CLOSUP Working Paper Series
Number 49

August, 2020

Renewable Energy Policy in New York

Samantha VanDyke, University of Michigan

This paper is available online at http://closup.umich.edu

Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the Center for Local, State, and Urban Policy or any sponsoring agency

Center for Local, State, and Urban Policy
Gerald R. Ford School of Public Policy
University of Michigan

RENEWABLE ENERGY POLICY IN NEW YORK

Samantha VanDyke

August 2020

Table of Contents

I. Introduction

New York (NY) is located in the northeastern part of the United States (U.S.) and is home to the largest U.S. city. It is the 4th most populous state and also has the 3rd biggest economy in the U.S. New Yorkers consume less total energy per capita than residents of every other state except Rhode Island. New York is a leader when it comes to renewable energy policy. The state has one of the most aggressive climate policies in the country and has favorable democratic leadership that is leading it to a clean energy future. A new streamlined siting process are positioning the state to utilize all of the renewable energy options at its disposal, especially offshore wind. While New York is a very forward-thinking state, it needs to adequately address its greenhouse gas emissions and expand its transmission network in the most equitable way possible. Effectively executing New York's new climate law will prove invaluable to the state and set the stage for future progressive renewable energy policies.

II. Background

Electricity Mix

New York's electricity sector relies on a mix of non-renewable and renewable energy sources. Both nuclear and natural gas have increased in percentage of the electricity supply since 2001 (Figure 1). In 2001, coal made up about 16% of New York's electricity supply, but now makes up a very minimal portion. Petroleum also dropped off to less than 1% of electricity generation. While wind and solar have made good progress since 2000, they still only represent a fraction of total electricity supply (Figure 2).[1]

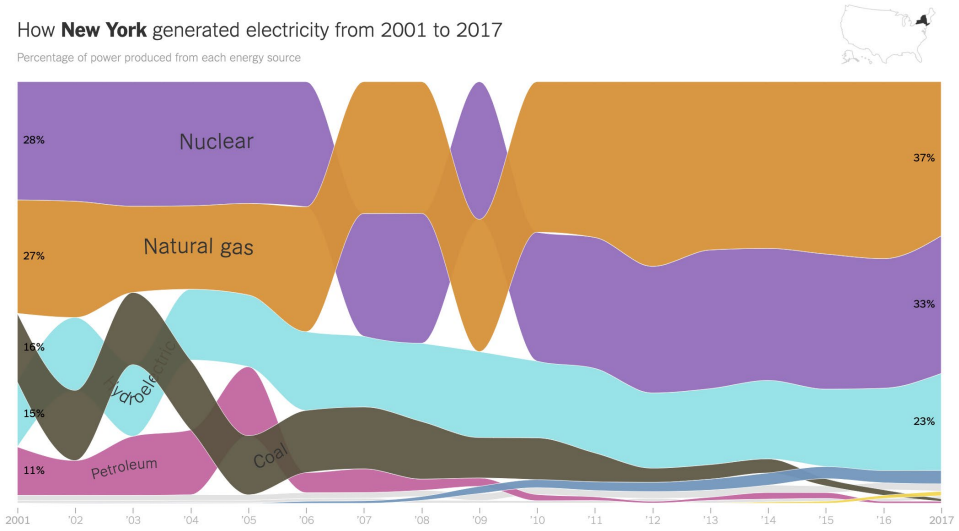

Figure 1: New York Electricity Mix from 2001 through 2017 (Source: New York Times)

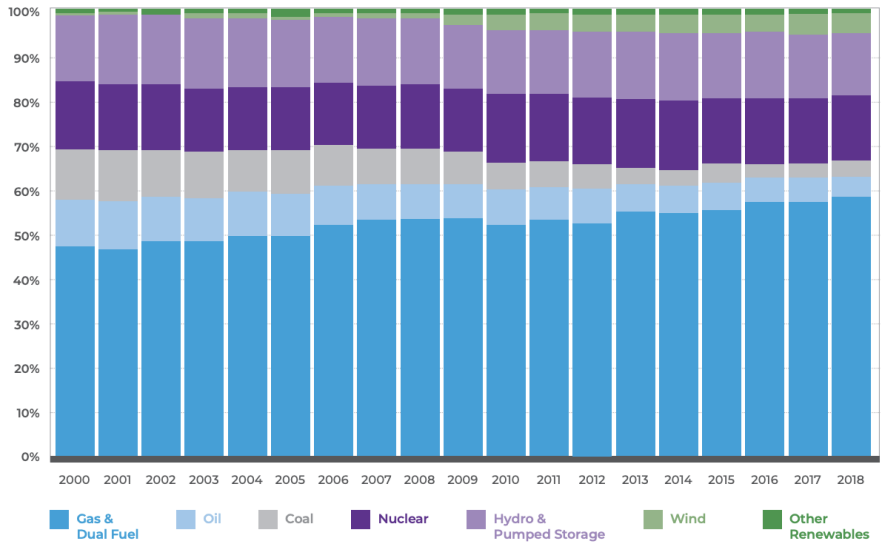

Figure 2: Proportion of Electricity Generation in New York by Fuel Type from 2000-2018. (Source: Breaking Down the Barriers to Siting Renewable Energy in New York State)

Currently, nuclear makes up the largest percent of electricity generation in New York, followed by natural gas and hydroelectric power (Figure 3).[2]

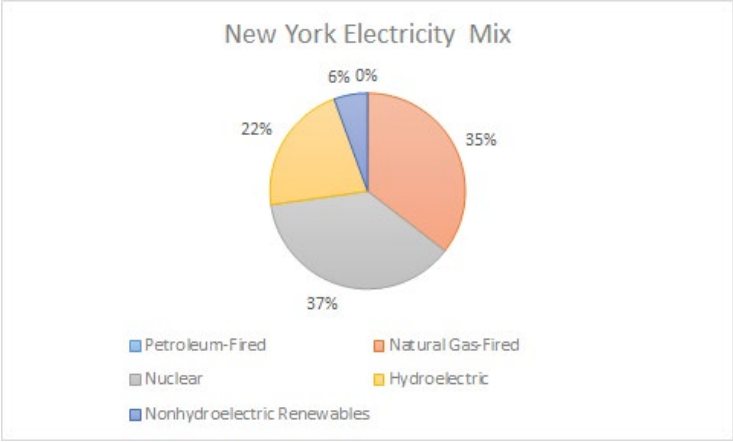

Figure 3: New York Electricity Mix, 2019 (Source: EIA)

Installed Capacity

New York currently has 1,892.69 MW of installed solar capacity. This accounts for only 1.67% of the state's energy profile. Figure 4 shows the amount of added solar capacity each year in New York since 2010.[3] There are 1,262 MW of solar projects currently under development, with 351 community solar projects.[4] New York has one of the fastest growing distributed solar markets in the nation.[5]

