2017

Acadia Center EnergyVision 2030 Accelerated Scenario

Acadia Center

Acadia Center

EnergyVision 2030

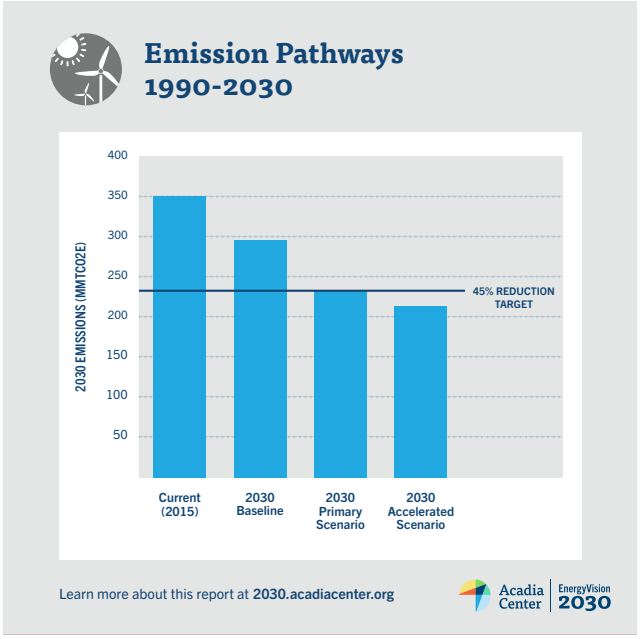
Accelerated Scenario

Companion Brief

Accelerated Scenario

An Ambitious, Achievable Vision

EnergyVision 2030 analyzes how states in the Northeast can advance their energy markets to reduce costs, enhance consumer-control, and lower emissions. The EnergyVision 2030 Primary Scenario demonstrates that greenhouse gas (GHG) emissions can be reduced 45% from 1990 levels by 2030—the reduction needed to put the region on a linear path to reducing emissions 80% by 2050—using clean energy technologies that are already mass produced and increasingly cost competitive. Acadia Center further conducted an analysis to see what increases in clean energy would be needed to achieve larger emissions reductions on the same timeline given more ambitious state policies to spur clean energy adoption. In this Accelerated Scenario, emissions would be reduced 50% by 2030—an additional 5% below emissions levels achieved in the EnergyVision 2030 Primary Scenario.



The Accelerated Scenario demonstrates that states have the capacity to achieve larger emissions reductions over the same time. If every state in the Northeast region adopted the more ambitious policies outlined here, they would collectively avoid an additional 23 million metric tons (MMT) of GHG emissions in 2030, roughly the equivalent of taking 4.9 million cars—or about all the cars registered in CT, MA, NH, ME, and VT—off the road. While not every state will choose a leading role in the energy transformation, the EnergyVision 2030 Accelerated Scenario outlines a pathway for states that want to demonstrate climate leadership, reap the economic benefits of early involvement in clean industries, and secure their role in the clean energy future.

Table 1 shows how the increased adoption of different technologies in the Accelerated Scenario could lead to greater emissions reductions.

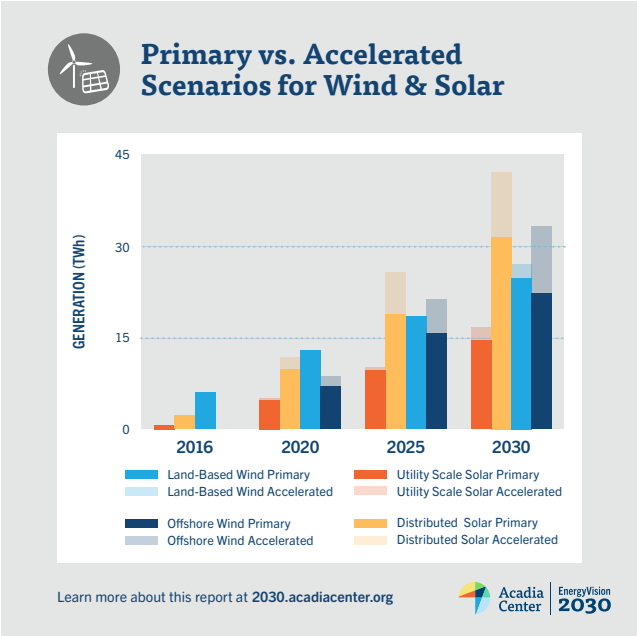
Comparative Market Penetration of Selected Clean Energy Technologies, present to 2030

