

# Fighting for our Future

Growing our economies  
and protecting our  
communities through  
climate leadership



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# Message from the Co-Chairs

The United States Climate Alliance is committed to protecting all Americans and their livelihoods by fighting climate change. We continue to take action while our communities confront the devastating impacts of extreme weather and climate disasters. Record-breaking economic and environmental damages occurred in our states in 2017 and 2018. Wildfires in the western United States are destroying homes, claiming lives, and forcing thousands of people to evacuate. Severe storms caused extended power outages in the Northeast and devastating flooding in the Southeast.

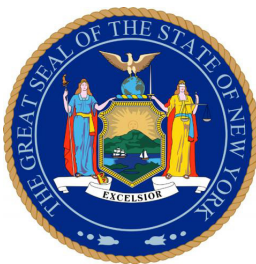
These challenges underscore the significance of the U.S. Climate Alliance, a burgeoning group of states and territories acting in concert to address the causes of climate change. Since last summer, our Alliance has grown from three to 17 governors representing more than 40 percent of the U.S. population. Together, we have advanced climate leadership, turning verbal commitments into tangible action. We are tackling ‘super pollutants,’ expanding clean energy financing, and storing carbon in landscapes. We are modernizing our electric grids, harnessing renewable energy, advancing appliance efficiency standards, building resilient infrastructure, and deploying clean transportation.

By leading on climate, we have already reduced our collective greenhouse gas emissions 14 percent below 2005 levels – halfway toward our collective share of the

U.S. Paris Agreement target for 2025. Our actions support 1.3 million clean energy jobs while spurring economic growth that exceeds the rest of the nation. Our experience proves that climate action can go hand-in-hand with benefits for our residents, economies, and the environment.

While Alliance states maintain an unwavering commitment to protecting all Americans and the environment, our task has been made more difficult due to the dismantling of federal climate and environmental policies. The new analysis contained in this report projects that as a direct result of federal rollbacks, the nation – including the Alliance states – will fall further behind in our efforts to fulfill our commitments. Until federal leadership is restored, we can only make progress through additional, concerted efforts by individual states. Consequently, we are expanding our efforts to ensure we can meet our share of the nation’s commitment under the Paris Agreement through a series of individual and collective actions and commitments.

When we formed the U.S. Climate Alliance, we committed to transparency, accountability, and acceleration of climate action. Today we re-affirm this commitment and vow to continue our bipartisan efforts to reduce harmful emissions. Science and our concern for our residents, not politics, drives our action. U.S. Climate Alliance states are exploring innovative advances in all sectors and enacting policy to move us toward our goal.



**Andrew M. Cuomo**  
Governor, New York



**Edmund G. Brown Jr.**  
Governor, California



**Jay Inslee**  
Governor, Washington



# U.S. Climate Alliance Principles

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## **States are continuing to lead on climate**

**change:** Alliance states recognize that climate change presents a serious threat to the environment and our residents, communities, and economy.

## **State-level climate action is benefitting our economies and strengthening our communities:**

Alliance members are growing our clean energy economies and creating new jobs while reducing air pollution, improving public health, and building more resilient communities.

## **States are showing the nation and the world that**

**ambitious climate action is achievable:** Despite the U.S. federal government's decision to withdraw from the Paris Agreement, Alliance members are committed to supporting the international agreement and are pursuing aggressive climate action to make progress toward its goals.

## **Each member state commits to:**

**Implement** policies that advance the goals of the Paris Agreement to reduce greenhouse gas emissions by at least 26–28 percent below 2005 levels by 2025;

**Track** and report progress to the global community in appropriate settings, including when the world convenes to take stock of the Paris Agreement; and

**Accelerate** new and existing policies to reduce carbon pollution and promote clean energy deployment at the state and federal level.

# Executive Summary

*The bipartisan U.S. Climate Alliance formed in response to the President's decision to withdraw from the Paris Agreement. Over the course of its first year, we have grown to 17 states and territories, representing a wide diversity of people, places, and economic activity. We are home to 40 percent of the U.S. population and account for nearly \$9 trillion in combined economic activity – enough to be the world's third largest country.*

The U.S. Climate Alliance remains committed to the Paris Agreement and to meeting our share of the U.S. Nationally Determined Contribution – a 26–28 percent reduction in greenhouse gas (GHG) emissions below 2005 levels by 2025 – while continuing to grow our economies. The climate challenge demands an urgent and ambitious response. We call on other states and territories to join us, on local and business leaders to work with us, and on the community of nations to take every measure necessary to meet and strive to exceed their Nationally Determined Contributions.

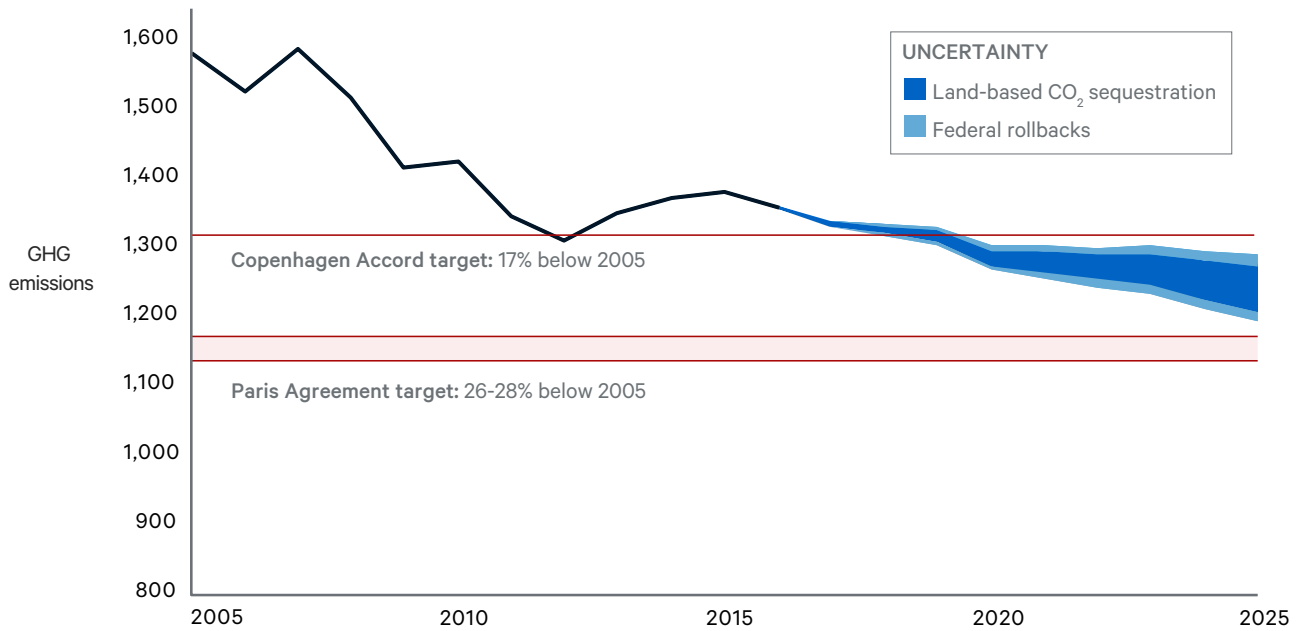
## How Far We Have Come

As the federal government weakens common-sense climate policies aimed at protecting the health of our communities, creating opportunities for innovation, and expanding the economy and access to good jobs, we are doubling down on our commitment to meeting our share of the U.S. emissions reduction target. We are already more than halfway towards this goal, reducing our GHG emissions by 14 percent below 2005 levels. We have achieved this while growing our economies faster than the rest of the country – outpacing all other states across every sector. We are putting more zero-emission vehicles on the road and helping to reduce our nation's dependence on oil. We are generating more renewable energy and generating billions of dollars in public health benefits. We are restoring, maintaining, and sustainably managing our forests while sequestering carbon to offset GHG emissions. Altogether, the clean energy and climate policies we have in place are leading to more clean energy jobs, lower energy bills, a healthier environment, and more resilient communities.

## Continuing to Lead On Climate

Independent analysis finds that Alliance states will continue to lead the nation in reducing GHG emissions in the years ahead. Based on climate and clean energy policies already in place across Alliance states, we are projected to achieve a combined 18–25 percent reduction in GHG emissions below 2005 levels by 2025 (Figure ES-1). This range reflects a higher projection of our future GHG emissions from last year, with a significant portion being the direct result of attempts to dismantle federal climate policies. Since the release of our report last year, the Clean Power Plan has been repealed, and many other federal policies are now in jeopardy. This includes rules that would phase-down emissions of super-pollutants used in air-conditioning and refrigeration, fuel economy standards for passenger vehicles, and methane standards for oil and gas activities and landfills. Despite Alliance states advancing our clean energy and climate policies, the scale of proposed federal rollbacks is threatening state efforts to meet our share of the U.S. climate target for 2025. At the same time, U.S. Climate Alliance membership has grown, both in diversity and the share of national emissions the Alliance is working to drive down. We also continue to make methodological updates to improve the accuracy and transparency of our efforts, which has uncovered even steeper growth in hydrofluorocarbon (HFC) emissions and less carbon sequestration from land use and forests than previous national estimates, shedding light on the need to prioritize immediate action in these sectors. With these findings, we now are even more resolved to accelerate our efforts to help fill the federal gap on climate leadership.

**FIGURE ES-1 U.S. Climate Alliance progress under today’s policies sets the stage for accelerated action**  
 Net GHG emissions from Alliance states, million metric tons carbon dioxide (CO<sub>2</sub>) equivalent



**SOURCE:** Rhodium Group’s U.S. Climate Service **NOTES:** GHG emissions estimates reflect emissions from power generated within state boundaries. Uncertainty in CO<sub>2</sub> sequestration from forests and other lands are derived from U.S. Environmental Protection Agency (EPA) and U.S. Department of Agriculture (USDA) estimates. Federal rollbacks include federal Corporate Average Fuel Economy (CAFE) standards, EPA and Bureau of Land Management (BLM) methane standards for oil & gas activities and landfills, and EPA’s Significant New Alternatives Policy (SNAP) Rule 20 and the Kigali Amendment for phase-down of hydrofluorocarbons (HFCs). For more information see the Technical Appendix. Emissions from Puerto Rico include only CO<sub>2</sub> associated with fossil fuel consumption.

### Setting the Stage for Accelerated Action

We know there is more to be done. That is why the U.S. Climate Alliance states commit to taking additional actions, independently and with one another, to:

- Drive down emissions of short-lived climate pollutants, namely methane, HFCs, and black carbon,
- Increase carbon sequestration on natural and working lands,
- Deeply decarbonize our transportation sector, including investing billions of dollars in zero emission vehicle infrastructure and vehicle deployment, and working together to increase emissions-free mobility options,
- Coordinate on the adoption of product energy efficiency standards,

- Help lessen the impacts of the federal solar import tariffs,
- Identify innovative alternatives to traditional utility investments like distributed solar resources and storage to modernize and decarbonize our electric grid, and
- Help states and communities become more resilient to climate impacts and extreme weather events.

To deliver on these commitments, we will continue working together and through strategic partnerships to ensure that we are taking smart, coordinated action to grow our clean energy economies and continue to reduce our GHG emissions consistent with the goals of the Paris Agreement. We will share our experiences, successes, and lessons learned to encourage other states to take similar actions.

# How Far We Have Come

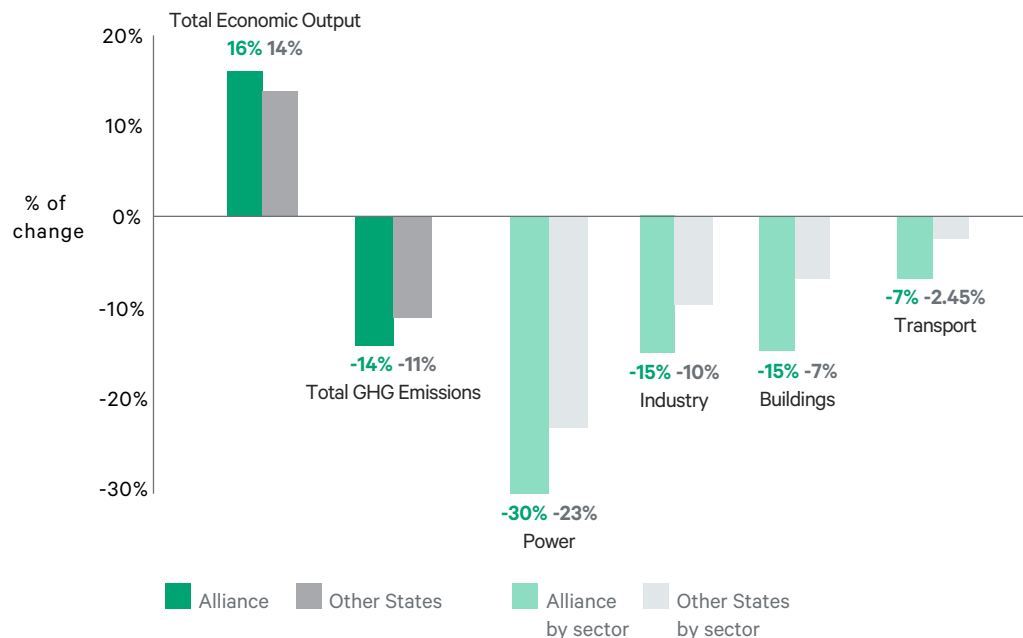
*We are already more than halfway to our emission target under the Paris Agreement – while outperforming other states in economic growth.*

The United States Climate Alliance formed in 2017 in response to the President’s decision to withdraw from the Paris Agreement. In 2018, the Alliance has welcomed two additional states – Maryland and New Jersey – bringing the total to 17 states and territories that are home to more than 40 percent of U.S. population. We represent a wide diversity of people, places, and economic activity, accounting for nearly \$9 trillion in combined economic activity (almost half the U.S. total) – enough to be the world’s third largest country.<sup>1</sup>

A core commitment of the Alliance is to deliver greenhouse gas (GHG) emissions reductions consistent with the goals of the Paris Agreement and the U.S. pledge to reduce net emissions by 26–28 percent below 2005 levels by 2025. Alliance states have already made impressive progress toward achieving this goal. Independent analysis from the Rhodium Group finds that between 2005 and 2016, Alliance states collectively reduced net GHG emissions by 14 percent, compared with 11 percent for the rest of the nation (Figure 1). In all major sectors of the economy, Alliance states have outpaced all other states, with GHG emission reductions from the power sector hitting 30 percent below 2005 levels, and emissions from industry and buildings dropping 15 percent in the same time frame. Efforts to support cleaner cars and trucks in Alliance states, like zero-emission vehicle incentives and mandates, have reduced transportation emissions at three times the rate of the rest of the United States.

