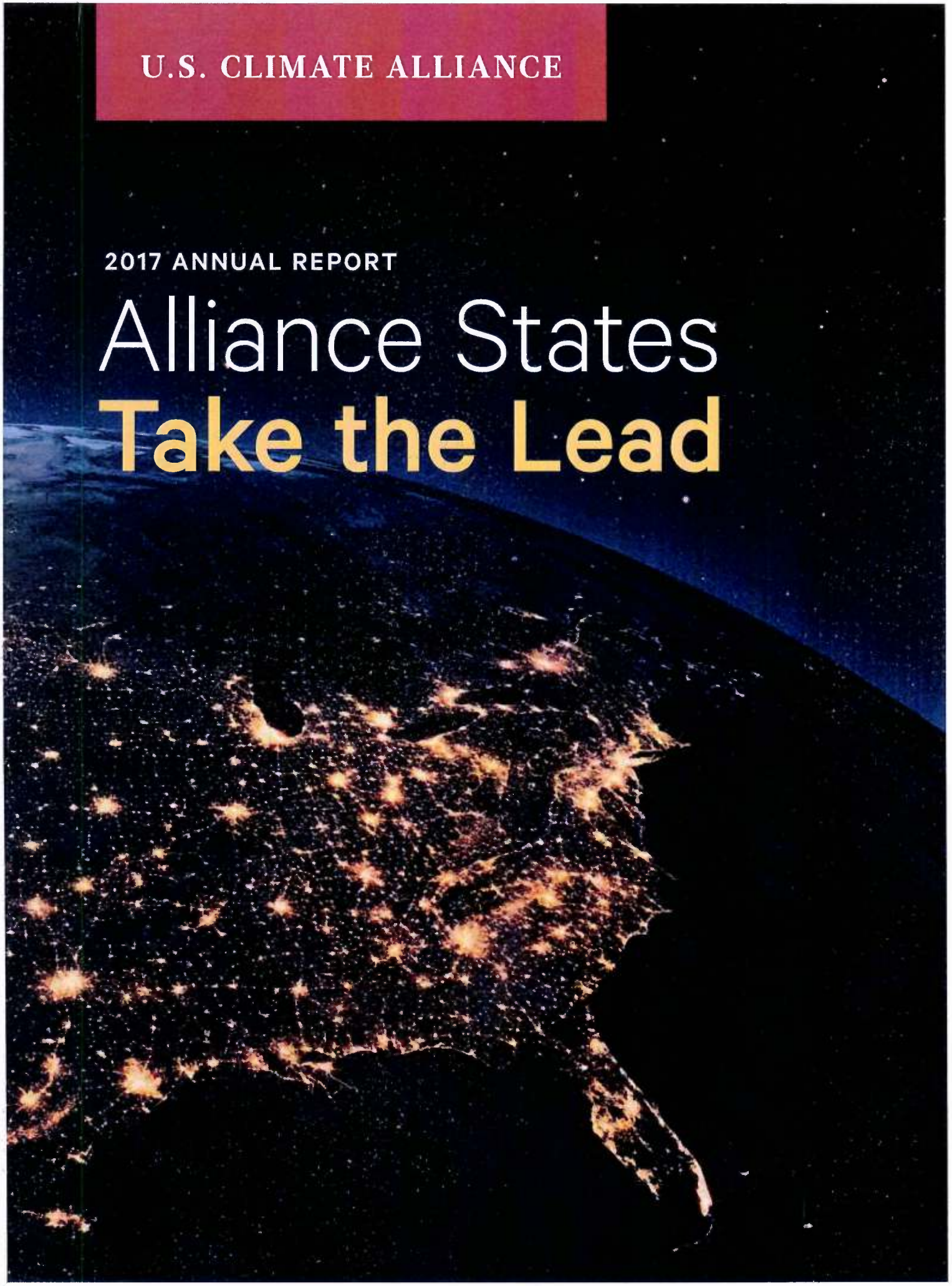
U.S. CLIMATE ALLIANCE

2017 ANNUAL REPORT

Alliance States Take the Lead



Message from the Co-Chairs

United States Climate Alliance: On Track for Paris and Thriving

By Andrew M. Cuomo, Jerry Brown, and Jay Inslee

Climate change is happening. Wildfires are ravaging the American west, from the Diamond Creek fire at the northernmost border between Washington and Canada, to the La Tuna fire in Southern California. Like Sandy and Katrina before them, hurricanes Irma and Harvey have wrought destruction from Texas to Puerto Rico, costing American lives and billions of dollars in damage that will take decades to recover from. The time is now for strong leaders to take bold action to reduce the negative impacts of climate change.

