECCCNYS makes it possible to use “new materials and innovative techniques that conserve energy.”²⁴⁸ The 2014 ECCCNYS took effect on January 1, 2015.²⁴⁹ In March 2016, the New York State Fire Prevention and Building Code Council adopted an update to both the commercial provisions and the residential provisions of the ECCCNYS.²⁵⁰ The 2016 amendment addresses “the design and construction of energy-efficient building envelopes and the installation of energy-efficient mechanical, lighting and power systems through requirements emphasizing performance.”²⁵¹ The 2016 amendment became effective on October 3, 2016.²⁵²

²⁴³ 2009 Report, *supra* note 1, at 41 (citing Energy Conservation Construction Code Act § 11-103(b)).

²⁴⁴ 2011 Update, *supra* note 2, at 9.

²⁴⁵ *Id.* at 10.

²⁴⁶ *Id.*

²⁴⁷ N.Y. STATE DEP’T OF STATE, 2014 SUPPLEMENT TO THE NEW YORK STATE ENERGY CONSERVATION CONSTRUCTION CODE (2014), https://www.dos.ny.gov/dcea/pdf/2014EnergySUPP_041114.pdf.

²⁴⁸ DIV. OF CODE ENF’T & ADMIN., *Energy Conservation Construction Code of New York State*, N.Y. STATE DEP’T OF STATE, https://www.dos.ny.gov/dcea/energycode_code.html (last visited Feb. 1, 2017).

²⁴⁹ *Id.*

²⁵⁰ N.Y. STATE DEP’T OF STATE, 2016 UNIFORM CODE SUPPLEMENT (2016), http://www.dos.ny.gov/dcea/pdf/2016%20DOS_UniformCodeSupplement_03212016.pdf.

²⁵¹ DIV. OF CODE ENF’T & ADMIN., *Energy Conservation Construction Code of New York State*, N.Y. STATE DEP’T OF STATE, *supra* note 267.

²⁵² *Id.*

7. Require Schools to Meet Green Building Standards

The 2009 Report compared and contrasted the approach of the New York State Education Department (NYSED) with New York City.²⁵³ The 2009 Report explained NYSED had not adopted a comprehensive state-wide standard of green building for schools but instead had a voluntary system called NY-CHPS (New York-Collaborative for High Performance Schools) Guidelines.²⁵⁴ In contrast, New York City had adopted a 2005 law, Local Law 86, which requires specific green building standards, including for schools.²⁵⁵ Ultimately, the 2009 Report recommended New York’s adoption of mandatory green standards for new and substantially renovated schools based on NY-CHPS guidelines or on New York City’s model. The 2011 Update noted New York still lacked a statewide school green building standard (it operated with a voluntary system).²⁵⁶

2017 Update:

NYSED still has not adopted a comprehensive statewide green building standard. Not only can New York City’s Local Law 86 serve as a model, the Center for Green Schools offers a guide on how state legislators can require green school construction.²⁵⁷ The guide cites Maryland, Illinois, and Rhode Island as examples of states with green school legislation.²⁵⁸ Generally speaking, the laws the report cites require newly constructed or renovated buildings to obtain some form of LEED certification.²⁵⁹ New York can follow these states and enact legislation requiring new school construction and major renovation projects be built to trusted national green rating system guidelines. By using a third-party rating system, such as LEED, New York can efficiently ensure green benchmarks have been achieved. Moreover, doing so will demonstrate a commitment to providing healthy and safe schools, while exhibiting fiscal responsibility and promoting green jobs.

8. Adopt Conservation Requirements for Water and Wastewater Treatment Plants

The 2009 Report urged New York to “adopt minimum energy conservation requirements for water and wastewater treatment plants” and to adopt “more aggressive energy conservation

²⁵³ 2009 Report, *supra* note 1, at 42–43.

²⁵⁴ *Id.*

²⁵⁵ *Id.* at 43; *see* 2005 N.Y.C. Local Law 86,

http://www1.nyc.gov/assets/buildings/local_laws/ll_86of2005.pdf.

²⁵⁶ 2011 Update, *supra* note 2, at 10.

²⁵⁷ *See* THE CTR. FOR GREEN SCHOOLS, GREENING OUR SCHOOLS: A STATE LEGISLATOR’S GUIDE TO BEST POLICY PRACTICES (2010),

http://www.centerforgreenschools.org/sites/default/files/resource-files/GreeningOurSchools_PRINT.pdf.

²⁵⁸ *Id.* at 15.

²⁵⁹ *See id.*

requirements when these plants are funded through the Environmental Facilities Corporation (EFC).”²⁶⁰

By 2011, the recommendation made in the 2009 Report had not been implemented.²⁶¹ This result led to a shift in focus to New York State’s current conservation wastewater programs, including programs financed under the Commercial, Industrial, Municipal, and Institutional (CIMI) Program and programs financed through the Clean Water Act State Revolving Fund (SRF).²⁶² Additionally, the New York Power Authority (NYPA) announced in 2009 a campaign to reduce energy demand from water and wastewater treatment facilities by 20% by 2015 by promoting on-site solar electric systems, biogas recovery to supply on-site systems and energy efficiency measures.²⁶³

2017 Update:

Since 2011, many of those programs still exist, though New York State has yet to require minimum energy requirements for wastewater treatment plants, including the SRF, which provides loans for new energy efficient or energy renewable projects;²⁶⁴ NYSERDA’s FlexTech, which provides technical assistance and customized energy evaluations;²⁶⁵ and the NYPA’s energy efficiency and renewable energy programs, which help upgrade publicly owned buildings throughout the state with energy-efficient materials.²⁶⁶

On December 28, 2012, Governor Cuomo issued an Executive Order directing state agencies to increase energy efficiency in state buildings by 20% by April 1, 2020.²⁶⁷ Guidelines, published in September 2013, provided clarification to the scope of the Executive Order.²⁶⁸ However, the guidelines do not clarify whether waste facilities funded through the EFC, fall under the

²⁶⁰ 2009 Report, *supra* note 1, at 44.

²⁶¹ See 2011 Update, *supra* note 2, at 11.

²⁶² See *id.*

²⁶³ *Id.*

²⁶⁴ *Clean Water State Revolving Fund*, EPA, <http://www.epa.gov/cwsrf> (last visited Feb. 1, 2017).

²⁶⁵ *Funding and Technical Assistance Program*, NYSERDA, <http://www.nyserdera.ny.gov/All-Programs/Programs/FlexTech-Program> (last visited Feb. 1, 2017).

²⁶⁶ *Energy Services for Water and Wastewater Facilities*, N.Y. POWER AUTH., <https://www.nypa.gov/services/ESforWaterandWastewaterFacilities.htm> (last visited Feb. 1, 2017).

²⁶⁷ See N.Y. Exec. Order No. 88, (Dec. 28, 2012), N.Y. COMP. CODES R. & REGS. tit. 9, § 8.88, <http://www.governor.ny.gov/news/no-88-directing-state-agencies-and-authorities-improve-energy-efficiency-state-buildings>. Executive Order 88 is the keystone of a larger initiative, BuildSmart NY, to accelerate energy efficiency in State buildings, while incorporating broader State policy goals to foster cost-effective investment, stimulate the clean energy marketplace, advance energy security and resiliency and protect the environment and public health.

²⁶⁸ N.Y. POWER AUTH., EXECUTIVE ORDER 88 GUIDELINES: NEW YORK STATE GOVERNMENT BUILDINGS (2013), <https://www.nypa.gov/BuildSmartNY/Guidelines.pdf>.

Order.²⁶⁹ New York should expand on the Executive Order 88 to include wastewater facilities funded through EFC.

Finally, the legislature passed the Water Infrastructure Improvement Act (WIIA) on March 31, 2015 as part of the 2015–2016 budget.²⁷⁰ The WIIA provides the EFC \$200 million over three years to fund “water quality infrastructure projects.”²⁷¹ “Water quality infrastructure projects” are “sewage treatment works” as defined under the ECL or an “eligible project” under section 1160(4)(a), (b), (c), and (e) of the Public Health Law.²⁷² Funds are available only for the repair or replacement infrastructure or else projects to “compl[y] with environmental and public health laws and regulations related to water quality.”²⁷³ While the WIIA does not provide funding specifically for conserving energy usage, repairs and replacements of infrastructure at wastewater treatment plants could certainly yield energy conservation benefits. The WIIA is popular: the State Legislature expanded the funding for the WIIA in the 2016–2017 budget by \$200 million. The EFC should make funding projects that improve the energy conservation of wastewater treatment facilities a priority.

9. Reinstatement Energy Planning Requirements in Article Six of the Energy Law

The 2009 Report called for the State Legislature to “amend Article 6 of the State Energy Law to reinstate the State Energy Planning Board.”²⁷⁴ The 2011 Update recognized that, as recommended, the State Legislature did reinstate the State Energy Planning Board in 2009.²⁷⁵ Primarily, the State Energy Planning Board was charged with crafting a comprehensive State Energy Plan by 2013.²⁷⁶

2017 Update:

The State Energy Planning Board recently released its 2015 New York State Energy Plan.²⁷⁷ The State Energy Plan advocates coordination with other State agencies that deal with energy policy to help the REV.²⁷⁸ These partnerships, along with “private sector innovation and

²⁶⁹ See *id.* app. A.

²⁷⁰ See 2015 N.Y. Laws ch. 60, pt. G, §§ 1–4.

²⁷¹ Press Release, Riverkeeper, Budget Agreement: \$200 million in Drinking Water and Sewer Infrastructure Grants (Mar. 31, 2015), <http://www.riverkeeper.org/news-events/news/water-quality/budget-agreement-200-million-in-drinking-water-and-sewer-infrastructure-grants/>.

²⁷² 2015 N.Y. Laws ch. 60, pt. G, § 2(1) (“For purposes of this act . . . “water quality infrastructure project” shall mean “sewage treatment works” as defined in section 17–1903 of the environmental conservation law or “eligible project” as defined in paragraphs (a), (b), (c) and (e) of subdivision 4 of section 1160 of the public health law.”).

²⁷³ *Id.* § (3)(1).

²⁷⁴ 2009 Report, *supra* note 1, at 44.

²⁷⁵ 2011 Update, *supra* note 2, at 12.

