

20
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RAISING NEW YORK'S
DISTRIBUTED SOLAR GOAL

20 GIGAWATTS
BY 2035



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1. Executive Summary

In 2019, New York enacted the Climate Leadership and Community Protection Act (CLCPA), nation-leading climate legislation that mandates New York be powered with 70% renewable energy by 2030, 100% renewable energy by 2040, and a carbon-neutral economy by 2050. Recent setbacks for utility-scale renewable energy projects have created a significant gap between New York's pipeline of clean energy projects and what's needed to comply with the CLCPA's 2030 deadline. At the same time, New York is ahead of schedule toward the state's goal of deploying 10 gigawatts of rooftop and community ("distributed") solar by 2030. New York's distributed solar industry is well-positioned to help New York close the gap with rooftop and community solar while delivering significant benefits to households, businesses, and communities across New York State. This report challenges New York's leaders to raise the Empire State's distributed solar goal from 10 gigawatts by 2030 to 20 gigawatts by 2035 (20X35). It also highlights the benefits of additional distributed solar and outlines high-impact policy interventions to support rapid, cost-effective, and beneficial solar deployment in New York.

20X35 Is Ambitious but Attainable

New York has already installed nearly 5.7 gigawatts of distributed solar, including nearly one gigawatt in 2023 alone. Deploying 20 gigawatts by 2030 will require New York to sustain 7-10% annual growth in solar deployment; well below the 31% average growth New York experienced from 2013-2022. While utility-scale renewables have struggled under the pressure of economic and supply chain challenges in recent years, New York's distributed solar industry has proven it is nimble and can successfully deploy projects at scale despite facing similar headwinds. Conventional wisdom is that utility-scale solar can be deployed faster and cheaper than rooftop and community solar, however, New York has flipped that logic on its head; 93% of New York's installed solar capacity is rooftop and community solar.¹

Scaling Up Distributed Solar Will Provide Immense Benefits to New Yorkers

In addition to supporting progress toward New York's CLCPA compliance mandates, an additional 10 gigawatts (GW) of distributed solar will provide valuable economic, workforce development, and environmental benefits to New Yorkers. Estimated benefits include:

- \$50B in gross utility bill savings for New York households and businesses, and up to \$28B in indirect electric ratepayer savings through a lower-cost CLCPA compliance pathway.
- \$3.6B in direct financial benefit to host communities, including \$1.8B in revenue to rural landowners and \$1.8B in tax revenue to local governments and school districts.
- 15,000 additional solar industry jobs across the state, including blue-collar and white-collar positions. A significant portion of these jobs will be with New York-based businesses, a unionized workforce, and/or pay prevailing wages.
- 145 million metric tons of avoided greenhouse gas emissions and improved public health outcomes in environmental justice communities by displacing fossil fuel combustion with emissions-free solar.
- Reduced land use impacts by prioritizing rooftop and community-scale solar projects.

High Impact Policy Interventions Are Needed

Business as usual is not an option. Achieving 20X35 will require policy intervention to address permitting, interconnection, and economic barriers to distributed solar deployment. NYSEIA recommends New York advance the following policies and program design improvements through legislative and regulatory means:

Community Solar Permitting Reform: In 2020, New York established the Office of Renewable Energy Siting (ORES) to streamline permitting for utility-scale clean energy projects. Community-scale projects are increasingly being obstructed due to restrictive local laws and solar moratoria. NYSEIA estimates that restrictive local laws are currently

preventing up to 4.6 GW of otherwise feasible distributed solar. NYSEIA recommends that New York offer state-level permitting support for community-scale clean energy projects while increasing financial benefits for host communities.

Permitting Automation for Residential Solar plus Storage: Residential solar can typically be installed in 1-2 days. However, the permitting process can extend this timeline by months, resulting in delays and higher costs for homeowners and solar companies. Permitting delays are one of the most common causes of customer cancellation of residential solar projects. SolarAPP+ is free automated permitting software for municipalities developed by the National Renewable Energy Laboratory. SolarAPP+ and similar permitting automation platforms will lower costs and shorten timelines for solar companies and building departments without sacrificing safety.

Interconnection Process Improvements: New York's interconnection process is governed by the Standardized Interconnection Requirements (SIR). New York's SIR is a solid foundation, but there is room for improvement. Recommendations include: expedite interconnection timelines as outlined in the RAPID Act in New York's FY25 budget; allow solar developers to use financial instruments (surety bonds and letters of credit) in lieu of cash deposits as security for expensive grid upgrades that take years to complete; and improve cost certainty by limiting solar developer exposure to interconnection cost increases caused by utility engineering errors and cost overruns. NYSEIA also recommends that New York's utilities allow for the widespread use of meter socket adapters for residential solar interconnection to eliminate unnecessary main service panel upgrades and lower costs for homeowners.

Flexible Interconnection: Lengthy and expensive traditional distribution upgrades are often not necessary to safely and reliably interconnect additional solar and storage resources. We encourage regulators to establish a statewide framework to enable flexible interconnection, or use smart grid technology to monitor and control distributed energy resources (DER) in real-time instead of cost-prohibitive traditional distribution system upgrades. Flexible interconnection can address several hosting capacity constraints, supporting rapid DER deployment by mitigating costly grid upgrades and accelerating interconnection timelines. National Grid and NYSEG/RG&E have completed successful pilot projects, and flexible interconnection is commonplace in the United Kingdom and other markets.

Hosting Capacity Expansion: Utility infrastructure has a finite capacity to integrate distributed energy resources, and upgrades are frequently required to enable additional solar plus storage capacity to interconnect. These upgrades can either be market-initiated or proactive utility investments. As New York experiences unprecedented load growth from new industrial facilities and electrification, targeted investments in the grid can facilitate rapid solar plus storage deployment to support new loads with clean power. NYSEIA supports proactive utility investments as well as reforms to Cost-Sharing 2.0 to enable additional market-initiated distributed energy hosting capacity expansion.

Electric Tariff Improvements for Clean Distributed Energy Resources: The majority of distributed solar projects are compensated under the Value of Distributed Energy Resources (VDER) value stack tariff. Developers are encouraged to design projects based upon locational and temporal price signals, injecting power when and where it is most valuable to the electric system. VDER also provides compensation for the environmental attributes of renewable energy systems. NYSEIA recommends the following improvements to VDER: update the calculation methodology to incorporate the avoided cost of transmission; revisit the environmental (E) value to ensure alignment with DEC recommendations and/or recent large-scale renewable energy procurements; and direct New York's utilities to regularly identify locations where DERs can mitigate expensive grid upgrades to encourage geographically targeted DER deployment.

Virtual Power Plant Programs and Residential Rate Design: Distributed solar plus storage projects can be aggregated and orchestrated into "virtual power plants" or VPPs to provide grid-scale services that replace the need for fossil fuel plants. Incentives for energy storage paired with smart residential rate design and programs that allow solar plus storage aggregators to participate in the market can activate distributed solar plus storage and make these systems valuable grid assets. Long Island is an attractive market for residential solar plus storage, and NYSEIA recommends building out a large-scale VPP on Long Island to reduce reliance on fossil fuels.

Strengthen New York’s Community Solar Programs: New York’s community solar program is the strongest in the nation; however, there is still room for improvement. High-impact improvements include: improving utility billing & crediting performance through performance metrics and penalties; enhancing consolidated billing to improve customer experience; ensuring that customers can bring their solar subscriptions with them when they move; and continued investment in programs that serve low- to moderate-income (LMI) households, such as the Inclusive Community Solar Adder and the newly authorized Statewide Solar for All program.

Modernize the NYS Residential Solar Tax Credit: New York’s Solar Energy System Equipment Tax Credit is the only statewide solar incentive for homeowners, and plays an important role in helping homeowners afford solar installation. However, the per-household cap has not been adjusted since 2006, and the tax credit is currently inaccessible to LMI households and seniors with limited state income tax liability. NYSEIA recommends modernizing this tax credit by raising the per-household cap from \$5,000 to \$10,000 to support projects that include energy storage and ensuring equitable access by making the credit refundable for low-income families and residents of Disadvantaged Communities.

Stretch NYSEDA’s NY-Sun 10 Gigawatt Funding: NYSEDA’s distributed solar incentive program is ahead of schedule and under budget. NYSEIA strongly supports reinvesting the budget surplus into additional solar capacity through NY-Sun, with an emphasis on community solar for LMI households.

NY-Sun 20 Gigawatt Order: NY-Sun has been an incredibly successful program, supporting cost-effective distributed solar deployment while leveraging billions of dollars in private and federal investment. NY-Sun is currently on track to deploy 10 GW of distributed solar ahead of schedule, with a growing emphasis on low-income solar programs. NYSEIA recommends that New York invest in success, and expand NY-Sun. In addition to cost-cutting measures, NYSEIA recommends that the PSC direct NYSEDA to develop a proposal for the next chapter of the NY-Sun program. Future NY-Sun incentives should emphasize beneficial siting (rooftop, parking canopies, brownfields, floating solar, and agrivoltaics), prevailing wages, and serving low-income New Yorkers while supporting all segments of the distributed solar market.

Key Takeaways

Bold action is needed to achieve the CLCPA requirement to generate 70% of New York’s electricity with renewable energy by 2030. Distributed solar can help New York close the gap on its clean energy and equity commitments in the CLCPA. New York’s distributed solar programs are delivering immense economic and environmental benefits to New Yorkers, and these benefits can be expanded. New York’s distributed solar programs are consistently ahead of schedule, making now the perfect time to raise the bar to 20 gigawatts by 2035 and to advance high-impact policy interventions that allow us to achieve an expanded solar goal.



Image 1. Solar installation in front of Queensboro Bridge in New York City. Photo credit: NYSEDA.