	Current Market Levels (2015)	2030 Baseline Under Current Trends	EnergyVision 2030 Primary Scenario	EnergyVision 2030 Accelerated Scenario
Electric Vehicles (% of fleet)	<1%	5%	17%	23%
Heat Pumps (% of residential heating)	<1%	3%	13%	16%
Electric Generation (% renewable)	19%	44%	57%	66%
Wind and Solar	3%	24%	35%	45%
Hydro	13%	18%	20%	19%
Other	4%	3%	2%	2%
Electric Efficiency (average % annual savings)	1.4%	1%	2.5%	2.7%
Emissions Reduction from 1990 Levels	18%	30%	45%	50%

Components may not sum to totals due to rounding

Electric Generation

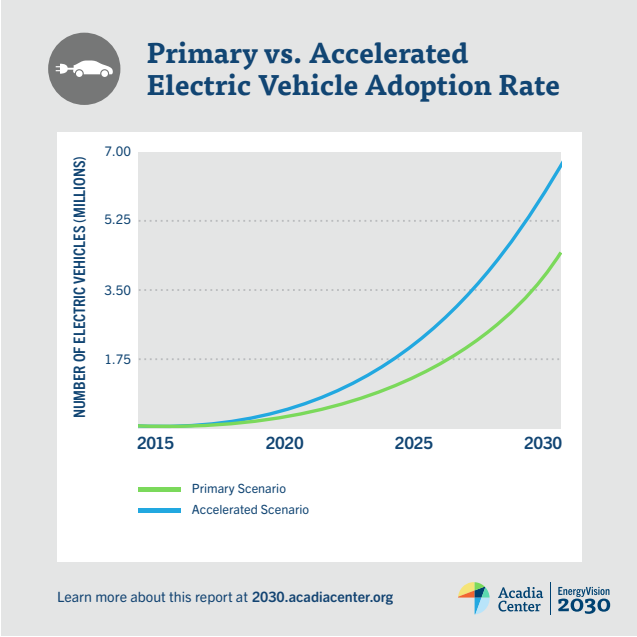
The EnergyVision 2030 Primary Scenario outlines practical steps to shift electric generation away from fossil-fueled power plants and toward a more renewable, consumer-centric model, cutting emissions in the process. The Accelerated Scenario looks beyond the levels of market penetration necessary to achieve current commitments to examine how even more ambitious commitments could be achieved. For instance, New York could generate 67% of its electricity from renewable sources by 2030—17% more than its current Clean Energy Standard requires. In New England, 65% of generation could come from renewable sources—about 43% more than the current state renewable portfolio standards require.



To meet these targets, states could revise their renewable portfolio standards and further prioritize renewables over fossil fuel generation. To accelerate development of renewables, New York and the New England states can support newer technologies like offshore wind and energy storage. They can also promote distributed solar more by implementing appropriate compensation models and policies that increase access for all customers. To facilitate this, New York and New England would need to work with neighboring states to increase the price of polluting by aggressively strengthening the Regional Greenhouse Gas Initiative and expanding carbon pricing beyond the electric system.

Transportation

Deeper emissions cuts could also be made in the transportation sector. States can deploy electric vehicles (EVs) more rapidly by offering consumers effective incentives for purchasing and operating them where those incentives don't already exist, as well as greater incentives that cover more of the population, especially lower income residents. States can also increase adoption by educating consumers about the benefits of EVs. As deployment speeds up, costs may decline faster, allowing EVs to be deployed even faster. In the Accelerated Scenario, 23% of cars and light trucks would be EVs by 2030, compared to 17% in the Primary Scenario.