**FIGURE 1 Alliance States Lead in Emission Reductions and Economic Growth**

Change in net GHG emissions by sector and economic output, 2005 to 2016



SOURCE: U.S. Bureau of Economic Analysis, Rhodium’s U.S. Climate Service

Our states are driving these reductions at the same time as we are growing our economies faster than the rest of the country. Between 2005 and 2016, the combined economic output of Alliance states grew by 16 percent while the rest of the country grew by only 14 percent (Figure 1).

*In the face of the growing threat posed by climate change, the Alliance is taking the lead in investing in clean energy and energy efficiency. And it is paying off.*

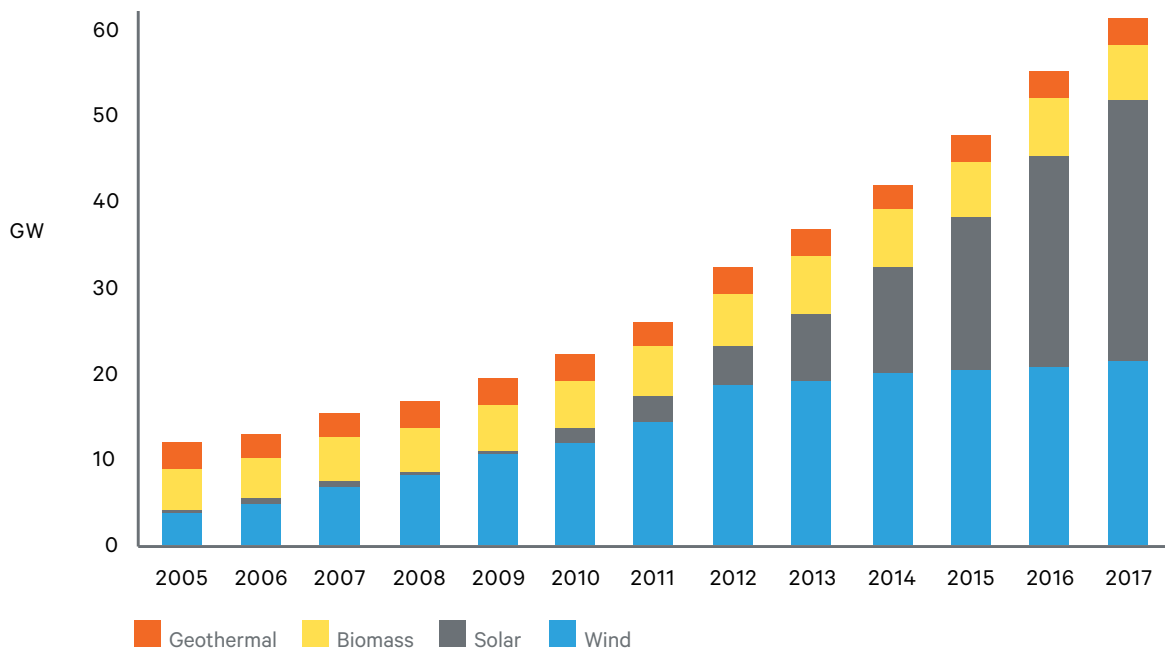
Alliance states are at the forefront of implementing **market-based programs** to reduce carbon emissions cost-effectively. Our residents are reaping the benefits of these, and many other policies and regulations, through cleaner air, more clean energy jobs, lower energy bills, and more resilient communities. For example, California’s multi-sector cap-and-trade program took effect in early 2012 with its economy continuing to grow while also reducing emissions – between 2015-16, California’s Gross Domestic Product (GDP) grew 3 percent while the carbon

intensity of its economy declined by 6 percent.<sup>2</sup> Seven Alliance states participate in the Regional Greenhouse Gas Initiative (RGGI) program in the Northeast, which establishes carbon pollution caps for regional power plants and invests in new clean energy opportunities, with two more states advancing similar programs. A recent analysis finds that RGGI states have reduced their power plant CO<sub>2</sub> emissions by more than 50 percent since the program started nine years ago while likely generating billions of dollars of net economic value between 2015–17 alone.<sup>3</sup>

In the **power sector**, Alliance states have attracted nearly \$110 billion in renewable energy investment since 2011, with wind, solar, geothermal and biomass generating capacity growing 5-fold over the last decade (Figure 2).<sup>4</sup> This is largely due to the renewable portfolio standards (RPS) and state-wide renewable energy goals currently in place in all of the Alliance states.<sup>5</sup> These renewable sources are bringing air quality benefits to our local communities: between 2007 and 2015, the expansion of wind and solar energy in our states collectively reduced both sulfur dioxide (SO<sub>2</sub>) and nitrogen oxide (NO<sub>x</sub>) emissions by over 100,000 tons, resulting in \$16.7 billion in public health benefits.<sup>6</sup> Alliance states stood together in opposing the

**FIGURE 2 Rapid Expansion of Renewable Energy**

Gigawatts of non-hydro renewable electricity generation capacity in Alliance states



SOURCE: U.S. Bureau of Economic Analysis, Rhodium’s U.S. Climate Service



U.S. Environmental Protection Agency’s (EPA) proposal to repeal the Clean Power Plan,<sup>7</sup> which would have led to cleaner and more efficient power generation nationwide.

Alliance states are also U.S. leaders in deploying technology to store these clean energy sources. We are already home to 11 gigawatts of utility-scale energy storage capacity, which is half of all utility-scale capacity and nearly all (95 percent) of the distributed energy storage installed in the United States today (Figure 3).<sup>8</sup> And we are not stopping there. Four Alliance states have energy storage mandates, and these mandates are bearing fruit: 96 percent of all utility-scale storage projects planned for installation over the next five years are in Alliance states.

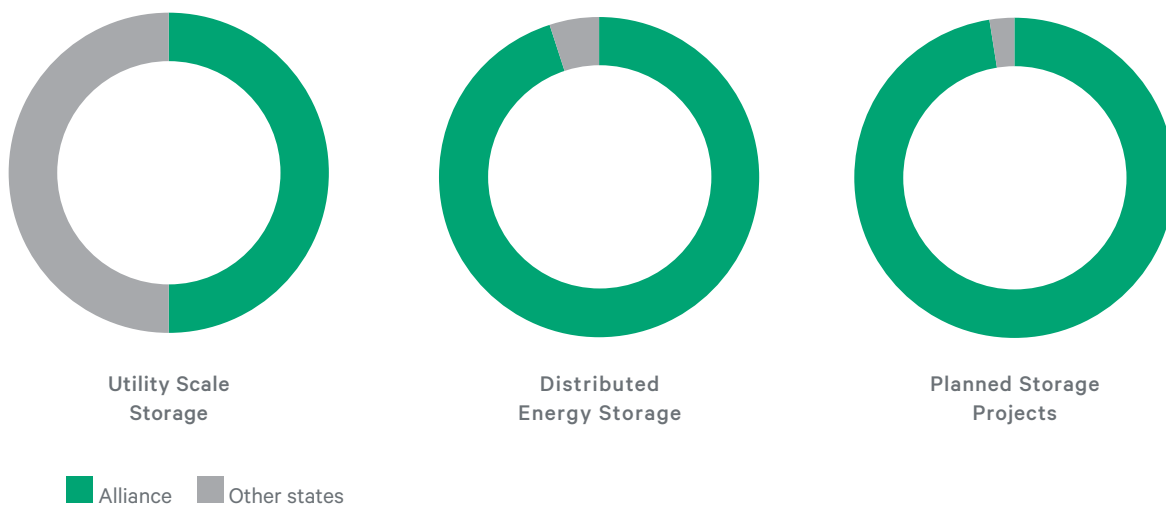
Alliance states lead the country in instituting aggressive **energy efficiency programs and policies**. Alliance states make up the top ten ranked states for energy efficiency policy, and nearly every member state has energy efficiency standards or goals in place, which has helped drive in-state investment and cost savings for our residents and businesses.<sup>9</sup> In fact, we generated \$3.8 billion in new investment in utility-driven energy efficiency improvements in 2016, a 60 percent jump

from 2010.<sup>10</sup> These investments reduced the amount of electricity that households and businesses had to buy in 2016 by more than 13 billion kilowatt hours. This is equivalent to the electricity used by 1,450,000 homes for one year,<sup>11</sup> and more than double the rate of energy savings of non-member states (Figure 4). Not only did this save consumers in our states over \$1.3 billion in 2016, but efficiency programs in Alliance states have put over 1 million people to work, representing nearly half of all energy efficiency jobs in the U.S. in 2017.<sup>12</sup> What’s more, Alliance states are home to over half of all LEED-certified green buildings (54 percent, as of mid-2018), which not only save our residents energy and water but also create healthier environments in which to work and live.<sup>13</sup>

Combustion of fossil fuels to power passenger vehicles makes up the largest source of emissions within the **transportation sector**. Alliance states continue to lead the nation in reducing passenger vehicle emissions by implementing policies and programs that advance the deployment of zero emission vehicles. For example, the majority of U.S. Climate Alliance states are members of the Zero Emission Vehicle (ZEV) Task Force, which is taking coordinated action to ensure the successful

**FIGURE 3 Alliance States Play an Outsized Role in Spurring Energy Storage Capacity**

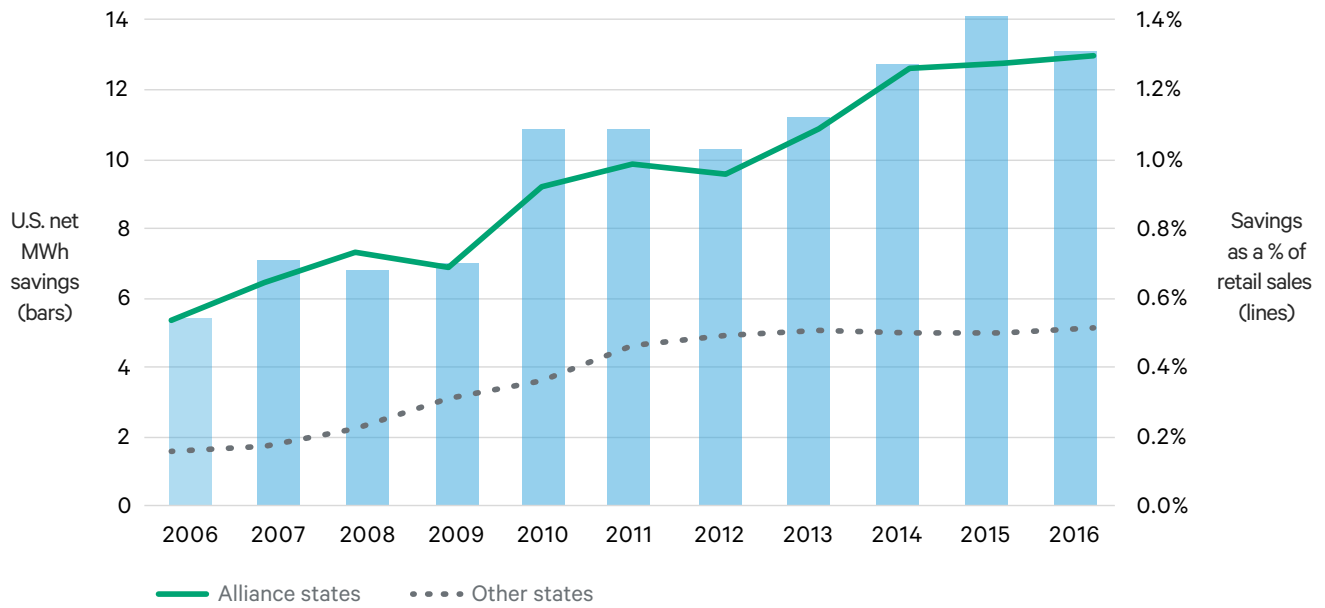
Share of total U.S. storage capacity (megawatts) by type



SOURCE: EIA, RHODIUM GROUP ANALYSIS

**FIGURE 4 Net Incremental Electricity Savings**

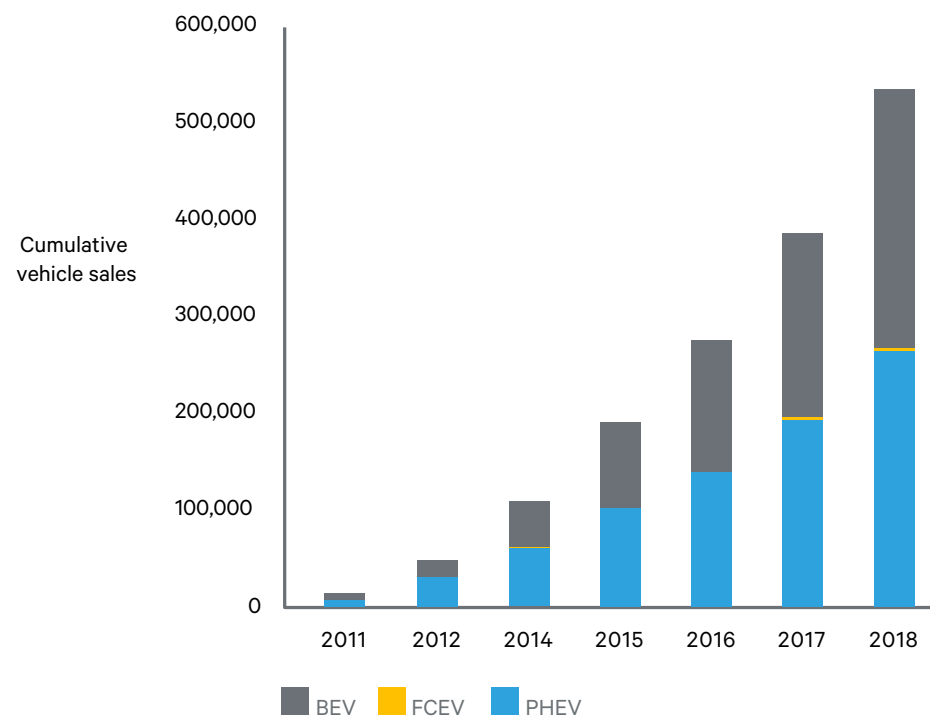
Net megawatt hour savings (left) and savings as a percent of retail sales (right)



SOURCE: American Council for an Energy-Efficient Economy (ACEEE) 2017 Scorecard, Rhodium's US Climate Service.