2. Introduction

New York's thriving rooftop and community solar ("distributed solar") industry is on track to install six gigawatts of solar by the end of 2024, more than one year ahead of schedule. New York's distributed solar industry is powered by hundreds of small businesses and more than 13,400 local workersⁱⁱ in diverse roles across the state. In addition to generating thousands of good jobs and zero-emissions electricity, distributed solar is providing tremendous direct and indirect utility bill savings to New Yorkers. When New York surpasses six gigawatts of solar, it will be the first legislative mandate achieved in the CLCPA. With support from NYSERDA's nation-leading NY-Sun and community solar programs, New York is already making rapid progress toward Governor Hochul's expanded goal of ten gigawatts of distributed solar by 2030ⁱⁱⁱ ahead of schedule and under budget.

Despite this progress, New York faces major challenges to achieve the more daunting CLCPA requirements: powering the grid with 70% renewable energy by 2030, 100% emissions-free sources by 2040, and a carbon-neutral economy by 2050. Utility-scale renewable energy and transmission projects are intended to deliver the bulk of the capacity for New York's 2030 and 2040 goals; however, an alarming majority of recently awarded utility-scale renewable energy projects have been canceled, delayed, or re-awarded at a significantly higher cost to New Yorkers. New York will work through these challenges, but the setbacks raise credible concerns that New York's 2030 clean energy mandate may be out of reach^{iv}, and demonstrate the risks of overreliance on a small number of utility-scale resources.

Time is of the essence; climate science indicates that curbing near-term greenhouse gas emissions (GHG) is urgent^v, and the Biden administration's Inflation Reduction Act provides ten years of unprecedented federal support before the solar Investment Tax Credit (ITC) sunsets. New York has a limited window of opportunity to leverage expanded federal investment in the state's clean energy economy. As New York works to get large-scale renewables back on track, distributed solar can help close the gap; accelerating progress toward our 2030 and 2040 clean energy requirements with rapid and cost-effective rooftop and community solar. Rooftop and community solar can also deliver on a key requirement of the CLCPA by providing direct utility bill savings for LMI New Yorkers and Disadvantaged Communities (DAC).



Image 2. Electricians completing wire management for an Upstate community solar installation. Photo Credit: GreenSpark Solar.

New York's distributed solar industry is poised to contribute more toward achieving the ambitious mandates and calls on state leaders to double the current distributed solar goal from 10 gigawatts (GW) by 2030 target to 20 GW by 2035 (20X35). This report details the benefits of 20X35 and outlines high-impact policies that will ensure that we achieve an expanded solar deployment goal, supporting near-term progress toward New York's nation-leading climate, workforce development, and energy affordability mandates.

20X35 is ambitious but attainable. New York has already installed nearly 5.6 gigawatts of distributed solar, and New York’s solar industry now installs nearly one gigawatt of rooftop and community solar on an annual basis. New York can exceed 20 gigawatts by 2035 by sustaining a 7-10% annual growth rate; significantly lower than the historic growth rate, which averaged 31% between 2013-2022.^{vi} Accelerated near-term deployment will allow New York to maximally leverage the 30% federal Investment Tax Credit (ITC) before it steps down in 2033 and sunsets at the end of 2035,^{vii} lowering costs for New Yorkers. Long-term, sustained growth to deployment will support the solar workforce and counteract load growth driven by electrification and reshoring of manufacturing, suppressing wholesale rates and mitigating the need for billions of dollars in expensive upgrades to the transmission and distribution grid.

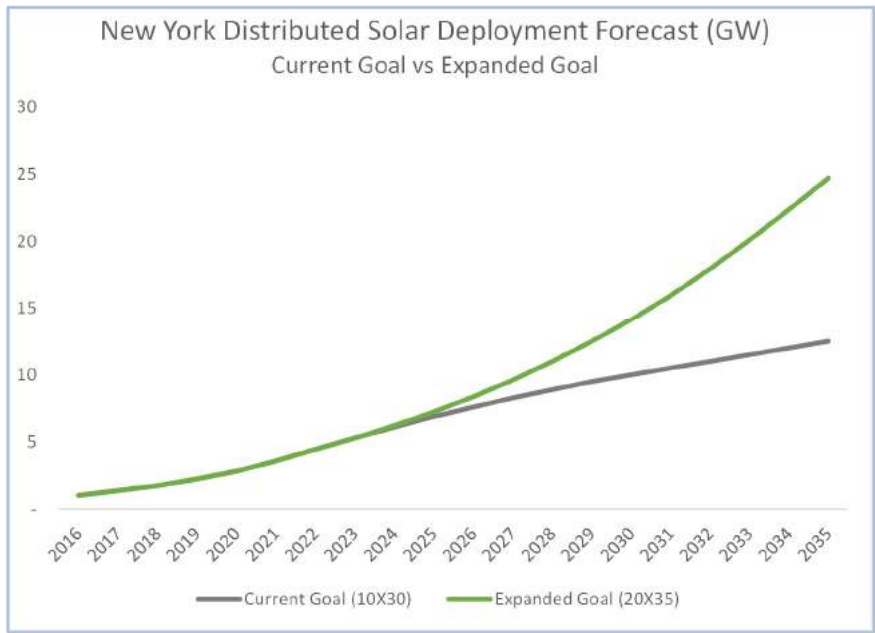


Figure 1. Forecast of distributed solar in New York from 2023 through 2040. New York Solar Energy Industries Association, 2024.

3. CLCPA Vision, Progress, and Next Chapter

The CLCPA Outlines a Bold Vision for New York

The Climate Action Council’s Final Scoping Plan for the CLCPA states that wind, water, and sunlight will power most of New York’s economy in 2050 in all pathways modeled. The report notes that even with an aggressively managed load, electric consumption and peak load will double by 2050. Across all scenarios modeled, approximately 60 GW of solar capacity will be needed to meet that demand along with 32-36 GW of onshore and offshore wind, energy storage, and other non-emitting sources such as nuclear and green hydrogen.^{viii} Achieving the interim 2030 and 2040 CLCPA obligations

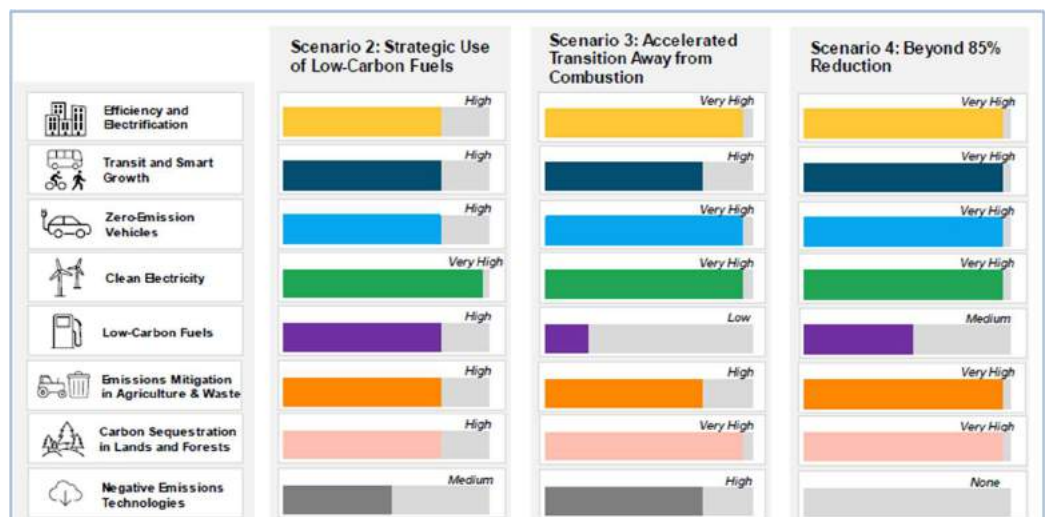


Figure 2. Level of Transformation by Mitigation Scenario. New York Climate Action Council, Final Scoping Plan, December 2022.

is critical for New York to maintain a clear path toward 2050 requirements. It will also allow New York to maximally leverage federal investment via the Inflation Reduction Act and quickly draw down New York’s emissions.

Progress Toward New York’s CLCPA Requirements



Image 3. Ravenswood Generating Station, Long Island City, Queens.
Photo credit: Wally Gobetz, 2007.

In 2022, New York generated only 30% of its electricity from renewable resources and 21% from nuclear power, with the balance predominantly generated through methane (“natural”) gas combustion.^{ix} According to the US Energy Information Administration, greenhouse gas emissions from New York’s electric sector have only decreased by ~8% over the last decade. Since 2019, the retirement of nuclear energy facilities has led to increased reliance on fossil fuels, particularly in the New York City metro

region, reversing progress on statewide greenhouse gas emission reductions and compounding the adverse health effects of air pollution on disadvantaged communities.

To comply with the CLCPA, New York must more than double its renewable energy generation by 2030. This is likely an underestimation, as it doesn’t account for load growth driven by accelerated electric vehicle (EV) adoption and building electrification due to new federal incentives for EVs and air source heat pumps included in the Inflation Reduction Act. New York’s plan to comply with the CLCPA relies heavily on large-scale renewables, which could allow New York to replace large fossil fuel generators with a relatively small number of discrete projects. However, New York’s heavy reliance on large-scale renewables also presents risks. Large-scale renewable projects require expensive new transmission projects, and both take years to develop and have exposure to both short-term and long-term volatility in the capital markets, labor markets, and supply chain.