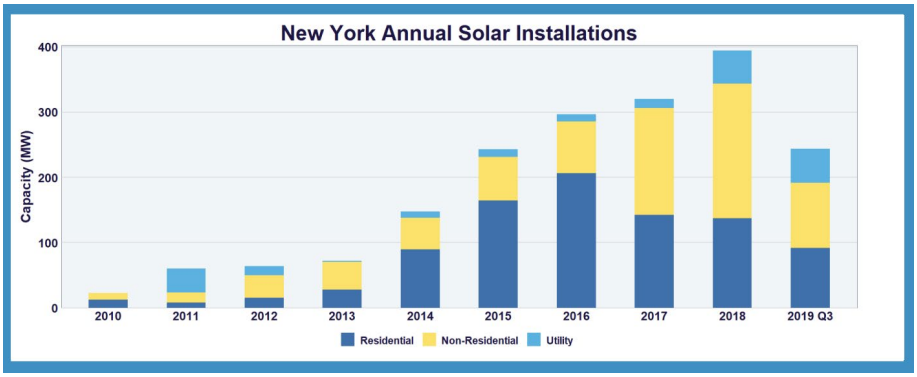

Figure 4: New York Annual Solar Installations (Source: SEIA)

New York also has 1,987 installed MW capacity of wind, but there is only 1 wind farm under construction, the Cassadaga Wind Project (Figure 5). This wind farm contains 37 turbines with a capacity of 125.5 MW.[6] As of June 3, 2020, an Invenergy wind farm was approved by New York regulators. This 340 MW wind farm, titled the Alle-Catt wind farm, will be located southeast of Buffalo. It will be the state's largest wind farm producing enough energy to power about 134,000 homes.

The state's greatest wind resources are actually offshore.[7] New York has awarded two new contracts for offshore wind: the 880 MW Sunrise Wind Project that is to be developed in Long Island and the 816 MW Empire Wind project that is to be developed south of New York City.[8,9,10] In January, NYSERDA submitted a petition to the New York Public Service Commission (PSC) to procure between 1,000 and 2,500 MW of offshore wind capacity.[11] The PSC approved this order in late April, which is a large step toward Governor Cuomo's new climate plan, which is discussed further in the Climate Policy section.[12]

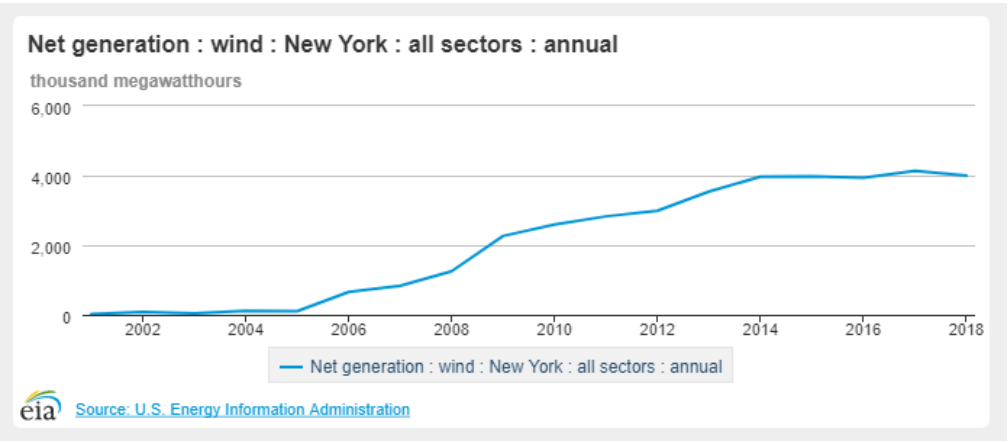

Figure 5: Net generation of wind in New York.

In March of 2020, Governor Andrew Cuomo announced the details for 21 large-scale solar, wind, and energy storage projects in upstate New York, which totals 1,278 MW of new renewables capacity. This means there are 65 outstanding NYSERDA contracts. These projects will catalyze over $2.5 billion in direct, private investments toward their development, construction, and operation with the creation of over 2,000 short- and long-term jobs. These awards will accelerate progress toward New York's new and more stringent clean energy goals. All projects are expected to be operational by 2024 and will generate enough renewable energy to power over 350,000 homes, with carbon emissions reductions equivalent to removing about 300,000 cars from the roads. The state will also continue to emphasize engagement with communities where the projects are being sited and developed.[13]

III. Role of New York State Energy Research & Development Authority (NYSERDA)

NYSERDA is a public benefit corporation that offers objective energy information and analysis, technical expertise, and support to help the people of New York increase energy efficiency, incorporate renewable energy, and reduce their reliance on fossil fuels. NYSERDA plays a large role in achieving the state's clean energy and carbon reduction goals. NYSERDA helps develop an energy system that pollutes less and is more reliable and affordable for customers. It helps in reducing greenhouse gas (GHG) emissions, accelerating economic growth, and reducing customer energy bills. NYSERDA oversees a lot of programs, all dealing with energy and the environment and provides funding for these programs that businesses, researchers, and homeowners can apply for.[14]

IV. Climate Policy

In 2004, New York first adopted its Renewable Portfolio Standard (RPS) which required the state to acquire 29% of its electricity sales from renewable sources. This was met in 2015. In 2016, when this RPS expired, New York implemented the Clean Energy Standard (CES), which required utilities and retail electricity suppliers to obtain 50% of their electricity from renewable sources, which includes nuclear power.[15] The CES also includes a Zero Emissions Credit (ZEC) requirement, which is designed to support the state's existing nuclear generation facilities as one of the ways to achieve New York's goal of reducing its GHG emissions. The ZEC provides credit for the fact that nuclear facilities produce zero emissions.[16]

Climate Leadership and Community Protection Act

In July 2019, Governor Cuomo passed the Climate Leadership and Community Protection Act (CLCPA). This piece of legislation came as a revision of the CES and also a revision of Cuomo's previously announced Green New Deal.[17,18] The 2018 election flipped the Senate from majority Republican to majority Democrat. Since the House of Representatives was already majority Democrat, this created a strong Democratic Assembly, which aided in the passing of this monumental legislature.