**FIGURE 5 Alliance States' Growing Zero Emission Vehicle Fleet**

Cumulative sales of battery electric (BEV), fuel cell (FCEV) and plug-in hybrid electric (PHEV)



SOURCE: Automotive Alliance and Rhodium's US Climate Service.



implementation of their state ZEV programs.<sup>14</sup> Together, these states have a collective goal of putting as many as 3.9 million ZEVs on the road by 2025 – an 8-fold increase from today’s levels (Figure 5). Other Alliance states, like Washington and Colorado, also have goals to get more low emission vehicles on the road.<sup>15</sup> Additionally, California recently expanded its target to get 5 million ZEVs on the road by 2030.<sup>16</sup> In order to make these goals reality, Alliance states are the vanguard of a growing wave of investment in electric vehicle charging across the United States, with announced investments totaling nearly \$1.5 billion. Twelve Alliance states are leading the nation with more than 15 percent of the advanced charging infrastructure necessary to support this influx of electric vehicles by 2025 already in place, which will make it even easier to use an electric vehicle for both short- and long-term travel.<sup>17</sup>

U.S. Climate Alliance states are already home to some of the cleanest cars on the road today, thanks in part to the ten Alliance states that offer consumers financial incentives that make it easier to purchase plug-in hybrid or electric vehicles.<sup>18</sup> Altogether, Alliance states account for nearly 80 percent of all battery electric, plug-in hybrid, and fuel cell vehicles sold nationwide last year.<sup>19</sup> Three out of four ZEVs on the road today are in Alliance states, with Alliance vehicles reducing U.S. oil dependence by roughly 20 million barrels each year, supporting America’s energy independence and security.<sup>20</sup>

Through the Clean Air Act, California has been able to lead the country in pushing for cleaner cars and trucks.<sup>21</sup> Eleven Alliance states have also adopted California’s motor vehicle

emission standards, with Colorado announcing in June 2018 that it will take steps to adopt the more stringent standards.<sup>22</sup> Starting in model year 2012, California’s GHG emission standards were harmonized with a national program so that consumers across the country could benefit from cleaner and more efficient vehicles – protecting the health of American families and saving them money at the pump. Current GHG and fuel economy standards require new passenger cars and trucks to achieve, on average, 54.5 miles-per-gallon equivalent by 2025. These more efficient vehicles would save consumers \$3,400 to \$5,000 over the car’s lifetime, after taking into account higher vehicle costs.<sup>23</sup> Together, Alliance states oppose recent efforts by the EPA and National Highway Traffic Safety Administration (NHTSA) to weaken the nation’s clean car standards.<sup>24</sup> In the wake of EPA and NHTSA’s proposal to weaken this program, the majority of Alliance states have joined with 20 total jurisdictions – representing more than 43 percent of the U.S. automobile market and 44 percent of the U.S. population – to mount legal challenges against federal efforts to weaken the nation’s single vehicle GHG emission and fuel economy standard.<sup>25</sup>

**Short-lived climate pollutants (SLCPs)**, such as black carbon, methane, tropospheric atmospheric ozone, and HFCs, act as powerful greenhouse gases. For example, just one pound of HFC-134a warms the planet as much as 1,400 pounds of carbon dioxide. California and New York have developed comprehensive plans to reduce emissions of potent SLCPs by as much as 50 percent by 2030.<sup>26</sup> Leading states like Colorado and Massachusetts have put regulations in place to cut



methane from oil and gas production and natural gas pipelines. Over 100 projects are either operational or under development to reduce methane emissions on dairy and swine farms in California, North Carolina, and other U.S. Climate Alliance states.<sup>27</sup> These projects represent hundreds of millions of dollars of investment in farms and surrounding communities to convert manure into renewable energy, transportation fuel, or compost.<sup>28</sup> U.S. Climate Alliance states are also stepping up with state-level rules and programs to backstop against federal efforts to unwind reasonable regulations to reduce methane from oil and gas and landfills, HFCs, and black carbon from woodstoves. Through local and state efforts to improve air quality and cut diesel pollution, states are slashing black carbon and saving thousands of lives each year.<sup>29</sup>

Alliance states are leading the way in protecting and improving our **natural and working lands**, pursuing a wide range of actions and measures that support land conservation, improve ecosystem health, and sequester carbon. Forests in Alliance states are especially productive and valuable in storing carbon. Home to a quarter of U.S. forests by land area, Alliance states store 35 percent of total U.S. forest carbon, offsetting 16 percent of Alliance states' emissions in 2016.<sup>30</sup> Alliance states have programs in place to support the rural economies, wildlife habitat, and water infrastructure that depend on healthy forests, which provide water resources to cities, towns, and farms. There are nearly 450,000 farms in Alliance states that produce the full range of U.S. crops, yielding 30 percent

of all U.S. agricultural products by value.<sup>31</sup> Investment in our urban forests is also paying off through improved air and water quality, reduced energy use and carbon sequestration, delivering \$6.7 billion in value each year.<sup>32</sup>

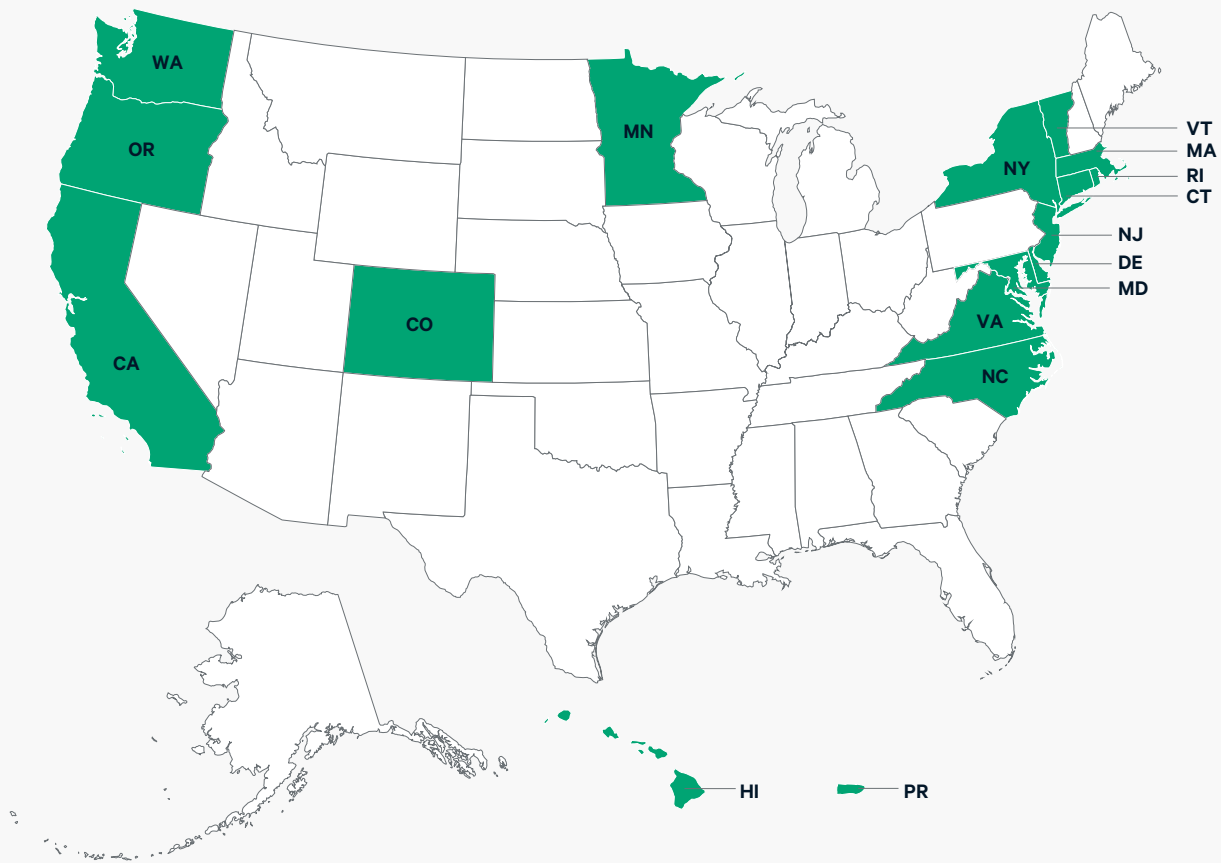
*Investment in our urban forests is delivering \$6.7bn in value each year.*

**Improving the resilience** of our communities, infrastructure, and natural resources has long been a priority in Alliance states. In 2017 alone, extreme weather and climate-related events cost the United States over \$300 billion in damages, following a trend of increasingly severe hurricanes, extreme precipitation events, droughts, wildfires and heat waves. Of the top 20 costliest hurricanes to land on U.S. soil, all but three occurred since 2000, taking a significant toll on local economies. Our state governments are ground-zero for resilience activities across our states as we convene local and private interests, pool and mobilize resources and expertise across state agencies, and integrate the most up-to-date climate data into our natural and built infrastructure investments and planning. All of our states have conducted state impact assessments, and the vast majority has a climate resilience plan in place or under development. As a result of our ongoing efforts to protect our communities and reduce future costs from extreme weather and climate variability, the majority of Alliance states score better than the national average in EPA's Climate Resilience Screening Index.<sup>33</sup>

# Climate Leadership by Alliance Members

*Individual state leadership is the foundation of our collective ambition. U.S. Climate Alliance states are taking bold climate action across every sector of the economy.*

**MAP U.S. Climate Alliance States**



<b>CALIFORNIA</b>	<b>MARYLAND</b>	<b>NORTH CAROLINA</b>	<b>VIRGINIA</b>
<b>COLORADO</b>	<b>MASSACHUSETTS</b>	<b>OREGON</b>	<b>WASHINGTON</b>
<b>CONNECTICUT</b>	<b>MINNESOTA</b>	<b>PUERTO RICO</b>	
<b>DELAWARE</b>	<b>NEW JERSEY</b>	<b>RHODE ISLAND</b>	
<b>HAWAII</b>	<b>NEW YORK</b>	<b>VERMONT</b>	



# California

GHG Reduction Target  
% Below 1990 Levels

**40%** by 2030    **NET ZERO** by 2050

Renewable Energy  
and Energy Efficiency Jobs

**465,505**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**50%** by 2030    **100%** by 2045

## Climate Framework and Laws

The California Global Warming Solutions Act (2006) established California as a global leader in reducing greenhouse gas emissions. Senate Bill 32 (2016) mandated a statewide goal to reduce greenhouse gas emissions 40% below 1990 levels by 2030, putting it on track to achieve its overarching goal of reducing greenhouse gas emissions 80% below 1990 levels by 2050. Legislation passed in July 2017 clarified the role of California’s Cap and Trade Program, the only multi-sector greenhouse gas emissions trading system in the United States, in achieving these goals.

## Energy

Enacted in 2006, the California Solar Initiative is a \$3.3 billion sustained commitment to investing in rooftop solar that, as of June 2017, has provided incentives for 1,876 megawatts of installed solar capacity. The Electric Program Investment Charge provides approximately \$162 million annually through 2020 primarily to address policy and funding gaps related to the development, deployment, and commercialization of next generation clean energy technologies.

## Energy Efficiency

California’s Building Energy Efficiency Standards are working toward the goals that all new residential construction be zero net energy by 2020, and all new commercial be so by 2030.

## Transportation

Executive Order B-48-18 commits California to putting five million Zero Emission Vehicles (ZEVs) on its roads by 2030, along with installing 200 hydrogen fueling stations and 250,000 ZEV chargers by 2025. This executive order builds off California’s original ZEV Action Plan, which sought to put 1.5 million ZEVs on the state’s roads by 2025. California’s Low Carbon Fuel Standard requires a 10% reduction in the carbon intensity of transportation fuels in California by 2020.

## Resilience

California has invested over \$10 million in a portfolio of 48 research projects for its Fourth Climate Change Assessment that provide new applied findings on expected climate change impacts for California and inform policies and programs to support adaptation and resilience. The state released an updated Indicators of Climate Change in California report in June 2018 that provides 36 indicators tracking climate change drivers and the resultant effects on the state’s physical and biological systems.