The Comptroller’s report notes that many large-scale renewable projects have been canceled in recent years and that permitting and interconnection reforms are needed to ensure that clean energy projects are deployed efficiently. This report was published *before* all of the 2022 NYSERDA-awarded large-scale renewable energy projects canceled their contracts with NYSERDA. New York is working to address these challenges to bring large-scale renewables online. These large-scale renewables are critically important; however, **NYSEIA recommends scaling up distributed solar deployment in parallel to ensure rapid and cost-effective progress toward New York’s CLCPA requirements.**

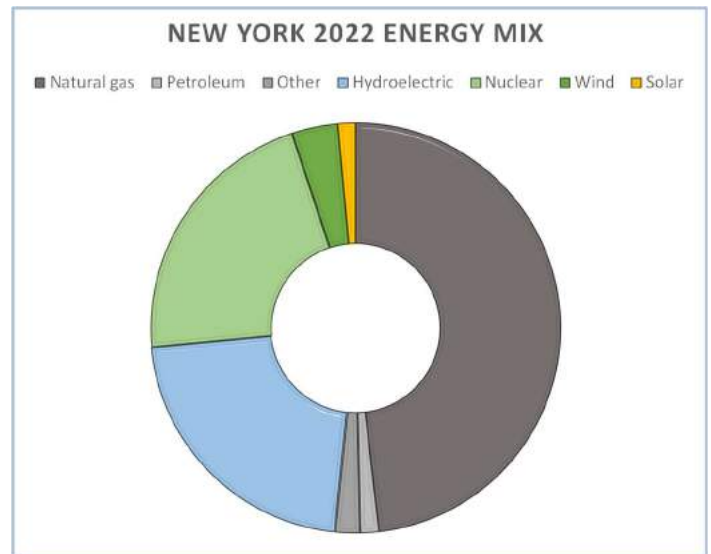


Figure 3. New York 2022 Energy Mix. U.S. Energy Information Administration. Data from Table 5. Electric power industry generation by primary energy source. Accessed January 2024.

Distributed Solar is New York's Renewable Energy Success Story

While solar power is still a relatively minor source of New York's overall energy supply, distributed solar deployment is scaling up, driven by New York's nation-leading community solar programs. The Comptroller's report references the steady increase in distributed solar deployment, with rooftop and community solar projects being installed all across the state at a rapid pace. New York's interconnection queue shows that annual distributed solar deployment is approaching one gigawatt per year, and NYSERDA's NY-Sun program is ahead of schedule and under budget for achieving New York's

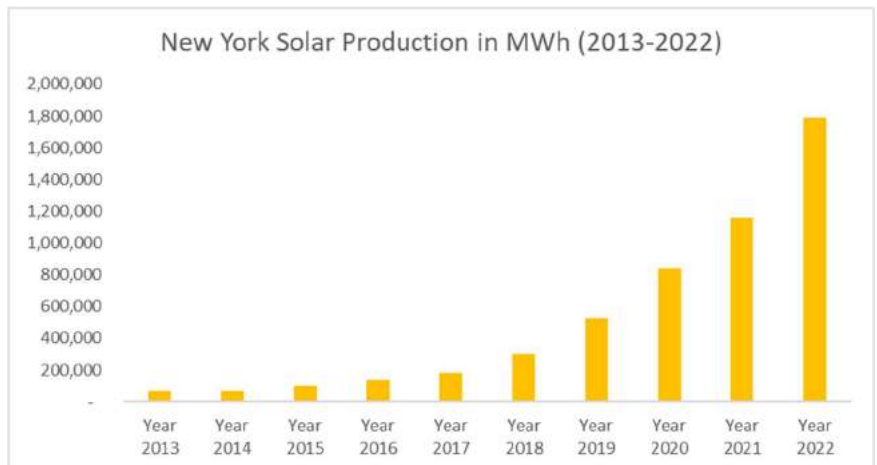


Figure 4. New York Solar Production. Retrieved from U.S. Energy Information Administration. Data from Table 5. Electric power industry generation by primary energy source. New York State Energy Profile. Accessed January 2024.

10 GW by 2030 goal^k, prompting the Public Service Commission to consider a proposal to support additional community solar for low-income New Yorkers with previously authorized NY-Sun funding.



Image 4. Community solar array. Photo credit: New Leaf Energy.

In November 2023, New York surpassed [two gigawatts of community solar capacity in operation in the State](#), making New York the national leader in community solar. These community solar projects serve an estimated 393,000 New York households, and there are thousands of additional distributed solar projects under development in New York that will provide utility bill savings and clean energy to hundreds of thousands of additional households, including a growing percentage of low-income families. Community solar is uniquely able to deliver direct bill savings to low-income households, supporting progress toward New York's clean energy and equity policy goals. Raising New York's distributed solar goal to 20X35 will create a more feasible path toward achieving CLCPA mandates while delivering substantial benefits to New Yorkers.

4. Benefits of 20X35

Deploying 20 gigawatts of distributed solar by 2035 will deliver immense benefits to New Yorkers. Ten gigawatts of incremental distributed solar will save New Yorkers billions of dollars on their electricity bills, with *at least* 40% of the savings accruing to LMI households and DACs. An additional 10 GW will support thousands of good jobs, provide recurring revenue to rural landowners and municipalities in the form of lease payments and property taxes, mitigate climate change, and improve public health outcomes by offsetting fossil fuel combustion. Scaling up distributed solar deployment will also save non-participating ratepayers money by suppressing wholesale energy prices, contributing toward necessary electric distribution system modernization, and reducing the scale of transmission investment needed

to meet load growth. Transmission savings are possible due to distributed energy resources' proximity to electric loads and their limited reliance on transmission infrastructure. Finally, near-term distributed solar deployment will save ratepayers money by enabling New York to leverage more federal funding via the ITC before incentives begin to sunset in 2033.

Utility Bill Savings for Families and Businesses

A unique benefit of distributed solar projects is that they all provide direct utility bill savings to New York residents and businesses. NYSEIA estimates that 10 GW of additional distributed solar will generate 12,343 gigawatt hours of electricity per year, enough to power 1.8 million typical New York homes.^{xi} That energy would provide approximately **\$1.65 billion in gross annual electricity bill savings** for New Yorkers who either install solar panels or subscribe to an offsite solar project. Over 25 years, these savings will grow to approximately **\$50 billion.**^{xii} NYSERDA and the Public Service Commission (PSC) can continue optimizing their programs to ensure that at least 40% of these savings benefit low-income New Yorkers and DACs, using tools like NYSERDA's Inclusive Community Solar Adder and Statewide Solar for All to steer benefits to the communities for whom energy affordability is most pressing. Smart solar program design can also ensure that solar savings are available to affordable housing, schools, small businesses, and early adopters of electrification through programs such as Empower+. These same programs can also ensure that solar savings are distributed equitably in every corner of the State.

Revenue for Landowners and Municipalities

Community solar projects don't just provide clean energy, utility bill savings, and jobs; they also generate reliable revenue for rural landowners and municipalities. Community solar developers typically enter into 25-year lease agreements with landowners and pay annual property taxes to local school districts, towns, and county governments. NYSEIA estimates that expanding New York's distributed solar goal to 20 GW will result in \$1.8 billion in lease payments to rural landowners over 25 years, and an additional \$1.8 billion in taxes paid to the host communities.^{xiii} That's **\$3.6 billion in direct revenue to host communities**, which is in addition to the local utility bill savings, employment, and economic development benefits provided by the solar projects. These local benefit estimates don't even include host community benefit agreements, which commonly provide additional financial resources and services to host communities. The solar lease payments will provide a supplemental revenue stream to rural landowners, increasing the economic sustainability of their property and supporting agricultural retention. The solar tax revenue will support local school systems and other municipal services. New York's solar industry believes it is critical for community solar projects to provide meaningful benefits to host communities, and supports policies and programs to increase financial benefits to communities that host clean energy projects.

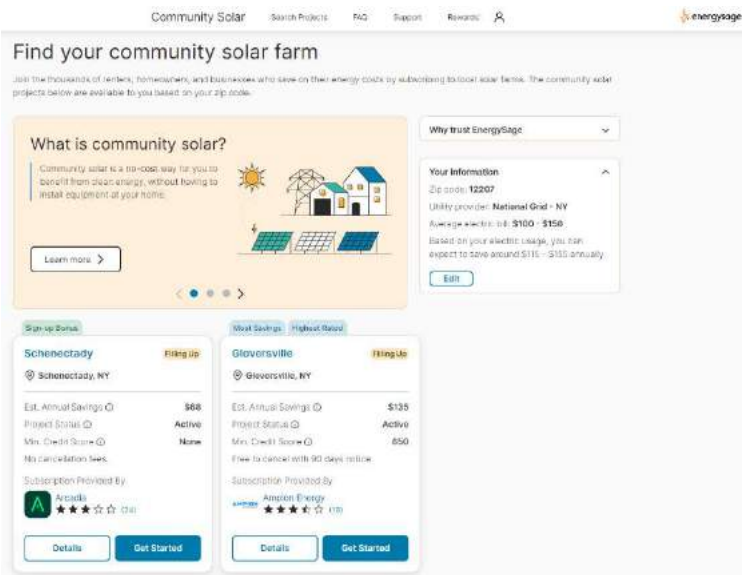


Image 5. Typical community solar bill savings potential. Credit: EnergySage.



Image 6. Ground mount community solar array, Upstate New York. Photo credit: GreenSpark Solar.

