



Vermont: Pathway to 2030

EnergyVision 2030 describes in detail how seven Northeast states can be on a pathway towards a reliable, consumer-oriented clean energy future that meets a goal to reduce climate pollution at least 45% from 1990 levels by 2030. Vermont statute requires a 50% reduction in emissions from the 1990 level by 2028 and a 75% reduction by 2050. Using a data-driven approach, EnergyVision 2030 sets technology-specific targets in four key clean energy markets—grid modernization, electric generation, buildings, and transportation—and proposes supporting policies to achieve those goals.

Vermont is setting the standard for best practices in key areas such as distributed renewable generation and grid modernization; in others, it can do more. These summary tables detail policies that can be used to reach the clean energy benchmarks presented in EnergyVision 2030. They show Vermont’s current levels of implementation for specific policies and technologies in each of the four key areas compared to the best practice levels needed to meet emissions targets.

While some states like Vermont are clear leaders in individual areas, a more uniform and consistent approach is needed across all Northeast states. EnergyVision 2030 shows that a goal to reduce greenhouse gas emissions by 45% can be achieved if all states adopt the best practices of each leading state.



Electric Generation

Solar and wind power are emerging as cost-effective alternatives to traditional fossil-fueled generation sources. Across the United States, solar prices have dropped dramatically and installed capacity has grown exponentially. New York and New England have vast untapped solar and on- and off-shore wind resources. Harnessing this clean, low-cost generation is critical to meeting the 2030 emissions target. Vermont’s progress toward this goal is represented below.

| Policy | Best Practice Status | Vermont Current Status | 2030 Recommendations |
|---|---|-----------------------------|---------------------------------------|
| Renewable Portfolio Standard (RPS) | New York – 50% by 2030 ¹ Rhode Island – 38.5% by 2035 | 75% by 2032 ² | 42% by 2030, primarily wind and solar |
| Distributed Solar Annual Installation Rate | Vermont – 118 watts per capita (2016) Massachusetts – 56 watts per capita (2016) | 118 watts per capita (2016) | 48 watts per capita through 2030 |



Transportation

Transportation is the largest source of emissions in the Northeast and traditionally the most difficult emissions sector to address, but rapidly evolving technology offers deep reduction potential. Electric vehicles (EVs) and innovations in mobility options can help improve transportation efficiency and reduce emissions. In cities of all sizes and in rural areas, increased transit options like buses, trains, and carpools can grow. See how much Vermont needs to do in this area to meet emissions targets below.

| Policy | Best Practice Status | Vermont Current Status | 2030 Recommendations |
|---|--|--|---|
| EV Sales Annual Growth | Vermont – 42% (average, 2013–2016) Massachusetts – 41% (average, 2013–2016) | 42% (average, 2013-2016) | 40% annually through 2030 |
| EV Incentive Level Stable Funding Source? | Connecticut – up to \$3000 Colorado – \$5000 | \$0-\$1200, or free L2 charger, depending on utility Yes – Tier III Renewable Energy Standard energy transformation project funding | Market levels needed to achieve growth targets Yes |
| California ZEV Standard Adoption | Several states have adopted | Yes | Yes |
| EV Chargers DC Fast Chargers per 1000 Miles of Highway L2 Chargers per Billion VMT | Massachusetts – 17 Vermont – 18 | 10 18 | |
| EV Charging Rate/Demand Management Program | New York – EV time of use rates and demand management program pilots | Utilities offer highly differentiated opt-in whole-house time of use rates. One utility offers \$30/month unlimited off-peak charging. | Time of use rates that vary all rate components to reflect actual costs |
| Annual Transit Trips per Capita (Buses, Trains, and Subways) | New York – 195 | 4 | |
| Percentage of Workers 16+ Carpooling | Maine – 10.6% | 9.7% | |
| Emissions Pricing for Transportation Fuel | California – \$13/ton | No | Yes – market-based price |



Grid Modernization

To take full advantage of opportunities to benefit consumers and advance emissions-reducing technologies, the rules and regulations governing the electric grid need to be comprehensively updated. The present grid was designed at a time when centralized power generators exclusively controlled a one-way flow of electricity to consumers. A modern grid needs to accommodate greater consumer control and two-way flows of power. Grid modernization will provide the backbone that supports the carbon-cutting changes in all sectors. See how grid modernization processes in Vermont are progressing below.