The U.S. Climate Alliance is a bipartisan coalition of states that have joined together to address this existential threat. We are taking action to curb the emissions that cause climate change. We are investing in vulnerability assessments and planning, new infrastructure, nature-based solutions and innovative technologies that can help people adapt to a changing climate and its impacts. While adapting to these impacts will be necessary, the U.S. Climate Alliance remains committed to strong actions that will avoid the most dangerous and irreversible consequences of climate change.

Without American leadership we would not have the Paris Agreement, a united global effort to reduce harmful emissions and create a safer, healthier and more prosperous planet. By announcing its intention to withdraw the United States from the Paris Agreement, the White House has left a leadership void of enormous consequence. As the federal government has stepped back, Alliance states are stepping up.

Together Alliance states have pledged to meet our share of the Paris Agreement greenhouse gas reduction targets, to hold ourselves accountable by tracking progress toward those targets, and to accelerate the transition to a clean energy economy. We have made tremendous strides and the good news is that we are on track to meet or exceed our share of the Paris goals.

Make no mistake, federal climate leadership remains critical. But in its absence, we will continue to press forward. We will continue to make a clean energy future a reality for the citizens of our states. And will work even harder to help other states join our efforts.

Together, we're sharing common solutions, leveraging resources and demonstrating how climate action is essential to a thriving workplace and a growing economy. One need only look at the economies of our Alliance members to see that we account for 40 percent of U.S. GDP, at least $7 trillion dollars of combined economic activity, and 1.3 million clean energy jobs. Alliance states' economies have grown faster than the rest of the country, and we're continuing to grow as we make progress on our climate change goals.

The message is clear: states and nations that embrace the leadership and innovation needed to achieve a clean energy future will reap their rewards.

Alliance Membership

United States Climate Alliance Principles

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.

What We Are Doing

In the face of the growing threat posed by climate change, the Alliance is taking the lead in investing in clean energy and reducing greenhouse gas emissions.

The United States Climate Alliance was formed in response to the U.S. federal government's decision to withdraw from the Paris Agreement. The Alliance now has 15 members, representing a large and diverse cross-section of the country committed to climate action. Collectively we are home to more than 36% of U.S. population and account for more than $7 trillion dollars in combined economic activity—enough to be the world's third largest country.[1] Alliance states are leading the country in combatting climate change by investing in clean energy, energy efficiency and climate resilience.

In the **power sector**, all Alliance states have a Renewable Portfolio Standard (RPS), or a state-wide renewable energy goal in place.[2] Carbon pollution caps cover 56% of Alliance state electricity generation.[3] We have attracted nearly $100 billion in renewable energy investment since 2011, with wind, solar, geothermal and biomass generating capacity growing 5-fold over that period (Figure 1).[4] Add in nuclear and hydropower, and Alliance states now collectively generate more than half of our electricity from zero-carbon sources.

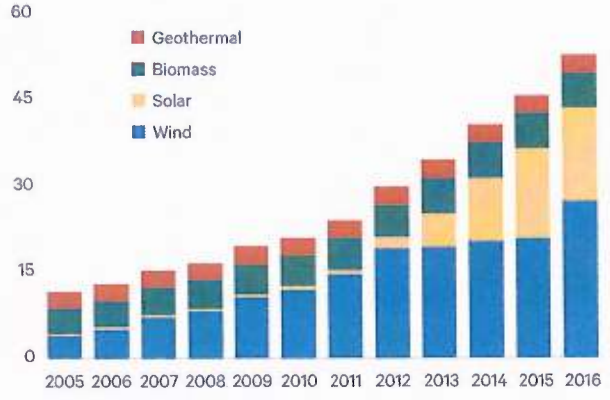
In the **buildings sector**, Alliance states lead the country in ambitious building energy codes, appliance standards and utility-driven efficiency programs. 45% of LEED certified green buildings are in Alliance states.[5] Nine of the top ten highest ranking states in terms of energy efficiency policy are Alliance members.[6] We attracted $3.4 billion in new investment in utility-driven energy efficiency improvements in 2015 alone.[7] These investments reduced the amount of electricity households and business had to buy in that year by nearly 13 billion kilowatt hours, enough to power 1.2 million average-sized homes.[8]