The CLCPA requires the state to reduce global warming pollution 85% below 1990 levels by 2050 and to offset the remaining 15% through measures to remove carbon dioxide from the atmosphere. This also includes 40% reductions from 1990 emissions by 2030. These GHG reductions include all sectors of the economy. This bill requires New York to obtain 70% of its electricity from renewable sources by 2030 and shift to 100% carbon-free electricity by 2040. The bill targets 9 GW of offshore wind energy by 2035, 6 GW of solar energy by 2025, and 3 GW of battery storage by 2030.[19,20] Also, 35% of the benefits of this legislation must be directed toward Environmental Justice communities, with a goal of reaching 40% of the benefits. Despite New York's large population, this new legislation is the most stringent climate target in the U.S. and one of the most ambitious targets in the world.[21,22] While this is a very aggressive climate policy, New York has been a leader on clean energy and GHG emissions for a while. This piece of legislation will continue to shape renewable energy policy in New York for years to come.[23]

New York's GHG emissions have declined 13% from 1990 to 2016. New York joined the Regional Greenhouse Gas Initiative (RGGI), a market-based regulatory program to reduce greenhouse gas emissions, in 2009 when the program was created.[24,25] The largest decrease in emissions occurred from the electric sector shifting toward cleaner sources of power. GHG emissions declined 51.3% within the electric sector due to the elimination of coal, the increased use of nuclear power, and the growing use of high fuel efficiency combined-cycle natural gas plants.[26]

To achieve the ambitious climate goals, the CLCPA has two specific approaches: increase energy efficiency by 185 BTU and expand the share of electric power generated by renewable sources. To achieve the most GHG emissions reductions per dollar spent New York should: establish a carbon tax or cap-and-trade system, look beyond state borders for low-cost, low-emission energy supplies, retain nuclear energy, avoid self-imposed constraints such as limiting natural gas pipeline capacity, promote broad transportation solutions that use existing infrastructure, and establish a prioritization system to pursue renewables that provide the greatest GHG reductions.[27] Also, a 22-member Climate Action Council is being established that is made up of the heads of different state agencies. This Council will set out recommendations for reducing emissions across every sector of the economy.[28]

Progress Update

However, one year after the passage of this act, New York is struggling to meet its goals. The state is supposed to have established a social cost of carbon and an updated GHG inventory by the end of the year and progress is unknown. In light of the recent coronavirus pandemic, recession, and police brutality protests some of these concerns about slow progress are valid, but some say that the state was off to a slow start even before the pandemic. However, there are some good signs that the CLCPA is making progress. The state continues to build out offshore

wind, and the Department of Environmental Conservation rejected a large natural gas pipeline. There is also ambiguity over how best to serve environmental justice communities and what constitutes a benefit and which communities qualify. It's easy to put it all down on paper how the state is going to slash emissions and increase renewable energy, but it's a lot more difficult to actually implement the plan.[29]

Wind and solar buildout have been quite slow. Wind production increased slightly from 2018, but solar production has remained flat. However, there are signs that the state will make headway in terms of offshore wind buildout. With the new streamlined siting approval process (See Siting section), there will continue to be additional renewables deployment, which will help the state achieve the CLCPA goals. Rich Dewey, CEO of the New York Independent System Operator, mentions that carbon pricing is likely going to be New York's most effective method for meeting its greenhouse gas emissions reduction goals.[30] Also, Alicia Barton is stepping down as president of NYSERDA. She was New York's top clean energy official and was a leader in pushing for the CLCPA. She is leaving the agency to take a position in the private sector in Boston. This move has raised some further questions about New York's ability to meet the CLCPA goals. Barton's successor will be responsible for ensuring the goals of the CLCPA are met, such as the ever-complicated task of decarbonizing the state's electric power sector by 2040 while ensuring the grid still runs smoothly.[31]

V. Taxation of Renewables

A major aspect of renewable energy development in New York is the treatment of renewables in the tax code. The property taxes, sales taxes, and tax incentives all impact renewables in different ways.

Property Taxes

Section 487 of the New York State Real Property Tax Law exempts utility-scale solar and wind projects as well as rooftop solar from property taxes for 15 years. In the past, many small-scale renewable energy installations have been granted a 15-year tax exemption under Section 487. Local tax jurisdictions have the option to opt-out of this tax exemption, which would require the renewable developer to pay the full tax liability, or they can enter an agreement for a Payment In-Lieu of Taxes (PILOT) to benefit financially. Most wind projects have negotiated a PILOT with the county Industrial Development Agency (IDA).[32,33]

However, sometimes projects will cease development if they are fully taxable because property taxes have a significant impact on the financial viability of solar projects. Therefore, jurisdictions that opt-out of the tax exemption, and thus allow the project to be fully taxed, may unintentionally prevent solar development at the local level. A local jurisdiction that opts-out of

the tax exemption, with or without the PILOT, to generate tax revenue from larger projects makes solar installations more expensive for homeowners and local businesses.[34]

Payments In-Lieu of Taxes

The purpose of a PILOT agreement is to reduce the tax burden on the property and/or system owner while preserving some of the lost revenue that would have been paid in property taxes.[35] While any taxing jurisdiction can opt-out of the property tax exemption by adopting a local law or resolution, making the added value of the solar panel system fully taxable, many adopt a PILOT agreement as a replacement for the taxes it would have otherwise collected. PILOTs cannot exceed what the tax amount would have been without the exemption and are often negotiated for individual projects. Opting out of the property tax exemption also makes community solar projects less financially viable and makes rooftop systems more expensive. The amount a project can afford depends on many factors, such as construction and maintenance costs and revenue from electricity sales. If the PILOT amount is too high, the developers will not be able to make the project economically feasible and will not proceed with construction. Overall, the amount of revenue available for a PILOT is dependent on the overall project economics.[36]

For example, Fulton County voted to opt-out of the New York State property tax law. Now, six solar farms are paying taxes as part of PILOT agreements. Several county residents spoke out against the tax exemption because some of them think that tax breaks are unfair to other industries. One resident believes that the real reason the board passed the law was because of objections by residents regarding aesthetic reasons of solar panels.[37]

Industrial Development Agencies

Industrial Development Agencies act as public benefit corporations and are formed under Article 18-A of the New York State General Municipal Law.[38] The purpose of IDAs is to promote, encourage, and assist in acquiring, constructing, improving, maintaining, and furnishing various facilities. In general, they advance job opportunities, health, and general prosperity of the people of New York. IDAs can assist economic development projects by issuing tax-exempt and taxable bonds for qualifying projects and issuing a PILOT agreement.[39] The New York City Industrial Development Agency (NYCIDA) supports business growth, relocation, and expansion across the five boroughs of New York. NYCIDA's tax incentive programs boost the local economy and create jobs.[40] Some believe that IDAs give too many tax breaks to big corporations at the expense of the community. In 2009, IDAs gave away almost a half a billion dollars to companies, but they are supposed to help their local communities. There are currently 115 IDAs around the state, and some have been accused of working against each other.[41]

Sales Taxes

Legislation was enacted in 2005 that exempts the sale and installation of residential solar-energy systems from New York State sales taxes. This exemption was extended to non-residential solar systems in August 2012. In 2015, the exemption was extended to third party owners who provide solar electricity to residential and commercial users. This law also permits local governments to grant an exemption from local sales taxes.[42]

Incentives

Residential Solar Tax Credit

The residential solar tax credit includes a tax credit for 25% of the cost of equipment for solar-electric and solar-thermal systems. The maximum incentive includes $5,000 for solar-energy systems placed in service on or after September 1st, 2006. This tax credit can be claimed for systems installed under lease or Power Purchase Agreement of at least ten years in length. There is a 25 kW capacity limit on residential, net-metered solar energy systems, and a 50 kW capacity limit for condos and cooperative housing associations.[43]

NY-Sun Initiative

NY-Sun is a NYSERDA initiative to help make solar more affordable for the people of New York, including increasing accessibility of solar to homes, businesses, and communities. The goal of this program is to make it possible for New Yorkers to adopt clean energy practices while lowering their energy costs. This program can provide financial incentives for your home and business, provide training and tools to help local governments identify opportunities, and expand access to community solar.[44]