## Climate Finance

As of March 2017, California has appropriated nearly \$3.4 billion in cap and trade auction proceeds to agencies implementing greenhouse gas emission reduction programs through the Greenhouse Gas Reduction Fund. The California Alternative Energy and Advanced Transportation Financing Authority supports programs like the California Hub for Energy Efficiency Financing and the Sales Tax Exclusion, which is allocated \$100 million annually, that increase the development and deployment of renewable energy sources, energy efficiency, advanced transportation, and manufacturing technologies.

## Short-Lived Climate Pollutants

California requires a 50% reduction in black carbon and 40% reduction in methane and hydrofluorocarbon from 2013 levels by 2030. Through the Short-Lived Climate Pollutant Reduction Strategy, California is implementing strategies aimed at reducing these pollutants.

## Natural and Working Lands

California’s Forest Health Grant Program uses funds from the Greenhouse Gas Reduction Fund to implement projects that proactively restore forest health, reduces greenhouse gas emissions, and protect upper watersheds where the state’s water supply originates. \$49 million was invested through this program in 2017.



# Colorado

GHG Reduction Target  
% Below 2005 Levels

**26%**  
by 2025

Renewable Energy  
and Energy Efficiency Jobs

**48,168**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**30%**  
by 2020  
(10% or 20% for smaller utilities)

## Climate Framework and Laws

Governor Hickenlooper’s Executive Order D 2017-015 “Supporting Colorado’s Clean Energy Transition” commits the state to climate action by setting the following goals: (1) reduce statewide greenhouse gas emissions by more than 26% from 2005 levels by 2025; (2) reduce CO<sub>2</sub> emissions from the electricity sector by 25% by 2025 and 35% by 2030 from 2012 levels; and (3) achieve electricity savings of two percent of total electricity sales per year by 2020.

## Energy

Colorado has the nation’s first voter-passed **Renewable Energy Standard**, which requires investor owned-utilities to generate 30% of their electricity from renewable energy by 2020. The bipartisan 2010 **Clean Air Clean Jobs Act** requires investor-owned utilities to retire, retrofit, or repower certain coal plants and replace them with facilities fueled by natural gas or low/non-emitting energy sources. This act to date has led to the retirement of almost 750 megawatts of coal power generation capacity and an estimated reduction in greenhouse gas emissions of approximately seven million short tons.

## Energy Efficiency

The **ACRE3 Program** provides financial and technical assistance and education to help agricultural producers and processors develop and implement renewable energy and energy efficiency projects in three focus areas: agricultural hydropower, energy efficiency, and renewable heating and cooling. This is complemented by the **Agricultural Energy Efficiency Program**, which is projected to reach over 200 producers in the next two years and achieve over 5,250 megawatt hours of electricity savings and 524,000 gallons of water savings annually.

## Transportation

Governor Hickenlooper’s Executive Order B 2018-006 “Maintaining Progress on Clean Vehicles” instructs the

Colorado Department of Public Health and Environment to develop a rule (to be proposed in summer of 2018) to establish a state low emissions vehicle (LEV) program, which incorporates the requirements of California’s LEV Program. Colorado’s **Alternative Fuel Vehicle Tax Credits**, which offer \$5000 credit for a light passenger vehicle, will expire in 2022.

## Resilience

An updated version of the **Colorado Climate Plan** was released in January 2018 that provides a roadmap of strategies and recommendations state agencies can take to reduce greenhouse gas emissions, increase adaptation and resilience, and identify priority actions.

## Climate Finance

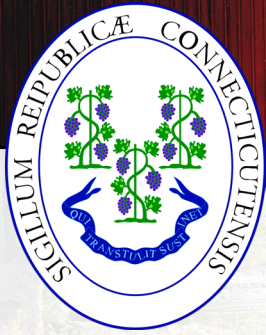
The **Energy Savings for Schools Program** secures grants to help Colorado public schools finance projects to achieve energy and water savings, and since 2016 has led to seven million gallons of water savings, three million kilowatt hours of electrical savings, and 190,800 therms of gas savings. 20 counties have opted into **Colorado C-PACE**, which offers commercial property owners a unique way to finance 100% of energy and water improvements to their properties. The state also serves thousands of homes per year through the **Low-Income Weatherization Assistance Program**.

## Short-Lived Climate Pollutants

The Air Pollution Control Division of the Colorado Department of Public Health is conducting a stakeholder process to develop a system of tracking and reducing greenhouse gas emissions state and will make available a **Greenhouse Gas Emissions Tracking Rule** by the end of summer 2018.

## Natural and Working Lands

The **Colorado Water Plan** seeks to achieve 400,000 acre-feet of conservation savings by 2050, and the **Water Plan Grant Fund** will allocate \$7 million in FY 2018.



# Connecticut

GHG Reduction Target  
% Below 2001 Levels

**45%** by 2030      **80%** by 2050

Renewable Energy  
and Energy Efficiency Jobs

**37,625**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**20%** by 2020      **40%** by 2030

## Climate Framework and Laws

Public Act 90-219, **An Act Concerning Global Warming**, required Connecticut to implement a wide range of measures to reduce energy consumption and associated greenhouse gas emissions. Adopted two decades later, Public Act 08-98, **An Act Concerning Connecticut Global Warming Solutions**, requires the state to achieve a 10% reduction from 1990 emissions by 2020 and an 80% reduction from 2001 emissions by 2050. And passed more recently, Public Act 18-82, **An Act Concerning Climate Change Planning and Resiliency**, requires the state to reduce statewide emissions 45% below 2001 levels by 2030.

## Energy

Public Act 18-50, **An Act Concerning Connecticut Energy Future**, doubled the state’s renewable portfolio standard from 20% by 2020 to 40% by 2030. Connecticut’s Department of Energy and Environmental Protection (DEEP) recently approved proposals for 250 MW of renewable energy projects, 200 MW of which will come from the **Revolution Wind Project**, Connecticut’s first offshore wind farm.

## Energy Efficiency

The **Connecticut Energy Efficiency Fund (CEEF)** supports energy efficiency programs that play a key role in reducing emissions and catalyzing economic growth, enabling the state to achieve electric, gas, fuel oil, and propane system benefits valued at \$2.41, for every \$1 spent on utility-administered energy efficiency programs. The lifetime energy savings achieved through one year of CEEF programs is equivalent to removing 466,259 cars from the road for a year.

## Transportation

The **Connecticut Hydrogen and Electric Automobile Purchase Rebate (CHEAPR)** Program provides

Connecticut residents with a point-of-sale rebate on the purchase or lease of new ZEVs, up to \$5,000. CHEAPR has dispersed over \$6.5 million for 2,962 new vehicle leases and purchases. DEEP has also partnered with the Connecticut Automotive Retailers Association to establish a dealer recognition and cash bonus award, both of which incentivize dealers to actively sell EVs.

## Resilience

Recently passed, **An Act Concerning Climate Change Planning and Resiliency (PA 18-82)** requires Connecticut to prepare for the ongoing effects of climate change and sea level rise by requiring state and federally funded projects to plan for a scenario of 50 centimeters of sea level rise by 2050.

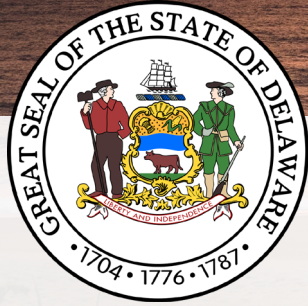
## Climate Finance

Established in 2011, the **Connecticut Green Bank** leverages limited state funding to attract private capital, enabling the state to expand the deployment of rooftop solar, while driving down installed costs and ratepayer incentives. The Bank’s **Commercial Property Assessed Clean Energy (C-PACE)**, provides building owners the opportunity to take advantage of energy upgrades and pay for them over time through a voluntary benefit assessment lien, levied and recorded against the benefiting property, to be repaid along with real property taxes.

## Natural and Working Lands

Connecticut released an updated version of its **Comprehensive Open Space Acquisition Strategy** to achieve its goal of protecting 21% (673,210 acres) of the state’s land as open space by 2023, 10% of which is to be state-owned as additions to the system of parks, forests, and wildlife areas. As of 2017, 75% of the preserved acreage goal (over 500,000 acres) has been achieved.





# Delaware

Renewable Energy and Energy Efficiency Jobs

**13,011**

Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**25%**

by 2025

## Climate Framework and Laws

The **Climate Framework for Delaware (2014)** is a summary of state agency recommendations for both climate mitigation and adaptation. It identifies state agency actions to reduce greenhouse gases that contribute to climate change, increase resiliency to climate impacts, and avoid and minimize flood risks that increase state liability and decrease public safety.

## Energy

The **Green Energy Program (GEP)** provides grants to homeowners, local businesses and other relevant stakeholders to fund renewable energy systems, from solar photovoltaic systems to small wind turbines, geothermal heat pumps, and fuel cells. With an annual operating budget of \$3.3 million, the GEP has provided grants for over 4,300 renewable energy projects and increased Delaware’s solar capacity from 8.6 MW in 2010 to 98 MW in 2018.

## Energy Efficiency

The **Energy Efficiency Investment Fund (EEIF)** provides grant money to Delaware businesses, local governments, and non-profits to make facility upgrades that lower their energy use and cost. In 2017, EEIF distributed close to \$2.4 million in grant funding over 146 projects that collectively amounted to 28,930,300 kW hours avoided. The **Energy Efficiency Industrial (E2I) Program** provides grants directed toward large industrial and commercial businesses whose annual energy consumption is greater than 10,000 MW hours or 95,000 MMBtu annually. The **Weatherization Assistance Program** provides energy retrofits to low income homes in Delaware and in 2016, generated energy savings of approximately 135,000 kW hours and 5,700 MMBtu. **Delaware’s Energy Conservation and Efficiency Act (2009)** designates energy efficiency as a priority energy resource and created Energy Efficiency Resource Standards requiring a reduction in energy use through conservation measures.

## Transportation

Delaware’s **Clean Vehicle Rebate Program** provides financial incentives ranging from \$1,000 to \$3,500 for residents and businesses to buy or lease new alternative fuel vehicles. This program complements the **Delaware Workplace Charging Program**, which offers technical guidance and rebates of up to \$5,000 to businesses for every installation of an electric charging station and supports Delaware’s broader efforts to be a Clean Car State, having adopted **California’s Low Emission Fuel Standard** in 2010.

## Resilience

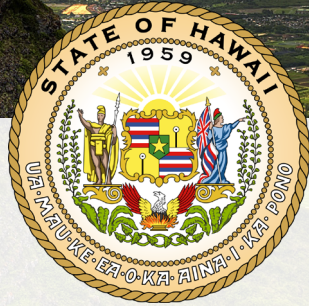
Through various mechanisms, including the **Open Space Program** and the **Coastal Zone Act**, Delaware has permanently protected an estimated 90% of its coastline. The **Beach Preservation Act** directs the Department of Natural Resources and Environmental Control to prevent and repair damage to shorelines and has a dedicated funding source derived from the Accommodation Tax.

## Climate Finance

The **Delaware Sustainable Energy Utility** is a non-profit organization that administers various energy efficiency and renewable energy projects for Delawareans, including the **Solar Renewable Energy Credit Purchase Program**, the **Community Energy Centers and Faith Efficiencies Partnership**, and the **Energy Efficiency Investment Fund**, that totaled \$27 million in spending in 2017.

## Natural and Working Lands

The **Urban and Community Forestry Program** offers grants for tree planting, tree care, and tree management projects on publicly-owned lands. Since its passage, the **Delaware Land Protection Act (1990)** has protected 57,000 acres of land from development.



# Hawaii

GHG Reduction Target

**NET ZERO**  
by 2045

Renewable Energy and Energy Efficiency Jobs

**10,002**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**100%**  
by 2045

## Climate Framework and Laws

Act 32 (2017) enshrines the principles and goals of the Paris Agreement as the framework for Hawaii to pursue climate change planning. The **Hawaii Climate Adaptation Initiative Act (2014)** acknowledged climate change as the paramount challenge of this century and established what is now the **State Climate Mitigation and Adaptation Commission**. Act 286 (2012) was passed to enact climate change priority guidelines within the State Planning Act.

## Energy

In June 2018, Governor Ige signed two bills, **HB 1986** and **HB 2182**, that created a framework for a carbon offset program that allows for carbon credits through global sequestration protocols and committed Hawaii to become carbon neutral by 2045, respectively. The **Hawaii Clean Energy Initiative (HCEI)** is a framework of statutes and regulations supported by a diverse group of stakeholders committed to Hawaii’s clean energy future.

## Energy Efficiency

Hawaii’s **Energy Efficiency Portfolio Standard** is a statutory requirement to achieve 4,300 gigawatt hours of electricity use reductions statewide by 2030. The **Ka Hei Department of Education Energy Efficiency and Sustainability Program** integrates energy efficiency and sustainability improvements into facility upgrades and student education through a combination of energy efficiency measures, clean energy generation, and a comprehensive sustainability program. HRS 196-9 targets energy efficiency and environmental standards for state facilities, as well as for vehicles and fuel.

## Transportation

Hawaii’s **State Alternate Fuel Standards** requires 20% of highway fuel demand to be provided by alternate fuels by 2010 and 30% by 2030, while state agencies are required to purchase fuel-efficient vehicles and include projected

fuel costs in life-cycle cost-benefit analysis. On the books HRS 103D-412 directs all state and county entities when purchasing new light-duty motor vehicles, to look for ones with reduced dependence on petroleum-based fuels.

## Resilience

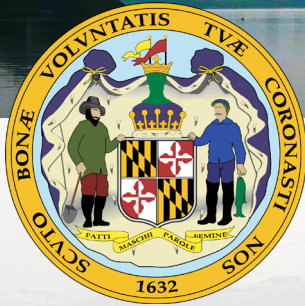
Hawaii’s **Climate Commission** (formerly the **Inter-agency Climate Adaptation Committee**) provides direction, facilitation, coordination, and planning among state and country agencies, federal agencies, and other partners about climate change mitigation and resiliency strategies. In December 2017, it released a **Sea Level Rise Vulnerability and Adaptation Report**, that describes and models sea level rise projections, and provides mechanisms and strategies for improving resilience and adapting to the physical, social, and economic impacts of sea level rise.