In the **transportation sector**, most Alliance states are members of the Zero Emission Vehicle (ZEV) program. The Alliance accounts for over 70% of all battery electric, plug-in hybrid and fuel cell vehicles sold nation-wide last year.[9] The nearly 400,000 ZEVs on the road in Alliance states at the end of 2016 (Figure 2) reduce U.S. oil dependence by roughly 21 million barrels each year.[10]

Alliance states are also working to make our communities and economies **more resilient** to the changes in the climate that are already occurring. This includes investing in vulnerability assessments, community-focused emergency preparedness, more resilient buildings and infrastructure, coastal ecosystem and buffer restoration, forest restoration, and drought management planning.

FIGURE 1: RAPID EXPANSION OF RENEWABLE ENERGY

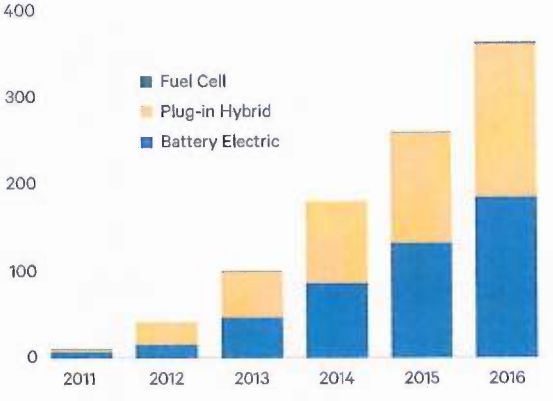
Gigawatts of non-hydro renewable electricity generation capacity in Alliance states



Source: EIA, SEIA and Rhodium Group analysis.

FIGURE 2: ALLIANCE STATES' GROWING ZERO EMISSION VEHICLE FLEET

Cumulative sales in thousands



Source: Automotive Alliance and Rhodium Group analysis.

Climate Leadership in Alliance States

Examples of policy leadership from Alliance states across the economy include:

CALIFORNIA

California was the first state in the nation to adopt an economy-wide cap-and-trade program with the California Global Warming Solutions Act of 2006. This summer, California extended this landmark program to 2030 to deliver economy-wide GHG emission reductions of 40% below 1990 levels by 2030.

COLORADO

As a large oil and gas producing state, Colorado became the first in the nation to regulate methane from oil and gas wells, significantly reducing emissions of this potent GHG.

CONNECTICUT

Connecticut's Green Bank, the first in the nation, was recently recognized by Harvard as its "Innovations in American Government Award" winner for 2017. The guiding philosophy of the CT Green Bank is to use limited public dollars to leverage private capital in order to deploy renewables and efficiency at scale. For every $1 of public funds invested by the CT Green Bank there has been $6 in private investment in the Connecticut economy.

DELAWARE

Delaware's Renewable Portfolio Standards Act (RPS) requires 25% of the state's electricity to come from renewable sources by 2025. In addition, an Offshore Wind Working Group was established by Executive Order in August 2017 to make recommendations regarding the development of offshore wind power.

HAWAII

Hawaii has become the first state in the nation to commit to achieve 100% renewable electricity, including wind, sun, falling water, biogas, geothermal, ocean water currents and energy conversion, biomass, biofuels, and hydrogen from renewable sources. This will be achieved by 2045 through the state's renewable portfolio standard (RPS), with interim 30% by 2020, 40% by 2030 and 70% by 2040.

MASSACHUSETTS

Last year, Governor Baker signed a comprehensive climate change Executive Order 569, advancing policies to enable the Commonwealth to meet the aggressive emission reduction targets of 25% below 1990 levels by 2020 and at least 80% below 1990 levels by 2050, under the Global Warming Solutions Act and launching new work on climate change adaptation across state and local government.