Megawatt Block Program

The Megawatt Block Program is part of the NY-Sun initiative. It offers financial incentives to install solar panels for residential, commercial, and industrial projects. This program is divided into regions across the state. NY-Sun assigns a certain amount of incentives to each of the three regions, with each region being broken into blocks that are assigned an allocation of MWs eligible for NY-Sun incentives. These incentives remain available until all blocks within a region are fully subscribed. The purpose of the block structure is to support solar markets in areas where support is needed the most.[45]

The funding available for this program is available on a first-come, first-served basis, and is awarded to the developer to offset the cost of building a solar project. Therefore, those who act early will receive higher incentives and more savings. The value of the incentive is determined by the size of the system.[46] The incentives are about 30 cents per watt for residential buildings. For example, if you install a 4000-watt system, you will receive a grant of $1200.[47]

VI. Siting and Permitting

Article 10 and the Power Siting Board

New York has a complex legal landscape for siting and permitting that will likely require significant reform if the state is to meet its energy goals. The Power NY Act was established in 2011 (commonly known as Article 10) and is a process for the siting of electric generating facilities of 25 MW or greater. A multi-agency Siting Board was developed to streamline the permitting process.[48,49] Article 10 requirements, which include minimizing impacts of community, economic, cultural, and other externalities of large-scale energy projects, cause wind and solar projects to be caught up in a long siting process before construction can even begin. The Siting Board has the power to overrule local ordinances that have been enacted by host communities, but it is unclear to what degree they can do this. The local law must be "unreasonably burdensome" on the project under consideration. However, no Siting Board has exercised this capacity.[50,51]

Current and Proposed Projects

As of November 2019, there are 16 wind projects in the queue, amounting to a planned 3.1 GW of generation capacity. There are 29 solar projects in the queue, with an average nameplate capacity of 160 MW, with the largest projects up to 250 MW. The state has only one solar project that is larger than 25 MW (32 MW), and it was built before Article 10 was passed. This process is likely disincentivizing developers from pursuing large solar projects in the state. No solar projects have made it through the process, to date. However, the success of these projects and ability to make it through the queue, will directly impact the success of the CLCPA.[52]

While there is currently no wind capacity under construction, the New York State Siting Board recently approved a 124 MW wind farm in Broome County, despite community objections. This project, the Bluestone Wind Project, includes the construction of 27 turbines. While approving this project, the board also rejected a newly adopted Town of Sanford zoning law that would effectively ban new projects by placing severe restrictions on projects. This project is making its way through the Article 10 process.[53,54]

The High Bridge Wind Farm is another project that has not yet begun construction, but was approved by the Town of Guilford. This project includes 25 turbines totaling 100 MW. This project has submitted an application for the Article 10 process as well.[55,56]

New Bill

In February of 2020, Governor Cuomo proposed a new bill, the Accelerated Renewable Energy Growth and Community Benefit Act.[57] Early this April, the bill was passed as part of the FY 2020-2021 state budget to speed up the siting and construction of clean energy projects to

address climate change. This new Act makes New York the first state to establish a renewable siting office to accelerate the deployment of renewables. It will improve and streamline the siting process for large-scale renewables and deliver significant benefits to local communities. This new law will provide more certainty to developers in terms of conditions they will have to meet and will make it easier for these large projects to navigate the daunting siting process.[58,59] This Office of Renewable Energy Siting will consolidate the environmental review process of major renewable energy facilities and ensure that siting decisions are predictable, responsible, and delivered in a timely manner that also allows for input from local communities. Draft permits will be developed for public comment, and all applications for projects larger 25 MW will be acted upon within one year. A Clean Energy Resources Development and Incentives Program is to be administered by NYSERDA to maximize economic development and natural resource protection. NYSERDA will work with state partners and local communities to advance build-ready projects and prioritize development on brownfields or abandoned commercial sites. They will perform resource feasibility assessments, design, planning, and siting activities necessary to establish build-ready sites.[60,61]

This law also includes a Host Communities Benefits program to ensure that all renewable energy projects deliver benefits to the communities in which they are sited. These tangible benefits and incentives will extend to property owners and communities where renewable energy facilities are built. Another part of this program will provide utility bill discounts or other environmental benefit compensations to residents of host communities. The Grid Planning and Energy Delivery Constraint Relief (Transmission) portion of the Act will help prioritize planning, investment, and responsible development of grid infrastructure to allow for full delivery of renewable power to the state of New York. The state will also develop a State Power Grid and Study Program to accelerate the planning and construction of reliable transmission and distribution infrastructure to ensure that renewable energy can be delivered in a cost-effective way to power New York homes and businesses.[62] This law also directs the Public Service Commission to establish a distribution and local transmission system capital program for each utility in need of local upgrades.[63]

Farmland Preservation

About 20% of New York's land area, or nearly 7 million acres is farmland.[64] Compared to the total area of New York, the amount of land to be affected by solar is trivial, however, solar is likely to be concentrated in areas with attractive characteristics for development. Solar is good for farmers because leasing land for solar development can be more profitable than producing most crops, however, converting agricultural land for solar farms will not benefit all landowners.

The New York State government has shown interest in avoiding solar development on farmland. New York has an agricultural assessment program in which a landowner deciding to convert covered land to a non-agriculture use must pay a tax based on the difference between use and market value for the previous five years, including interest. New York would likely benefit from

what Minnesota does in terms of solar on farmland. Minnesota does not identify farmland as a land type to avoid for solar development and instead enacted best practices to establish and encourage prairie and pollinator habitat around and under solar farms.[65]

Farmers, or owners of land, like the idea of a lease because these times can be hard financially. Farmers are also realizing the threat of the imminent climate crisis. Local opposition has to realize that leasing part of their land is how farmers will keep their farms alive. It won't be long before harvesting the sun is commonplace among the farming community. It is imperative that New York find a balance between the development of renewable energy and the preservation of active farmland.[66]

Local Opposition

Generally, there is a strong upstate vs. downstate divide in New York. About 60% of the state population lives in the metropolitan area with about 40% of the population residing in New York City. This can be challenging for Governor Cuomo to navigate because the issues are starkly different in each part of the state. A lot of renewables are sited upstate, while a lot of the power consumption occurs downstate. This results in a lot of local opposition to new renewable energy facilities.[67]

A lot of renewables that power New York City (NYC) and downstate New York are sited upstate, which creates some tension and local opposition. There is longstanding resentment from upstate communities for having to deal with these siting issues to help power the largely populous NYC. However, there is no easy answer to providing enough power to NYC, other than siting projects in the less populous areas of upstate New York.