## Climate Finance

The **Environmental Response, Energy, and Food Security Tax (aka Barrel Tax)** is a \$1.05 tax per barrel of petroleum products imported into Hawaii that discourages fossil fuel consumption and funds environmentally friendly initiatives. The **Green Energy Market Securitization Program** is a sustainable green financing initiative that provides low-cost capital to finance clean energy improvements for those who might otherwise have difficulty obtaining financing. It has the capacity to finance the installation of over 44 MW of energy and assist as many as 30,000 Hawaii consumers.

## Natural and Working Lands

The **Sustainable Hawaii Initiative** sets the following goals for Hawaii: (1) double food production by 2020; (2) implement Hawaii’s interagency biosecurity plan by 2026; (3) protect 30% of Hawaii’s priority watersheds; (4) effectively manage 30% of Hawaii’s marine areas; and (5) achieve 100% renewable energy by 2045. Hawaii is also engaging in **native forest restoration**, including a public-private pilot to reforest 5,500 acres on Mauna Kea, and pursuing **carbon sequestration**.



# Maryland

GHG Reduction Target  
% Below 2005 Levels

**40%** by 2030      **80–95%** by 2050

Renewable Energy  
and Energy Efficiency Jobs

**76,685**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**25%**  
by 2020

## Climate Framework and Laws

The Maryland Commission on Climate Change (MCCC) was established by executive order in 2007 to develop an action plan for mitigation of and adaptation to the likely impacts of climate change in Maryland. The MCCC is charged with advising the Governor and General Assembly on ways to mitigate the causes of, prepare for, and adapt to the consequences of climate change. In 2009, Maryland passed the **Greenhouse Gas Reductions Act** which calls for 25% emissions reductions by 2020. The 2016 update, adopts a 40% reduction of greenhouse gas emissions by 2030 and a hopeful goal of 80%–95% reduction by 2050. MDE will present a draft **40 by 30 Plan** by the end of 2018.

## Energy

Maryland is a member of the **Regional Greenhouse Gas Initiative**. Auction proceeds from RGGI fund various state and local programs which promote energy efficiency, renewable energy, bill assistance, or other consumer benefits. Maryland recently passed a bill that accelerates the state’s RPS to 25% in 2020.

## Energy Efficiency

Maryland’s **EmPOWER Energy Efficiency Program** charges utility customers a monthly fee that is then used to fund programs including lighting and appliance rebates for homeowners, energy efficiency services for industrial facilities, home energy assessments, and various other types of incentives. Maryland has a **Weatherization Assistance Program** that helps eligible low-income households across the State of Maryland with the installation of energy conservation materials in their dwelling units. In 2013, Maryland passed and signed into law the **Maryland Offshore Wind Energy Act of 2013**. In May 2017, the PSC announced in **Order No. 88192** that two projects, amounting to 368 MW of total capacity, were approved (with conditions) to receive ORECs.

## Transportation

Maryland is a member of the **Transportation Climate Initiative** with the goal of developing the clean energy economy and reducing greenhouse gas emissions in the transportation sector. Maryland is a member of the **Multi-State ZEV Task Force** and has a goal of having 60,000 ZEVs on the road by 2020 and 300,000 ZEVs on the road by 2025. It offers the **Maryland Excise Tax Credit** of up to \$3,000 and a rebate of up to 40% through the **Electric Vehicle Supply Equipment Rebate**. The **Maryland Clean Cars Program**, adopted in 2007, commits the state to follow California’s Low Emission Vehicle Standards.

## Resilience

The **CoastSmart Communities Program** assists Maryland’s coastal communities to address short and long-term coastal hazards, such as sea level rise, by providing technical assistance and training opportunities, along with financial assistance through the **Community Resilience Grant Program**. In 2018, Maryland launched the **Climate Leadership Academy** to provide climate training and support to state and local government officials, citizens, the private sector, and non-profits.

## Climate Finance

In addition to the various incentives and programs administered through **EmPOWER Maryland**, the Maryland Energy Administration’s **Energy Finance Initiative** is a collection of programs, financing tools, and other resources designed to help fill the funding needs of clean energy projects.

## Natural and Working Lands

Maryland established the **Maryland Healthy Soils Program** to increase biological activity and carbon sequestration in the State’s soils by promoting practices based on emerging soil science, through incentives, research, education, technical assistance, and financial assistance for farmers.



# Massachusetts



GHG Reduction Target  
% Below 1990 Levels

**25%**  
by 2020      **80%**  
by 2050

Clean Energy Jobs

**109,000**  
Jobs in 2018  
(STATE STATISTIC)

RPS Target

**16%**  
by 2020\*  
+2%/year 2020-2029, +1%/year onward

## Climate Framework and Laws

Through the 2008 Global Warming Solutions Act, the Commonwealth set nation-leading, aggressive greenhouse gas emissions limits of 25% below 1990 baseline level by 2020 and 80% by 2050. 2016’s Executive Order (EO) 569 committed the Commonwealth to develop an integrated climate change strategy that addressed both climate change mitigation and adaptation. The Commonwealth has also promulgated new regulations to ensure compliance with 2020 emission reduction targets and committed to a new Regional Greenhouse Gas Initiative Program plan.

## Energy

Massachusetts has passed comprehensive energy diversity legislation (An Act Relative to Energy Diversity, H. 4568) and implemented a range of comprehensive energy policies. These include the RPS and energy storage targets, in addition to its 2017 Clean Energy Standard, requiring utilities and competitive suppliers to obtain at least 16% of electricity from clean energy sources in 2018 and 80% by 2050. Investments in solar and storage continue through the Solar Massachusetts Renewable Target (SMART) and the Affordable Access to Clean and Efficient Energy (AACEE) Initiative, which includes a \$15 million commitment to expand clean energy opportunities for low- and moderate-income residents.

## Energy Efficiency

In 2017, Massachusetts was named the most energy-efficient state for the 7th year in a row by the American Council for an Energy Efficient Economy. The first nine years of the energy efficiency program are expected to return more than \$20 billion in ratepayer benefits. The 2016–2018 Three Year Energy Efficiency Plans established nation-leading savings levels for both electricity (2.93% of retail sales) and gas (1.24% of retail sales). In 2008, Massachusetts developed one of the first “stretch” energy codes which almost 60% of Massachusetts municipalities have adopted.

## Transportation

Massachusetts is engaged with several regional initiatives to reduce transportation sector emissions, including with the Transportation Climate Initiative, the New England Governors and Eastern Canadian Premiers and the Multi State ZEV Taskforce. With a target of 300,000 ZEV vehicles by 2025, the state offers rebates of up to \$2,500 to residents who purchase or lease electric vehicles. Governor Charlie Baker also recently established the Commission on the Future of Transportation to advise on transportation and climate change planning.

## Resilience

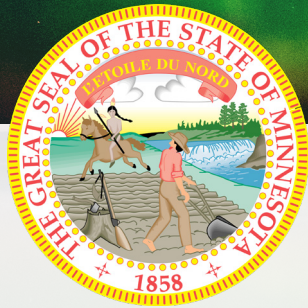
The 2017 Municipal Vulnerability Preparedness program helps cities and towns plan and build more resilient communities and has already awarded over \$9 million to 43 percent of state municipalities. Massachusetts is also developing and implementing a first of its kind integrated State Hazard Mitigation and Climate Adaptation Plan, based in the best science and data to develop operational, on-the-ground strategies. Governor Charlie Baker also recently established the Commission on the Future of Transportation to advise on transportation and climate change planning.

## Climate Finance

Since 2008, Massachusetts has reinvested \$306 million in RGGI auction proceeds to increase the energy efficiency of residences and businesses, provide clean-energy solutions to over 180 “Green Communities,” and support the implementation of alternative energy resources.

## Natural and Working Lands

Over the last two years, Massachusetts permanently conserved 26,515 acres (41 square miles) and is investing \$1 million annually in grants to improve local land use practices. The Commonwealth is also working to track changes in terrestrial carbon to evaluate the efficacy of land use policies.



# Minnesota

GHG Reduction Target  
% Below 2005 Levels

**15%** by 2015    **30%** by 2025    **80%** by 2050

Clean Energy Jobs

**59,079**

Jobs in 2018

(Clean Jobs Midwest, 2018)

RPS Target 25% by 2025

**Achieved**

Seven Years Early

## Energy

The Next Generation Energy Act (2007) set a 25% Renewable Energy Standard by 2025. Minnesota produced 25% of its electricity from renewable sources in 2017, effectively meeting our statutory goal seven years early, and is projected to reach more than 40% by 2030. This Act also set greenhouse gas reduction goals of 15% by 2015, 30% by 2025 and 80% by 2050. In 2013, the Minnesota Legislature passed a 1.5% solar energy standard, which requires utilities to produce 1.5% of its retail sales from solar energy by 2020. The legislation also set a 10% solar goal by 2030.

## Energy Efficiency

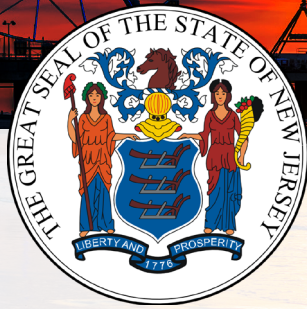
The Conservation Improvement Program (CIP) is a statewide program funded by ratepayers and administered by electric and natural gas utilities to help Minnesota households and businesses lower their energy costs by using electricity and natural gas more efficiently. CIP helps to conserve these important resources while reducing harmful emissions and the need to build new utility infrastructure. The Next Generation Energy Act (2007) set a 1.5% Energy Efficiency Resource Standard (EERS) beginning in 2010 for electric and natural gas utilities. Each utility is required to develop a CIP plan to achieve energy savings of 1.5% of gross annual retail sales on an annual basis. The legislation also set a statewide annual savings goal of 1.5% of annual retail sales, which was modified in 2013 legislation to at least 1.5%.

## Transportation

The Minnesota Department of Transportation has a greenhouse gas emissions reduction goal of 30% by 2025 over 2005 levels for the transportation sector. The Department of Transportation and Pollution Control Agency, along with private partners, developed an Electric Vehicle Framework that creates a plan for state-wide EV infrastructure and strategies for substantially increasing EV fleet penetration. Minnesota was the first state to require 10% ethanol in gasoline and has also approved increasing the biodiesel content of diesel fuels to 20%. The state has aggressive goals for biofuel use in the state fleet and has a goal that 20% of fleet vehicles should be electric by 2027.

## Climate Finance

Minnesota has a variety of financing and contracting mechanisms to help accelerate implementation of energy efficiency and renewable energy projects that help lower greenhouse gases in the built environment. The State currently administers a performance contracting program that guarantees energy savings in state agency facilities as well as local unit of government buildings. Another public sector program helps local units of government conduct investment grade energy audits that identify large scale capital investments that save energy. The state also administers and oversees programs that help advance private sector and residential investments in energy efficiency and renewable energy; examples include Commercial Property Assessed Clean Energy (C-PACE), Trillion Btu Revolving Loan Fund, Minnesota Housing Finance Agency's Fix it Up! Program Loan Loss Reserve, and several others.



# New Jersey

GHG Reduction Target to Reach 1990 Levels by 2020

**ACHIEVED**

GHG Reduction Target % Below 2006 Levels

**80%**  
by 2050

Renewable Energy and Energy Efficiency Jobs

**43,448**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**50%**  
by 2030

## Climate Framework and Laws

The 2007 Global Warming Response Act authorizes the state to enter RGGI and establishes two targets for greenhouse gas emissions, including an 80% reduction from 2006 levels by 2050; the goal of reaching 1990 emission levels by 2020 has already been achieved. In January 2018, Governor Murphy signed an executive order (EO) directing the state to re-enter into RGGI. Based on current price and emissions estimates, rejoining RGGI could bring in around \$80 million annually in revenue from carbon auction proceeds.

## Energy

Governor Murphy signed an EO establishing an ambitious goal of generating 3,500 megawatts of offshore wind by 2030. To this end, Governor Murphy initiated an interagency strategic planning process and launched rulemaking on a funding mechanism for Offshore Wind Renewable Energy Certificates. 2018's **Clean Energy Act** and **Zero Emission Credit Act** sets ambitious targets for expanding New Jersey's generation of clean energy, including a renewable portfolio standard of 50% by 2030, increasing the state's solar RPS to 5.1%, establishing a community solar program, and supporting nuclear energy.

## Energy Efficiency

2018's Clean Energy Act includes the state's first statutory energy efficiency standards, which sets an electric energy efficiency target at 2% reduction each year and an annual reduction in natural gas consumption of 0.75%. Additionally, New Jersey's **Board of Public Utilities** administers several energy efficiency programs that provide free energy audits and low- and interest-free loans for energy efficient upgrades for residential, commercial and industrial, and local government customers.

## Transportation

New Jersey is a part of the **Multistate ZEV Task Force** and has signed the ZEV Memorandum of Understanding, committing to a shared goal of seeing 3 million ZEVs on the road by 2025. The Department of Environmental Protection (DEP) provides grants to install workplace charging infrastructure and offers incentives for drivers of fuel-efficient vehicles or ZEVs, including a discount on E-Z Passes, insurance discounts, and tax breaks for ZEVs, among others. Additionally, **NJ Transit** is upgrading its facilities and will phase out older and less efficient energy generation technology with cleaner and more efficient solutions.