Lower-cost, Reliable Pathway to CLCPA Compliance

A 2021 study by Vibrant Clean Energy modeled various decarbonization pathways for New York and found that **increasing the deployment of distributed solar plus storage would lower the overall cost of CLCPA compliance by \$28 billion** when compared with scenarios that rely heavily on large-scale renewables and transmission buildout.^{xiv} The Vibrant Clean Energy study primarily identifies cost-savings due to wholesale market impacts, however, avoided transmission system investments could also yield billions of dollars in cost savings. Just as important as cost savings, New York has a proven track record of quickly deploying cost-effective distributed solar capacity through the NY-Sun program. NYSERDA's NY-Sun program provides upfront capacity-based incentives for mature solar projects, i.e. projects with interconnection approval and local zoning approval. This model has protected New York ratepayers from risk and produced high project realization rates. If a future round of NY-Sun funding is offered in conjunction with permitting and interconnection reform, NYSEIA estimates that NY-Sun funds could leverage more than 10X New York's investment in private and federal funding. New York's ability to leverage federal and private investment is time-sensitive; the Inflation Reduction Act created a ten-year

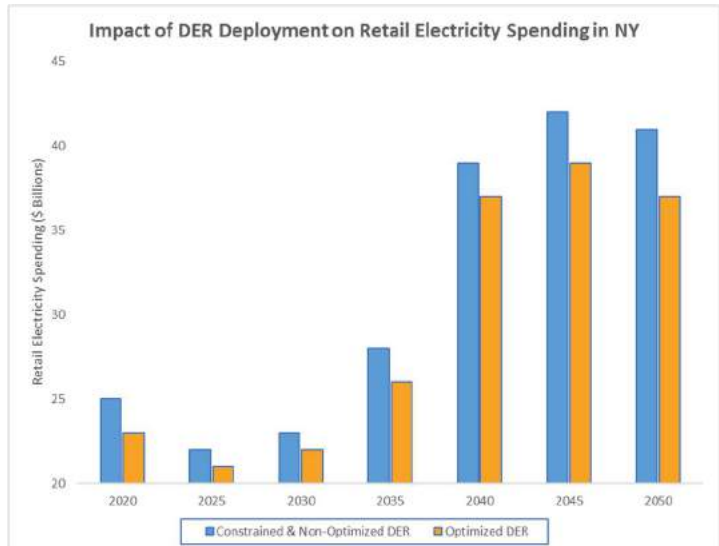


Figure 5. Annual retail spending in New York for electricity. Vibrant Clean Energy. Data from Figure 2.2. Decarbonizing New York through optimizing distributed resources.

window during which the federal ITC is 30%, with Bonus Credits available for low-income benefit projects, beneficial siting, and domestic content. Accelerating near-term distributed solar deployment will ensure that New York maximizes its share of the ITC, saving New Yorkers billions of dollars by leveraging federal resources.

Utility Bill Savings for Non-Participating Ratepayers

In addition to providing direct bill savings to participating customers, accelerated deployment of distributed solar and energy storage will also provide billions of dollars of systemwide savings to non-participating ratepayers by increasing local energy supply, suppressing wholesale energy supply prices in a manner that translates to lower retail electricity rates for customers. Vibrant Clean Energy's 2021 study estimates that an optimized scenario, with more distributed energy resource deployment, will result in \$28 billion in savings, lowering the average New York household's annual energy costs by 20% and lowering the average industrial energy consumer's annual electricity bill by 10%.^{xv} Further savings accrue to non-participating ratepayers through the distributed solar industry's financial contribution toward grid modernization; over the last decade, distributed solar and energy storage developers have contributed more than \$700M toward upgrading New York's aging utility infrastructure via the interconnection process. While these upgrades may be necessary to enable solar projects to safely connect, these upgrades also increase overall system reliability and enable utilities to meet growing electricity demand, providing material benefits to all ratepayers.



Image 7. Upstate community solar installation crew.
Photo credit: New Leaf Energy.



Image 8. Workforce trainees install solar on affordable housing development in Queens, NY. Photo credit: Sunwealth.

Job Creation and Workforce Development

NYSEIA estimates that 10 GW of incremental distributed solar capacity will create approximately **15,000 additional jobs in the solar industry**.^{xvi} A growing share of solar construction jobs will be high-paid and union jobs due to prevailing wage and apprenticeship requirements embedded in state and federal incentives for projects above 1 megawatt-AC. Importantly, the distributed solar industry is diverse and so are the types of businesses and career opportunities available, including both blue-collar and white-collar jobs, ranging from entry-level installer to journeyman electrician, project coordinator to senior project manager, junior drafter to senior solar PV designer. Expanding New York's distributed solar goal will allow local solar companies to foster and expand partnerships with small businesses in the areas they operate and develop workforce partnerships with academic institutions, workforce agencies, and labor unions. These partnerships, and NYSERDA's workforce development programs, are critical for ensuring that New York's solar industry has a skilled and diverse workforce. In addition to creating onramps for diverse entry-level workers in the

solar industry, it is equally important that the solar industry continue to invest in programs that create career advancement pathways within the industry and support long-term upskilling and retention.

Air Pollution Reduction and Health Benefits

10 GW of additional distributed solar will prevent **145 million metric tons of greenhouse gas emissions^{xvii}** (MTCO₂e) by displacing grid electricity, which is still predominantly generated by burning fossil fuels. In addition to mitigating climate change and supporting CLCPA compliance, 10 GW of additional distributed solar will contribute to public health by offsetting harmful air pollutants from fossil fuels, including sulfur dioxide, nitrogen oxides, particulate matter, and carbon monoxide. According to the New York City Department of Health, two common air pollutants, ozone, and PM_{2.5}, cause about 2,400 deaths per year in New York City, and thousands more emergency room visits and hospitalizations for asthma, heart, and lung problems.^{xviii} These alarming statistics are just from New York City, but statewide, fossil fuel facilities are disproportionately sited in Disadvantaged Communities and communities of color and the impacts are similar. Rapidly retiring these facilities will save lives and is a moral imperative. Accelerating distributed solar deployment will support the timely retirement of fossil fuel facilities, advancing environmental justice, reducing air pollution, and improving public health.



Image 9. NYPA's Vernon Boulevard peaking power plant in Queens. Photo credit: Daniel Chu, New York City Environmental Justice Alliance (PEAK Coalition).



Image 10. Solar carport installation. Photo credit: Ecogy Energy.

Effective Use of Limited Land Resources

One key advantage of distributed solar is that its relatively small footprint has less of an impact on land use than large-scale renewables. **Many distributed solar projects are sited on rooftops, previously disturbed land, or marginal agricultural land.** Community solar projects are also limited to five megawatts in size, which means that an individual distributed solar project will rarely occupy more than 40 acres of land. The relatively small footprint means that community solar projects have less impact on the character of host communities, and are more likely to support preservation of the owner's

current land use. The modest acreage requirement for distributed solar projects supports co-location of solar and agriculture; it is common for a farmer to lease a portion of their less productive land to a solar developer to diversify their revenue streams, generating predictable income that supports the long-term economic viability of their farm. This is a nuanced way that distributed solar supports agricultural retention and prevents irreversible land use changes, such as conversion from agricultural use to low-density residential development.

Increased Resiliency and Grid Modernization

A decentralized system with clean distributed energy resources is more resilient than a centralized system. Deploying many small clean energy assets at the distribution level, closer to where the energy is consumed, reduces risk by reducing reliance on large, centralized infrastructure which is more vulnerable to cyberattacks and natural disasters. Increased deployment of distributed energy resources also enables New York to optimize grid operations by enabling the real-time management of solar, energy storage, and dynamic loads to increase the utilization rate of our electrical infrastructure and lower the cost of CLCPA compliance.



Image 11. Commercial rooftop solar installation in Buffalo, NY. Photo credit: Pinto Construction Services, Montante Solar.

5. High Impact Policy Interventions are Needed

While distributed solar is currently being deployed at a rapid pace, deploying 20 GW of distributed solar by 2035 will require high-impact policy interventions. Continuing to scale up community solar deployment will require new approaches to utility interconnection and local permitting. Making rooftop solar affordable for more New York households and businesses will require soft cost reduction and targeted incentives. Ensuring that solar and energy storage assets are optimally utilized as grid resources will require smart electric rate design and virtual power plant programs. The policies outlined below will maximize benefits to New Yorkers, ensure that benefits accrue to LMI families and DACs, support the solar workforce, and minimize land use impacts by encouraging rooftop and other beneficial siting practices. Many of these policies and programs are already in progress, while others are new initiatives that NYSEIA proposes New York adopt in the near future. Each of these proposals is impactful, and in aggregate, they could transform and accelerate New York’s clean energy progress.

Permitting Reform

Addressing permitting barriers to rooftop and community solar will eliminate soft costs and reduce delays for New York homeowners, businesses, and rural landowners seeking to install solar on their property.

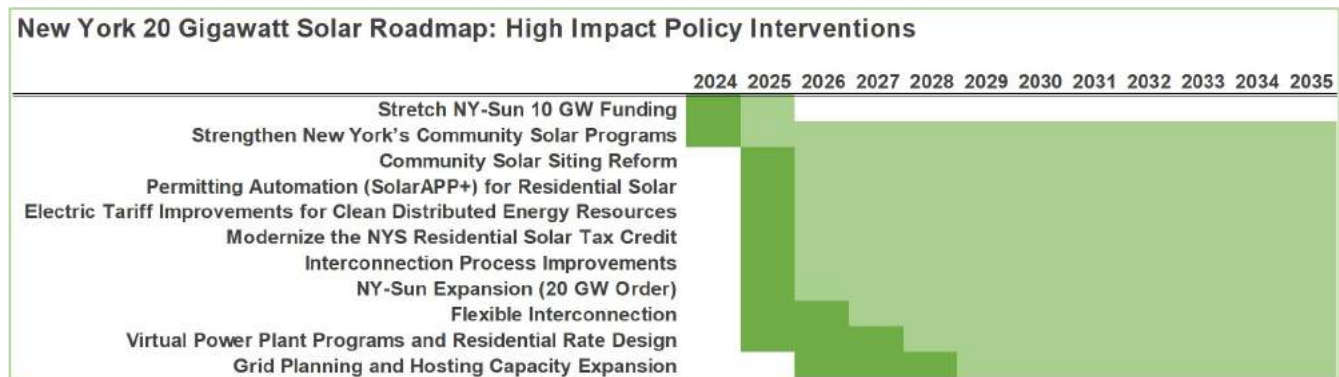


Figure 6. Potential policy roadmap to achieve 20 GW by 2035. NYSEIA.