For example, in Coxsackie, NY there is a 50 MW proposed solar facility on active farmland. A community meeting drew more than a hundred citizens with opinions about this solar farm. This meeting was controlled by opponents of the project, namely a local opposition group, Saving Greene. The founder of this group is a local landowner whose home overlooks the proposed site. She claims that certain areas are destined for darkness. Most local opposition boils down to viewshed, however, the developer plans to use less than 400 acres, leaving ⅔ of the land for active farming or conservation. Despite the success of wind farms across the state, renewable energy developers still find it hard to win communities over for their support. This even happens despite solar arrays being the least disruptive of any electricity-producing technology

People in rural New York tend to be labeled as climate deniers because of their opposition to renewable energy development. A lot of opposition comes from the burden that these renewable projects place on small towns and when citizens are not consulted. Rural communities are not always opposed, despite what most people might think. Building large renewable projects upstate without sufficient transmission capability will cause the renewables to be shut off, thus

diminishing the point of installing them.[68] Opposition groups in New York are well organized and has resulted in at least a dozen municipalities placing moratoriums on solar projects with others awaiting possible bans.[69]

VII. Transportation Climate Initiative

There is also a plan under development in some Northeastern and Mid-Atlantic States to help cut greenhouse gas emissions, reduce road congestion, clean up the air, increase EV adoption, and improve public transit. Essentially the residents in these states would pay for this plan because gas prices would increase 8 or 9 cents a gallon. It is unclear whether Governor Cuomo will participate in this plan. This is a big deal given how populous the state of New York is. This small gasoline fee would help with repairing an ailing subway system; however, this plan would not sit well with upstate New Yorkers who mostly commute via cars. [70]

VIII. Solar Policies

NY-Sun

In 2011, the NY-Sun initiative was launched by Governor Cuomo to expand solar development in New York. This initiative has resulted in the completion of 89,000 solar projects, enabled the installation of solar on the rooftop or property of 123,000 homes in every country, delivered clean, renewable energy to power over 244,000 New York homes, and helped lower the price of solar. 2019 was actually NY-Sun's most productive year for solar installations.[71] NY-Sun is a program run by NYSERDA.[72] NYSERDA filed a petition in November of 2019 with the New York Public Service Commission requesting an additional $573 million to expand the NY-Sun program to help achieve the state's 6 GW solar target. $135 million of this focuses on low- and moderate-income people, affordable housing, environmental justice communities, and disadvantaged communities.[73]

Value of Distributed Energy Resources

New York is transitioning from net metering to value stack. The Value of Distributed Energy Resources (VDER) was adopted by the New York Public Service Commission in 2017. VDER uses the Value Stack Tariff to credit solar owners for the power their systems uploaded to the grid. VDER was developed to improve upon net metering and take into account all of the additional benefits solar power creates for the state of New York. While net metering is a simple kWh-for-kWh exchange, the VDER evaluates the benefits of solar as a value stack, which includes environmental, locational, and temporal factors of solar energy. Essentially, the value stack realizes that the benefits of solar energy are more complex than net metering's one-for-one exchange. The factors that make up the value stack rate include: energy value, capacity value, environmental value, demand reduction value, and locational system relief value. Residential customers that installed solar panels before January 1, 2020 can choose between the Value Stack

Tariff or standard net metering for 20 years, and those that installed panels after January 1, 2020 will receive the Value Stack Tariff.[74]

IX. Public Service Commission (PSC) Policies

The New York Public Service Commission regulates the electricity sector as well as the natural gas, steam, telephone, and water industries. The Commission is given the responsibility of setting rates and ensuring that adequate, safe, and reliable service is provided by New York's utilities. The PSC has five commissioners who serve six-year terms and are appointed by the governor.[75] In 2016, the PSC approved a reform to regulations governing electric utilities that provides more choice and cost-saving opportunities for New Yorkers wishing to obtain renewable power.[76]

Interconnection Standards

New York was the second state to adopt uniform interconnection standards for distributed generation in the US. These Standardized Interconnection Requirements (SIR) were adopted by the PSC in 1999, but have been updated many times. These newer requirements allow for net metering rules to change and reduce the backlog of interconnection proposals, resulting in an expedited process. Systems up to 50 kW are eligible for a simplified, 6-step process.[77] In 2018, the PSC made additional updates to make it easier for renewable distributed generators, including energy storage systems, to connect to the electric grid. Easier connection to the grid will help ensure that as many clean energy projects as possible get online. [78]

X. Transmission

Within the New York Independent System Operator (NYISO), as of 2019 there are 11,173 miles of transmission lines. Over 80% of the transmission system was put into service before 1980; however, more than 2,700 MW of transmission capacity have been added to serve the electric system (Figure 6). Enhanced and additional transmission capabilities will help with variations in wind and sunshine across New York.[79]

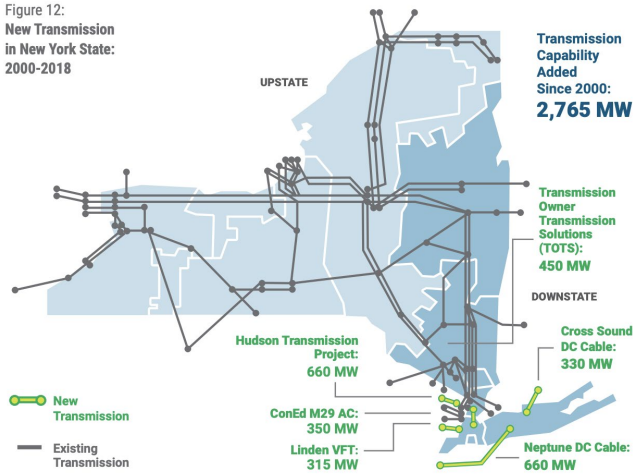

Figure 6: Existing and New Transmission lines as of 2018 (Source: NYISO)

Transmission and storage of renewable energy provide additional barriers for the state of New York.[80] There is a pressing need for additional high voltage transmission investment in New York. Existing wind generation projects in upstate New York have been curtailed every month between January 2015 and December 2018 due to reliability and delivery constraints, and additional planned renewable generation will likely make this problem worse. [81] Therefore, a more robust and reliable transmission and distribution network is essential if New York wants to achieve its climate goals and remain a clean energy leader. Most, if not all of these transmission projects are a direct result of public policy, which highlights the importance of forward-thinking and ambitious renewable energy policy.