MINNESOTA

The 2007 Next Generation Energy Action set a 25% Renewable Energy Standard by 2025. As of 2016, Minnesota has achieved more than 22% of its electricity coming from renewable sources.

NEW YORK

New York State has established ambitious greenhouse gas emission reduction targets to reduce emissions 40% below 1990 levels by 2030 and 80% by 2050. In addition, the Clean Energy Standard requires that 50% of electricity in New York come from renewable energy sources like wind and solar by 2030. New York State will be coal-free by 2020 and develop up to 2.4 gigawatts of offshore wind by 2030.

NORTH CAROLINA

North Carolina has risen to #2 nationally for installed solar capacity and is home to over 34,000 clean energy jobs because of a range of state policies, including the N.C. Renewable Energy and Energy Efficiency Portfolio Standard (REPS). REPS requires investor-owned electric utilities to source 12.5% of their energy needs through renewable energy or energy efficiency measures by 2021. Governor Cooper signed the Competitive Energy Solutions for North Carolina legislation in July 2017 which will roughly double N.C.'s solar generation over the next 4 years.

OREGON

Oregon is the first state in the nation to enact a law that prohibits the state's largest investor owned utilities from including electricity generated from coal in their rates for Oregon ratepayers by 2030. In addition, negotiations among state agencies and Portland General Electric resulted in an agreement to close the state's only coal-fired plant in 2020, two decades earlier than its assumed operating life.

PUERTO RICO

The Puerto Rico Department of Natural and Environmental Resources (DNER) serves as coordinator of the Puerto Rico Climate Change Council since 2009. DNER's Office for Coastal Management has completed the Guide to Resilience, and four coastal municipalities adaptation plans. DNER is currently developing a self-vulnerability assessment and climate data tools.

RHODE ISLAND

"Lead by Example" is an executive order in which state agencies must begin working to reduce energy consumption and greenhouse gas emissions. In order to accomplish this Rhode Island governmental agencies will procure all electricity from renewable sources by 2025 and reduce overall consumption by 10% by 2019. Alongside this memorandum Rhode Island will also have 25% of all new cars be Zero-emissions vehicles by 2025.

VIRGINIA

Governor McAuliffe signed Executive Directive 11 on May 16, 2017 to take action on commitments to reduce carbon emissions and grow the clean energy economy in Virginia. The Executive Directive instructs the Virginia Department of Environmental Quality to develop regulations to reduce carbon emissions from power plants through existing authority under state law. The program will utilize a multi-state market to increase deployment of clean energy resources while reducing costs for Virginians.

VERMONT

Through an active engagement of public private partnership Vermont is working directly with local businesses to increase investment in electric vehicles. Drive Electric Vermont is a coalition of policymakers, industry leaders and civil society groups striving to increase the number of electric vehicles on the roadways. To accomplish this, Vermont is focusing their attention on key areas such as infrastructure, legislation, finance, innovation, and education.

WASHINGTON

Washington's Clean Air Rule puts a declining cap on major greenhouse gas emission sources including industrial, energy and transportation and uses market based policies to drive a 27% reduction in GHGs by 2036.

Alliance members are compiling and sharing policy best practices and lessons learned both among themselves and with other states across the country. This inventory, available online at **https://www.usclimatealliance.org/reports**, will continue to expand in the weeks and months ahead.

Where We Are

Alliance leadership is already yielding results. We are halfway to the Paris Agreement target while outperforming other states in economic growth.

In announcing the Alliance earlier this year, we committed to deliver greenhouse gas (GHG) emissions reductions consistent with the goals of the landmark Paris Agreement. Under that agreement, the U.S. pledged to reduce net GHG emissions by 26-28% below 2005 levels by 2025.

Alliance states reduced emissions by 15% between 2005 and 2015, compared to 10% for other states, while our economies grew faster than the rest of the country.

Thanks to the policy leadership described above, Alliance states have already made impressive progress toward achieving this goal. Independent analysis from the Rhodium Group finds that between 2005 and 2015, Alliance states collectively reduced net GHG emissions by 15%, compared to a 10% reduction for the rest of the country (Figure 3). We are half way to 2025 and more than half of the way to meeting our share of the Paris Agreement target.

