

Powering the Path to a Cleaner Future

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Central Hudson's Service Territory





New York State Goals



Electric generation from renewable energy sources by 2030



Electric generation of electricity from renewable energy sources by 2040



Reduction in greenhouse gas emissions by 2030



Reduction in greenhouse gas emissions by 2050



6,000 MW of **solar** by 2025



3,000 MW of **storage** by 2030



9,000 MW of off-shore wind by 2035

*The bill sets greenhouse gas emissions baseline as 1990 emissions.



New York State Clean Energy Initiatives

Costs to Electric Customers 2006-2025

Program	State	Central Hudson
Zero Emissions Credits	\$5,013,087,000	\$92,244,000
Renewable Energy Credits	\$1,362,882,000	\$25,465,000
System Benefits Charge*	\$1,220,718,000	\$48,984,000
Renewable Portfolio Standard*	\$1,540,669,000	\$79,622,000
Energy Efficiency Portfolio*	\$1,979,636,000	\$102,813,000
Clean Energy Fund	\$3,404,506,000	\$185,486,000
NY-Sun	\$943,773,000	\$51,419,000
NY Green Bank	\$742,190,000	\$40,436,000
Utility Energy Efficiency	\$2,994,641,000	\$112,474,000
Net Metering	\$1,038,851,000	\$101,500,000
Community Distributed Generation	\$410,858,000	\$56,892,000
Offshore Wind	pending	pending
Energy Storage	pending	pending
Total	\$20,651,811,000	\$897,335,000

* Previously authorized amounts for these programs for years 2016 and forward were reallocated to the Clean Energy Fund, NY-Sun and NY Green Bank with the establishment of the Clean Energy Fund Framework in January 2016.

NEW YORK STATE ELECTRIC GENERATION MIX



People. Power. Possibilities. Central Hudson

Strategies



Upgrading Electric and Transmission Distribution Lines



Transmission

Regional Use and Production in New York State

Energy Used Energy Produced



Transmission

2018 Electric Energy Production in New York State, By Fuel Source



Source: NYISO Power Trends 2019



What Does Electrification Mean for the Distribution System?

Distribution

- **Distribution Automation (DA)** Intelligent field devices and distribution infrastructure
- Distribution Management System (DMS)
 Centralized distribution control system
- Network Communications Strategy Two-way communication system between the DA devices and DMS



Pursuing the Lowest Cost Approach to Emission Reduction

Pursuing Lowest Cost Approach

Annual capacity factors for clean energy resources

Source: New York Independent System Operator (NYISO)



Pursuing Lowest Cost Approach



or

25,000 MW of solar power; requires 125,000 acres or 200 square miles of land (Source: NYISO) 15,000 MW of wind power; requires 1,275,000 acres of land (Source: US DOE 2015 Wind Vision report; 85 acres per 1 MW) or



4,000 MW of hydro power; requires building two new facilities the size of the Niagara Power Project (Source NYPA; Niagara Power Project is 2,600 MW)





*Solar output assumes that all PV systems given final approval within Central Hudson's EPS as of 7/20/2019 are producing at full capacity

Integrating Natural Gas Benefits

Carbon emissions by sector







Expanding Energy Efficiency Programs

By participating in energy efficiency programs in 2018, **Central Hudson's** customers saved more than 82 million kWh, which equate to ...





Advancing Environmentally Beneficial Electrification

Environmentally Beneficial Electrification







Supporting a Balanced Approach

Questions