## Resilience

New Jersey has taken significant steps to mitigate damage caused by climate change and extreme weather events. The DEP has spent \$300 million in acquiring properties that are prone to repetitive flooding, and, with the Army Corps of Engineers, has spent \$20 million conducting a **comprehensive resiliency study**. New Jersey is investing in energy resilience by developing microgrids capable of maintaining power during extreme weather events and upgrading its fuel supply and distribution infrastructure to ensure fuel can be distributed in case of an extreme weather event.

## Natural and Working Lands

Governor Murphy signed legislation banning offshore oil drilling in New Jersey state waters. The law also prohibits the DEP from issuing any permits and approvals for the on-shore development of offshore oil drilling infrastructure. New Jersey also has robust **open space and farmland preservation programs** that have preserved nearly 1.5 million acres of land.



# New York

GHG Reduction Target  
% Below 1990 Levels

**40%**  
by 2030      **80%**  
by 2050

Renewable Energy  
and Energy Efficiency Jobs

**138,059**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**50%**  
by 2030

## Climate Framework and Laws

Under Governor Cuomo’s **Reforming the Energy Vision (REV)** strategy, New York is building a clean, affordable and resilient energy system for all New Yorkers. In 2017, Governor Cuomo co-founded the U.S. Climate Alliance and issued EO 166, reaffirming New York’s commitment to emissions reductions in the face of the federal government’s retreat from the Paris Agreement. New York is also a founding member of RGGI and has set GHG reduction targets of 40% by 2030 and 80% by 2050.

## Power Sector

The **Clean Energy Standard** will dramatically increase New York’s electricity from renewable energy to 50% by 2030. In March 2018, Governor Cuomo announced \$1.4 billion for 1.4 GW of renewable energy projects, the largest award ever made by a state and enough to power 430,000 homes. The comprehensive **Offshore Wind Master Plan** is guiding the procurement of at least 800 MW of offshore wind in 2018 and 2019. Since 2011, solar power has grown 1,000% in the state, and New York will be one of the largest global economies to end the use of coal for electric generation following Governor Cuomo’s commitment to close all coal-fired power plants by 2020.

## Energy Efficiency and Storage

The state’s **“New Efficiency: New York”** initiative in an ambitious acceleration of energy efficiency and includes a wide range of strategies to help households, developers, building owners and industrial facilities reduce energy consumption. The initiative will enable New York to save the energy equivalent to that of 1.8 million homes by 2025. Under the **Energy Storage Roadmap**, New York has committed to deploying 1.5 GW of storage by 2025, which will provide \$2 billion in benefits to New Yorkers and avoid over one million metric tons of CO<sub>2</sub> emissions.

## Transportation

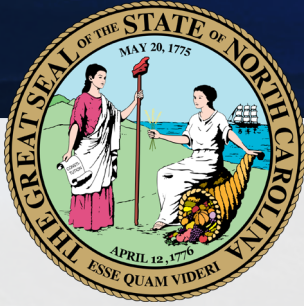
The **ChargeNY** program is accelerating the transition to a self-sustaining market for Plug-in Electric Vehicles (PEVs) in New York State. In its first phase, the program established a goal of 30,000 to 40,000 PEVs by the end of 2018 and the recently-announced **ChargeNY 2.0** aims to attain at least 10,000 charging stations by 2021. New York’s \$55 million **Drive Clean NY** program provides electric vehicle rebates to consumers, and the state’s Environmental Protection Fund supports municipal purchases of zero-emission vehicles and infrastructure.

## Resilience

**Climate Smart Communities** is an interagency partnership that provides no-cost state support to local governments that pass resolutions to act on climate change. Across New York, 212 communities representing 35% of the population have taken the 10-point **Climate Smart Communities Pledge**, and 17 communities are Climate Smart Certified Communities. The **Community Risk and Resiliency Act** requires state agencies to consider sea level projections, extreme weather events and other climate change impacts in implementing programs, and the Department of State has developed best practices for building, resiliency and land use.

## NY Green Bank

In 2013, Governor Cuomo established **NY Green Bank** to accelerate clean energy deployment by working in collaboration with the private sector to transform financing markets. As of mid-2018, NY Green Bank’s activities are driving approximately \$1.7 billion in clean energy investment across the state, and NY Green Bank is now seeking to raise at least \$1 billion in third-party capital to expand nationally.



# North Carolina

Renewable Energy  
and Energy Efficiency Jobs

**94,503**

Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**12.5%**

by 2021

## Energy

North Carolina’s Renewable Energy and Energy Efficiency Portfolio Standard requires investor-owned utilities in the state to supply 12.5% of 2020 retail electricity sales from eligible energy resources by 2021. Municipal and electric cooperatives must meet a target of 10% by 2018. The 2017 legislation “Competitive Energy Solutions for North Carolina,” includes directives to approximately double solar capacity in the state by 2022. This comprehensive energy legislation establishes programs for community solar, solar rebates, third-party leasing, corporate procurement of renewables, and utility procurement of solar energy through a competitive bidding process.

## Energy Efficiency

The North Carolina Energy Program works with the business community, local governments, and non-profit organizations to help them become more energy efficient and productive and educates businesses about how tax credits can make sustainable practices benefit their bottom line. The state’s Utility Savings Initiative for public buildings assesses the entire stock of state buildings, which in the summer of 2018 met its U.S. Department of Energy Better Buildings Challenge goal by achieving an overall 21% improvement in energy intensity, compared to the 2009 baseline year, for our state’s 138 million square foot building portfolio. The North Carolina Weatherization Assistance Program enhances the well-being of low-income residents through the installation of energy efficient and energy-related health and safety measures. In FY 2017, this program weatherized 1,438 residences in the state.

## Transportation

The Energy Policy Act State and Alternative Fuel Provider Rule requires state government and alternative fuel provider fleets that operate, lease, or control 50 or more light-duty vehicles (LDV) within the U.S. to acquire alternative fuel vehicles (AFV). Since 2001, as a covered

fleet, 75% of North Carolina state government new LDV acquisitions must be AFVs. The state earns vehicle credits for purchased light-duty and heavy-duty AFVs, which may be sold, banked, or traded between fleets. As of September 30, 2017, North Carolina earned a total of 3,023 credits under this program. North Carolina is exploring the application and utilization of zero-emission vehicles in both state and local government motor fleets through procurement practices and policies.

## Resilience

The North Carolina Division of Coastal Management (DCM) is addressing sea level rise and coastal resiliency through several research, planning, and policy initiatives. DCM provides staff support to the Coastal Resource Commission (CRC) Science Panel, which develops a 5-Year Sea Level Rise Synthesis and Assessment Report to monitor changing conditions, evaluate state-specific data, and guide coastal policy development by the CRC. DCM is providing funding to local governments in 20 coastal counties for Planning and Management Grants. Land-use planning and management practices related to coastal storms, flooding, and erosion; natural resource management issues; improvements in intergovernmental coordination, and other similar activities will be funded.

## Natural and Working Lands

The Division of Mitigation Services restores and protects wetlands and waterways through mitigation programs designed to assist private, and public entities comply with state and federal compensatory mitigation for streams, wetlands, riparian buffers, and nutrients. North Carolina is also exploring cost-effective opportunities in land conservation and management practices that provide co-benefits of improving ecosystem health and sequestering carbon. Through stakeholder engagement, best practices and mitigation pathways for protecting and enhancing public and private lands will be explored.





# Oregon

GHG Reduction Target  
% Below 1990 Levels

**10%** by 2020      **75%** by 2050

Renewable Energy  
and Energy Efficiency Jobs

**51,033**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**50%**  
by 2040

## Climate Framework and Laws

The Clean Electricity and Coal Transition Act (2016) prohibits the state’s largest investor-owned utilities from including electricity generated by coal in their rates by 2030, while doubling Oregon’s RPS commitment to 50% by 2040. The Oregon Global Warming Commission tracks trends and makes recommendations on reducing greenhouse gas emissions, including through the Roadmap to 2020 report.

## Energy

Oregon’s last coal-fired power plant is on track to close by 2020. The state requires electric utilities to offer voluntary programs for their customers to opt to be served entirely by renewable energy sources. The state’s investor-owned utilities are required to propose plans for investment in Utility Transportation Electrification Programs, which are reviewed by the Oregon Public Utility Commission and total several million dollars annually. The Energy Facility Siting Council is working to reduce net CO<sub>2</sub> emissions of energy facilities in Oregon by setting net CO<sub>2</sub> emissions rate standards and requiring facilities to reduce their emissions accordingly, leading to several million metric tons CO<sub>2</sub>-equivalent emission reductions to date.

## Energy Efficiency

The State Energy Efficiency Design Program (SEED) helps state buildings implement energy efficiency through institutional retrofits and best practices, saving the state more than \$7.1 million in energy costs annually. The Energy Efficient Schools Program has implemented approximately 3,000 cost-effective energy efficiency projects in Oregon’s K-12 public schools.

## Transportation

Executive Order 17-21 lays out a multi-agency strategy for achieving the goal of having 50,000 registered electric vehicles on Oregon’s roads by 2020. This goal is complemented by the Clean Vehicle Rebate Program, which will begin issuing rebates in September 2018. Oregon’s Clean Fuels Program requires a 10% reduction in the lifecycle carbon intensity of the state’s transportation fuels from 2015 levels by 2025.

## Resilience

Oregon has both a Climate and Health Resilience Plan (2017) and Climate Change Adaptation Framework in place.

## Climate Finance

Since 1980, the Small-Scale Energy Loan Program (SELP) has made loans totaling over \$600 million for local energy projects. A three percent Public Purpose Charge is applied to ratepayers of the state’s largest investor-owned utility to fund energy efficiency, low-income weatherization and small-scale renewable projects. The state also supports the Renewable Energy Development Grant Program and the State Home Oil Weatherization Program.

## Short-Lived Climate Pollutants

The Cleaner Air Oregon rule-making process is underway to close gaps in the state’s existing air quality rules that can create health risks for families and communities.

## Natural and Working Lands

Oregon created the Ocean Acidification and Hypoxia (OAH) Council to evaluate the impacts of OAH on Oregon’s resources and communities and recommend actions to the legislature and state leadership. The state also established and supports the work of the Oregon Climate Change Research Institute.



# Puerto Rico

RPS Target

**20%**  
by 2035

## Climate Framework and Laws

Puerto Rico Electric Power Authority is required to supply 20% of retail electricity sales from eligible “green energy” resources by 2035.

## Energy

**Net-metering Legislation** was enacted in August 2007, allowing customers of Puerto Rico Electric Power Authority to use electricity generated by solar, wind or “other” renewable-energy resources to offset their electricity usage and customers are to receive credits for producing more energy than was consumed.

## Energy Efficiency

Under **Act No. 57 of 2014**, all state agencies, public corporations and judicial branch buildings by 2022 must reduce their electrical energy consumption by at least 40%. Puerto Rico’s building code includes provisions that reduce energy consumption. For example, the code requires that buildings ensure that pool heaters are powered by renewable or alternative energy sources.

## Transportation

Act No. 81 of 2014 exempts all electric vehicles from import taxes until 10% of cars imported and produced in Puerto Rico are electric vehicles.

## Climate Finance

Created in July 2010, the **Green Energy Fund (GEF)** dictated that Puerto Rico will co-invest up to \$185 million in the development of renewable energy projects on the island and by FY2020, the GEF will have a maximum ceiling of \$40 million per year. Meanwhile, the **Renewable Energy Development Act**, enacted in 2008, exempts all equipment for renewable energy capture, accumulation, generation, distribution, and application from property taxes.



# Rhode Island

GHG Reduction Target  
% Below 1990 Levels

**10%** by 2020    **45%** by 2035    **80%** by 2050

Renewable Energy  
and Energy Efficiency Jobs

**14,647**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**38.5%**  
by 2035

## Energy

Governor Raimondo recently announced a 400 megawatt offshore wind farm, building on the success of North America’s first offshore wind farm, located in Rhode Island coastal waters. Raimondo set an ambitious goal for Rhode Island to increase its **clean energy portfolio** tenfold by 2020 (i.e., to 1,000 megawatts) and create 20,000 clean energy jobs throughout the state by 2020. Rhode Island is on track to meet the 1,000 megawatt goal and has already experienced an astonishing 72% growth in its clean energy workforce since 2014.

## Energy Efficiency

Rhode Island’s energy efficiency programs generated \$320 million in total benefits in 2017, while preventing nearly 1.3 million metric tons of greenhouse gas emissions, ranking Rhode Island third nationally in energy efficiency according to the American Council for an Energy-Efficient Economy scorecard. The Office of Energy Resources actively supports public sector energy efficiency through its **Lead by Example** initiatives, including offering financial incentives for LED streetlight adoption by municipalities and supporting cost-effective investments that have already reduced State government energy consumption by more than 10%.

## Transportation

Rhode Island is investing approximately \$10 million in Volkswagen Settlement funds in zero-emission electric buses for its public transportation fleet. With this initiative, Rhode Island’s bus fleet will consist of a 36% low- and zero-emission vehicles. An additional \$1.5 million in Volkswagen funds will be utilized to enhance Rhode Island’s current network of public charging infrastructure throughout the state’s main highway corridors. Rhode Island is also expanding public transit through downtown Providence by connecting Rhode Island Hospital, one of the City’s largest employers, to Providence’s train station with new routes that will provide service every five

minutes, utilizing the state’s first bus-only lanes. In addition, Rhode Island will be employing new transit signal priority technology at 100 intersections throughout Providence’s major thoroughfares, which will increase reliability and reduce travel times for passengers.

## Resilience

On September 15, 2017, Governor Raimondo signed an Executive Order appointing a Chief Resilience Officer to drive climate resilience efforts across the state, both within government and in collaboration with business, academic, and nonprofit partners, with the mission to develop a statewide **Climate Resilience Action Strategy**, which was submitted to the Governor on July 2, 2018. The report provided recommendations across a variety of areas including transportation, water/coastal areas, power, and emergency preparedness and is now being implemented.

