

EnergyVision 2030

New York
Companion Brief

An Achievable Vision for New York

Clean energy technologies offer an historic opportunity to build an energy future that produces large benefits: modernization of our energy systems, better options for all consumers to control energy costs, advanced economic growth, and dramatically reduced climate pollution. New York is already making nationally significant commitments to modernize the rules that govern the grid and increase renewables to 50% of the energy mix by 2030. As New York makes these commitments and reforms, questions arise: how much impact will current efforts have? What can New York do to meet its goals?

EnergyVision 2030 takes a comprehensive look at where current efforts to expand clean energy resources in New York can lead, how consumer adoption and market penetration rates can grow, and what increases in clean energy efforts are needed to attain emissions goals.

EnergyVision 2030 data show that New York is making important progress in many areas and with further strategic action expanding adoption of modern, market ready technologies can reduce emissions 45% by 2030: a target needed to put New York on the path to meet scientifically directed emissions reductions of 80% by 2050. By acting now to remove barriers, facilitate consumer adoption, and reform outdated rules and financial incentives that encourage investments in old and expensive energy choices, the state can benefit all residents and achieve its climate commitments.

EnergyVision 2030 suggests one pathway to advance adoption of clean energy technologies in New York in four core areas—grid modernization, electric generation, buildings, and transportation—and demonstrates that even relatively modest increases of these technologies can significantly reduce emissions while delivering consumer and economic benefits.

Grid Modernization

Energy Grid

Today's grids—and the policies that govern them—are often out of sync with technological advances and consumer expectations for a clean, reliable energy system. Clean, local energy resources like energy efficiency, distributed renewable generation, and energy storage are tools that can solve grid problems instead of relying only on building expensive infrastructure projects. Updated rules, planning processes, and financial incentives can enable the adoption of technologies

critical to meet 2030 and longer term emissions reduction targets.

Advanced communication and management systems can unlock the potential of flexible customer demand and managed usage, or load, to efficiently optimize the grid. These improvements will lower consumer energy bills, maximize the value of renewable energy generation, and reduce overall system costs. The modern grid will empower consumers to better control their energy use and costs, if it establishes fair rates for all consumers.

The New York Public Service Commission has taken several steps to update old rules and encourage strategic use of clean energy resources. This includes steps towards advanced metering functionality and significant reforms to electric rate design and the methods for compensating DER for the value these resources provide to the grid. New York has also approved initial reforms to the utility business model that reward the utility for finding lower cost, DER solutions instead of building more infrastructure. Combined with ambitious goals for clean energy and reductions in climate pollution, New York is far along the road to setting the policies needed to attain a 45% reduction in emissions by 2030, but attention to expanding clean energy market penetration is needed as New York implements these large scale reforms.

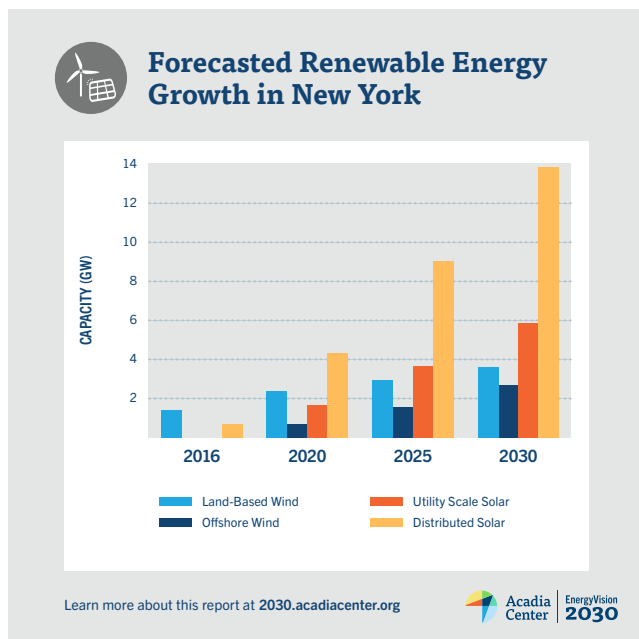
Demand Optimization

To take full advantage of emissions-reducing technologies, the electric grid needs to be updated. Optimizing energy usage allows us to reduce demand on the grid strategically, ultimately reducing the peak level of demand when the grid is most strained and expensive to run. Optimization can supply energy according to user needs and when renewable generation is available. It can be accomplished through demand response, active load management, and energy storage. Demand response (DR) provides the ability to reduce or shift energy consumption during periods of high demand, traditionally done through coordination between utilities and large customers. Active load management (ALM) is similar to DR but automated so that large numbers of smaller customers can participate, often without a discernible change in service. Energy storage, such as batteries, can store power and release it later.

Acadia Center analysis shows that **demand optimization could contribute a total of 4,846 MW of resources in New York by 2030**, reducing the need for additional generation and related infrastructure.

Electric Generation

Solar and wind power are emerging as cost-effective alternatives to traditional fossil-fueled generation sources. New York has vast untapped solar, land-based wind, and offshore wind resources. Harnessing this clean, low-cost generation is critical to meeting the 2030 emissions target.



Grid-Scale Generation

The sources of electricity generation in New York have shifted significantly from 2001 to the present. Coal use declined from 16% to 2% and natural gas increased from 27% to 41%.¹ This shift initially reduced greenhouse gas emissions by pushing out less-efficient coal plants, but the state's increasing overreliance on natural gas will provide it with few additional emissions benefits and increases risks of price volatility or supply disruption. Expanding renewable generation is a less risky alternative that provides stable costs, mitigates fuel price risk, and reduces emissions.

To realize the benefits of renewables and meet the 2030 emissions target, **New York will need to achieve or surpass 50% renewable energy and hydroelectricity**, as currently promised in its Clean Energy Standard. To achieve this scale of renewable energy generation, New York can increase solar 20-fold and triple land-based wind generation. 800 MW of offshore wind is already leased for development.