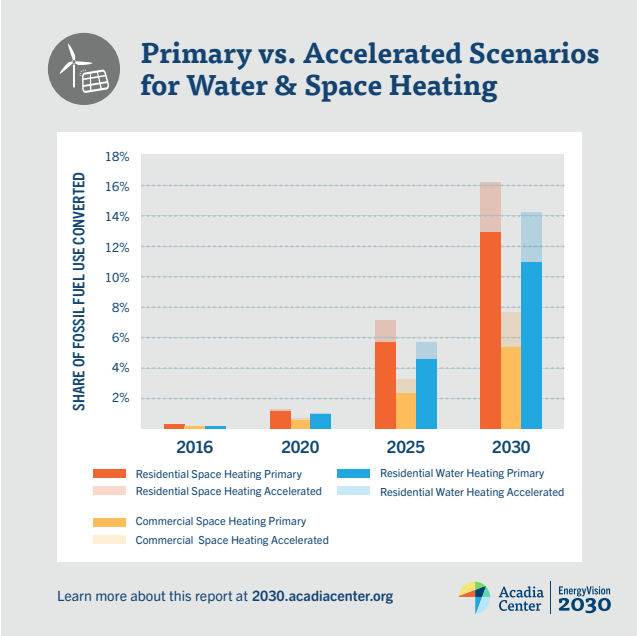
To decrease the cost of EV ownership, states can implement increased and stable purchase rebates, reduce electricity rates for vehicle charging, and increase other EV operating benefits (such as access to HOV lanes), as well as invest more in charging infrastructure. Regional transportation climate policy including carbon pricing could help source funds for these additional programs and would provide economic incentives for energy producers and consumers to reduce emissions.

Buildings

Most utilities and states in the region have been implementing some degree of electric efficiency for many years. However, in the past five years, some of the New England states have dramatically increased procurement

of energy efficiency. All states in the region need to achieve 2.7% annual electric efficiency savings to help meet the 2030 emissions targets in the Accelerated Scenario. While this is higher than the 2.5% annual savings needed in the Primary Scenario, Rhode Island and Massachusetts are already consistently meeting or exceeding the 2.7% savings levels and have exceeded 3.0% in some years.

In the Primary Scenario, EnergyVision 2030 suggests electrification of building heating at a moderate rate of adoption spurred by policy changes to help reach the 45% emissions reduction target. The Accelerated Scenario assumes greater policy support and faster technology improvements, allowing a larger percentage of fossil-fueled systems to be replaced. In this scenario, 16% of fossil fuel use in residential buildings would be replaced with heat pumps by 2030, about 3% more than in the Primary Scenario. 8% of the fossil fuel consumption in commercial buildings would be converted to heat pumps in the Accelerated Scenario, also 3% more than in the Primary Scenario.



States could encourage this higher adoption rate by lowering ownership costs for heat pumps through purchase incentives and electricity rates that encourage heat pump usage. Contractors and building owners could be educated further about heat pump technology to help them understand their benefits as a heating solution, and a vibrant industry and well-trained workforce would help promote heat pumps and ensure proper installation. Extending carbon pricing to heating fuels would raise additional funding to support adoption of heat pumps and other renewable heating technologies. It would also establish economic incentives that promote additional cost-effective GHG reductions.

Grid Modernization

Optimizing energy usage allows us to shift demand on the grid strategically, ultimately reducing the peak level of demand when the grid is most strained and helping to integrate renewables. Optimization can be accomplished through demand response (DR), active load management (ALM), and energy storage. DR provides the ability to reduce or shift energy consumption during periods of high demand. Traditionally, DR is done through coordination between utilities and large customers. The Accelerated Scenario calls for 3,000 MW of new DR in 2030. ALM is similar to DR but automated so that large numbers of smaller customers can participate, often without a discernible change in service. The Accelerated Scenario requires 3,000 MW of ALM by 2030. Energy storage, such as batteries, can store power and release it later. The Accelerated Scenario uses 6,000 MW of electric storage in 2030.These technologies have all been commercially demonstrated and are critical to optimizing use of the existing grid, which will better enable renewable generation to meet demand and reduce customer costs.

acadiacenter.org • info@acadiacenter.org

Boston, MA 617-742-0054 • **Hartford, CT** 860-246-7121 • **New York, NY** 212-256-1535
Providence, RI 401-276-0600 • **Rockport, ME** 207-236-6470

Acadia Center