²⁷⁶ *Id.*; see also N.Y. ENERGY LAW § 6-102(4).

²⁷⁷ N.Y. STATE ENERGY PLANNING BD., THE ENERGY TO LEAD, *supra* note 20.

²⁷⁸ See *The Energy to Lead*, N.Y. STATE ENERGY PLANNING BD., *supra* note 20.

investment fueled by REV,” will put New York State on the best path to achieving its robust clean energy goals by 2030, including a “40% reduction in GHG emissions from 1990 levels,” a “50% increase of energy generation from renewable sources,” and a “600 trillion Btu increase in Statewide energy efficiency.”²⁷⁹ The State Energy Plan solidifies the State Energy Planning Board’s continued role as the foundational governmental entity promoting clean energy within the State.

Land Use

10. Amend SEQRA Regulations to Incorporate GHG Emission Considerations

The 2009 Report recommended that DEC adopt revisions to Environmental Assessment Forms (EAFs) and create a technical guidance document defining how climate change will be considered under SEQRA.²⁸⁰ As a related point, the 2009 Report urged DEC to amend its SEQRA regulations “so that some discussion of climate change (at a level appropriate in light of project characteristics) was more explicitly required for all actions undergoing Environmental Impact Statement (EIS) review.”²⁸¹ Additionally, the 2009 Report recommended amending 6 NYCRR 617.11(d)(5) “to provide that the findings statements issued by agencies upon the completion of a final EIS should also include a finding that the selected alternative incorporated cost-effective energy efficiency and renewable energy measures into its design, construction and operation to the maximum extent practicable, consistent with social, economic and other essential considerations.” Finally, the 2009 Report called for additional amendments to the SEQRA regulations to address GHG emissions as appropriate, such as what constitutes a “significant impact” from GHG emissions.²⁸²

At the time of the 2011 Update, DEC had proposed revisions to both the Full EAF (FEAF) and the Short EAF (SEAF), and the comment stage was still ongoing.²⁸³ According to the 2011 Update, DEC was proposing structural and substantive changes to the EAFs, final versions of which are described below.²⁸⁴ The 2011 Update did not address any progress regarding the 2009 Report’s call for updating the SEQRA regulations.

2017 Update:

²⁷⁹ *Id.* A 600 trillion Btu increase in statewide energy efficiency “equates to a 23% reduction from 2012 in energy consumption in buildings.” N.Y. STATE ENERGY PLANNING BD., THE ENERGY TO LEAD, *supra* note 20, at 112.

²⁸⁰ 2009 Report, *supra* note 1, at 45.

²⁸¹ *Id.*

²⁸² *Id.* at 46.

²⁸³ 2011 Update, *supra* note 2, at 13.

²⁸⁴ *Id.*

DEC adopted revised EAFs, which became effective on October 7, 2013.²⁸⁵ The FEAF must be used for “Type I actions” in order to determine the significance of their potential environmental adverse impacts.²⁸⁶ “Type I actions” are more likely to require the preparation of an EIS than Unlisted actions (in contrast to “Type II actions”, which do not require review under Part 617).²⁸⁷ The SEAF must be used to determine the significance of any potential adverse environmental impacts of “Unlisted Actions” (those classified neither as Type I nor as Type II actions).²⁸⁸

The new EAFs make a number of important structural changes. Useful digital tools have been introduced and guides have been made available in order to make the filling out of the EAFs easier. For instance, DEC improved its website to provide instructions, background information, links to maps and illustrations, and additional guidance, all of which is generally referred to as the SEAF and FEAF “Workbooks.”²⁸⁹ The EAFs themselves can be digitally filled out and saved with Acrobat Reader as PDF files.²⁹⁰ Additionally, each section of the new forms has a hyperlink to the DEC website, where an explanation is provided on how to provide the requested information (for both the applicant or project sponsor and the lead agency). When appropriate, the explanation also contains hyperlinks to other relevant sources.

DEC has developed the EAF Mapper Application, which is specifically designed to facilitate the NY State Environmental Quality Review process by answering geographic or place-based questions on both the SEAF and the FEAF.²⁹¹ The EAF Mapper provides its results by directly

²⁸⁵ See *State Environmental Quality Review (SEQR) Act Forms*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/permits/6191.html> (last visited Feb. 1, 2017). The revised EAFs were originally adopted on January 25, 2012, but then were amended on September 5, 2013. See N.Y. State Dep’t of Env’tl. Conservation, Amended Certificate of Adoption (Sept. 5, 2013), http://www.dec.ny.gov/docs/permits_ej_operations_pdf/amended61720.pdf.

²⁸⁶ *SEQR Handbook: Type I Actions*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/permits/43711.html> (last visited Feb. 1, 2017).

²⁸⁷ See N.Y. COMP. CODES R. & REGS. tit. 6, §§ 617.4, 617.5.

²⁸⁸ See *SEQR Handbook: Type I Actions*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, *supra* note 305.

²⁸⁹ *How to Use the EAF Workbooks*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/permits/90201.html> (last visited Feb. 1, 2017). DEC also makes available the SEQRA Handbook (last updated in 2010), which provides a reference guide to the procedures prescribed by SEQRA and addresses common questions that arise during the process of applying SEQRA, including questions on the content of a draft EIS in terms of GHGs. See N.Y. STATE DEP’T OF ENVTL. CONSERVATION, THE SEQRA HANDBOOK (3d ed. 2010), http://www.dec.ny.gov/docs/permits_ej_operations_pdf/seqrhandbook.pdf.

²⁹⁰ See N.Y. State Dep’t of Env’tl. Conservation, Full Environmental Assessment Form; Part 1 – Project and Setting, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/feafpart1.pdf; N.Y. State Dep’t of Env’tl. Conservation, Short Environmental Assessment Form: Part 1 – Project Information, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/seafpartone.pdf.

²⁹¹ *EAF Mapper*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/eafmapper/> (last visited Feb. 1, 2017). DEC has also made available “New EAFs – EAFs for the 21st Century,” which is a Power Point Presentation “webinar” or

filling out many place-based questions in Part 1 of an electronically fillable SEAF or FEAF and returning the partially completed form to the applicant or sponsor to be finished.

The new FEAF also makes important substantive changes, incorporating questions (to be answered by the applicant or project sponsor) regarding GHG emissions and potential impacts of climate change (such as floods).²⁹² Other questions invoke smart growth and some of them—related to pollution—could be indirectly linked to environmental justice issues.²⁹³ There are no questions related to energy conservation.²⁹⁴ While some of the incorporated questions ensure that GHG emissions issues are taken into account during the environmental assessment process, DEC should incorporate (i) more straightforward questions on climate change-related impacts, smart growth and environmental justice; and (ii) specific questions in relation to energy conservation. In contrast, the new SEAF considers just a few questions that barely make reference to floods, wetlands and availability of transportation,²⁹⁵ but does not consider any questions related to GHG emissions. It is advisable, therefore, that an evaluation be conducted on the feasibility of incorporating GHGs, climate change, and energy conservation-related questions in the SEAF.

While the substantive changes incorporated in the FEAF ensure that GHG emissions issues and a few climate change-related issues are taken into account during the early stage of the environmental assessment process, no amendments to the SEQRA regulations have yet been adopted to: (i) explicitly require discussion of climate change for all actions undergoing EIS review; (ii) provide that the findings statements issued under a final EIS include a finding that the selected alternative incorporates cost-effective energy efficiency and renewable energy measures into its design, construction and operation; nor (iii) explicitly address GHG emissions. As the 2009 Report urged, it is advisable that these amendments be adopted.

In 2012 DEC completed the scoping process for the environmental impact review related to proposed amendments to the SEQRA regulations in order to “improve and streamline the SEQRA process without sacrificing meaningful environmental review.”²⁹⁶ On February 8, 2017,

“training program” on using the new (2013) EAFs, the Workbooks and the EAF Mapper. N.Y. State Dep’t of Env’tl. Conservation, *The New EAFs: EAFs for the 21st Century*, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/eafwebinar.pdf. According to the presentation slides, five live webinars were conducted during April and May 2014.

²⁹² See N.Y. State Dep’t of Env’tl. Conservation, *Full Environmental Assessment Form: Part 1 – Project and Setting*, *supra* note 309.

²⁹³ See *id.*

²⁹⁴ See *id.* Question D.2.k. asks whether the proposed action will generate new or additional demand for energy and what the anticipated sources or suppliers are, but it does not mention energy conservation.

²⁹⁵ See N.Y. State Dep’t of Env’tl. Conservation, *Part 2 – Impact Assessment*, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/seafparttwo.pdf (Question 6 inquires whether the proposed action “fails to incorporate reasonably available energy conservation or renewable energy opportunities.”).

²⁹⁶ See *State Environmental Quality Review Act – Proposed Amendments 2012*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/permits/83389.html> (last visited Oct.

DEC published notice of its proposal to amend the SEQRA regulations. Comments on the proposed amendments will be accepted by DEC through May 19, 2017. In terms of climate change-related issues, DEC has proposed to include the following as Type II actions: upgrades to buildings to meet energy codes; and the retrofit of an existing structure or facility to incorporate green infrastructure. These changes were discussed in the DEC's Final Scope for the amendments.²⁹⁷ Regarding green infrastructure, the DEC's Final Scope stated that the rationale for its inclusion is that (i) the current language "could be interpreted to preclude the use of green infrastructure in place of the existing more conventional development techniques"; and (ii) "installation of green roofs or other green infrastructure techniques can substantially improve energy efficiency and reduce generation of runoff."²⁹⁸ The proposed amendments also include as Type II actions the installation of five megawatts or less of rooftop solar energy arrays on existing structures not listed on the National or State Register of Historic Places nor determined to be eligible for listing on the State Register of Historic Places and the installation of less five MW or less of solar energy arrays on sanitary landfills, brownfield sites, waste-water treatment facilities, sites zoned for industrial use or the installation of five MW or less of solar canopies at or above residential and commercial parking facilities (lots or parking garages). With respect to the solar energy arrays, the rationale is that their installation can substantially reduce energy costs and GHG emissions.²⁹⁹ Regarding landfills, the rationale is that the redevelopment of a closed sanitary landfill as a solar energy site would return a currently under-used site to a productive use, like those currently generating energy from the combustion of methane gas and connected to the electrical grid.³⁰⁰

With respect to impacts that must be discussed in any EIS, the proposed amendments add the consideration of the use of renewable energy sources to discussions about the impacts of proposed actions on the use and conservation of energy. Also, DEC proposes to add to the description of mitigation measures required in an EIS a description of measures to avoid or reduce both an action's environmental impacts and vulnerability from the effects of climate change such as sea level rise and flooding.