Community Solar Permitting Reform

Restrictive local laws are a major barrier to distributed solar deployment in New York State. Unfortunately, a growing number of municipalities are using their local zoning authority to obstruct the development of community solar projects. In addition to passing solar moratoria, municipalities are also adopting local laws that prohibit ground-mounted solar as land use or impose unreasonable requirements that serve as de facto bans on solar. These laws unreasonably infringe on the property rights of rural landowners while impeding progress toward New York’s legislatively mandated CLCPA goals. In 2023, a NYSEIA member company conducted a geospatial analysis and estimated that restrictive local laws are currently obstructing the development of up to 4.6 gigawatts of distributed solar in New York.

In 2020, New York established the Office of Renewable Energy Siting (ORES) to overcome this challenge for utility-scale renewables. However, community-scale solar projects do not receive state-level permitting support and, as a consequence, have no viable permitting pathway when municipalities unreasonably reject community-solar projects or pass local laws that prohibit community solar. Ironically, many of these restrictive local laws are intended to stop utility-scale projects but only impact community-scale renewables. Reforms are urgently needed to unlock this

potential and sustain progress toward New York’s clean energy goals. At the same time, creative solutions are needed to deliver more financial benefits to clean energy host communities.

There are many ways to streamline permitting for community solar. Here are three options that New York could consider:

Policy Intervention	Description	Benefits	Drawbacks
<i>Expand ORES’ jurisdiction to include distributed solar</i>	ORES’ jurisdiction could be expanded to include projects below 20 MW. A streamlined permitting process for small projects would be necessary.	Leverages New York’s existing renewables permitting office and processes.	Significant application volume may prove challenging for ORES to handle. Process will need to be modified significantly to support small projects. Reduces local permitting authority.
<i>Create a state-level appeals process at ORES</i>	Create an appeal process that allows projects impacted by unreasonably burdensome local laws or regulatory action to appeal the local agency’s decision to ORES. Similar processes exist for large-scale renewable projects in MI, MN, NM, SD and WI.	Keeps most community solar permitting local. Appeal option encourages good faith negotiation between developers and local gov’t. Limits administrative burden for ORES.	Places ORES in a decision-making role for a subset of contentious projects.
<i>Establish a set of statewide solar zoning guidelines</i>	Promulgate a set of solar zoning standards that all municipalities must conform to, i.e., be “no more restrictive than” (Illinois model).	Keeps community solar permitting local. Establishes fair standards statewide. No administrative burden for ORES.	Requires careful planning to prevent circumvention and ensure local governments adopt the statewide guidelines.

Table 1. Options to streamline permitting for community solar in New York.

In addition to providing state-level support for permitting community-scale renewables, it is also important for New York State to develop clear and reasonable requirements for freshwater and stormwater impact mitigation. New York’s 2022-2023 budget amended the Freshwater Wetlands Act, Article 24 of the Environmental Conservation Law (ECL).^{xix} The ECL amendments expand the Department of Environmental Conservation’s (DEC) jurisdiction by allowing the DEC to regulate unmapped wetlands starting on January 1, 2025; allowing the DEC to regulate smaller wetlands if they are of “unusual importance” starting on January 1, 2025; and reducing the size threshold for a regulated wetland from 12.4 acres today to 7.4 acres in 2028. As the DEC develops rules and implements its expanded jurisdictional authority, NYSEIA encourages the agency to do so in a manner that is clear, predictable, and that minimizes harm to solar deployment. Rapid deployment of distributed solar aligns with the DEC’s mission, and NYSEIA cautions that an overly expansive implementation of the ECL amendments with regard to solar development could cause unintended environmental harm by preventing solar projects and forcing continued reliance on fossil fuels, which are known to cause significant air, land, and water pollution.

Permitting Automation for Residential Solar plus Storage

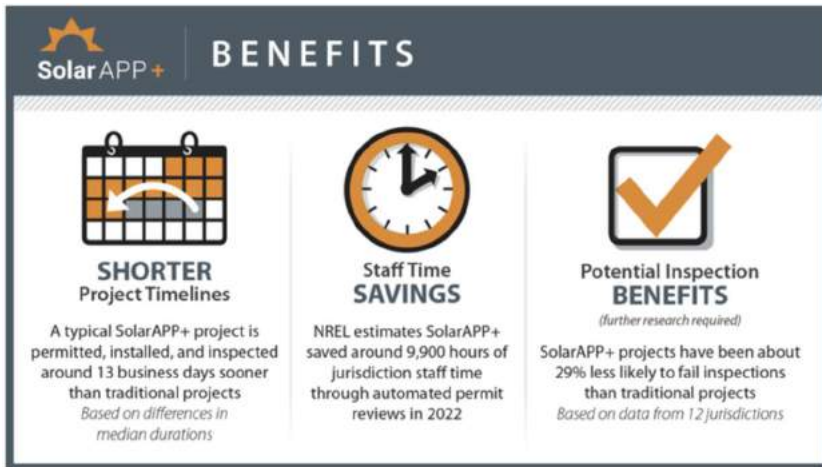


Figure 7. US Department of Energy. Solar Energy Technologies Office.

reducing costs for solar companies, customers, and building departments. SolarAPP+ was developed by NREL in partnership with the Underwriters Laboratory (UL), the National Fire Protection Association (NFPA), the International Code Council (ICC), and stakeholders from local governments and the solar industry. SolarAPP+ can automatically evaluate solar designs for code compliance and issue instant permits for compliant system designs. A growing number of technology providers offer similar products, and both California and Maryland have mandated that municipalities adopt automated solar permitting, with similar legislation under consideration in states across the country, including New York (Harckham S.8415/Cunningham A.9626). Solar permit automation is a win-win-win for solar companies, customers, and municipalities, providing time and cost savings to each stakeholder without sacrificing safety or accuracy.

One unique benefit of rooftop solar is how quickly it can be installed; a residential solar plus storage system can typically be installed in 1-2 days. However, the permitting process can extend this timeline by months, resulting in delays and higher costs for homeowners and solar companies. In 2021, the National Renewable Energy Laboratory (NREL) launched Solar Automated Permit Processing Plus (SolarAPP+), a free automated permitting platform for residential solar plus storage projects that can cut weeks from the permitting timeline,



Images 12, 13. Residential solar installation (before and after). Photo credit: NY State Solar

Interconnection Reform

As New York's solar market matures, growing interconnection queues, rising interconnection costs, and dwindling hosting capacity are becoming urgent barriers to distributed solar and energy storage deployment. Reforms are needed to require New York's utilities to adapt their administrative processes, grid management, and system planning approaches to quickly, efficiently, and safely integrate more distributed energy resources (DER).

Interconnection Process Improvements

New York's interconnection processes for distributed solar and energy storage are governed by the Standardized Interconnection Requirements (SIR). The SIR includes timelines for New York's utilities to complete interconnection studies and details the various requirements for DER developers to interconnect to the utilities' electric distribution systems. Several improvements must be made to the SIR and interconnection process to standardize and accelerate interconnection timelines, alleviate financial barriers, and provide greater certainty to solar developers and financiers. A few impactful reforms include:

- Requiring New York's utilities to comply with SIR timelines and creating a system of penalties and incentives for utilities to expedite interconnection. The RAPID Act, included in New York's FY2025 budget, directs the Public Service Commission to initiate a proceeding to expedite interconnection for DERs with an emphasis on timelines, penalties, and incentives. In addition to ensuring that utilities comply with the SIR, NYSEIA supports Earnings Adjustment Mechanisms (EAMs) i.e., incentives, that reward utilities for excellence and encourage utilities to reduce timelines throughout the process, from initial application through to commercial operation.
- Allowing solar and storage developers to use commonly accepted financial instruments (e.g., surety bonds and letters of credit) instead of cash deposits as security for expensive grid upgrades that take years to complete. This improvement will allow developers to better manage their cash flow and reduce financing costs for interconnection upgrades with no additional cost or risk for New York's electric ratepayers.
- Providing solar and storage developers with greater cost and scope certainty regarding interconnection upgrades so they can rely upon interconnection study results provided by electric utility companies.
- Rewarding utilities for managing interconnection costs. Currently, utilities have no incentive to design cost-effective distribution upgrades or to manage their construction costs. EAMs that reward utilities for lowering interconnection costs while accelerating DER deployment can better align incentives.
- Allowing residential solar customers to install meter socket adapters (MSAs) provides a cost-effective and rapid solution for electrifying homes. MSAs, placed between a residential electric meter and socket, enable quick interconnection of DERs like solar, electric vehicles, and energy storage. Various manufacturers produce MSAs, such as ConnectDER for rooftop solar and Level 2 EV chargers, and Tesla's Backup Switch for Powerwall battery systems.



Image 14. Photo credit: Jonathan Hanna, retrieved from Renewable Energy World.

NYSEIA has proposed several additional interconnection policy improvements through New York’s Interconnection Policy Working Group (IPWG). While these improvements each offer incremental benefits, the combined impact of these improvements can be significant.

Flexible Interconnection

Rising interconnection costs and long lead times for grid upgrades present an increasingly urgent challenge for New York to overcome to achieve our 2030 and long-term clean energy and decarbonization goals. The current utility grid planning practice of building for the worst-case scenario is the most cost-intensive method. Flexible interconnection, or the use of software to monitor and control distributed energy resources (DER) in real-time, can address several hosting capacity constraints, supporting rapid DER deployment by mitigating costly grid upgrades, thereby accelerating interconnection timelines. Flexible interconnection capacity solutions can dramatically increase the hosting capacity of our current electric infrastructure by increasing grid utilization rates and mitigating expensive and extensive capital upgrades to the utility system with software to monitor, control, and, if necessary, curtail distributed solar projects. National Grid and NYSEG have both implemented successful flexible interconnection pilot projects over the last decade, and flexible interconnection is commonplace in Europe, including in National Grid UK’s service territory.

“According to a study from the German distribution company, EWE Netz, the dynamic curtailment of 5% of the energy generated from solar PV increases the grid connection capacity by around 225% without new grid investment (EWE Netz, 2015).”