The Regional Greenhouse Gas Initiative (RGGI) cap and trade program can help support this development, and

New York must work with the other RGGI states to solidify and build on the program's success.

Distributed Generation

Distributed generation (DG) such as rooftop solar provides emissions-free renewable energy that advances energy independence and can reduce the need for utilities to build new transmission and distribution infrastructure. To reach the 2030 emissions target, 13.7 GW of distributed solar² capacity will need to be added across New York. To ensure widespread adoption of distributed energy resources, the state must continue efforts to reform how regulators assign monetary value to local, distributed solar. It must also develop appropriate compensation models and planning processes to put solar in reach of all customers.

Buildings

Buildings offer significant energy efficiency investment opportunities that can be combined with clean heating technologies to provide deep emissions reductions.

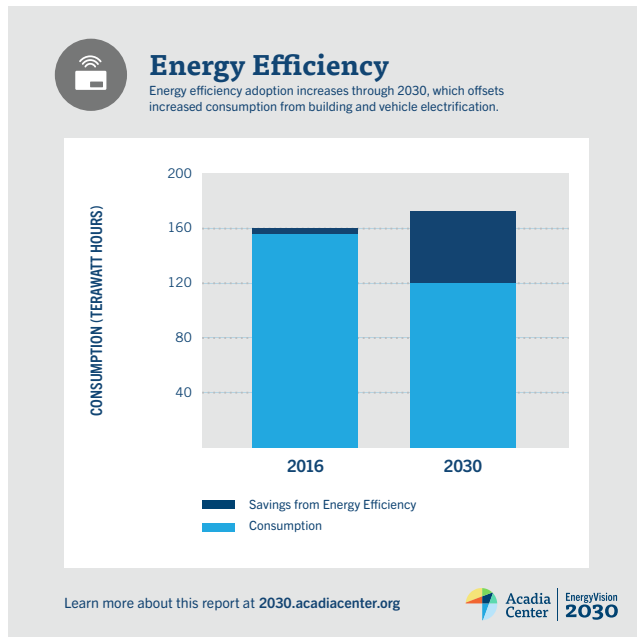
Energy Efficiency

New York has begun efforts to promote energy efficiency, but the state must do much more to embrace this essential resource. Not only is efficiency the lowest cost and cleanest energy choice, it provides enormous economic gains, creates jobs, and saves consumers money. It also provides healthier, more comfortable spaces in which to live and work. Energy efficiency works hand in hand with coordinated improvements in our energy system: by reducing overall demand for energy, energy efficiency allows renewable energy resources to ramp up and it offsets increased electricity demand from electric vehicles and heat pumps.

New York must show a sustained commitment to energy efficiency in order to reduce energy consumption and minimize costs. **The state must achieve at least 2.5% annual efficiency goals** on average to reduce emissions from electricity generation and offset additional demand from new technologies.

In addition to electric efficiency, heating fuel efficiency must also increase through building weatherization. **Natural gas and delivered fuel (fuel oil and propane) efficiency savings must increase to 1.4% and 1.2% per year**, respectively, to help achieve New York's emissions goals. To achieve these targets, the state needs to

capture all cost-effective efficiency, sustaining or improving its current efforts.



Heat Pumps

Heat pumps are an efficient electric renewable heating and cooling technology for residential and commercial buildings. They use air to air exchangers or ground source loops to transfer heat between the inside and outside of a building. Even in the coldest weather, a heat pump is far more efficient than traditional electric heating and can displace heating from oil and gas at very low temperatures. Acadia Center modeling shows that **11% of oil, gas, and propane heating systems in homes** need to convert to heat pumps by 2030 to put the state on track to meet its emissions goals. To capture this potential, heat pumps must be promoted through incentive programs, consumer education, workforce training, and electric rate design.

Transportation

Transportation is the largest source of emissions in New York and traditionally the most difficult emissions sector to address, but rapidly evolving technology offers deep reduction potential.

Electric Vehicles

An electric vehicle (EV) emits less than half of the CO₂ of a conventional vehicle, and EVs will produce even fewer emissions as technology improves and more electricity is produced by renewables.³ EVs are a practical, commercially available technology that can save consumers money, even at today's low gas prices. New York has committed, with other states, to put about 852,000 zero emission vehicles on the road by 2025.⁴ This commitment can be expanded and strengthened through an ambitious but achievable 2030 target: **20% of cars and light trucks and 2.5% of medium-duty trucks electrified.** Deployment will require smarter electric rates that make EVs more attractive to drivers and consumer incentives to facilitate EV purchases. Pricing transportation emissions will accelerate EV adoption while raising funds for rebates, electric vehicle charging infrastructure, transit, and other transportation sector investments.

Increasing Mobility Options

In both rural and more congested areas, improving the availability of driving alternatives such as public transit, walking, biking, carpooling, and ride-hailing services can reduce the number of vehicle miles traveled (VMT) and related emissions. To meet emissions targets by 2030, **New York can counteract projected VMT growth (5% growth under current policies) to maintain flat VMT levels** over the 15-year period. The state can reach this target in several ways: transit programs can expand in urban centers. Rural areas can expand bus and on-demand ride services to improve connectedness. In all areas, the state can improve zoning regulations to create vibrant, walkable communities, improve connectedness, and preserve open space.

References

- <https://www.eia.gov/electricity/data/eia923/>
- In EnergyVision 2030, distributed solar refers to commercial, municipal, community, and residential solar.
- Acadia Center analysis, EnergyVision, 2014: <http://acadiacenter.org/document/energyvision/>
- Acadia Center et al. Charging Up: <http://acadiacenter.org/document/charging-up/>

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