11. Incorporate GHG Emission Considerations into Local Comprehensive Plans

The 2009 Report explained:

Land use is an important tool to address climate change in New York, largely because higher densities can encourage mass transit use and reduce trip lengths and, therefore, greenhouse gas emissions. Municipal actions, particularly zoning,

15, 2016).

²⁹⁷ See N.Y. State Dep't of Env'tl. Conservation, Final Scope for the Generic Environmental Impact Statement (GEIS) on the Proposed Amendments to the State Environmental Quality Review Act (SEQRA) 9 (Nov. 28, 2012),

http://www.dec.ny.gov/docs/permits_ej_operations_pdf/617finalscope.pdf.

²⁹⁸ *Id.*

²⁹⁹ *Id.*

³⁰⁰ *Id.*

are effective ways for municipalities to mitigate and adapt to climate change in the long term. Local governments' comprehensive plans provide a good opportunity to integrate transportation, energy efficiency, and land use planning to reduce GHG emissions.³⁰¹

Accordingly, the 2009 Report recommended that the State Legislature amend the General City Law, the Town Law, and the Village Law to provide that municipal comprehensive plans consider GHG emissions and energy efficiency as well as adaptation to climate change when developing comprehensive plans.³⁰²

The 2011 Update noted that while the recommended amendments had not been passed, local governments were not precluded from considering GHG emissions and energy efficiency within a comprehensive plan.³⁰³ It also documented that the New York State Climate Smart Communities Program, a creation of NYSERDA, DEC, DOS, and PSC, encouraged local action, “inciting towns, villages, and cities to achieve GHG emissions reductions within their community by pledging to combat climate change . . . by setting long-term emissions reductions goals, determining how these emissions can be reduced within the community, and by acting to cause these reductions.”³⁰⁴ As of 2011, the program included eighty-five communities, and six of these member communities had chosen to achieve their goals through “sustainable transportation, climate change adaptation, and energy planning.”³⁰⁵

2017 Update:

As of 2016, the previous recommendations to update comprehensive plan sections of state law have not been adopted, and state law does not require municipalities to have a comprehensive plan. However, the state has begun using Environmental Protection Fund grants and incorporating climate change and adaptation planning into the Local Waterfront Revitalization Program.³⁰⁶ For more than 100 years, planners have been designing their communities. Comprehensive plans have changed a great deal in that time, but never so much as in the past several years. Today's plans focus on different topics—sustainability, social equity, community energy, and climate change are all front and center—and land use and transportation, to name just one pairing, are much better integrated. It is time to update the relevant portions of Town, Village, and General City Law to require baseline GHG emissions and consideration of other climate mitigation and adaption techniques as a critical, integrated step in the development of local environmental policy in comprehensive plans.

³⁰¹ 2009 Report, *supra* note 1, at 46.

³⁰² *Id.* at 46–47.

³⁰³ 2011 Update, *supra* note 2, at 13–14.

³⁰⁴ *Id.* at 14.

³⁰⁵ *Id.*

³⁰⁶ *Sea Level Rise and Climate Change Adaptation*, N.Y. STATE DEP'T OF STATE, OFFICE OF PLANNING & DEV., <http://www.dos.ny.gov/opd/programs/SeaLevelRiseCC/index.html> (last visited Feb. 1, 2017).

12. Encourage Wind Energy Projects, Including Those Located Offshore

The 2009 Report recommended that New York adopt broad policy support for wind energy development, including development of promising wind resources located offshore, and that it include statewide wind goals within its new Renewable Portfolio Standard.³⁰⁷ The 2011 Update concluded that although “New York did not include a specific goal for wind energy development as a requirement in its [updated RPS in 2010], it had successfully sponsored a number of initiatives aimed at increasing wind capacity under the general framework of its RPS mandate.”³⁰⁸ By 2011, a number of large-scale wind generators were participating in RPS programs, while NYSERDA offered “a suite of incentives for small-scale and customer-sited wind turbines.”³⁰⁹

2017 Update:

For several years, the Main Tier program within New York’s RPS has allowed NYSERDA to pay a fixed price production incentive and procure RPS attributes from competitively selected wind-powered electricity generators.³¹⁰ As of 2017, New York is home to 26 large-scale active wind energy projects operating under the RPS Main Tier, totaling 2,148 MW and creating enough electricity to power over 500,000 homes—a significant increase from the 425 MW referenced in the 2011 Update.³¹¹ In 2015, the Main Tier was subsumed within the State’s innovative REV proceeding by an order of PSC, which instituted the REV large-scale renewable track and later connected the large-scale renewable programs to the CES.³¹² As one of the three main pillars of the REV proceeding, the PSC recently approved a ten-year, \$5 billion-dollar Clean Energy Fund.³¹³ NYSERDA will administer the CEF to accelerate the growth of New York’s clean energy resources, including wind, and to move toward a more widely distributed energy system. One of the four main CEF portfolios, the NY Green Bank, will promote private

³⁰⁷ 2009 Report, *supra* note 1, at 47.

³⁰⁸ 2011 Update, *supra* note 2, at 14.

³⁰⁹ *Id.* at 14–15.

³¹⁰ See *Past Main Tier Solicitations Under the RPS*, NYSERDA, <https://www.nysERDA.ny.gov/All-Programs/Programs/Clean-Energy-Standard/Renewable-Portfolio-Standard/Past-Main-Tier-Solicitations> (last visited Feb. 1, 2017).

³¹¹ See *Renewable Portfolio Standard*, NYSERDA, *supra* note 212; *Wind Power*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/40966.html> (last visited Feb. 1, 2017).

³¹² Order Adopting Regulatory Policy Framework and Implementation Plan at 83, Reforming the Energy Vision, Case 14-M-0101 (N.Y. Pub. Serv. Comm’n Feb. 26, 2015); Notice Instituting Proceeding, Soliciting Comments and Providing for Technical Conference, Implementation of a Large-Scale Renewable Program, Case 15-E-0302 (N.Y. Pub. Serv. Comm’n June 1, 2015); see also NYSERDA, LARGE-SCALE RENEWABLE ENERGY DEVELOPMENT IN NEW YORK: OPTIONS AND ASSESSMENT 7 (2015), <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B26BD68A2-48DA-4FE2-87B1-687BEC1C629D%7D>.

³¹³ Order Authorizing the Clean Energy Fund Framework, *supra* note 225, at 106.

investment in wind projects and has committed \$54 million to install over 160 wind turbines.³¹⁴ Further, a provision of the New York State Real Property Tax Law, which provides a 15-year real property tax exemption for certain wind energy systems both small and large, has been extended through the beginning of 2025.³¹⁵

Since 2012, NYSERDA has also operated an On-Site Wind Turbine Incentive Program, incentivizing distributed, behind-the-meter wind resources as part of the Customer-Sited Tier of the RPS.³¹⁶ Over four years, this program offered approximately \$13.8 million in incentives to residential, commercial, institutional, and government wind energy systems with a maximum size of 2 MW.³¹⁷ The program expired in February 2016,³¹⁸ but was revived as the Small Wind Turbine Incentive Program in 2016 and will run through 2018.³¹⁹ Within REV, distributed wind resources will now be incentivized through a new Small Wind Investment Program, which is an extension of the CST and is initially budgeted for approximately \$6 million through 2018 for market development and innovation and research.³²⁰ Although many uncertainties remain regarding specific policies and implementation of REV programs, many of the REV initiatives, such as community net metering, valuing distributed generation in utility rate-setting, and demonstration projects, will likely promote the distributed wind industry in New York.

Regarding offshore wind, NYSERDA has commissioned several assessments by industry experts, but there is still no active offshore wind development in New York.³²¹ NYSERDA continues to predict that offshore wind could be a major source of power in the State, particularly

³¹⁴ *Id.*

³¹⁵ See N.Y. REAL PROP. TAX LAW § 487 (2015); see also *Solar, Wind, or Farm Waste Energy Systems*, N.Y. STATE DEP'T OF TAX'N & FIN., https://www.tax.ny.gov/research/property/assess/manuals/vol4/pt1/sec4_01/sec487.htm (last visited Feb. 1, 2017).

³¹⁶ See NYSERDA, ON-SITE WIND TURBINE INCENTIVE PROGRAM: PROGRAM OPPORTUNITY NOTICE (PON) 2439 (2013); see also *PON 2439 Small Wind Turbine Incentive Program*, NYSERDA, <http://www.nysesda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/PON-2439-Small-Wind-Turbine-Incentive-Program> (last visited Feb. 1, 2017).

³¹⁷ NYSERDA, ON-SITE WIND TURBINE INCENTIVE PROGRAM: PROGRAM OPPORTUNITY NOTICE (PON) 2439, *supra* note 337.

³¹⁸ *Id.*

³¹⁹ NYSERDA, SMALL WIND TURBINE INCENTIVE PROGRAM: PROGRAM OPPORTUNITY NOTICE (PON) 2439 (2016).

³²⁰ See NYSERDA, Clean Energy Fund Investment Plan: Budget Accounting and Benefits Chapter 2, Proceeding on Motion of the Commission to Consider a Clean Energy Fund, Case 14-M-0094 (N.Y. Pub. Serv. Comm'n Feb. 16, 2016).