## Climate Finance

Rhode Island has a variety of programs that help fund or remove barriers towards energy efficiency, renewable energy, and resilience projects. The **Commercial Property Assessed Clean Energy (C-PACE)** program helps provide up to 100% financing for energy efficiency and renewable energy projects to commercial entities. The **Rhode Island Infrastructure Bank** actively supports and finances investments in infrastructure that enhances the environment through a variety of means, including the issuance of bonds.

## Natural and Working Lands

Rhode Island’s Department of Environmental Management (DEM), in conjunction with the U.S. Department of Agriculture Forest Service, offers guidance on how landowners can properly manage forest areas and maintain healthy local ecosystems through its **Forest Stewardship Program**. The DEM also operates the **Forest Legacy Program** which purchases land threatened by encroachment to prevent commercialization or development to maintain healthy habitats and ecosystems.



GHG Reduction Target  
% Below 1990 Levels

**50%** by 2028      **75%** by 2050

Renewable Energy  
and Energy Efficiency Jobs

**13,563**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**75%**  
by 2032

### Climate Framework and Laws

The Governor’s **Commission on Climate Change (CCCC)** was established by executive order (EO) in 2005 with the goal of better understanding greenhouse gas emissions in Vermont and to develop a set of policy recommendations for reducing those emissions across all sectors. The EO also included greenhouse gas reduction goals of 25% below 1990 levels by 2012, 50% below 1990 levels by 2028, and 75% below 1990 levels by 2050. In 2017, Governor Phil Scott created the **Vermont Climate Action Commission** to recommend actions to reduce greenhouse gas emissions consistent with the goals of Vermont’s 2016 **Comprehensive Energy Plan** while spurring economic activity.

### Energy

Vermont’s **renewable energy standard (RES)** mandates electric distribution utilities to have energy portfolios with at least 55% renewable energy starting in 2017 and gradually increasing to 75% by 2032. The RES also requires distribution utilities to procure 1% of their electricity from new distributed renewable generation in 2017, which increases to 10% in 2032 and has a Tier III requirement for projects which reduce fossil fuel consumption by their customers. Vermont is also a member of RGGI, the proceeds of which are used to help fund energy efficiency projects around the state.

### Energy Efficiency

**Efficiency Vermont** is the nation’s first ratepayer-funded energy efficiency utility, which aims to save energy and lower emissions through efficiency improvements to Vermont homes and businesses. Vermont also requires new residential and commercial buildings to meet minimum energy efficiency standards.

### Transportation

The **Vermont Low Emission Vehicle (LEV) Program** requires that new vehicles sold in the state meet the same emissions requirements as new vehicles sold in California. The program, including its Zero Emission Vehicle (ZEV)

requirements, is a key strategy in climate change mitigation. Vermont is a member of both the **Transportation Climate Initiative (TCI)** and the **Multi-State ZEV Taskforce** and has recommitted to the recommendations in the updated 2018–2021 ZEV Action Plan to spur electric vehicle adoption. Through a public-private partnership Vermont supports **Drive Electric Vermont (DEV)** to promote the sale of electric vehicles through outreach and education, and currently has the fifth highest ZEV adoption rate in the country per capita.

### Resilience

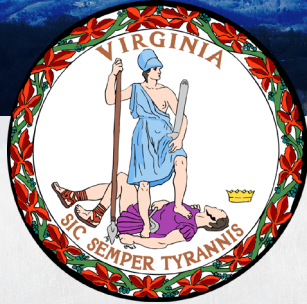
Vermont state government, along with local governments, are creating plans for adaptation strategies to help prepare communities for future flooding events, specifically through the Federal Emergency Management Agency and the **Vermont Economic Resilience Initiative (VERI)**.

### Climate Finance

The **Sustainable Energy Loan Fund** and the **Vermont Clean Energy Development Fund** provide funding for renewable and sustainable energy projects while the **Heat Saver Loan Program** provides funding for weatherization and high-efficiency heating systems. The Weatherization Trust Fund provides long-term state funding for weatherization through a 0.5% gross receipts tax on all non-transportation fuels sold in the state, generating approximately \$6 million annually for low-income weatherization.

### Natural and Working Lands

Vermont’s 2017 **Forest Action Plan** advances the ongoing management and preservation efforts. Conservation efforts aimed at keeping forest land as forest land and promoting the growth of new forest increases the state’s carbon sequestration, biologic diversity, and ecological productivity. Vermont is also working to supplement the existing 350,000 acres of conservation land with previously lost or damaged floodplain and wetland areas to help mitigate the impacts of future flooding events.



# Virginia

Renewable Energy  
and Energy Efficiency Jobs

**82,816**

Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**15%**

by 2025 (voluntary)

## Energy

Virginia’s Department of Environmental Quality has developed draft regulations to reduce carbon emissions from power plants. The regulation would enable Virginia to link to the **Regional Greenhouse Gas Initiative** beginning in 2020, with emissions reductions of 30% between 2020 and 2030. Governor Northam signed the **Grid Transformation and Security Act** in March of 2018 to overhaul Virginia’s energy regulatory landscape. The legislation will enable Virginia’s electric utilities to modernize the grid with an emphasis on investments in clean energy technology. This will increase the amount of utility-scale solar from the previous level of 500 megawatts to 5,000 megawatts over ten years, with 3,000 megawatts coming in the first four years.

## Energy Efficiency

Virginia has a goal of reducing state government electricity consumption by 15% (from 2010 levels). **Energy Performance Contracting (EPC)** has been a valuable tool for state agencies to take a comprehensive approach to reduce energy consumption in state buildings. Currently, Virginia has achieved 38% of the goal through. These efforts have resulted in the reduction of nearly 43 million kilowatt hours of electricity and the avoidance of 31,219 metric tons of CO<sub>2</sub> emissions annually. The **Grid Transformation and Security Act** requires Virginia electric utilities to propose \$1 billion in energy efficiency projects over the next decade.

## Transportation

Virginia expanded the scope for the use of federal Congestion Mitigation and Air Quality Improvement (CMAQ) funds to include use by localities located in air quality non-attainment areas of Virginia. Through 2020, \$9 million in CMAQ funding will be made available for state and local use to cover the incremental costs of purchasing or converting a vehicle to alternative fuels. The **Virginia Electric Vehicle Initiative** will work to incentivize

and fund the installation of public-access, Direct Current fast-charging stations. The Initiative will leverage the funding provided to the states under the Volkswagen Settlement, from which Virginia recently announced a \$14 million contract with EVgo to begin building an EV charging network in the Commonwealth.

## Resilience

In the 2018 Budget passed by the state legislature, funding was allocated to hire a Special Assistant to the Governor for Coastal Resilience. Once hired, that person will work to create a statewide resilience and natural hazard mitigation program.

## Climate Finance

The Commonwealth’s first statewide **Green Community Program** is funded through the reauthorization of Qualified Energy Conservation Bonds (QECCBs). VirginiaSAVES, has provided nearly \$65 million in financing support for energy efficiency projects in Virginia since September of 2015. The projects funded will annually save over 18 million kilowatt hours of electricity and more than 22 million gallons of water while avoiding 18,675 tons of carbon emissions each year.

## Natural and Working Lands

Governor Northam recently revealed his core land conservation initiative, which will use data and mapping tools to identify high-value lands for conservation purposes. One goal is to align conservation goals with the achievement of broader targets, including climate change and resiliency. Virginia’s natural resource agencies have developed tools to prioritize land conservation based on the best available climate and sea level rise data so we may better address concerns such as coastal lands soon to be flooded, wetland migration areas, as well as planning for existing and future infrastructure.



# Washington

GHG Reduction Target  
% Below 1990 Levels

**1990 LEVELS**    **25%**    **50%**  
by 2020            by 2035    by 2050

Renewable Energy  
and Energy Efficiency Jobs

**73,418**  
Jobs in 2018  
(EFI & NASEO, 2018)

RPS Target

**15%**  
by 2020

## Energy

Washington leads the nation in electricity generation from renewable resources. 57,000 people currently work in the clean technology sector, and the state generates more than 75% of its electricity from renewable resources, mostly hydroelectric power, and will be virtually coal-free by 2026 thanks to **Coal Decommissioning**. Washington produces nearly one-fifth of all renewable electricity produced in the U.S. aided by **Solar Incentives Jobs Program**, **Renewable Energy Sales Tax Exemptions**, and a **Renewable Portfolio Standard** requiring large utilities to obtain 15% of their electricity from renewable resources and to undertake cost-effective conservation. Actions taken by utilities to meet the state’s accompanying conservation standard will yield enough energy savings to meet 85% of projected energy demand through 2029.

## Energy Efficiency

Washington was the first state in the country to adopt high-performance **Green Buildings Standards** for state-funded buildings and is on track to ensure all new buildings are energy-neutral by 2030. The **Building Energy Consumption Disclosure** through the advancing of commercial building energy benchmarking requires large building owners to disclose energy use at time of sale, lease, or when applying for a loan, while the **Evergreen Sustainable Development Standard (ESDS)** ensures affordable housing projects are complying with energy efficiency standards.

## Transportation

Washington has emerged as one of the leading states for deployment of electric vehicles. In 2014 Washington set a goal of putting 50,000 electric vehicles into use by 2020. As of September 2018, there are 33,000 EVs in Washington state so far. Also, Washington is collaborating with West

Coast states to increase the number of charging stations between Mexican and Canadian borders, as well as assess opportunities for high-speed railways, electrified ferry systems, and ACES technology – autonomous, connected, electric and shared vehicles in urban areas of the state.

## Resilience

The **Washington State Climate Leadership Act (SCLA)** and the **Washington Coastal Hazards Resilience Network (CHRN)** both work across many government departments and state agencies to enact studies and plans for climate resilience, addressing issues such as coastal erosion and best land use practices considering long-term climate impacts.

## Climate Financing

Established by Governor Inslee in 2013, the **Washington State Clean Energy Fund (CEF)** is designed to expand clean energy projects and technologies statewide. To date, \$80 million has been invested, leveraged by an additional \$200 million in federal and private funds, in a range of areas spanning clean, renewable, and efficient energy. Additionally, **Meter-Based Financing** has completed 574 loans for a total of \$6.7 million to pay for energy efficiency projects in Washington homes.

## Natural and Working Lands

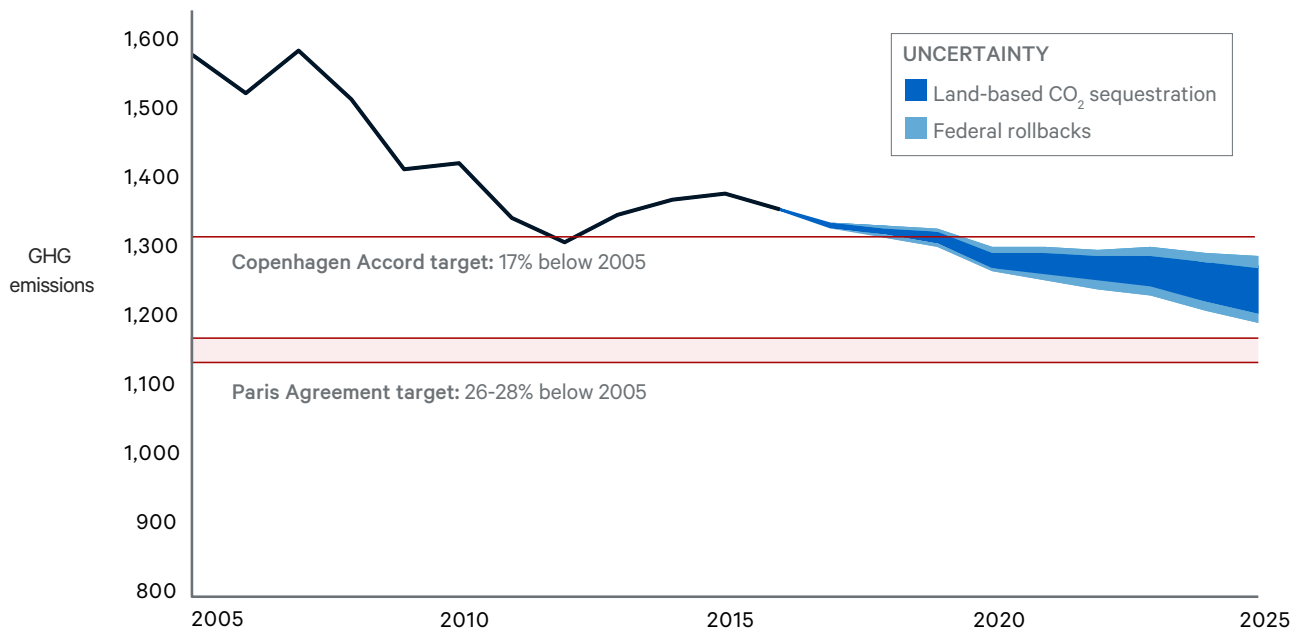
The **Ocean Acidification Policy and Management** and the **Washington Shellfish Initiative** are both multi-group collaborations that inform ocean management in the interest of ocean habitats and the thriving shellfish industry. Inland, the **Chehalis Basin Strategy** seeks to tackle both flooding issues and habitat loss through large-scale flood damage mitigation and reduction measures.