| Policy | Best Practice Status | Vermont Current Status |
|---|---|--|
| Distribution System Planning to Consider Clean Local Alternatives to Infrastructure | Rhode Island – System Reliability Procurement Plan and Power Sector Transformation New York – Reforming the Energy Vision (REV) proceeding | Limited – Vermont I7-3142-PET proceeding to investigate potential future changes. |
| Regulatory Proceeding or Other Process Underway to Align Utility Business Models | New York – REV proceeding Rhode Island – Power Sector Transformation | Limited – Vermont I7-3142-PET proceeding to investigate potential future changes. |
| Regulatory Proceeding Underway to Modernize Grid | New York – REV proceeding Rhode Island – Power Sector Transformation | Limited – Vermont I7-3142-PET proceeding to investigate potential future changes. |
| Consumer-Friendly Rate Design Limited Reliance on Fixed Charges Easy to Understand Time-Varying Rates for Energy Supply, Transmission and Distribution (T&D) | Several states have utilities with residential fixed charges in the \$5 to \$10 range Green Mountain Power (VT) offers three options for highly differentiated bundled residential rates. Several New York utilities offer residential rates with differentiated energy and transmission/distribution components. United Illuminating (CT) offers a residential rate with differentiated transmission and energy components. | Fixed Charges Green Mountain Power: \$0.433 per day (about \$13/month) Burlington Electric: \$8.21 VT Electric Coop: \$17.22 Time-Varying Rates (bundled) Green Mountain Power: Yes Burlington Electric: Yes VT Electric Coop: Yes |
| Shared Solar or Virtual Net Metering | New York, Massachusetts, and Vermont | Yes, known as group net metering. |
| Distributed Generation Compensation | Monetary crediting, with initial reforms to align credit structures with value | Retail rate less bypassable charges for self-consumption. Monetary credit for excess monthly generation at the lower of statewide average or utility retail rate, carried for up to one year. Adjustments for larger systems, customer-retained RECs and preferred siting based on production. |
| Storage Mandate | California – 1325 MW by 2020 | No |



Buildings

Buildings offer significant energy efficiency investment opportunities that can be combined with clean heating technologies to provide deep emissions reductions. The Northeast is a national leader in investing in energy efficiency. Massachusetts filled a record 3.3% of its electricity needs with cost effective energy efficiency installed in 2016 alone, far surpassing the 2.9% goal for that year. Not only is efficiency the lowest cost and cleanest energy choice, it provides enormous economic gains, creates jobs, and saves consumers money. Increasing investments in efficiency has made nearly \$500 million of expensive transmission line upgrades no longer necessary in New England. More information about current efficiency efforts in Vermont are below.

| Policy | Best Practice Status | Vermont Current Status | 2030 Recommendations |
|---|--|--|----------------------|
| Electric Energy Efficiency Annual Savings Level | Massachusetts – 2.9% (2017 plan) | 2.1% (2018-2020 average planned savings) | 3.0% ³ |
| Natural Gas Energy Efficiency Annual Savings Level | Massachusetts – 1.2% (2016) | 0.5% (2015) | 1.2% |
| Residential Heat Pump Conversion Rate | Maine – 0.8% (2016) | 0.6% (2017) | 1.0% through 2030 |
| Fossil Fuel or Carbon-based Incentive Funding for Heat Pumps | Massachusetts – MassCEC’s \$30 million Clean Heating and Cooling program | Yes – Tier III Renewable Energy Standard energy transformation project funding | Yes |

Conclusion

Vermont continues to be a regional and national clean energy leader. To build a low-carbon energy system, the state must excel across all policy areas. To reach EnergyVision 2030 goals and statutory emissions targets, the state should strengthen efforts to modernize the grid through current regulatory proceedings and proposed legislation; expand the Renewable Portfolio Standard and eliminate barriers to adoption of solar PV; continue to adopt all cost-effective energy efficiency and increase support for switching to heat pumps; and continue to incentivize and remove barriers to purchasing and using electric vehicles. If Vermont follows these policy recommendations, it will be on its way to a clean energy future.

References

- 1 Eligible resources vary by state. New York’s Clean Energy Standard includes large-scale hydro, which is not included in the EnergyVision 2030 recommended minimum target.
- 2 Vermont’s Renewable Energy Standard includes large-scale hydro. 10% reserved for distributed generation.
- 3 EnergyVision 2030 calls for an average of 2.5% annual electric savings through 2030. Because Massachusetts and Rhode Island have demonstrated that savings of 3% or more are currently achievable and lower total electric costs, Acadia Center is currently recommending that states aim for higher near-term levels.

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