³²¹ See *Offshore Wind Energy*, NYSERDA, <http://www.nysesda.ny.gov/offshorewind> (last visited Feb. 1, 2017). [Although, as noted above, the project off Montauk is projected by 2030 to power 1.25 million New York homes, starting with the 90-megawatt project 30 miles off Montauk on Long Island's South Fork and that Governor Cuomo has set out a nation-leading plan to jumpstart development of as much as 2,400 megawatts of offshore wind power in the state, as part of New York's plan to get 50 percent of its electricity from renewable sources by 2030. If so, New York State will become the nation's leader on clean, offshore wind power.]

the NYC metropolitan area, and assessments have revealed that the Atlantic waters offshore from New York could support up to 39 GW of renewable power.³²² In the course of the REV proceeding, many environmental stakeholders have requested that the PSC create a specific tier of the CES to provide upstream financial support for development of offshore wind resources.³²³

Lamentably, the competitive solicitation process for the Great Lakes Offshore Wind Project, referenced in the 2011 Update, was terminated by the NYPA in September 2011 without awarding a contract for project development, due in part to high estimated annual costs and economic conditions.³²⁴ However, the Long Island–New York City Offshore Wind Collaborative—a partnership of the NYPA, Long Island Power Authority (LIPA), and ConEd—is referenced in the 2011 Update with regard to its 2011 interconnection application with the New York Independent System Operator,³²⁵ is moving forward successfully. March 2016 marked an important step in this process: the Bureau of Ocean Energy Management (BOEM) defined a wind energy area of 81,130 acres based on NYPA’s request, located eleven miles south of Long Island.³²⁶ BOEM conducted an environmental assessment in this area, considering the impacts of conducting surveys and installing resource assessment facilities in the area.³²⁷ “After reviewing comments received on the Environmental Assessment, BOEM removed about 1,780 acres from the lease area due to environmental concerns regarding a seafloor feature known as

³²² *Id.* The State has also sponsored significant research of marine and tidal resources offshore from New York for potential development of marine and hydrokinetic (MHK) power. *See, e.g.,* NYSERDA, MARINE AND HYDROKINETIC ENVIRONMENTAL POLICY WORKSHOP: FINAL REPORT (Report No. 12-27b) (2012).

³²³ NYSERDA and other agencies will take into account the findings of a commissioned 2015 cost reduction study by the University of Delaware’s Special Initiative for Offshore Wind, which recommended technical and financial best practices for New York agencies and identified cost reductions expected to result from technology advances. The report found that New York could intervene to create a visible market of scale, prepare port facilities and develop a future workforce, all of which could reduce offshore wind costs by approximately 30%. *See* UNIV. OF DEL. SPECIAL INITIATIVE ON OFFSHORE WIND, NEW YORK OFFSHORE WIND COST REDUCTION STUDY 17, 40 (2015) (Prepared for NYSERDA), <https://www.ceoe.udel.edu/File%20Library/About/SIOW/2016-06-ny-offshore-wind-cost-reduction-study-ff8.pdf>.

³²⁴ Press Release, N.Y. Power Authority, NY Power Authority Trustees Vote to End Proposed Great Lakes Offshore Wind Project (Sept. 27, 2011), <https://www.nypa.gov/Press/2011/110927b.html>.

³²⁵ 2011 Update, *supra* note 2, at 15.

³²⁶ *See* Press Release, U.S. Dep’t of Interior, Secretary Jewell Announces Milestone for Commercial Wind Energy Development Offshore New York (Mar. 16, 2016), <https://www.doi.gov/pressreleases/secretary-jewell-announces-milestone-commercial-wind-energy-development-offshore-new>.

³²⁷ *Id.*

the Cholera Bank.”³²⁸ BOEM had moved forward with eleven other commercial wind energy leases off the Atlantic coast prior to this one.³²⁹

Impressively, Governor Cuomo committed in his 2017 State of the State Address to building 2.4 gigawatts (GW) of wind energy offshore by 2030.³³⁰ NYSERDA estimates 2.4 GW of offshore wind could power 1.25 million homes.³³¹ The contours of this goal will become clearer with the completion of the Offshore Wind Master Plan by the end of 2017.³³² New York began the process by crafting a Blueprint for the New York State Offshore Wind Master Plan in 2016.³³³ More immediately, Governor Cuomo called on LIPA to approve a 90 MW offshore wind facility located 30 miles southeast of Montauk, which would power as many as 50,000 homes.³³⁴ Update of LI project. The Blueprint and the Offshore Wind Master Plan will play a critical role in meeting the aggressive goals of the REV and CES, notably the goal of providing 50% renewable energy by 2030.³³⁵ Indeed, in the State of the State, Governor Cuomo suggested offshore wind may play a role in eventually providing 100% renewable energy in New York.³³⁶

³²⁸ Press Release, U.S. Dep’t of Interior, Interior Department to Auction Over 79,000 Acres Offshore New York for Wind Energy Development (Oct. 27, 2016), <https://www.doi.gov/pressreleases/interior-department-auction-over-79000-acres-offshore-new-york-wind-energy-development>; *see also New York Activities*, BUREAU OF OCEAN ENERGY MGMT., <http://www.boem.gov/New-York/> (last visited Feb. 1, 2017).

³²⁹ Press Release, U.S. Dept. of Interior, *supra* note 347.

³³⁰ Joshua S. Hill, *New York Governor Cuomo Commits to Offshore Wind*, CLEANTECHNICA, Jan. 11, 2017, <https://cleantechnica.com/2017/01/11/new-york-governor-cuomo-commits-offshore-wind/>; Press Release, Office of the Governor, Governor Cuomo Presents 25th Proposal of 2017 State of the State: Nation’s Largest Offshore Wind Energy Project Off Long Island Coast and Unprecedented Commitment to Develop up to 2.4 Gigawatts of Offshore Wind Power by 2030 (Jan. 10, 2017), <https://www.governor.ny.gov/news/governor-cuomo-presents-25th-proposal-2017-state-state-nations-largest-offshore-wind-energy>.

³³¹ *Offshore Wind Energy*, NYSERDA, *supra* note 342.

³³² *See* Press Release, Office of the Governor, *supra* note 351.

³³³ NYSERDA, BLUEPRINT FOR THE NEW YORK STATE OFFSHORE WIND MASTER PLAN (2016), <https://www.nyserdera.ny.gov/-/media/Files/Publications/Research/Biomass-Solar-Wind/New-York-State-Offshore-Wind-Blueprint.pdf>.

³³⁴ Press Release, Office of the Governor, *supra* note 351.

³³⁵ NYSERDA, *supra* note 354; Press Release, Office of the Governor, *supra* note 351; *see also supra* notes 221–23 and accompanying text.

³³⁶ Hill, *supra* note 351; *Governor Cuomo Calls on LIPA to Approve Offshore Wind Project Southeast of Montauk*, MONTAUK PATCH, Jan. 10, 2017, <http://patch.com/new-york/montauk/governor-cuomo-calls-lipa-approve-offshore-wind-project-southeast-montauk>.

Vehicles & Transportation

13. Strive for a Ten Percent Reduction in Vehicle Miles Traveled

The 2009 Report urged New York to strive for a 10% reduction in vehicle miles traveled below business as usual within 10 years, and for the state to continue its efforts to reach this goal.³³⁷ Achieving this goal would result in a reduction of approximately 2.75 million metric tons of CO₂ emissions in 2020. The 2011 Update noted that state’s use of Transportation Investments Generating Economic Recovery (TIGER) funds to boost intermodal transit projects in the state and recommended the State Legislature adopt legislation for a congestion pricing program to reduce New York City’s traffic congestion.³³⁸ It also recommended providing more incentives for transit-oriented development (TOD) and acknowledged the passage of SGPIPA, which was intended to address sprawl by requiring certain state agencies to approve, undertake and fund infrastructure projects in a manner that is consistent with smart growth principles.³³⁹

2017 Update:

The DEC provides information about reducing the energy used in transportation,³⁴⁰ and the TCI is researching how to reduce vehicle miles traveled through its Sustainable Communities program.³⁴¹ However, New York’s efforts to actually reduce vehicle miles traveled are limited. There have been positive efforts to promote multimodal transit options including walking, biking, and limited transit. However, despite SGPIPA, EFC has continued to fund sprawl-inducing water and sewer infrastructure projects, and transportation planning outside of the New York City metro area is based on rehabbing roads and bridges. There have been several positive TOD projects in Westchester and surrounding counties surrounding MTA stations, but the State needs to reinvest and rebuild public transit.

14. Consider Feebates for the Purchase of New Vehicles

The 2009 Report recommended that the State Legislature pass legislation creating a system of “feebates” to strategically incentivize the purchase of more fuel-efficient vehicles: in essence, fees should be imposed on new vehicles with low fuel economy, while rebates should be given to new vehicles that have high fuel economy.³⁴² The 2011 Update pointed out that New York State had not implemented a feebate system.³⁴³ However, the 2011 Update highlighted other programs to incentivize the purchase of Alternative Fuel Vehicles (AFVs), including the Clean Pass program, which allows eligible low-emission, energy-efficient vehicles to use the 40-mile

³³⁷ 2009 Report, *supra* note 1, at 47–48.

³³⁸ 2011 Update, *supra* note 2, at 16.

³³⁹ *Id.* at 16–17; *see also* N.Y. ENVTL. CONSERV. L. § 6-0107.

³⁴⁰ *Reduce Municipal Energy Use for Transportation*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/56925.html> (last visited Feb. 1, 2017).

³⁴¹ *See supra* notes 121–27 and accompanying text.

³⁴² 2009 Report, *supra* note 1, at 48.

³⁴³ 2011 Update, *supra* note 2, at 18.

Long Island Expressway High Occupancy Vehicle lane, regardless of the number of occupants in the vehicle.³⁴⁴ NYSERDA had also joined with the Electric Power Research Institute to conduct an engineering study of the effects of plug-in hybrid vehicles on the state's electrical grid.³⁴⁵

2017 Update:

New York State has still not implemented a feebate system. Nevertheless, New York has adopted several programs to encourage, enable and facilitate the use of fuel-efficient vehicles and AFVs, including the production of cleaner fuels.³⁴⁶ For instance, the “New York Truck Voucher Incentive Program,” a program aimed at reducing the incremental costs of purchasing AFVs for medium to heavy private and public truck and bus fleets.³⁴⁷ The Port Authority of New York and New Jersey also operates the Regional Truck Replacement Program, which aims at covering up to 50% of the cost to replace a heavily emitting truck, with a maximum of \$25,000, whichever is less.³⁴⁸ In addition, DEC has continued to add eligible vehicles to the Clean Pass Program, which now comprises more than 50 models.³⁴⁹ The Green Pass Discount Plan offers a 10% discount on the E-ZPass to hybrid vehicles getting at least 45 miles to the gallon, including the vehicles eligible for the Clean Pass Program.³⁵⁰ Vehicles powered

³⁴⁴ *Id.*

³⁴⁵ *Id.* at 19.