Climate and clean energy policies that Alliance states have put in place have attracted billions of dollars of new investment and helped create more than 1.3 million clean energy jobs, including 290,000 jobs in renewable power generation and 900,000 jobs in energy efficiency. Alliance states have accelerated clean energy deployment while ensuring reliability, expanding consumer choice and lowering energy bills for families and businesses.

Alliance states are demonstrating that acting on climate does not require sacrificing economic growth. In fact, the opposite has proven true. Between 2005 and 2015, the combined economic output of Alliance states grew by 14% while the rest of the country grew by 12% (Figure 4). On a per capita basis, economic output in Alliance states expanded twice as fast as in the rest of the country during that period. Our states are proof that fighting climate change and fostering economic growth can go hand in hand.

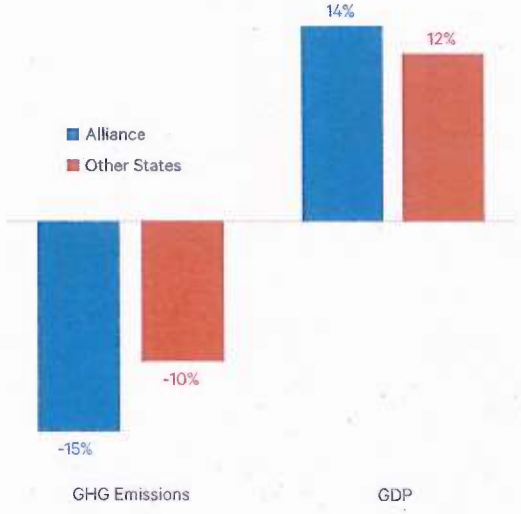
FIGURE 3: ALLIANCE STATES LEADING THE WAY

Percent change in net GHG emissions relative to 2005 levels

Source: Rhodium Group. Methodology included in Appendix.

FIGURE 4: CLEANER AND FASTER

Change in net GHG emissions and economic output, 2005 to 2015



Source: BEA, Rhodium Group

Where We Are Going

Alliance states are on track to meet the Paris Agreement target.

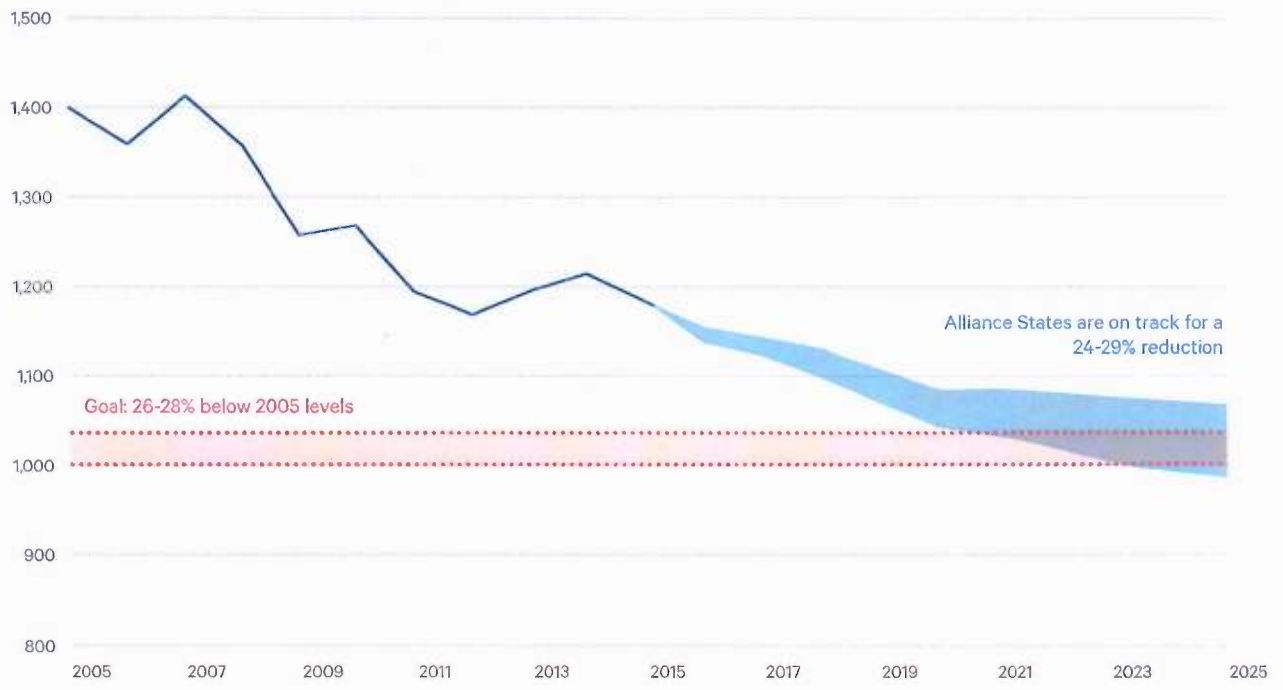
Alliance states are building on our track record of action. The policies we have adopted will continue to attract new jobs and investment in the years ahead in clean energy, energy efficiency and clean transportation while simultaneously driving down GHG emissions across our states.