Source: IEA, 2016. Re-powering Markets: Market design and regulation during the transition to low-carbon power systems.

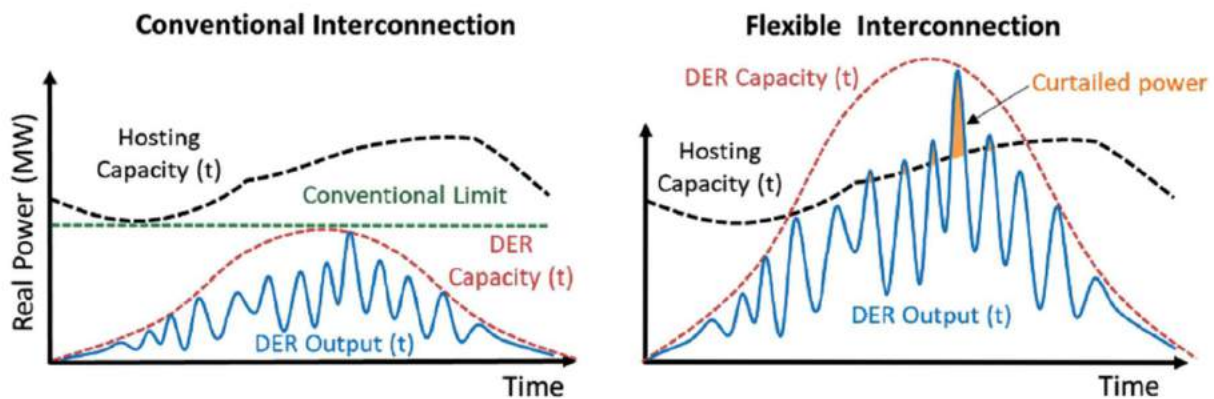


Figure 7: Conventional (Firm) vs Flexible Interconnection. Electric Power Research Institute.

In 2020, pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act, New York’s Public Service Commission initiated a Coordinated Grid Planning Process (CGPP) to develop and implement plans for future investments in the electric grid to increase hosting capacity and enable progress toward New York’s clean energy mandates.^{xx} Based on the CGPP plans filed by New York’s utilities, we anticipate that major substation upgrades

and upstream transmission upgrades will take at least 3-5 years to complete. Current system impact study practices (CESIR practices) paired with long timelines for required upgrades threaten near-term market stability. Failure to quickly adapt our approach to interconnection could jeopardize the sustainability of the distributed solar and energy storage market and harm New York-based DER companies.

Adopting flexible interconnection at scale could dramatically increase New York's available solar hosting capacity with limited cost and limited curtailment of DERs. The technology for many flexible interconnection capacity solutions is available today, however, New York has not yet updated its interconnection processes and policies to allow for wide adoption. It is important to note that the costs associated with project-specific flexible interconnection can be borne by DER developers. As private market participants, developers can ensure that the most economical choice is made regarding the combination of flexible interconnection and traditional infrastructure upgrades. Monitoring the adoption of flexible interconnection will help pinpoint areas of the grid that require investment to increase firm hosting capacity through a market-based approach, rather than relying solely on best-guess modeling and projections. NYSEIA is currently working with NYSERDA, New York Battery Energy Storage Technology Consortium (NY-BEST), and Electric Power Research Institute (EPRI) to conduct a statewide cost-benefit analysis for flexible interconnection and to identify specific challenges that must be addressed to support adoption at scale. The Interconnection Policy Working Group will be an important venue to address the few open policy and process questions regarding flexible interconnection. NYSEIA supports making flexible interconnection broadly available as soon as possible.

Hosting Capacity Expansion

Electrification, reshoring of high-tech manufacturing, and decarbonization will require significant grid investments. Hosting capacity expansion is achieved through grid investments that are either proactive upgrades initiated by the utilities or market-initiated upgrades initiated by interconnecting energy facilities. This hosting capacity expansion is necessary for the electric system to accommodate unprecedented load growth and increased renewable energy generation. Currently, most hosting capacity expansion for distributed solar is market-initiated, meaning solar



Image 15. Utility engineer inspecting substation electrical infrastructure. Photo credit: Sunco.

companies apply for interconnection and then fund the utility system upgrades needed to accommodate their solar projects. To date, solar and energy storage companies have contributed more than \$700M toward grid modernization and hosting capacity expansion through these market-initiated upgrades. New York recently established Cost-Sharing 2.0, a framework for solar companies to share the cost of system upgrades across multiple projects. While this framework is effective for many kinds of upgrades, it is insufficient for transformer bank upgrades or other major substation upgrades. In those cases, the cost of the upgrade itself is prohibitively expensive, even when it is shared across multiple solar or energy storage projects.

NYSEIA supports proactive utility investments to serve electric load growth driven by industrial energy consumers and electrification as well as utility investments that enable additional distributed solar and energy storage hosting capacity. Historically, New York's Coordinated Grid Planning Process has considered distributed solar a fixed load modifier (similar to energy efficiency) rather than a meaningful grid resource that can continue scaling to meet demand; to date, the CGPP has focused almost exclusively on utility-scale resources. Innovative and proactive distribution grid planning can allow distributed solar and energy storage to be meaningful grid resources that can support load growth while minimizing the need for expensive transmission investments, and NYSEIA recommends that the Joint Utilities and DPS consider this scenario through the CGPP. NYSEIA also supports reforms to Cost-Sharing 2.0 to enable additional market-initiated hosting capacity expansion. While solar and storage projects currently pay for 100% of the cost of upgrades they trigger, in many cases these upgrades are necessary for grid modernization and provide significant benefits to all energy consumers, particularly in areas with significant load growth. Sharing these costs equitably based upon who benefits from the investments could enable more Cost-Sharing 2.0 upgrades to proceed sooner.

Electric Rates and Solar Program Design

Electric Tariff Improvements for Clean Distributed Energy Resources

The majority of distributed solar is compensated under the Value of Distributed Energy Resources (VDER) value stack tariff, an electric rate that was established in 2017 to provide compensation for distributed energy resources (DER). VDER provides locational and temporal (time-varying) price signals for DERs, encouraging developers to site projects in locations where they are most valuable to the grid and to export power at the times it is most beneficial. VDER also provides compensation for the environmental attributes of renewable energy systems. New York has made incremental changes to VDER over the years, and the tariff has enabled significant distributed solar and energy storage deployment. However, elements of the VDER value stack are out-of-date or inaccurate, and additional improvements to VDER are warranted. Currently, VDER does not account for the avoided cost of long-distance transmission capacity; significant uncompensated value provided by distributed solar and energy storage systems. In 2023, the New York Department of Public Service filed a proposal to modify the method for utilities to calculate their Marginal Cost of Service (the basis for elements of the VDER tariff) and acknowledged that the avoided cost of transmission should be included in this calculation moving forward.^{xxi}

Additionally, in April 2022, the Public Service Commission administratively set the "environmental (E) value" for distributed solar at \$0.03103/kWh^{xxii}; a proxy value for the social cost of carbon that is significantly lower than the value recommended by the New York Department of Environmental Conservation.^{xxiii} The Public Service Commission's April 2022 Order states that the lower E value is necessary to avoid market inefficiencies, and chose to support additional solar capacity through NY-Sun capacity-based incentives instead. NYSEIA appreciates the Commission's commitment to ratepayer protection but encourages accurate valuation of the social cost of carbon, which would support rapid DER deployment with reduced reliance on NY-Sun capacity-based incentives. Additionally, NYSEIA encourages the Commission to consider the costs of co-pollutants that contribute to localized health burdens and incorporate these avoided costs into VDER; a tariff that incorporates these externalities would accurately and adequately compensate DERs, reducing reliance on capacity-based incentives. Revisiting the Environmental value of distributed solar and ensuring that inflation adjustments are included is also important to maintain fairness across distributed solar and utility-scale renewables at a time when the cost of environmental attributes for utility-scale projects is increasing due to macroeconomic trends that impact all sectors of the market.

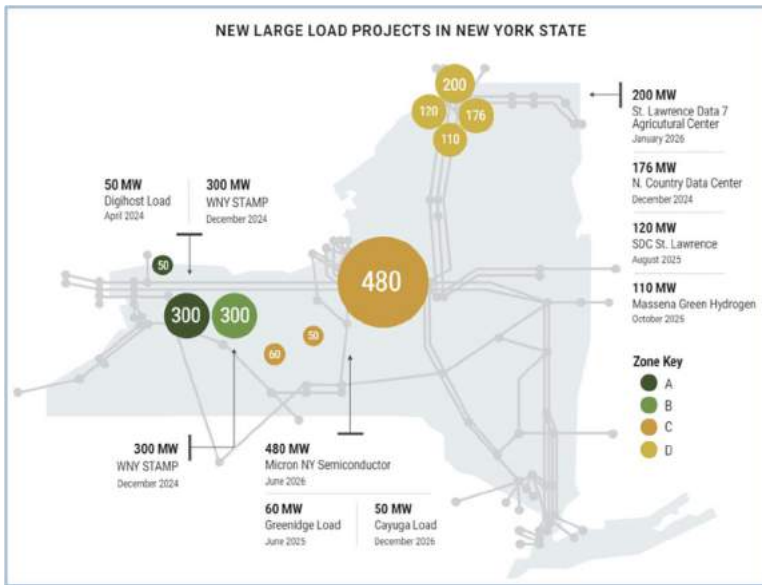


Figure 8. New York Independent System Operator, 2024 Power Trends.

Finally, VDER rates and the locations where the utilities provide enhanced compensation for DERs have not been refreshed by New York’s utilities in nearly a decade. The Locational System Relief Value (LSRV) could be used as a powerful tool to encourage distributed solar and energy storage deployment in locations of forecast load growth and resource inadequacy. For example, LSRV could be driving rapid solar and energy storage deployment in areas where DERs can effectively mitigate the need for expensive distribution system upgrades and be deployed near planned industry facilities, such as the Micron facility in Upstate New York, where serving this massive new electric load with clean energy will be a tremendous challenge. NYSEIA supports near-term action to ensure accurate VDER price signals and compensation for distributed solar and energy storage.