³⁴⁶ See *Electric Vehicle Programs*, NYSERDA, <https://www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Electric-Vehicle-Programs> (last visited Feb. 1, 2017); *Transportation How-To for Municipalities*, N.Y. STATE DEP'T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/57108.html> (Feb. 1, 2017); *Green Driver State Incentives in New York*, DMV.ORG, <http://www.dmv.org/ny-new-york/green-driver-state-incentives.php> (last visited Feb. 1, 2017).

³⁴⁷ NEW YORK STATE, *Truck Voucher Incentive Program*, <https://truck-vip.ny.gov/about.php> (last visited Feb. 1, 2017). This program consists of three separate funds; one to encourage the purchase of electric vehicles, one to encourage the purchase of AFVs, and one to encourage the purchase of diesel emission control technologies. *Id.* NYSERDA also provides information to delivery fleets to determine if compressed natural gas vehicles are an option and, if so, how to integrate them into the fleet. NYSERDA, *GUIDEBOOK—NATURAL GAS FOR DELIVERY FLEETS IN NEW YORK* (2012), <https://www.nyserda.ny.gov/-/media/Files/EIBD/Research/CNG/cng-delivery-fleets.pdf>.

³⁴⁸ *Regional Truck Replacement Program*, PORT AUTH. OF N.Y. & N.J., <http://www.panynj.gov/truckers-resources/truck-replacement.html> (last visited Feb. 1, 2017). According to the website, only applications for replacement trucks with engines model year 1994 and 1995 are currently being accepted.

³⁴⁹ *New York's Clean Pass Program*, N.Y. STATE DEP'T OF TRANSP., <https://www.dot.ny.gov/portal/page/portal/programs/clean-pass> (last visited Feb. 1, 2017).

³⁵⁰ *Green Pass Discount Program*, N.Y. THRUWAY AUTH., <http://www.thruway.ny.gov/ezpass/greentag.html> (last visited Feb. 1, 2017). “The E-ZPass is a regional electronic toll collection system that can be used throughout New York State and beyond,” providing drivers non-stop travel and reduced travel time, as well as helping to reduce congestion. *What Is E-ZPass?*, N.Y. THRUWAY AUTH., <http://www.thruway.ny.gov/ezpass/whatis.html> (last visited Feb. 1, 2017).

exclusively by electricity are exempt from both the on-board diagnostic system and low-enhanced emissions inspections.³⁵¹

Alternative fuel (CNG, hydrogen and E85) used to operate a motor vehicle engine was previously exempt from state sales and use taxes.³⁵² Other incentives also exist: New York has a refundable credit for production of biofuel on or after January 1, 2006, and before January 1, 2020, at a biofuel plant located in New York State.³⁵³ The credit is equal to fifteen cents per gallon of biofuel produced at a biofuel plant located in New York State, after the production of the first 40,000 gallons per year presented to market. The credit limit is \$2.5 million per entity per tax year and can be claimed for four consecutive tax years per biofuel plant. Additionally, New York has a nonrefundable tax credit for the purchase of recharging property for electric vehicles and AFVs.³⁵⁴

New York is also a party to two regional transportation initiatives: (i) the Northeast Electric Vehicle Network, a subsidiary of the Transportation & Climate Initiative and lays the groundwork for the deployment of electric vehicles throughout the Northeast; and (ii) the Multi-State ZEV Task Force, a program committing eight states to collectively have at least 3.3 million ZEVs operating on their roadways by 2025.³⁵⁵ ChargeNY, which “aims to reach 3,000 [plug-in electric vehicle] charging stations to support an expected 30,000–40,000 [plug-in electric vehicles] on the road in New York by 2018,” is a critical part of the latter initiative.³⁵⁶

Notwithstanding the important steps taken so far, it is advisable that legislation be considered to formally impose fees on the purchase of low fuel economy vehicles and offer rebates for the purchase of fuel-efficient vehicles and AFVs of all classes, including passenger vehicles.

15. Encourage Government Purchasing of Alternative Fuel Vehicles

The 2009 Report recommended that New York should broaden incentives and requirements for Government AFV purchases, by the following actions: First, Executive Order 111, which mandated that, by 2010, state agencies may only purchase AFVs for light-duty vehicle purchases, should be expanded in order to include also medium and heavy vehicles, unless the purchase of such vehicles is unduly expensive or otherwise not suitable as an AFV; Second,

³⁵¹ *New York Vehicle Inspection Program (NYVIP2)*, N.Y. STATE DEP’T OF MOTOR VEHICLES, <http://dmv.ny.gov/inspection/new-york-vehicle-inspection-program-nyvip> (last visited Feb. 1, 2017).

³⁵² *See Transportation How-To for Municipalities*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, *supra* note 367.

³⁵³ *Biofuel Production Credit*, N.Y. STATE DEP’T OF TAX’N & FIN., <https://www.tax.ny.gov/pit/credits/biofuel.htm> (last visited Feb. 1, 2017).

³⁵⁴ *See Alternative Fuels and Electric Vehicles Recharging Property Tax Credit*, N.Y. STATE DEP’T OF TAX’N & FIN., https://www.tax.ny.gov/pit/credits/alt_fuels_elec_vehicles.htm (last visited Feb. 1, 2017).

³⁵⁵ *See supra* notes 95–114 and accompanying text.

³⁵⁶ *See ChargeNY*, NYSERDA, *supra* note 100.

NYSERDA should broaden its grant programs to provide for 100% reimbursement of the incremental costs of purchasing other municipal vehicles besides buses and expand its program for grants for private AFV fleets throughout the state; and third, the State Legislature should enact legislation requiring all municipalities to purchase AFV vehicles in instances when the state provides financial assistance or require it in all instances unless it is unduly expensive or otherwise not suitable.³⁵⁷ The 2011 Update stated that some progress had been made in boosting government procurement of AFVs.³⁵⁸ However, the original three recommendations remained.

2017 Update:

On December 28, 2012, Governor Andrew Cuomo signed Executive Order 88,³⁵⁹ directing state agencies and authorities to improve the energy efficiency of state buildings. The order also revoked and superseded Executive Order 111, and did not provide any new AFV state purchase requirement. Therefore, currently there is not any similar mandate. A new provision mandating that state agencies may only purchase AFVs for light-duty, medium and heavy vehicles should be adopted. Notwithstanding the above, as part of a pilot Clean Fleets NY program, DEC, NYPA, and NYSERDA, among other agencies, will ensure in 2016 that at least 50% of new administrative-use vehicles will be ZEVs, including battery electric, plug-in electric hybrid, or hydrogen fuel cell vehicles.³⁶⁰ This pilot would be aimed at exploring innovative ZEV acquisition models (such as leasing) to take advantage of federal tax incentives and lifecycle savings to reduce costs.

NYSERDA's New York Truck Voucher Incentive Program (NYT-VIP), which aims at reducing the cost of electric vehicles and AFVs for truck and bus fleets that purchase and operate the vehicles in the State of New York, covers 80% of the incremental cost.³⁶¹ Of the three funds that compose the program, one—the New York State Electric Vehicle – Voucher Incentive Fund (NYSEV-VIF)—applies to public fleets and provides vouchers that cover the 80% of the cost of all-electric battery electric vehicles up to \$60,000 per vehicle.

16. Promote Energy-Saving Vehicle Maintenance Techniques

The 2009 Report encouraged the Department of Motor Vehicles (DMV) to promote vehicle maintenance techniques that would boost energy efficiency and conservation, such as topping off gas and oil, keeping tires fully inflated, and changing clogged air filters.³⁶² The 2011 Update had several additional recommendations, such as including adding tire pressure and other factors that affect gas mileage to mandated inspections, providing motorists with information on vehicle

³⁵⁷ 2009 Report, *supra* note 1, at 49.

³⁵⁸ 2011 Update, *supra* note 2, at 20–21.

³⁵⁹ See N.Y. Exec. Order No. 88, *supra* note 286.

³⁶⁰ *Electric Vehicle Programs*, NYSERDA, *supra* note 367.

³⁶¹ NEW YORK STATE, *Truck Voucher Incentive Program*, *supra* note 368.

³⁶² 2009 Report, *supra* note 1, at 49–50.

maintenance through mailings or online, and fuel-saving techniques available on DMV's website.³⁶³

2017 Update:

While the New York DMV has yet to implement any of the proposed changes in the 2011 Update, the Port Authority of New York and New Jersey has promoted the Drive Green, Save Green Campaign, which is an initiative that highlights “eco driving,” the value of driving more efficiently and maintaining a vehicle.³⁶⁴ The North Carolina Department of Transportation has advanced their Drive Green, Save Green by posting videos on their webpage.³⁶⁵ This is an initiative that the NYDOT and DMV, in addition to the Port Authority, should be advertising to motorists via mailings and online. Other sources, such as the 2016 Fuel Economy Guide, also provide information on how efficient driving and vehicle maintenance can improve fuel economy.³⁶⁶

Other Initiatives

17. Expand the Regional Greenhouse Gas Initiative

The 2009 Report urged RGGI to expand to cover all GHG emitters.³⁶⁷ It also suggested RGGI should lower the then-existing emissions cap of a 10% reduction by 2018.³⁶⁸ Finally, the 2009 Report recommended limiting the use of auction proceeds to energy efficiency programs and emissions reduction technologies.³⁶⁹ The 2011 Update noted the third recommendation had not been accomplished.³⁷⁰ However, the Update noted the RGGI Memorandum of Understanding provides for a 2012 program review, which was then underway, and that reducing the emissions cap and expanding RGGI into other sectors of the economy were being considered.³⁷¹

Additionally, in 2009, Indeck Corinth, a gas-fired power plant, challenged New York's participation in RGGI as unconstitutional and DEC's and NYSERDA's promulgation of the CO₂ Budget Trading Program and the CO₂ Allowance Auction Program as arbitrary and

³⁶³ 2011 Update, *supra* note 2, at 21.

³⁶⁴ *Drive Green, Save Green*, PORT AUTH. OF N.Y. & N.J., <http://www.panynj.gov/bridges-tunnels/drive-green.html> (last visited Feb. 1, 2017).