Will this be sufficient to achieve our goal of meeting our share of the U.S. emission reduction targets under the Paris Agreement? The Rhodium Group modeled the impact of current Alliance state policies on future GHG emissions using a detailed, state-level energy-economic model that captures all sectors of the economy and all greenhouse gases. They analyzed a range of potential scenarios for how energy prices and renewable technology costs evolve going forward, as well as the carbon sequestration capability of forests and land-use in Alliance states. Their modeling also includes recent changes in federal energy and environmental policy that could impact Alliance state emissions. Methodological details are provided in the Appendix.

The analysis finds that Alliance states will continue to lead the nation in reducing GHG emissions and we are set to meet our share of the U.S. emission reduction target. Under current policies, Alliance states are projected to achieve a combined 24-29% reduction below 2005 levels by 2025 (Figure 5). The Alliance is squarely on track—irrespective of federal inaction—while continuing to grow our economies and drive job creation.

FIGURE 5: ALLIANCE STATES ARE ON TRACK

Net GHG emissions, million metric tons CO2e



Source: Rhodium Group. Methodology included in Appendix.

We Are Not Done

By working together, Alliance members can accelerate clean energy deployment and emission reductions within our states, and help transform markets nation-wide.

The fact that Alliance states are on a path to deliver emission reductions in line with the Paris Agreement target does not take away the need for continued federal leadership, nor does it mean we plan to sit back and relax. The rollback of critical federal environmental regulations and standards and the diminishing support for clean energy innovation will still have ramifications in our states. In the months ahead, the Alliance will work to advance ambitious climate policy within member states, share best practices and lessons learned among member states and launch the United States Climate Clearinghouse.

The Clearinghouse is a website that aggregates state climate tools that provide state-specific climate mitigation and adaptation resources and data for the public and policymakers and provide information on new cross-state collaborative initiatives to maximize the impact of our individual policy actions. In doing so, we will use the powers available to the states to deliver even greater emission reductions within the Alliance, attract new member states and help drive policy innovation and low-carbon market transformation across the country. Some initial examples of priority areas for collaboration include:

CLEAN ENERGY FINANCE

In the coming decades, Alliance states will invest trillions in clean energy, critical infrastructure and climate change mitigation. To minimize climate risk and maximize economic growth, Alliance states will collaborate on clean energy investment, focus on new insurance and risk mitigation approaches, build upon the success of established finance tools and Green Banks, and work together across the board on finance-related opportunities.

POWER SECTOR MODERNIZATION

Alliance states are leading the way in rethinking traditional electric utility regulation to accommodate rapidly changing technology, meet renewable energy and emission reduction goals, and build clean, resilient and affordable electricity markets for the future. Working together, Alliance states can develop new regulatory tools and resources that benefit the country as a whole, share best practices, and expand and strengthen carbon markets.