New and Proposed Projects

Marcy-South Compensation Series

This project was developed by the New York Power Authority (NYPA) to improve energy transmission. Lower New York accounts for half of statewide power consumption but has limited access to upstate power generation. To address this, NYPA installed two capacitor banks using smart grid technology to provide as much as 440 MW of additional transmission capacity. These are cheaper than additional transmission lines and also increase access to clean energy. This project is now completed.[82]

Empire State Line

This transmission project comes in response to a public policy transmission expansion need identified by NYISO. This 20-mile, 345 kV line is a NextEra Energy project that runs from Royalton, NY to Elma, NY. This transmission line will improve electric reliability and help support additional renewables deployment in the state. It will transmit 3,700 MW of renewable

energy and boost the local economy with the creation of 50-100 construction jobs. This project will be completed by June 2022.[83,84]

AC Transmission Public Policy Initiative

These two proposals will expand transmission capacity between central and eastern New York and from the Albany region through the Hudson Valley region. These projects still need to receive approval from the PSC and will be the first large-scale, high-voltage alternating current (AC) transmission facilities constructed in New York in about three decades. These will likely not be complete and online until 2023.[85,86]

XI. Other Renewable Development Issues

New York lacks support for smaller-scale renewable energy options. Currently, a lot of the renewable energy produced in New York is being exported to nearby states that provide better incentives for clean power generation. Also, New York is getting less power from renewable sources than it once did. For example, in 2018 the state received 26% of its electricity from renewable sources, which is a decrease from 29% in 2014. Also, both of these percentages fall short of the GHG emissions goals. If New York fails to remain competitive with neighboring states, the power producers will not be able to justify keeping their energy in New York. The state will never have an energy grid that runs on 70% renewable power if existing clean energy keeps getting shipped out of state.[87]

XII. Conclusion

While New York remains a clean energy leader with the most ambitious climate goals in the country, there is still a lot of work to be done to ensure that all New Yorkers can live sustainable and just lives. The new bill to streamline siting and permitting of renewable energy facilities is a step in the right direction. However, New York needs to do more to curb its GHG emissions, expand its transmission network, and find a balance for siting renewables on farmland. New York needs to work with its communities to better understand their needs and frustrations related to this energy transition. Overall, the state is progressing nicely, but more robust policies could really accelerate renewable energy development in New York.

[1] Popovich, N. (2018). How Does Your State Make Electricity? *The New York Times.* Retrieved from https://www.nytimes.com/interactive/2018/12/24/climate/how-electricity-generation-changed-in-your-state.html
[2] Energy Information Administration. (2019). New York Profile Analysis. Retrieved from https://www.eia.gov/state/analysis.php?sid=NY
[3] Solar Energy Industries Association. (2020). New York Solar. Retrieved from https://www.seia.org/state-solar-policy/new-york-solar
[4] Sylvia, T. (2019). New York is a 2 GW solar state. *PV Magazine.* Retrieved from https://pv-magazine-usa.com/2019/12/17/new-york-is-a-2-gw-solar-state/
[5] Misbrener, K. (2019). New York reaches 2 gigawatts of installed solar capacity. *Solar Power World.* Retrieved from https://www.solarpowerworldonline.com/2019/12/new-york-reaches-2-gigawatts-of-installed-solar-capacity/
[6] RWE. (2020). Cassadaga Wind Project. Retrieved from https://www.group.rwe/en/our-portfolio/innovation-and-technology/project-proposals/construction-projects-renewables/cassadaga
[7] WindExchange. (2020). Wind Energy in New York. Retrieved from https://windexchange.energy.gov/states/ny
[8] Sunrise Wind. (2020). Factsheet Sunrise Wind. *Ørsted & Eversource.* Retrieved from https://orstedcdn.azureedge.net/-/media/www/docs/corp/us/sunrise-wind/sunrise-wind-factsheet-final.ashx?la=en&rev=b683a00725ea47388722ae45bdac761b&hash=59BF87555082A7A3EC2E34D57DDAD584
[9] Equinor. (2020). Equinor's Empire Wind. Retrieved from https://www.equinor.com/en/what-we-do/empirewind.html
[10] Howe, C. (2020). NY's Climate Leadership and Community Protection Act: A Case Study [PowerPoint slides]. Natural Resources Defense Council.
[11] Meyers, H. E., & Chorost, D. (2020). NYSERDA Requests PSC Authorization to Procures at Least 1,000 MW of Offshore Wind Capacity in 2020. *Sive, Paget, and Riesel Law*. Retrieved from https://sprlaw.com/nyserda-requests-psc-authorization-to-procure-at-least-1000-mw-of-offshore-wind-capacity-in-2020/
[12] Gheorghiu, I. (2020). New York hits the brakes on 2.5 GW solicitation of offshore wind due to COVID-19. *UtilityDive*. Retrieved from https://www.utilitydive.com/news/new-york-hits-the-brakes-on-25-gw-solicitation-of-offshore-wind-due-to-cov/576712/
[13] New York Government. (2020). Governor Cuomo Announces Details for 21 Large-Scale Renewable Energy Projects to Deliver clean, Affordable Energy to New Yorkers. Retrieved from https://www.governor.ny.gov/news/governor-cuomo-announces-details-21-large-scale-renewable-energy-projects-deliver-clean
[14] New York Government. (2020). About NYSERDA. Retrieved from https://www.nyserda.ny.gov/About
[15] Energy Information Administration. (2019). New York Profile Analysis. Retrieved from https://www.eia.gov/state/analysis.php?sid=NY
[16] North Carolina Clean Energy Technology Center. (2019). Clean Energy Standard. Retrieved from https://programs.dsireusa.org/system/program/detail/5883
[17] New York State Government. (2019). Governor Cuomo Announces Green New Deal Included in 2019 Executive Budget. Retrieved from https://www.governor.ny.gov/news/governor-cuomo-announces-green-new-deal-included-2019-executive-budget
[18] Energy Information Administration. (2019). New York Profile Overview. Retrieved from https://www.eia.gov/state/?sid=NY#tabs-4
[19] McKinley, J. & Plumer, B. (2019). New York to Approve One of the World's Most Ambitious Climate Plans. *New York Times.* Retrieved from https://www.nytimes.com/2019/06/18/nyregion/greenhouse-gases-ny.html
[20] Roberts, D. (2019). New York just passed the most ambitious climate target in the country. *Vox.* Retrieved from https://www.vox.com/energy-and-environment/2019/6/20/18691058/new-york-green-new-deal-climate-change-cuomo
[21] McKinley, J. & Plumer, B. (2019). New York to Approve One of the World's Most Ambitious Climate Plans. *New York Times.* Retrieved from https://www.nytimes.com/2019/06/18/nyregion/greenhouse-gases-ny.html
[22] Roberts, D. (2019). New York just passed the most ambitious climate target in the country. *Vox.* Retrieved from https://www.vox.com/energy-and-environment/2019/6/20/18691058/new-york-green-new-deal-climate-change-cuomo
[23] Howe, C. (2020). NY's Climate Leadership and Community Protection Act: A Case Study [PowerPoint slides]. Natural Resources Defense Council.
[24] Howe, C. (2020). NY's Climate Leadership and Community Protection Act: A Case Study [PowerPoint slides]. Natural Resources Defense Council.
[25] New York State Government. (2020). Regional Greenhouse Gas Initiative. Retrieved from https://www.nyserda.ny.gov/Researchers-and-Policymakers/Regional-Greenhouse-Gas-Initiative
[26] Citizens Budget Commission. (2019). Getting Greener: Cost-Effective Options for Achieving New York State's Greenhouse Gas Goals. Retrieved from https://cbcny.org/sites/default/files/media/files/REPORT_GettingGreener_120602019.pdf
[27] Citizens Budget Commission. (2019). Getting Greener: Cost-Effective Options for Achieving New York State's Greenhouse Gas Goals. Retrieved from https://cbcny.org/sites/default/files/media/files/REPORT_GettingGreener_120602019.pdf
[28] Howe, C. (2020). NY's Climate Leadership and Community Protection Act: A Case Study [PowerPoint slides]. Natural Resources Defense Council.
[29] Storrow, B. (2020). 1 year later, N.Y. struggles to act on landmark climate law**.** *E&E News.* Retrieved from https://www.eenews.net/stories/1063366177
[30] Villeneuve, M. (2020). NY Saw Little Progress Toward Renewable Energy Goals in 2019. *NBC New York*. Retrieved from https://www.nbcnewyork.com/news/local/ny-saw-little-progress-toward-renewable-energy-goals-in-2019/2455425/