³⁶⁵ *Drive Green, Save Green*, N.C. DEP'T OF TRANSP., <http://www.ncdot.gov/travel/drivegreen/> (last visited Feb. 1, 2017).

³⁶⁶ U.S. DEPARTMENT OF ENERGY & U.S. DEPARTMENT OF ENVIRONMENTAL PROTECTION AGENCY, FUEL ECONOMY GUIDE 4 (2016), <http://www.fueleconomy.gov/feg/pdfs/guides/FEG2016.pdf>.

³⁶⁷ 2009 Report, *supra* note 1, at 50.

³⁶⁸ *Id.* at 51.

³⁶⁹ *Id.*

³⁷⁰ 2011 Update, *supra* note 2, at 22.

³⁷¹ *Id.* at 22–23; *see also* Reg'l Greenhouse Gas Initiative, Memorandum of Understanding 10 (Dec. 20, 2005), http://www.rggi.org/docs/mou_12_20_05.pdf.

capricious.³⁷² Those claims were dismissed as part of a 2010 consent decree,³⁷³ in which “ConEd will pay Indeck and the intervenors for the cost of allowances in excess of those allocated to them under DEC rules, and that NYSEDA will allot a portion of RGGI proceeds to offset ConEd’s costs.”³⁷⁴

2017 Update:

RGGI has completed the 2012 program review mentioned in the 2011 Update and updated its model rule.³⁷⁵ As a part of the 2012 program review, the regional cap was lowered to 91 million tons.³⁷⁶ But the cap is still well above the current emission level due largely to the conversion of coal-burning plants to natural gas, and to the success of energy efficiency measures. The other recommendations sought by the 2009 Report and 2011 Update have not been made. Nor has NYSEDA changed its operating plan or rules to limit use of auction proceeds to energy efficiency and emissions reduction programs.³⁷⁷ Following the previous update, there is still no statutory provision that codifies the limitations on uses to which RGGI auction proceeds can be devoted. Additionally, NYSEDA reports since 2011 have not mentioned including other sectors along the lines of the Western Climate Initiative or the Midwest Governors’ Greenhouse Gas Accord. RGGI is currently conducting a 2016 program review, and it should consider expanding to cover all GHG emitters and should also decrease its cap further.³⁷⁸

³⁷² Consent Decree, *Indeck Corinth, L.P. v. David Paterson, et al.*, Index No. 5280-09 (N.Y. Sup. Ct. June 2015), <http://op.bna.com.s3.amazonaws.com/hl.nsf/r%3FOpen%3Dthyd-7z2nhd>.

³⁷³ *Id.*

³⁷⁴ *Settlement Reached in Regional Greenhouse Gas Initiative Lawsuit*, SIVE, PAGET, & RIESEL, P.C. (Jan. 14, 2010), <http://www.sprlaw.com/settlement-reached-in-regional-greenhouse-gas-initiative-lawsuit/>.

³⁷⁵ See *2012 Program Review*, REG’L GREENHOUSE GAS INITIATIVE, <http://rggi.org/design/program-review> (last visited Feb. 1, 2017); REG’L GREENHOUSE GAS INITIATIVE, MODEL RULE (2013), http://rggi.org/docs/ProgramReview/_FinalProgramReviewMaterials/Model_Rule_FINAL.pdf.

³⁷⁶ See REG’L GREENHOUSE GAS INITIATIVE, RGGI 2012 PROGRAM REVIEW: SUMMARY OF RECOMMENDATIONS TO ACCOMPANY MODEL RULE AMENDMENTS 1 (2013), http://rggi.org/docs/ProgramReview/_FinalProgramReviewMaterials/Recommendations_Summary.pdf; see also REG’L GREENHOUSE GAS INITIATIVE, MODEL RULE, *supra* note 396.

³⁷⁷ As in 2009, auction proceeds may be used for “reasonable administrative costs incurred by [NYSEDA] in undertaking the activities described in this Part and for administrative costs, auction design and support costs, and program design and support costs associated with the CO2 Budget Trading Program, whenever incurred.” 21 N.Y. COMP. CODE OF R. & REGS. tit. 21, § 507.4(d); see also NYSEDA, NEW YORK’S REGIONAL GREENHOUSE GAS INITIATIVE INVESTMENT PLAN: 2015 OPERATING PLAN (2015), <https://www.nyserda.ny.gov/-/media/Files/EE/RGGI/2015-RGGI-Operating-Plan.pdf>.

³⁷⁸ *2016 Program Review*, REG’L GREENHOUSE GAS INITIATIVE, <http://rggi.org/design/2016-program-review> (last visited Feb. 1, 2017).

18. Pursue Carbon Capture and Sequestration (CCS) in New York if Federal Funds are Available

The 2009 Report urged New York to pursue the development of carbon capture and sequestration (CCS) technology to the extent federal funds are available.³⁷⁹ The 2009 Report also recommended identifying impediments to the development of CCS technology.³⁸⁰ Finally, if CCS technology could be used, the Report recommended developing appropriate regulatory safeguards, such as a requirement that 90% of CO₂ be captured and sequestered.³⁸¹ The 2011 Update explained that no federal funds had been made available for CCS in New York, and that a fifty MW demonstration proposed for Jamestown, New York had been denied funding by the U.S. Department of Energy.³⁸²

2017 Update:

There is still no federal funding available for CCS in New York State. However, federal CCS funding has been made available to several projects in other states.³⁸³ The debate over CCS is both rigorous and ongoing; proponents and opponents of CCS technology continue to make their case to the public.³⁸⁴

19. Promote Green Workforce Development in New York

The 2009 Report recommended the promotion of green collar jobs through enhanced education and job training programs.³⁸⁵ It also recommended the PSC adopt a PSC Working Group's suite

³⁷⁹ 2009 Report, *supra* note 1, at 52.

³⁸⁰ *Id.*

³⁸¹ *Id.*

³⁸² See 2011 Update, *supra* note 2, at 23.

³⁸³ Power, *Power Giants to Get Federal Funds to Develop Large-Scale Carbon Capture Pilots*, POWER, Nov. 1, 2015, <http://www.powermag.com/power-giants-to-get-federal-funds-to-develop-large-scale-carbon-capture-pilots/>.

³⁸⁴ See, e.g., David Bookbinder, Opinion, *Lack of Regulation Is as Big a Problem as Costs for Carbon Capture*, N.Y. TIMES, July 7, 2016, <http://www.nytimes.com/roomfordebate/2016/07/07/clean-coal-or-a-dirty-shame/lack-of-regulation-is-as-big-a-problem-as-costs-for-carbon-capture>; David Hawkins, Opinion, *Despite Its Problems, Carbon Capture Is a Useful Alternative*, N.Y. TIMES, July 7, 2016, <http://www.nytimes.com/roomfordebate/2016/07/07/clean-coal-or-a-dirty-shame/despite-its-problems-carbon-capture-is-a-useful-alternative>; Howard J. Herzog, Opinion, *Carbon Capture Is Technically Feasible, and It Can Be Financially Feasible*, N.Y. TIMES, July 7, 2016, <http://www.nytimes.com/roomfordebate/2016/07/07/clean-coal-or-a-dirty-shame/carbon-capture-is-technically-feasible-and-it-can-be-financially-feasible>; Allison Kole, Opinion, *It's Too Late for Expensive Carbon Capture Technology to Help the Climate*, N.Y. TIMES, July 7, 2016, <http://www.nytimes.com/roomfordebate/2016/07/07/clean-coal-or-a-dirty-shame/its-too-late-for-expensive-carbon-capture-technology-to-help-the-climate>.

³⁸⁵ 2009 Report, *supra* note 1, at 52.

of recommendations to boost the green jobs economy.³⁸⁶ The 2011 Update noted the New York State Legislature passed the Green Jobs/Green New York Bill, which creates green job opportunities for new entrants into the state’s workforce, the long-term unemployed and displaced workers.³⁸⁷ The 2011 Update also noted that the PSC had made progress supporting green jobs, pointing to a PSC order from June 2009 Authorizing Workforce Development Initiatives and approving a Workforce Development Program (WFD) to be administered by NYSERDA.³⁸⁸ One way the Green Jobs, Green New York bill was implemented was by encouraging retrofits of residential and commercial properties, and the Update explained that three financing possible—property assessed clean energy (PACE), on-bill recovery financing, and direct loans—but that only direct loans were being used at that time.³⁸⁹

2017 Update:

On March 30, 2012, NYSERDA petitioned PSC to have Energy Efficiency Portfolio Standard (EEPS) funding allocated for energy and gas reallocated for WFD explaining the WFD Operating Plan “detailed specific goals to provide the present and future workforce with the technical skills necessary to serve the needs of the portfolio of programs funded through EEPS, and to overcome the barriers to workforce training and to expand the existing energy efficiency training infrastructure across the State,” and that: “Using EEPS-1 funds, NYSERDA established the necessary infrastructure, recruited training partners and trained new instructors, and supported curriculum development and equipment purchases to achieve these goals. EEPS-2 funding is intended to capitalize on these investments.”³⁹⁰ NYSERDA closed by stating:

As the Commission acknowledged in its June 2009 Order, WFD initiatives are essential to remediate the skills gap and to minimize the inefficient use of public resources and shortages of specially-trained workers in the majority of occupations in the energy efficiency sector. With the Commission’s support, we have built a strong infrastructure and statewide network to support WFD. NYSERDA respectfully seeks the Commission’s approval to allocate \$24 million in uncommitted EEPS funds to continue these efforts as described herein.³⁹¹

³⁸⁶ *Id.* at 53–54.

³⁸⁷ 2011 Update, *supra* note 2, at 23; *see* Green Jobs–Green New York Act of 2009, 2009 N.Y. Laws ch. 487 (codified at N.Y. PUB. AUTH. LAW §§ 1890 through 1899-a).

³⁸⁸ 2011 Update, *supra* note 2, at 24; *see* Order Authorizing Workforce Development Initiatives, Energy Efficiency Portfolio Standard, Case 07-M-0548 (N.Y. Pub. Serv. Comm’n June 22, 2009); *see also* NYSERDA, GREEN JOBS GREEN NEW YORK: WORKFORCE DEVELOPMENT OPERATING PLAN (2010), <https://www.nyserda.ny.gov/-/media/Files/EERP/GJGNY/gjgny-workforce-development-operating-plan.pdf>.