BUILDING TRANSFORMATION

Alliance states account for more than a third of national emissions from residential and commercial buildings and have been at the cutting edge of energy efficiency policy nationally. Coordinated policy action among Alliance states can drive the development and design of new building engineering and construction models that could be replicated across the country, and can transform national markets for energy-consuming equipment and appliances.

ADVANCED TRANSPORTATION

Alliance states represent nearly a third of total light duty vehicle sales and nearly two thirds of electric vehicle sales nationally. Coordinated action to drive zero emission vehicle deployment and clean fuel development can transform the national vehicle market. As home to some of the country's largest ports and major freight shipment routes, Alliance states can develop and implement innovative strategies to make the movement of goods throughout this country cleaner and more efficient.

NATURAL RESOURCES

Alliance states have established the most ambitious and innovative approaches to protecting our precious natural resources. We pledge to collaborate on state-level stewardship of natural resources, including approaches to reduce and phase out short-lived, high-intensity pollutants that impact the health of our citizens and damage our environments.

CLIMATE RESILIENCE

Alliance states know too well the devastating effects of climate change and extreme weather. We will work together to fill the void left by the federal government's abdication of climate leadership and withdrawal of resilience guidance for infrastructure. States will coordinate on the development and implementation of technical tools to support community resilience, including mapping to identify the risk posed by combined sea level rise, storm surge and extreme precipitation.

Appendix

Historical data and projections used in this report were provided by Rhodium Group (www.rhg.com), an independent research company.

Historical data is from the RHG U.S. GHG Inventory, which includes annual GHG emissions inventories for all sectors and greenhouse gases for all 50 states and U.S. territories. The RHG U.S. GHG Inventory is consistent with international emissions inventory guidance set by the United Nations Framework Convention on Climate Change. The inventory is current through 2015 and relies on data from the U.S. Environmental Protection Agency (EPA), Energy Information Administration (EIA) and other sources.

GHG projections were produced by Rhodium Group using RHG-NEMS, a modified version of the detailed National Energy Modeling System used by the EIA to produce the Annual Energy Outlook modified and maintained by Rhodium Group. RHG-NEMS includes economy-wide, 6-gas projections for all 50 states and territories consistent with historical estimates. Rhodium Group has also updated a number of energy market, technology cost and behavioral assumptions in NEMS to be consistent with recent market and economic research. Rhodium Group considered a range of energy price, technology cost and carbon sequestration scenarios in this report. All scenarios account for key federal and state policies as of July 2017.

For more information on Rhodium Group's GHG data contact: climate@rhg.com

TABLE 1: NET GHG EMISSIONS FROM ALLIANCE STATES

Million metric tons CO2e

Gas	Sector	2005	2015			2025
Carbon Dioxide	Transportation	584	518	486	to	482
	Electric power	367	257	173	to	196
	Buildings	211	204	205	to	201
	Industrial	171	155	175	to	172
	Other	74	65	67	to	69
	Total	**1,408**	**1,198**	**1,106**	**to**	**1,119**
Methane		**149**	**141**	**137**	**to**	**133**
Nitrous Oxide		**59**	**53**	**55**		
F-Gases		**42**	**64**	**32**		
Total	**Gross GHG emissions**	**1,659**	**1,456**	**1,330**	**to**	**1,339**
	LULUCF sequestration	-260	-270	-343	to	-273
	Net GHG emissions	**1,398**	**1,182**	**987**	**to**	**1,066**
	Change from 2005	0%	-15%	-24%	to	-29%

Source: Rhodium Group. Note: CO2 emissions for all sectors except "other" reflect emissions from fossil fuel combustion only. "Fossil fuel systems" includes non-combustion emissions from the production, transportation and distribution of fossil fuels. 2025 values reflect the low (left) and high (right) bounding cases of RHG's scenario analysis.