[31] Iaconangelo, D. (2020). N.Y.'s 100% clean energy chief heads for the exit. Retrieved from https://www.eenews.net/energywire/stories/1063389493/search?keyword=renewable+mandates
[32] Renewables on the Ground Roundtable. (2017). Accelerating Large-Scale Wind and Solar Energy in New York. *The Nature Conservancy and The Alliance for Clean Energy New York.* Retrieved from https://www.nature.org/content/dam/tnc/nature/en/documents/accelerating-large-scale-wind-and-solar-energy-in-new-york.pdf
[33] YSG Solar. (2018). New York State Property Tax: Section 487 Exemption. Retrieved from https://www.ysgsolar.com/blog/new-york-state-property-tax-section-487-exemption-ysg-solar
[34] New York State Energy Research and Development Authority. (2020). New York State's Real Property Tax Law § 487. Retrieved from https://www.nyserda.ny.gov/-/media/NYSun/files/Real-Property-Tax-Law-487.pdf
[35] New York State Energy Research and Development Authority. (2020). New York State's Real Property Tax Law § 487. Retrieved from https://www.nyserda.ny.gov/-/media/NYSun/files/Real-Property-Tax-Law-487.pdf
[36] New York State Energy Research and Development Authority. (2020). Using Special Use Permits and Site Plan Regulations. Retrieved from https://www.nyserda.ny.gov/-/media/Files/Programs/NYSun/Solar-PILOT-Toolkit-Cover-Sheet.pdf
[37] Subik, J. (2019). Fulton County to fully tax renewable energy projects. *Wind Watch.* Retrieved from https://www.wind-watch.org/news/2019/09/10/fulton-county-to-fully-tax-renewable-energy-projects/
[38] The Catalyst: Westchester County Economic Development. (2020). Industrial Development Agency. Retrieved from https://westchestercatalyst.com/programs-incentives/ida/
[39] Office of New York State Comptroller. (2017). Industrial Development Agency Board Governance. Retrieved from https://www.osc.state.ny.us/local-government/audits/industrial-development-agency/2017/09/22/industrial-development-agency-board-governance-2017-ms-1#:~:text=An%20IDA%20is%20an%20independent,recreation%20and%20certain%20other%20facilities.
[40] New York City Industrial Development Agency. (2020). Tax Benefits for Your Business. Retrieved from https://edc.nyc/nycida
[41] Cusick, M. (2012). Do industrial development agencies really create jobs? *Innovation Trail.* Retrieved from https://www.innovationtrail.org/post/do-industrial-development-agencies-really-create-jobs
[42] North Carolina Clean Energy Technology Center. (2020). Solar Sales Tax Exemption. Retrieved from https://programs.dsireusa.org/system/program/detail/1234
[43] North Carolina Clean Energy Technology Center. (2018). Residential Solar Tax Credit. Retrieved from https://programs.dsireusa.org/system/program/detail/80
[44] New York State Energy Research and Development Authority. (2020). NY-Sun. Retrieved from https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun
[45] New York State Energy Research and Development Authority. (2020). NY-Sun: Dashboards and Incentives. Retrieved from https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Contractors/How-the-Dashboard-Works
[46] Borrego Solar. (2016). NYSERDA – Megawatt Block Program. Retrieved from https://www.borregosolar.com/blog/nyserda-megawatt-mw-block-program
[47] Solar Metric. (2020). New York Solar Energy Incentives and Rebates 2020. Retrieved from https://solarmetric.com/learn/new-york-solar-energy-incentives/
[48] Department of Public Service. (2020). Board on Electric Generation Siting and the Environment. Retrieved from http://www3.dps.ny.gov/W/PSCWeb.nsf/All/1392EC6DD904BBC285257F4E005BE810?OpenDocument
[49] Manning, P. (2013). Article 10 – A Revised Process for Siting of Major Electric Generating Facilities in New York State. OCCA. Retrieved from http://www.occainfo.org/wp-content/uploads/2015/01/Article10DiscussionPaper.pdf
[50] https://www.nysac.org/files/NYSACPowerNYActReportv2.pdf
[51] New York State Association of Counties. (2011). The Power NY Act of 2011. Retrieved from https://nylcvef.org/wp-content/uploads/2019/02/renewable-siting-whitepaper.pdf
[52] Drennen, S. (2019). Can New York build renewables fast enough to comply with renewable targets? Not without reform. *PV Magazine*. Retrieved from https://pv-magazine-usa.com/2019/12/13/can-new-york-build-reneables-fast-enough-to-comply-with-renewable-targets-not-without-reform/
[53] Salkin, P. (2019). NYS Siting Board Approves Wind Farm in Broome County Over Community Objections. *Law of the Land.* Retrieved from https://lawoftheland.wordpress.com/2019/12/16/nys-siting-board-approves-wind-farm-in-broome-county-over-community-objections/
[54] Calpine. (2020). Bluestone Wind Project. Retrieved from https://www.calpine.com/bluestonewind
[55] Calpine. (2020). High Bridge Wind Project. Retrieved from https://www.calpine.com/highbridgewind
[56] Platsky, J. (2019). Why Guilford says yes to NY wind project, and why critics are still not happy. *Pressconnects*. Retrieved from https://www.pressconnects.com/story/news/local/2019/09/26/new-york-wind-turbines-chenango-county-guilford/3773031002/
[57] New York Government. (2020). Budget Bill. Retrieved from https://www.budget.ny.gov/pubs/archive/fy21/exec/30day/ted-artvii-newpart-jjj.pdf
[58] Walton, R. (2020). New York becomes first state to establish renewables siting office in an effort to speed up deployment. *UtilityDive.* Retreived from https://www.utilitydive.com/news/new-york-becomes-1st-state-to-establish-renewables-siting-office-in-an-effo/575591/
[59] New York State Energy Research and Development Authority. (2020). New York State Announces Passage of Accelerated Renewable Energy Growth and Community Benefit Act as Part of 2020-2021 Enacted State Budget. Retrieved from

https://www.nyserda.ny.gov/About/Newsroom/2020-Announcements/2020-04-03-NEW-YORK-STATE-ANNOUNCES-PASSAGE-OF-ACCELERATED-RENEWABLE-ENERGY-GROWTH-AND-COMMUNITY-BENEFIT-ACT-AS-PART-OF-2020-2021-ENACTED-STATE-BUDGET