³⁸⁹ 2011 Update, *supra* note 2, at 24.

³⁹⁰ NYSERDA, Petition for Allocation of Uncommitted EEPS Funds for Workforce Development Initiatives, Energy Efficiency Portfolio Standard, Case 07-M-0548 (N.Y. Pub. Serv. Comm’n Mar. 30, 2012).

³⁹¹ *Id.* at 9; *see also* Order Authorizing Workforce Development Initiatives, *supra* note 409, at 6.

The PSC granted NYSERDA's request on December 17, 2012.³⁹²

Additionally, two methods of financing retrofits of residential and commercial buildings that were not being used as of the 2011 Update are now being used. PACE, which was on hold at the time of the 2011 Update, is now available at least for commercial properties and supported by Energize NY.³⁹³ Additionally, customers of certain utilities may now take advantage of on-bill recovery financing.³⁹⁴ These additional methods may make retrofits to residential and commercial properties more affordable and feasible for homeowners and businesses.

20. Encourage the State's Interagency Committee on Sustainability and Green Procurement to be Aggressive in Setting Green Specifications

In 2008, Governor Paterson signed Executive Order 4, which established a State Green Procurement and Agency Sustainability Program.³⁹⁵ Executive Order 4 also created an Interagency Committee on Sustainability and Green Procurement, which was given the duty of creating an annual list of categories and products to be developed and issued with green specifications for use by state agencies and public authorities in the procurement of commodities, services and technology.³⁹⁶ For example, the Interagency Committee helps guide other state agencies in implementing Executive Order 18, which restricts the purchase of bottled water by the State.³⁹⁷ Recognizing the Interagency Committee's broad reach, the 2009 Report

³⁹² Order Modifying Budgets and Targets for Energy Efficiency Portfolio Standard Programs and Providing Funding for Combined Heat and Power and Workforce Development Initiatives, Energy Efficiency Portfolio Standard, Case 07-M-0548, at 57, 59 (N.Y. Pub. Serv. Comm'n Dec. 17, 2012).

³⁹³ See *Energize NY Finance*, *supra* note 202; see also *supra* notes 202, 203, and accompanying text.

³⁹⁴ See *On-Bill Recovery Financing Program*, NYSERDA, <https://www.nyserda.ny.gov/All-Programs/Programs/On-Bill-Recovery-Financing-Program> (last visited Feb. 1, 2017). "On-Bill Recovery Financing is a way to obtain loans for all-fuel energy efficiency improvements through the New York State Energy Research and Development Authority (NYSERDA) and to repay these through a charge on the customer's electric and/or gas utility bill. On-Bill Recovery Financing makes it easy to pay for home energy improvements without paying cash up front." *On-Bill Recovery Financing Program Frequently Asked Questions*, NYSERDA, <https://www.nyserda.ny.gov/All-Programs/Programs/On-Bill-Recovery-Financing-Program/FAQ> (last visited Feb. 1, 2017).

³⁹⁵ See N.Y. Exec. Order No. 4 (Apr. 25, 2008), N.Y. COMP. CODES R. & REGS. tit. 9, § 7.4, <http://www.dec.ny.gov/energy/71389.html>.

³⁹⁶ 2011 Update, *supra* note 2, at 25.

³⁹⁷ See N.Y. STATE OFFICE OF GEN. SERVS. & N.Y. STATE DEP'T OF ENVTL. CONSERVATION, GREENING NEW YORK STATE: THIRD PROGRESS REPORT ON STATE GREEN PROCUREMENT AND AGENCY SUSTAINABILITY 1 (2015), <http://www.ogs.ny.gov/EO/4/Docs/ThirdProgressReport.pdf>; see also N.Y. Exec. Order No. 18 (May 5, 2009), N.Y. COMP. CODES R. & REGS. tit. 9, § 7.18, [http://www.albany.edu/purchasing/research_funded/Executive_Order_18\(1\).pdf](http://www.albany.edu/purchasing/research_funded/Executive_Order_18(1).pdf).

recommend it be more “aggressive in incorporating energy efficiency and GHG reductions into particular product specifications.”³⁹⁸

2017 Update:

The Interagency Committee is still in place and has continued to move forward with its State Green Procurement and Agency Sustainability Program.³⁹⁹ The Office of General Services (OGS) and DEC released a detailed report identifying the successes and challenges in implementing Executive Order 4 thus far.⁴⁰⁰ The report, consisting of a compilation of agency reports, noted wide success throughout the state in the green procurement arena, especially in virtually eliminating the purchase of bottled water.⁴⁰¹ For example, one of the “biggest success stories” of green procurement is that 89% of “agencies responsible for cleaning operations at their facilities (either directly or through contractors) reported the use of green cleaning products from the OGS List of Approved Products.”⁴⁰² Additionally, the recycling and composting of various materials, including commingled, single-stream and organic wastes, as well as training and tracking, have been successes.⁴⁰³

21. Promote Methane Capture

The 2009 Report recommended New York require methane capture or otherwise incentivize methane capture in municipal solid waste landfills.⁴⁰⁴ The benefits are two-fold: methane is “a greenhouse gas that is more than twenty times more potent than CO₂” and so its capture prevents its release into the atmosphere; but captured methane can also be converted to a valuable energy source.⁴⁰⁵ The 2011 Update acknowledged that incentives to encourage methane capture exist, such as New York’s CO₂ Budget Trading Program.⁴⁰⁶ Additionally, the 2011 Update noted that New York was a leader in methane capture at dairy farms; the report noted that twelve anaerobic digesters were installed on New York dairy farms to capture methane, and that the digesters produced 1.3 MW of electricity for New York.⁴⁰⁷

2017 Update:

³⁹⁸ 2009 Report, *supra* note 1, at 54.

³⁹⁹ See N.Y. STATE OFFICE OF GEN. SERVS. & N.Y. STATE DEP’T OF ENVTL. CONSERVATION, *supra* note 418.

⁴⁰⁰ See *id.* at vi–vii.

⁴⁰¹ *Id.* at 7.

⁴⁰² *Id.* at 15.

⁴⁰³ *Id.* at 9–11.

⁴⁰⁴ 2009 Report, *supra* note 1, at 55.

⁴⁰⁵ *Id.* at 54.

⁴⁰⁶ 2011 Update, *supra* note 2, at 26 (citing *CO₂ Emissions Offset Projects*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/53449.html> (last visited Feb. 1, 2017)); see also *Landfill Methane Gas Capture and Destruction*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/53455.html> (last visited Feb. 1, 2017) (providing instructions on how to apply for Offset Project Sponsorship for methane gas capture).

⁴⁰⁷ 2011 Update, *supra* note 2, at 26.

Methane capture has continued to play an important—indeed, expanding—role in New York. In 2008, landfill methane power generators in New York were already providing 80 MW of electricity, and the EPA outreach program has suggested that an additional 27.3 MW could be added by landfills that are likely candidates for methane capture.⁴⁰⁸ In 2011, the Fresh Kills methane capture project in Staten Island generated five million cubic feet of usable methane daily, providing New York with twelve million dollars per year from selling the gas.⁴⁰⁹ Also, the Development Authority of the North Country (DANC) has a methane capture facility in place in North Country, New York, and NYSERDA provides a subsidy of approximately twenty-two dollars per MW to the DANC.⁴¹⁰ To be sure, some methane capture projects at landfills are suspended or cancelled due to lack of funds for initial costs.⁴¹¹

However, as described above, methane capture and anaerobic digesters will be part of the CES.⁴¹² Moreover, as part of the REV, Governor Cuomo announced that the first large-scale anaerobic digester in New York City would be placed on Long Island.⁴¹³ “The new anaerobic digester will be operated by American Organic Energy at Long Island Compost’s 62-acre facility in Yaphank, Suffolk County and will process over twice as much food waste as currently processed at any existing privately-owned food waste digesters accepting offsite food waste in New York State.”⁴¹⁴ When completed, the Long Island anaerobic digester “is expected to reduce greenhouse gas emissions by approximately 40,000 tons annually, equivalent to removing 8,125 cars from the road.”⁴¹⁵ New York should continue to encourage the double boon of capturing methane—from both landfills and dairy farms—and using it as a renewable energy resource.

22. Improve New York’s Floodplain Mapping System

Floodplain mapping, the process of mapping out which areas in a state or municipality are especially subject to flooding,⁴¹⁶ is governed by the National Flood Insurance Program

⁴⁰⁸ John Rather, *Tapping Power from Trash*, N.Y. TIMES, Sep. 13, 2008, <http://www.nytimes.com/2008/09/14/nyregion/nyregionspecial2/14Rmethane.html>.

⁴⁰⁹ Mike Di Paola, *Methane Brings New York \$12 Million a Year as Dump Becomes Park*, BLOOMBERG NEWS, Aug. 24, 2011, <http://www.bloomberg.com/news/articles/2011-08-24/methane-fuel-trove-brings-new-york-12-million-a-year-as-dump-becomes-park>.

⁴¹⁰ PIONEER VALLEY PLANNING COMM’N, UNDERSTANDING METHANE CAPTURE FROM LANDFILLS, <http://www.pvpc.org/sites/default/files/files/PVPC-Methane%20Capture%20From%20Landfills.pdf>.

⁴¹¹ See, e.g., Rather, *supra* note 429 (noting the Croton Point landfill in Westchester County ended without a project).

⁴¹² See *supra* notes 210 and 229 and accompanying text.

⁴¹³ Press Release, Office of the Governor, Governor Cuomo Announces Innovative Clean Energy Project on Long Island Under Reforming the Energy Vision (Sept. 1, 2015), <https://www.governor.ny.gov/news/governor-cuomo-announces-innovative-clean-energy-project-long-island-under-reforming-energy>.

⁴¹⁴ *Id.*

⁴¹⁵ *Id.*

⁴¹⁶ 2009 Report, *supra* note 1, at 55.