Virtual Power Plant Programs and Residential Rate Design

New York has a growing fleet of distributed solar projects, with more than 218,000 operational projects by the end of 2023.^{xiv} However, energy storage attachment rates are still low, limiting these resources’ effective load-carrying capacity. Capacity-based incentives for energy storage will help defray the upfront cost of energy storage, but long-term revenue streams enabled by performance-based compensation will allow solar finance companies and aggregators to offer lower-cost energy storage options, especially for residential and commercial customers, whose primary interest in energy storage may be resiliency. Programs that provide compensation to distributed generators and enable them to provide grid services will increase the value of these resources, allowing companies to aggregate and orchestrate fleets of solar and energy storage projects into virtual power plants that can provide grid-scale services.

In April 2024, the New York Public Service Commission initiated the “Grid of the Future” proceeding, which will evaluate the feasibility of scaling up virtual power plants (VPP) and more generally increasing grid flexibility to enable cost-effective decarbonization of New York’s electric system. NYSEIA strongly supports these efforts. We also support the near-term scaling up of dynamic load management (DLM) programs that accelerate storage deployment, attract aggregators, and encourage innovative business models, such as standalone storage, vehicle-to-grid, and retrofitting existing PV systems with energy storage to provide resiliency for homeowners and grid services. Continuing to improve upon existing DLM programs, and setting performance-based incentives at adequate levels to encourage participation, will allow distributed storage deployment to accelerate rapidly in the near term,

leveraging customer and industry investment to construct flexible grid assets which will become increasingly valuable over time with electric load growth.

When it comes to residential rate design and residential energy storage adoption, Long Island is ahead of the curve and can serve as a model for the rest of the state. Long Island has higher rates of rooftop solar adoption than any

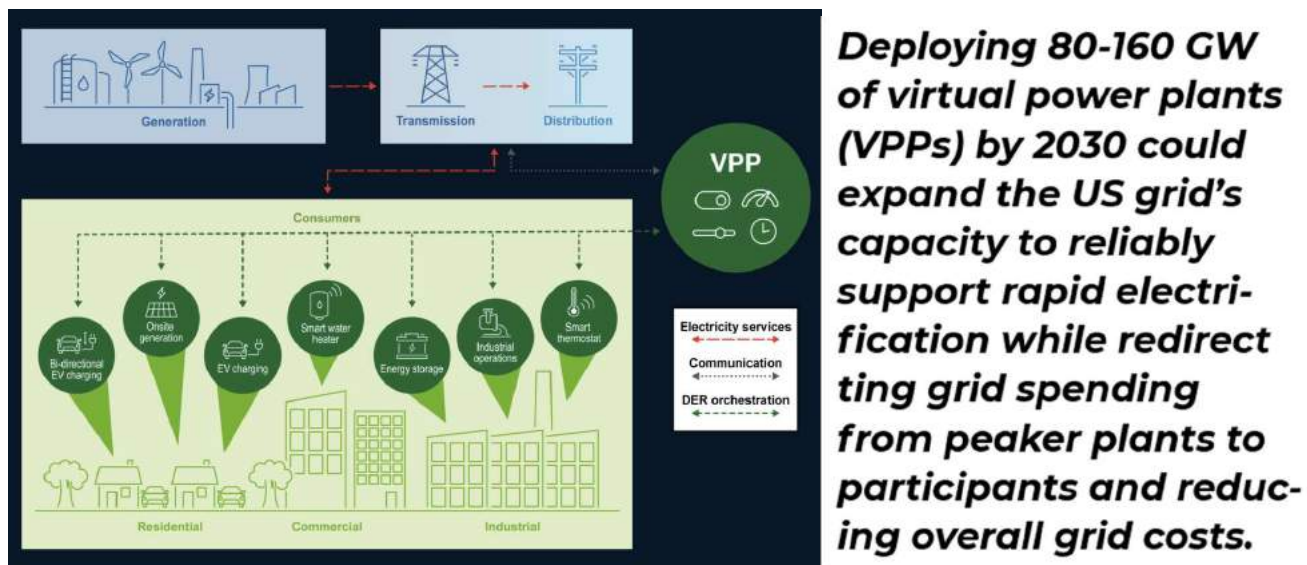


Figure 9. US Department of Energy. Pathways to Commercial Liftoff: Virtual Power Plants.

other region of the State, and it is also the region with the highest rate of residential energy storage adoption. Additionally, the Long Island Power Authority (LIPA) is in the process of adopting New York's first-ever opt-out time-of-day electric rate for residential customers. This is an important step toward LIPA's vision of a zero-emissions electric grid. The LIPA time-of-day rate creates a simple price signal to encourage households to shift their energy consumption to better align with the energy supply. Aligning supply and demand will be increasingly important as EV adoption increases and heating is electrified. In addition to changing consumer behavior, time-of-day rates also send an important price signal to solar customers, contractors, and aggregators. NYSEIA believes that LIPA's time-of-day rate will increase residential energy storage attachment rates, enabling customers and aggregators to optimize the output of solar energy systems to maximize customer savings and increase the value of the assets for the electric grid. NYSEIA encourages LIPA to build upon its legacy as a residential solar pioneer and commit to a bold plan to deploy a gigawatt-scale virtual power plant on Long Island to complement planned offshore wind resources. From a statewide perspective, NYSEIA looks forward to working closely with DPS staff, utilities, and other stakeholders to build upon and refine LIPA's early success, ensuring that residential rate reforms are incremental and beneficial to the grid and to current and future solar customers.



Image 16. Residential solar installation. Photo credit: Kasselman Solar.



Image 17. Sheep grazing on community solar farm. Photo credit: Solar Liberty.

Strengthen New York’s Community Solar Programs

New York’s community solar program is the biggest and strongest in the nation. However, there are still significant opportunities for improvement. One fundamental issue is utility performance with community solar billing and crediting. Unfortunately, since 2021, many of New York’s utilities have failed to issue timely and accurate bill credits to community solar customers. This failure has eroded trust in New York’s solar program which took years to build. In 2022, the Public Service Commission initiated a regulatory proceeding to create performance metrics and penalties for New York’s utilities to encourage them to issue timely and accurate credits to solar

customers. DPS Staff put forward a proposal with metrics and penalties in early 2024, and the proposal now awaits a decision from the Public Service Commission. NYSEIA strongly supports efforts to improve community solar billing and crediting.

In addition to improving utility performance for billing and crediting, it is also important for New York to continue improving the mechanisms that allow community solar customers to have a positive and seamless experience. The PSC recently approved changes to allow community solar providers to offer deeper savings rates to LMI customers who are served by the same consolidated billing project as middle- and upper-income and commercial customers. NYSEIA supports this policy and applauds the PSC for directing New York’s utilities to implement multiple savings rates promptly, starting in 2025. We are confident this change will increase access to solar savings among low-income New Yorkers. NYSEIA also supports expanding consolidated billing to early adopters of community solar on the volumetric tariff and supports enabling community solar customers who move within a utility service territory to automatically bring their solar subscriptions with them when they move. These improvements to New York’s community solar programs will lower subscriber acquisition and management costs, improve customer experience, and expand access to LMI New Yorkers. Finally, as New York establishes Statewide Solar for All, an important program that can direct 100% of a solar project’s savings to LMI customers, it is critical that this program be additive to the existing community solar programs and that New York continues to support opt-in community solar and community solar for diverse customer types.



Image 18. Source: US Department of Energy. Solar Energy Technologies Office.

Incentives

Modernize the NYS Residential Solar Tax Credit

New York's Solar Energy System Equipment Tax Credit is New York's only statewide solar incentive for homeowners to retrofit their homes with solar panels. This tax credit is vital for ensuring that New Yorkers can afford electrification and rooftop solar. However, the tax credit has not been adjusted for inflation since 2006, does not include energy storage, and is inaccessible to low-income families and retirees. Modernizing the residential solar tax credit is critical for making clean energy more affordable for all New Yorkers, particularly low-income families and seniors. Versions of this policy proposal were included in the Senate one-house budget for the last three legislative sessions (S3596C), but it has not yet been enacted in a final budget. NYSEIA and a coalition of allies in the environmental justice and housing community are advocating for New York to include this important proposal in New York's next budget. This proposal would advance equity, resilience, and affordability by:



Image 19. Rooftop solar installation. Photo credit: 718 Solar.

- a. Making the solar tax credit refundable for low-to-moderate-income households and those who live in Disadvantaged Communities;
- b. Removing a system size cap that limits eligibility for residents living in co-ops and condominiums;
- c. Allowing energy storage equipment to be included as an eligible expense; and
- d. Increasing the maximum tax credit amount from \$5,000 to \$10,000 to adjust for inflation (first cap increase since 2006) and energy storage costs while maintaining the 25% system cost limit.

NYSEIA's 2023 fiscal analysis estimates that these updates and enhancements to the residential solar tax credit will provide more than \$300M in annual benefits to New Yorkers, with an annual cost of just \$31M. This high-impact investment will accelerate equitable access to rooftop solar and mitigate energy burden for LMI households.^{xxv} The Climate Action Council's Final Scoping Plan states that up to 2 million homes must be electrified with heat pumps by 2030.^{xxvi} NYSEIA supports building electrification but notes that electricity is a more expensive fuel than natural gas, the most common heating fuel used in New York today. Rooftop solar can help offset the additional cost of home electrification, ensuring that New York homeowners can afford these critical upgrades. Rooftop solar will also lower the overall cost of electrification by reducing the need for expanding the electric transmission and distribution system to serve New York's growing electric demand. Expanding the tax credit to support storage will also provide broad systemwide benefits to New York ratepayers by increasing the deployment of distributed solar plus storage; resources that can be aggregated into virtual power plants that generate power when and where it is needed, reducing reliance on fossil fuel plants and mitigating the need for expensive transmission and distribution upgrades.