[60] Walton, R. (2020). New York becomes first state to establish renewables siting office in an effort to speed up deployment. *UtilityDive.* Retrieved from https://www.utilitydive.com/news/new-york-becomes-1st-state-to-establish-renewables-siting-office-in-an-effo/575591/

[61] New York State Energy Research and Development Authority. (2020). New York State Announces Passage of Accelerated Renewable Energy Growth and Community Benefit Act as Part of 2020-2021 Enacted State Budget. Retrieved from https://www.nyserda.ny.gov/About/Newsroom/2020-Announcements/2020-04-03-NEW-YORK-STATE-ANNOUNCES-PASSAGE-OF-ACCELERATED-RENEWABLE-ENERGY-GROWTH-AND-COMMUNITY-BENEFIT-ACT-AS-PART-OF-2020-2021-ENACTED-STATE-BUDGET

[62] New York State Energy Research and Development Authority. (2020). New York State Announces Passage of Accelerated Renewable Energy Growth and Community Benefit Act as Part of 2020-2021 Enacted State Budget. Retrieved from https://www.nyserda.ny.gov/About/Newsroom/2020-Announcements/2020-04-03-NEW-YORK-STATE-ANNOUNCES-PASSAGE-OF-ACCELERATED-RENEWABLE-ENERGY-GROWTH-AND-COMMUNITY-BENEFIT-ACT-AS-PART-OF-2020-2021-ENACTED-STATE-BUDGET

[63]Walton, R. (2020). New York becomes first state to establish renewables siting office in an effort to speed up deployment. *UtilityDive.* Retrieved from https://www.utilitydive.com/news/new-york-becomes-1st-state-to-establish-renewables-siting-office-in-an-effo/575591/

[64] New York Department of Agriculture. (2020). Farmland Protection. Retrieved from https://agriculture.ny.gov/land-and-water/farmland-protection

[65] Grout, T. & Ifft, J. (2018). Approaches to Balancing Solar Expansion and Farmland Preservation: A Comparison across selected states. *Charles H. Dyson School of Applied Economics and Management.* Retrieved from https://dyson.cornell.edu/wp-content/uploads/sites/5/2019/02/Cornell-Dyson-eb1804.pdf

[66] Alliance for Clean Energy New York. (2019). Harvesting the Sun Creates Challenges for Solar Farms. Retrieved from https://www.aceny.org/blog/2019/1/14/harvesting-the-sun-creates-challenges-for-solar-farms

[67] Howe, C. (2020). NY's Climate Leadership and Community Protection Act: A Case Study [PowerPoint slides]. Natural Resources Defense Council.

[68] Atwater, P. (2019). Another Voice: Rural residents need to be heard in green energy debate. *The Buffalo News.* Retrieved from https://buffalonews.com/2019/12/28/another-voice-rural-residents-need-to-be-heard-in-green-energy-debate/

[69] Nir, S. N. (2020). He Set Up a Big Solar Farm. His Neighbors Hated It. *The New York Times.* Retreived from https://www.nytimes.com/2020/03/18/nyregion/solar-energy-farms-ny.html

[70] Gillis, J. (2020). Would You Pay Higher Gas Prices to Slow the Climate Crisis? *The New York Times*. Retrieved from https://www.nytimes.com/2020/02/26/opinion/gas-price-climate-change.html

[71] Misbrener, K. (2019). New York reaches 2 gigawatts of installed solar capacity. *Solar Power World.* Retrieved from https://www.solarpowerworldonline.com/2019/12/new-york-reaches-2-gigawatts-of-installed-solar-capacity/

[72] New York State Energy Research and Development Authority. (2020). NY-Sun. Retrieved from https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun

[73] Misbrener, K. (2019). New York reaches 2 gigawatts of installed solar capacity. *Solar Power World.* Retrieved from https://www.solarpowerworldonline.com/2019/12/new-york-reaches-2-gigawatts-of-installed-solar-capacity/

[74] Gambone, S. (2020). What is New York's VDER Value Stack? *Paradise Energy Solutions*. Retrieved from https://www.paradisesolarenergy.com/blog/what-is-new-yorks-vder-value-stack

[75] New York Department of Public Service. (2020). Meet the Commissioners. Retrieved from http://www3.dps.ny.gov/W/PSCWeb.nsf/All/553FBA3F3EEF7FBD85257687006F3A6D?OpenDocument

[76] Zibelman, A. (2016). Public Service Commission Approves Restructuring of Utility Regulations to Combat climate Change & Achieve Nation-Leading Clean Energy Goals. *New York Public Service Commission*. Retrieved from https://www3.dps.ny.gov/pscweb/webfileroom.nsf/ArticlesByCategory/9B4FB5513905CB5985257FB8006DAD48/$File/pr16028.pdf?OpenElement

[77] New York State Energy Research and Development Authority. (2019). Interconnection Standards. Retrieved from https://programs.dsireusa.org/system/program/detail/799

[78] Walton, R. (2018). NY simplifies interconnection standards to ensure 'robust' clean energy pipeline: PSC chair. *UtilityDive*. Retrieved from https://www.utilitydive.com/news/ny-simplifies-interconnection-standards-to-ensure-robust-clean-energy-pip/542260/

[79] New York Independent System Operator. (2019). Reliability and a Greener Grid: Power Trends 2019. Retrieved from https://www.nyiso.com/documents/20142/2223020/2019-Power-Trends-Report.pdf

[80] Hotaling, A. (2019). Breaking Down the Barriers to Renewable Energy in New York State. *Alliance for Clean Energy New York*. Retrieved from https://www.aceny.org/blog/2019/3/12/breaking-down-the-barriers-to-renewable-energy-in-new-york-state-1

[81] Citizens Budget Commission New York. (2019). Getting Greener: Cost-Effective Options for Achieving New York State's Greenhouse Gas Goals. Retrieved from https://cbcny.org/sites/default/files/media/files/REPORT_GettingGreener_120602019.pdf

[82] New York Power Authority. (2020). Transmission Overview. Retrieved from https://www.nypa.gov/power/transmission/transmission-overview

[83] NextEra Energy. (2020). Project Overview. Retrieved from https://www.empirestateline.com/project-overview

[84] NextEra Energy. (2020). FAQs about the Empire State Line. Retrieved from https://www.empirestateline.com/faqs-about-the-empire-state-line

[85] New York Independent System Operator. (2019). Reliability and a Greener Grid: Power Trends 2019. Retrieved from https://www.nyiso.com/documents/20142/2223020/2019-Power-Trends-Report.pdf

[86] Walton, R. (2019). NYISO approves 'historic' transmission to boost transfer capability to 900 MW. *UtilityDive*. Retrieved from https://www.utilitydive.com/news/nyiso-approves-historic-transmission-to-boost-transfer-capability-to-900/552910/

[87] Bower-Terbush, S. (2019). Why New York is losing clean power. *Crain's New York Business*. Retrieved from https://www.crainsnewyork.com/op-ed/why-new-york-losing-clean-power