(NFIP).⁴¹⁷ In New York, the DEC administers NFIP in coordination with the Flood Insurance and Mitigation Administration, which operates under the Federal Emergency Management Administration (FEMA).⁴¹⁸ Mapping is done by county, and counties are at various levels of mapping status.⁴¹⁹

Both the 2009 Report and 2011 Update recommended that New York update its flood zone maps to correctly reflect which areas are at risk of flooding by looking at projections regarding future sea level rise, with a hope that maps accurately reflecting future risk would allow municipalities to adjust land use regulation and better control construction in flood-prone areas.⁴²⁰ In addition, a 2010 report of New York's Sea Level Rise Task Force recommended that DEC and DOS work together to update floodplain maps to reflect projected sea level rise and changes in coastal flooding through 2100; and that municipalities increase coastal resiliency using a suite of non-structural solutions such as buffer zones, elevation, and building codes.⁴²¹

2017 Update:

Beginning in 2008 and 2009, FEMA Region 2 began coordinating with state agencies to update their Flood Insurance Rate Maps (FIRMs) to better account for current projected flood risk and the significant amount of development that had occurred since the 1980s.⁴²² In coastal New York and New York City, the mapping process was led by FEMA's New York/New Jersey Coastal Flood Study, which was initiated in 2009 and prioritized increased transparency in the floodplain mapping process.⁴²³ Major updates included new storm surge and overland wave modeling and new, detailed topographic information.⁴²⁴ As a technical partner, New York

⁴¹⁷ See National Flood Insurance Act of 1968 and Flood Disaster Protection Act of 1973, 42 U.S.C. §§ 4001–4129 (2012); N.Y. ENVTL. CONSERV. LAW §§ 36-0101 to 36-0113.

⁴¹⁸ See *Floodplain Management*, N.Y. STATE DEPT. OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/lands/24267.html> (last visited Feb. 1, 2017); see also *Federal Insurance and Mitigation Administration*, FEMA, <http://www.fema.gov/what-mitigation/federal-insurance-mitigation-administration> (last visited Feb. 1, 2017).

⁴¹⁹ See *New York – Mapping Status*, FEMA, <https://www.rampp-team.com/ny.htm> (last visited Feb. 1, 2017). Note that this database of Region 2 maps is in transition, and current floodplain maps can also be found at <http://www.region2coastal.com/view-flood-maps-data/view-preliminary-flood-map-data/> (last visited Feb. 1, 2017).

⁴²⁰ 2009 Report, *supra* note 1, at 55; 2011 Update, *supra* note 2, at 27.

⁴²¹ N.Y. STATE SEA LEVEL RISE TASK FORCE, REPORT TO THE LEGISLATURE 42, 59–60 (2010), http://www.dec.ny.gov/docs/administration_pdf/slrffinalrep.pdf; see also 2011 Update, *supra* note 2, at 27.

⁴²² See FEMA, SUMMARY OF OUTREACH AND COMMUNITY ENGAGEMENT INVESTMENTS: NEW YORK/NEW JERSEY COASTAL RISK MAP FLOOD STUDY 3 (2015), https://data.femadata.com/NationalDisasters/Hurricane%20Sandy/RiskMAP/Public/Public_Documents/FEMA_RegionII_CoastalStudy_CommunityEngagement.pdf.

⁴²³ See *id.* The Coastal Flood Study was done in coordination with the New York City Mayor's Office of Long-Term Planning and Sustainability and the U.S. Army Corps of Engineers.

⁴²⁴ See *id.*

developed a Floodplain Mapping Program to aid FEMA's Flood Hazard Mapping.⁴²⁵ Updated maps were set to be delivered by mid-2013.

The update process was stunted by Superstorm Sandy in 2012, which destroyed or damaged over 500,000 homes along the New York and New Jersey coasts.⁴²⁶ Focus shifted toward storm recovery, as Governor Cuomo established the Governor's Office of Storm Recovery (GOSR) to address housing, infrastructure, and community reconstruction,⁴²⁷ and the New York State Resilience Institute for Storms and Emergencies (NYS RISE), a consortium of five universities and the U.S. Department of Energy that operates as a preparedness research center.⁴²⁸ Meanwhile, FEMA developed updated advisory base flood elevations to support near-term reconstruction efforts.⁴²⁹ As Superstorm Sandy recovery efforts continued, FEMA returned to the floodplain maps updates process, and updated preliminary FIRMs were released between 2012 and 2015 for most counties. The FIRMs and underlying technical studies are all publically available and open for public comment.⁴³⁰ While a handful of the maps have been finalized and adopted by local officials to translate into new flood insurance rates, many FIRMs remain in the appeals and public comment period and will not immediately affect flood insurance rates or the requirement to purchase federal flood insurance in high risk flood areas.⁴³¹

FEMA has continued to exclude information about projected future impacts of sea level rise in the NFIP, and it does not limit flood insurance in areas likely to experience flooding under present climate change projections.⁴³² Rather, FIRMs map coastal flood hazards based on existing shoreline characteristics and wave and storm climatology at the time of the flood study. Nonetheless, updated FIRMs in many areas show significantly increased flood level heights which reflect new data on storm surges, existing sea level rise, and increased development on the floodplain. In part as a result of these changes, FEMA has received appeals from a number of New York communities, including a recent appeal from New York City.⁴³³

⁴²⁵ *Floodplain Management*, N.Y. STATE DEPT. OF ENVTL. CONSERVATION, *supra* note 439.

⁴²⁶ N.Y. State Resiliency Inst. for Storms & Emergencies, *Mission*, NYS RISE, <http://nysrise.org/news/> (last visited Feb. 1, 2017).

⁴²⁷ *About*, N.Y. GOVERNOR'S OFFICE OF STORM RECOVERY, <http://stormrecovery.ny.gov/about> (last visited Feb. 1, 2017).

⁴²⁸ N.Y. State Resiliency Inst. for Storms & Emergencies, *Mission*, *supra* note 447.

⁴²⁹ FEMA, HURRICANE SANDY ADVISORY BASE FLOOD ELEVATIONS (ABFEs) (2012).

⁴³⁰ *See New York – Mapping Status*, FEMA, *supra* note 440.

⁴³¹ *See id.*

⁴³² *See* Letter from Daniel A. Zarrilli, Dir. of City of New York Mayor's Office of Recovery & Resiliency, to Michael Moriarty, Dir., Mitigation Div., FEMA Region II (June 26, 2015), http://www1.nyc.gov/assets/floodmaps/images/content/pages/1-NYC%20FEMA%20Appeal%20FINAL%20with%20Appendices%20and%20Cover%20Letter%2006252015_web.pdf.

⁴³³ *See* CITY OF NEW YORK MAYOR'S OFFICE OF RECOVERY AND RESILIENCY, APPEAL OF FEMA'S PRELIMINARY FLOOD INSURANCE RATE MAPS FOR NEW YORK CITY (2015), <http://www1.nyc.gov/assets/floodmaps/images/content/pages/1-NYC%20FEMA%20Appeal%20FINAL%20with%20Appendices%20and%20Cover%20Letter%>

FEMA does encourage New York communities to map and plan locally based on projected future flooding, using data known as “future-conditions hydrology.”⁴³⁴ At a local government’s request, FEMA can include the future impacts on their flood insurance rate map, but the impact and usefulness of this approach is limited because FEMA does not use this data in any official capacity and does not incorporate it into flood insurance premium rates.⁴³⁵ In addition, the New York Department of Homeland Security and Emergency Services coordinates with FEMA under the Disaster Mitigation Act⁴³⁶ to develop a Standard Hazard Mitigation Plan. The most recent Hazard Mitigation Plan, released in 2014, considers projected sea level rise through 2080 for planning purposes, as well as other long-term impacts of climate change.⁴³⁷

New York has also made strides in coastal resiliency efforts. Such efforts are essential given New York’s estimated 1,850 miles of tidal shoreline, where scientists are projecting increased sea levels of 18 to 50 inches.⁴³⁸ With the enactment of the CRRA in 2014, a variety of permitting, funding, and planning programs in all 62 counties now must demonstrate consideration of future physical risks due to sea level rise, flooding, and storm surge, and DEC has proposed new sea level rise projections.⁴³⁹ As stated above, the Department of Environmental Conservation adopted final regulations setting forth the projections required by the CRRA on February 7, 2017. Those regulations, which are codified at 6 New York Code of Rules and Regulations, Part 490 include tables depicting sea level rise predictions for three regions of New York State: the Mid-Hudson, New York City/the Lower Hudson, and Long Island. New York City is modifying its flood maps to reflect sea level rise. New York State should undertake a similar process for the other parts of the state that are vulnerable to sea level rise. (This includes areas along the Atlantic Ocean, Long Island Sound, and the Hudson River south of the Troy Dam.) In conjunction with the flood mapping process New York should also consider the extreme precipitation events that are likely to increase due to climate change, resulting in more inland flooding.

2006252015_web.pdf. In June 2015, New York City filed a technical appeal of its preliminary floodplain maps, contending that the new maps overestimated the height of flood levels by up to two-and-a-half feet. *See id.* City officials argue that this error mistakenly affected 26,500 buildings and 170,000 people by including them in areas susceptible to a 100-year storm. *Id.* As of March 2016, the appeal was still under review by FEMA. *See Appeals, NYC Flood Maps*, <http://www1.nyc.gov/site/floodmaps/appeals/overview.page> (last visited Feb. 1, 2017).

⁴³⁴ *See* 44 C.F.R. §§ 59.1, 64.3 (2015).

⁴³⁵ *See* PACE LAND USE LAW CENTER, HUDSON RIVER SUSTAINABLE SHORELINES PROJECT: LEGAL FRAMEWORK ANALYSIS 49–50 (2011), <https://www.hrner.org/doc/?doc=240189622>.

⁴³⁶ *See* Disaster Mitigation Act, 42 U.S.C. §§ 5121–5208 (2012); 44 C.F.R. pt. 201 (2015).

⁴³⁷ N.Y. STATE DIV. OF HOMELAND SEC. & EMERGENCY SERVS., 2014 NEW YORK STATE HAZARD MITIGATION PLAN § 3.4, at 10–11 (2014), <http://www.dhse.ny.gov/recovery/mitigation/documents/2014-shmp/2014-SHMP-full.pdf>.

⁴³⁸ *Sea Level Rise: What is Expected for New York*, N.Y. STATE DEP’T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/45202.html> (last visited Feb. 1, 2017).

⁴³⁹ *See supra* notes 48–74 and accompanying text.