Finally, NYSEIA notes that the Climate Affordability Study published by NYSERDA and the Department of Environmental Conservation (DEC) in December 2023 specifically recommends that New York consider refundable tax credits. The report summarizes the agencies' evaluation of methods to provide Cap-and-Invest proceeds to New Yorkers and highlights refundable tax credits as a key recommendation to ensure equitable access.^{xxvii} Modernizing New York's residential solar tax credit and making it refundable are straightforward ways to act upon NYSERDA and the DEC's recent recommendations in their Climate Affordability Study.

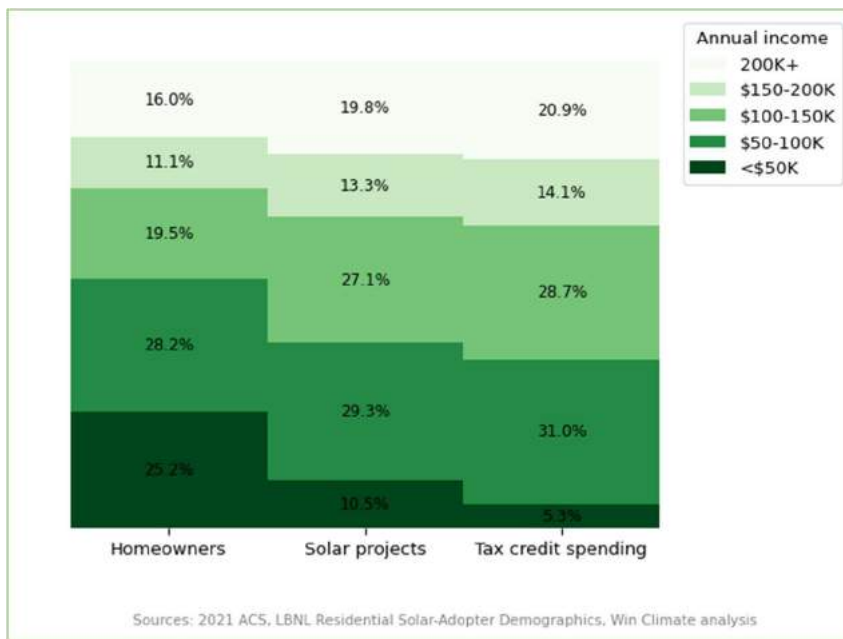


Figure 10. New York households, solar projects, and tax credit spending, percentage by household income. Source: Win Climate.

Stretch NYSERDA's 10 Gigawatt NY-Sun Funding



Image 19. Solar installation on a rural garage. Photo credit: PlugPV.

In April 2022, before the passage of the Inflation Reduction Act, the PSC issued its 10 GW Order, authorizing the collection of funds to expand NYSERDA's NY-Sun solar incentive program to achieve New York's expanded solar goal of 10 GW by 2030. The passage of the Inflation Reduction Act resulted in additional federal support for solar in NY, resulting in significant cost-savings for the NY-Sun program. In the summer of 2023, recognizing that the NY-Sun program is ahead of schedule and under budget, the PSC directed NYSERDA to file a proposal to stretch the previously approved funding under the Commission's 10 Gigawatt Order^{xxviii} to deploy

additional rooftop and community solar. The PSC Order directed NYSERDA to prioritize low-income community solar. In January 2024, NYSERDA released their proposal which indicates that the NY-Sun program can support 557 MW to 1,254 MW of additional low-income community solar capacity^{xxix} beyond 10 GW. NYSEIA strongly supports this proposal and encourages the PSC to expeditiously authorize NYSERDA to use previously allocated funding to support additional distributed solar.

NY-Sun 20 Gigawatt Order: Committing to a Bright Future

NYSEIA recommends that the Public Service Commission direct NYSERDA to develop a proposal for the next chapter of the NY-Sun program. NY-Sun has been an incredibly successful program, supporting cost-effective distributed solar PV deployment while leveraging billions of dollars in private and federal investment. Assuming the PSC approves NYSERDA to reinvest surplus funds into NY-Sun, the program is on track to support approximately 11 GW of distributed solar with the funding that was allocated in the 2022 10 GW Order, with a growing emphasis on low-income solar programs. Additional federal funding awarded through the EPA Solar for All program could extend the program even further. While these incremental investments are welcome, a bold commitment to the future of New York’s distributed solar programs will attract private investment and affirm New York’s national leadership as a dominant rooftop and community solar market. NYSEIA recommends that New York invest in success, and expand NY-Sun to support an additional distributed solar capacity over the next decade.

Historically, NY-Sun offered significant base incentives with limited adders for low-income programs and beneficial siting. Since the passage of the CLCPA, NYSERDA has shifted its model toward lower base incentives, with significant adders for low-income benefit projects, projects that pay prevailing wages, and beneficial siting. NYSEIA recommends that NYSERDA continue this trend, ensuring that NY-Sun supports low-income benefit projects, onsite solar for New York homes, schools, and businesses, and additional beneficial siting adders designed to address the incremental costs of

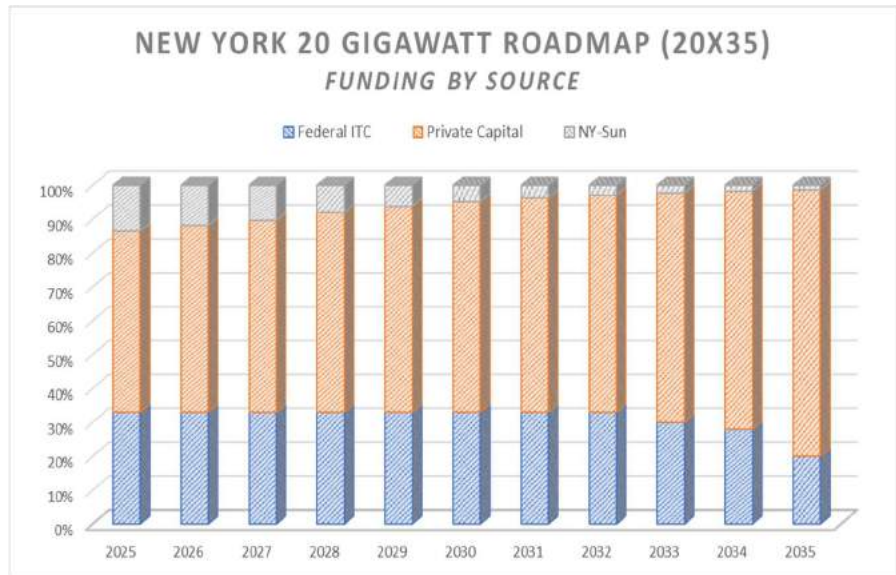


Figure 11. Illustration of how New York can leverage federal and private capital to achieve an expanded distributed solar goal. NYSEIA, 2024.

deploying solar on non-greenfield sites. The beneficial siting programs should provide support for agrivoltaic projects, and dual-use projects where solar PV is sited on working farmland in a manner that preserves the land’s existing agricultural use. NYSEIA also recommends expanding NYSERDA’s existing beneficial siting adders, including adders for rooftop solar, parking canopies, brownfields/landfills, and floating solar. If New York can advance other policy recommendations in this report, such as interconnection reform, siting reform, and VDER tariff improvements, it will reduce the cost of sustainable solar deployment while efficiently leveraging targeted NY-Sun investment to support projects that are uniquely beneficial from land use, economic development, and community benefit perspective.

6. Conclusion

Bold action is needed to achieve the 70% renewable energy by 2030 requirement in the CLCPA. New York's distributed solar programs are consistently ahead of schedule, making now the perfect time to raise the bar to 20 gigawatts by 2035, accelerating rooftop and community solar deployment to help New York close the gap on its clean energy and equity commitments in the CLCPA. Doubling New York's distributed solar goal will provide New Yorkers:

- \$50B in gross utility bill savings for New York households and businesses, and up to \$28B in indirect electric ratepayer savings through a lower-cost CLCPA compliance pathway.
- \$3.6B in direct financial benefit to host communities, including \$1.8B in revenue to rural landowners and \$1.8B in tax revenue to local governments and school districts.
- 15,000 additional solar industry jobs across the state, including blue-collar and white-collar positions. A significant portion of these jobs will be with New York-based businesses, a unionized workforce, and/or pay prevailing wages.
- 145 million metric tons of avoided greenhouse gas emissions and improved public health outcomes in environmental justice communities by displacing fossil fuel combustion with emissions-free solar.
- Reduced land use impacts by prioritizing rooftop and community-scale solar projects.

Scaling up distributed solar in New York is a smart investment that will deliver immense benefits while supporting rapid, near-term progress toward New York's ambitious CLCPA requirements. Repowering our economy with renewable energy is the challenge and opportunity of our time. New Yorkers never shy away from a challenge or opportunity, and the distributed solar industry is ready to help New York achieve its clean energy ambitions.



Image 8. Smiling solar industry workers on an urban rooftop. Photo credit: Solar Energy Systems.

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- ^{xii} Year one solar production factor from NYSEDA and DPS' 10 GW Roadmap filing (December 2021). Estimated year one savings assuming a mix of 75% VDER and 25% NEM projects, and estimated 25-year savings assuming a 1.5% blending average annual increase to the nominal value of solar as retail and wholesale rates rise.
- ^{xiii} Assuming 75% of total capacity is CDG or Remote Crediting, with annual lease rates assumed to be \$7,500 per MW-DC with a 2% annual escalator. Property taxes/PILOT amount is assumed to be \$7,500 per MW-DC, also with a 2% escalator.
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- ^{xvi} NYSEDA 10 GW Roadmap. Scaled job creation estimate from 4 GW to 10 GW of incremental capacity.
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