1 Based on 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 http://www.dsireusa.org/resources/detailed-summary-maps/

3 Rhodium Group analysis based on https://www.eia.gov/electricity/annual/

4 https://www.eia.gov/electricity/annual/ and https://www.seia.org/solar-industry-data

5 Rhodium Group analysis based on https://www.usgbc.org/advocacy/state-market-brief

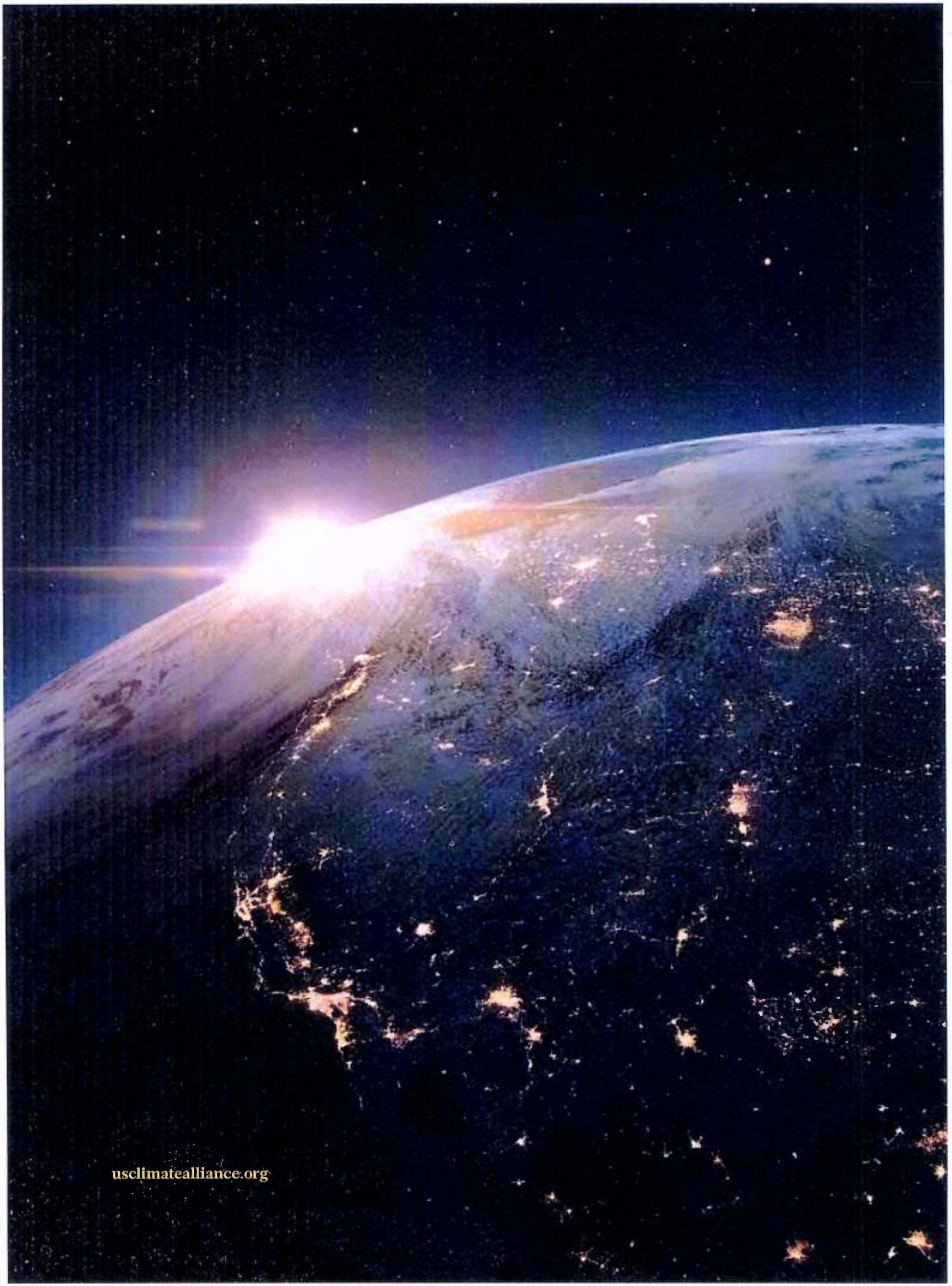
6 http://database.aceee.org/state-scorecard-rank

7 Rhodium Group analysis based on http://database.aceee.org/state-scorecard-rank

8 Rhodium Group analysis based on http://database.aceee.org/state-scorecard-rank

9 https://autoalliance.org/energy-environment/zev-sales-dashboard/

10 Rhodium Group analysis.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