# Continuing to Lead on Climate

Rhodium Group modeled the impact of current policies and actions on future GHG emissions using a detailed, state-level energy-economic model that captures all sectors of the economy and all greenhouse gases. Rhodium modeled a range of potential emissions outcomes with and without federal policies currently in jeopardy and accounting for uncertainty in the capacity of forests and other lands to continue to remove carbon from the atmosphere. The analysis finds that Alliance states will continue to lead the nation in reducing GHG emissions and that we are on our way to meet our share of the U.S. emission reduction target. Under today's policies, Alliance states are projected to achieve a combined reduction of 18–25 percent below 2005 levels by 2025 (Figure 6). This

reflects a higher projection of our future GHG emissions from last year due in large part to increased uncertainty regarding federal regulatory rollbacks and improved HFC and land sector sequestration accounting methodologies. Importantly, these estimates provide a snapshot of Alliance member policies today. They do not include the full range of additional actions we intend to implement or the emission reduction goals we have set for ourselves. While the Administration's efforts to weaken federal environmental policies create real challenges for existing state efforts, these challenges also strengthen our resolve to step up efforts and provide the climate action that the residents and businesses of the Alliance states are seeking. We also remain committed to transparently

**FIGURE 6** Progress Under Today's Policies Set the Stage for Accelerated Action  
 Net GHG emissions, million metric tons CO<sub>2</sub>e



**SOURCE:** Rhodium Group. Methodology included in Appendix. **NOTES:** GHG emissions estimates reflect emissions from power generated within state boundaries. Uncertainty in CO<sub>2</sub> sequestration from forests and other lands are derived from EPA and USDA estimates. Federal rollbacks include federal Corporate Average Fuel Economy (CAFE) standards, EPA and BLM methane standards for oil & gas activities and landfills, and EPA's Significant New Alternatives Policy (SNAP) Rule 20 and the Kigali Amendment for phase-down of HFCs. For more information see the Technical Appendix. Emissions from Puerto Rico include only CO<sub>2</sub> associated with fossil fuel consumption.



reporting on our progress going forward and continuing to improve our emissions estimates so we can understand where to prioritize our emission reduction efforts.

### Changes from last year's report

The Alliance believes in making continuous improvements to our emissions estimates and improving the transparency of our reporting. Each year improvements in accounting methodologies and changes in federal and state policy will change our emissions outlook. A significant portion of the changes in this year's projections is the result of changes in federal policy. Since last year, many federal policies have been put on the chopping block, threatening the progress the Alliance is working to achieve. These include: rules that would phase-down emissions of high-warming HFCs used in air-conditioning and refrigeration; fuel economy standards for passenger vehicles; and methane standards for oil and gas activities and landfills. Policies adopted by some Alliance states to uphold or even exceed the emission reductions of the federal policies that are in jeopardy, like GHG standards for passenger vehicles and SLCP standards, are included in our analysis and offset some, but not all, of the impact of federal rollbacks.

Methodological improvements also affected our emissions trajectory. First, EPA revised their methods for estimating net carbon sequestration from land use,

land use change, and forestry. This change set back U.S. Climate Alliance sequestration estimates compared to last year's projections. At the same time, the Alliance has worked together over the past year to improve methods used to estimate HFC emissions. Until now, there has been very little information about projected HFC emissions and how policies can affect these estimates. Without any updated federal projections, the California Air Resources Board stepped in to develop the most accurate up-to-date national and state estimates available. While these improved methods have resulted in higher HFC emission projections compared to last year (20 percent), we now have much better insight on how state and federal policies affect emissions going forward.

We also welcomed two new states into the Alliance. All states in the Climate Alliance are at different stages in implementing ambitious climate action, and expanding our membership has not only increased the diversity of states committed to working together but also means that the Alliance's actions cover an increased share of U.S. GHG emissions.

Additional details on the methodology and federal rollback assumptions are provided in the Appendix.



# Setting the Stage for Accelerated Action

*Even though the U.S. Climate Alliance continues to reduce our GHG emissions faster than the rest of the country, we know there is more to be done, especially in the face of federal rollbacks. Looking ahead, we aim to accelerate the implementation of effective climate action to meet our share of the Paris Agreement's emission reduction goals, all while continuing to grow our economies and create jobs for Americans.*

On June 1, 2018 – the one-year anniversary of the formation of the U.S. Climate Alliance – we announced a new wave of initiatives to scale up climate action. Three months later, at the Global Climate Action Summit, we committed to additional concrete actions:

## Short-Lived Climate Pollutants

SLCPs are potent climate forcers and harmful air pollutants that have an outsized impact on climate change in the near-term. Until recently, an effective federal regulatory framework was in place to begin reducing SLCP emissions nationally. Many of these rules have been rescinded or delayed, leading to significant regulatory uncertainty affecting businesses and emissions in the United States. This uncertainty, along with a more accurate understanding of where emissions from this sector are headed, makes state leadership on reducing SLCP emissions all the more necessary and urgent. In the absence of regulatory certainty at the federal level, and building on our commitment under the SLCP Challenge, the Alliance is launching an SLCP Challenge to Action Roadmap that calls on partners to support Alliance states as we collectively reduce our SLCPs emissions by as much as 40–50 percent by 2030. We also commit to develop and implement state-specific strategies reflective of our authority and ability to accomplish the goals.

## Natural and Working Lands

The natural systems upon which we depend are essential to life and critical for reducing the impacts of climate

change on our communities. These systems are also under threat from destructive human activity and climate change. To protect the communities, economies, and ecosystems that depend on them, we will manage forests, farms, rangelands, and wetlands, to be both economically productive and resilient carbon sinks. We launched a Natural and Working Lands Challenge that commits our states to advance programs, policies and incentives to reduce GHG emissions from land and enhance resilient carbon sequestration. Over the next two years, the Alliance will bring resources to bear on improving GHG inventory methods and identify best practices for land conservation, restoration, and management such that land-based pathways can be integrated into state GHG mitigation plans by 2020. Through these actions, we will grow and manage our forest resources, protect our food systems and water quality, and preserve our nation's natural beauty for generations to come.

## Transportation

The transportation sector is the largest source of GHG emissions across our states. Alliance states are supporting innovation across the sector to provide our residents access to the best technologies, grow our economies and create jobs – all while drastically reducing emissions. Because of this, we are working to mobilize billions of dollars in ZEV infrastructure and vehicle deployment and moving towards a vision of zero-carbon mobility across all transportation modes. We will collectively deploy \$1.4 billion in settlement funds for ZEVs and other clean transportation projects while expanding our networks of

ZEV charging stations. We also will lead by example and work towards converting our state fleets to ZEVs. The U.S. Climate Alliance is developing a playbook of case studies and model policies to help all states achieve this vision.

### Product Energy Efficiency Standards

Over the last three decades, energy efficiency standards have saved consumers billions of dollars while providing the most cost-effective opportunity to avoid constructing costly new power generation. Going forward, the U.S. Climate Alliance will explore state-level efficiency standards for a range of consumer and commercial appliances. Coordinated U.S. Climate Alliance state action could reduce GHG emissions by 5.5 million tons by 2025 while saving ratepayers nearly \$4 billion in the same timeframe.<sup>34</sup> Working together, we also have the potential to transform the U.S. market for this set of products, providing stability to manufacturers and ensuring all Americans have access to money-saving products.

### Solar Soft Costs

We recognize that solar power is a vital component of a sustainable energy system and represents a major economic and job creation engine. Unfortunately, federal import tariffs on solar panels and cells enacted by the federal government in early 2018 are likely to halt these benefits. The Solar Energy Industries Association estimates that tariffs will cause the loss of roughly 23,000 American jobs this year alone, including solar panel installer jobs, which is the fastest-growing employment category in the country.<sup>35</sup> As a first step toward offsetting the impacts of these tariffs, we will release the U.S. Climate Alliance Solar Guidebook, which identifies best practices and hands-on tools for states to reduce solar energy system costs and streamline regulatory processes and work together on the implementation of the guidebook's recommendations.

### Grid Modernization

U.S. Climate Alliance states are leaders in deploying clean energy and innovative distributed energy resources, and states are moving boldly to modernize and strengthen their electric grids. However, withstanding the impacts of a changing climate and further accelerating emissions reductions requires new strategies. That is why we are helping to support the Non-Wires Solutions Playbook,

a groundbreaking implementation resource for regulators and utilities to support the deployment of clean distributed energy resources instead of traditional utility investments. By implementing innovative alternatives to traditional utility investments, U.S. Climate Alliance states will reduce emissions, save money for consumers, and modernize their electric grids.

### Resilience

There is increasing urgency for states to support efforts to build climate change resiliency, enhance local decision-making and to protect communities, residents, and resources from climate-change driven extreme weather, wildfire, drought, sea level rise and other impacts. In August 2017, the federal government disbanded a Federal Advisory Committee designed to help shape the U.S. National Climate Assessment process and ensure it provides information needed to support climate action, including at state and local levels. In January 2018, the group reconvened with support from New York Governor Cuomo as the Independent Advisory Committee (IAC), pledging to deliver recommendations to states in the U.S. Climate Alliance, among others. The IAC will issue a complete report this fall. The U.S. Climate Alliance will continue supporting independent climate science and working with the IAC to support the availability of climate information to policymakers. To expand this work across Alliance states, we will work with partners to provide direct planning assistance and resilience building strategies to our communities.

To deliver on these commitments, we will continue working together through strategic partnerships. This includes continuing to build out the U.S. Climate Alliance Clearinghouse,<sup>36</sup> which aims to aggregate climate tools, data, and information for use by policymakers and the public. It also includes working with Canada and Mexico through the North American Climate Leadership Dialogue and engaging with other initiatives to ensure that we are taking smart, coordinated action to grow our clean energy economies and continue to reduce our GHG emissions consistent with the goals of the Paris Agreement.

# Appendix

Historical data and projections used in this report were provided by Rhodium Group, an independent research company, through its US Climate Service. Historical data includes annual GHG emissions inventories for all sectors and greenhouse gases for all 50 states and U.S. territories and is consistent with international emissions inventory guidance set by United Nations Framework Convention on Climate Change (UNFCCC). The inventory is current through 2016 and relies on data from the U.S. Environmental Protection Agency (EPA), U.S. Department of Agriculture (USDA), Energy Information Administration (EIA) and other sources. GHG projections were produced using RHG-NEMS, a modified version of the detailed National Energy Modeling System used by the EIA to produce the Annual Energy Outlook. RHG-NEMS produces economy-wide, 6-gas projections for all 50 states and territories consistent with historical estimates. Rhodium Group has also updated a number of the energy market, technology cost and behavioral assumptions in NEMS to be consistent with recent market and economic research.

Projected emissions account for all federal and state policies as of June 2018, including the full repeal of the Clean Power Plan. The range of potential outcomes reflects uncertainty about the status of federal rules that are currently in jeopardy because the Administration has proposed to rescind or revise them or has failed to enforce them to date. Rhodium modeled Alliance-wide emissions with and without the following federal policies:

## Hydrofluorocarbons (HFCs)

- Federal Significant New Alternatives Policy (SNAP) Rule 20
- Kigali Amendment to the Montreal Protocol

## Methane

- EPA's methane standards for Municipal Solid Waste Landfills

- EPA's New Source Performance Standards and Control Techniques Guidelines for methane emissions from the oil and gas industry
- BLM's Methane and Waste Prevention rule

## Passenger vehicles

- Full rollback – Federal Corporate Average Fuel Economy (CAFE) Standards are frozen at 2020 levels (the Administration's preferred alternative) for all, but those Alliance states that have adopted California's vehicle emission standards under Section 177 of the Clean Air Act (these states maintain the current standards).
- Moderate rollback – The existing CAFE standards are revised downward by 33% (which aligns most closely with the Administration's alternative 8). Alliance member 177 states maintain the current standards.

Federal rollbacks account for about half of the difference in projected emissions reductions from last year's report. Rhodium's methodological improvements to its GHG inventory and projections contributed to about one-third of the difference, based primarily on the California Air Resources Board's improved methods for estimating baseline HFC emissions and the impact of federal policies, as well as EPA updates to its estimates of carbon sequestration from Land Use, Land Use Change and Forestry (LULUCF). The remainder of the difference in emissions reductions from last year's estimates was due to the change in Alliance membership.

For more information about modeling assumptions, see Rhodium's Taking Stock 2018 report and the detailed Technical Appendix to this report.

**TABLE 1 Aggregate GHG Emissions from Alliance States**

Million metric tons CO<sub>2</sub>e

Gas	Sector	2005	2016	2020	2025
Carbon Dioxide	Transportation	662	618	598	550 to 551
	Electric Power	420	290	238	232 to 235
	Buildings	261	223	244	239
	Industrial	180	158	172	174
	Other	51	49	53	58
	<b>Total</b>		<b>1,606</b>	<b>1,363</b>	<b>1,329</b>
Methane		136	130	125 to 130	125 to 131
Nitrous Oxide		63	62	60	60
F-Gases		47	68	75 to 85	73 to 98
Total	Gross GHG Emissions	1,852	1,623	1,589 to 1,604	1,513 to 1,543
	LULUCF Sequestration	-267	-261	-320 to -299	-253 to -316
	Net GHG Emissions	1,585	1,362	1,269 to 1,305	1,195 to 1,292
	Change from 2005	-	-14%	-18% to -20%	-18% to -25%

**SOURCE:** Rhodium Group's U.S. Climate Service. **NOTE:** CO<sub>2</sub> emissions for all sectors except "other" reflect emissions from fossil fuel combustion only. Puerto Rico's emissions are estimated using data from EPA's 2018 GHG inventory and include only CO<sub>2</sub> emissions from fuel consumption. Projected 2025 values reflect the low (left) and high (right) bounding cases of Rhodium's scenario analysis.

# Endnotes

- 1 Based on <https://www.bea.gov/regional/>; <https://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx> and <https://www.census.gov/data/tables/2016/demo/popest/nation-total.html>
- 2 [https://www.arb.ca.gov/cc/inventory/pubs/reports/2000\\_2016/ghg\\_inventory\\_trends\\_00-16.pdf](https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf)
- 3 [http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis\\_group\\_rggi\\_report\\_april\\_2018.pdf](http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf)
- 4 <https://www.eia.gov/electricity/annual/> and <https://atb.nrel.gov/>
- 5 <http://www.dsireusa.org/resources/detailed-summary-maps/>
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