AMERICA IS ALL IN

An All-In climate strategy can cut U.S. emissions by 50% by 2030

Working Paper: An All-In climate strategy can cut U.S. emissions by 50% by 2030

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Key Messages:

- **Updated analysis shows that comprehensive all-of society strategy for action on climate change can deliver U.S. GHG emissions reductions of 50% below 2005 levels by 2030.** This effort would be based on actions from the federal government, cities, states, businesses, and others, across all sectors and greenhouse gases, and would put the U.S. on a trajectory consistent with limiting global warming to 1.5°C.

- The electricity and transportation sectors are the biggest contributors to overall reductions by 2030—representing 80% of all reductions. Actions in other sectors are essential to achieve high levels of action by 2030 and to set up a longer-term pathway toward a net zero 2050 target.

- This analysis focuses on the integration of subnational actions into an overall U.S. national climate strategy. Over the last four years, a broad subnational coalition has sustained climate progress in the United States, providing a strong foundation for achieving high ambition goals with action from the Biden administration and Congress. Combining new federal action with continued and expanded non-federal action across the country can support more robust long-term outcomes.

With other key countries stepping up and ambitious U.S. action now within reach, 2021 can be a year of global action to address the climate crisis. Countries around the world are now re-evaluating their national climate strategies toward reaching scientifically informed global goals under the Paris Agreement. Actors from all of society are also stepping up to advance climate action. States, cities, and regions are scoping new opportunities for climate action and delivering on a burgeoning suite of existing climate commitments to support new jobs and the transformation of their economies. Businesses and investors are offering new commitments for net zero targets, climate finance, and reducing climate risks. Recent developments across all of these areas could support a transformational step toward getting the world on a trajectory to limit warming to 1.5°C.

In this context, a global effort on the scale necessary to achieve this goal is now within reach—and our shared global success in this effort will also depend on strong action from the United States. A comprehensive, ambitious, and robust U.S. climate strategy can both deliver a transformed, cleaner and healthier United States as well as support enhanced global action to solve the climate crisis. The foundation for ambitious U.S. climate action has already been laid through the actions and commitments of a broad and robust coalition of non-federal climate actors.[1] States, cities, businesses, investors, tribal groups, communities of faith, cultural institutions, universities, and many more—representing nearly 70% of U.S. GDP and equivalent to the world's second largest economy—have delivered a wave of new and increasingly ambitious policies and long-term commitments. These actors are geographically diverse and bipartisan. And they reflect a growing interest in driving forward toward a clean and healthy economy in ways that reflect the support of their constituents and members and are targeted to deliver real and immediate benefits for jobs, economic growth, and wellbeing—and in doing so, also help contribute to an overall reduction in U.S. emissions.

With the election of climate friendly leadership in the Executive Branch and Congress, the U.S. federal government is now stepping up to embrace an all-of-government approach to climate action, and to layer a set of new federally driven policies on top of those already in place due to subnational actions. The *America Is All In* coalition has demonstrated effective climate actions among its members, built broad-based support for ambitious climate policies, and offers the ability to accelerate and bolster the efforts of the federal government. A comprehensive strategy that links actions across all actors offers a number of enhancements to a simple federally driven strategy:

- Bottom-up action has already raised—and can continue to boost—the overall level of deployment of clean technologies and enhanced land sector strategies, thereby providing a stepped-up basis for additional federal action.

- Actions taken in diverse jurisdictions provide solutions that are politically rooted with home-grown strategies and responsive to the concerns and needs of local and state communities.

- Policy levers differ across levels of government and organization type, allowing for complementary actions that are mutually reinforcing. For example, federal actions might advance tax credits for EVs, state actions might support expanding EV charging infrastructure, and local actions could expand EV fleet utilization.

- Over time, different jurisdictions, businesses, organizations, and the federal government will likely be in positions to advance policy at different moments. A diversified strategy that roots policies across these elements can support a more consistent long-term strategy that could also be more durable through election cycles and shifting political winds.

These enhancements from an All In strategy argue strongly for integrating across actors and in doing so, can expand opportunities and raise confidence in an ambitious U.S. climate target. Building on the methodology developed over recent years,[2,3,4,5] we evaluated what an integrated, "all in" strategy could deliver for U.S. emissions reductions. In this analysis, we updated from earlier assessments[6] a number of assumptions and key policies with significant impacts on overall emissions trajectories, and also refreshed our input assumptions based on new economic growth trajectories, the impact of COVID, and new information on technology costs and projections of fossil fuel prices. Modeling strategy, assumptions, and policies assessed are described below and in the online technical appendix available at **https://www.americaisallin.com/reports-news/**. **This analysis shows that a comprehensive, "all in" national climate strategy, led by the federal government in full partnership with leaders across all levels of government and all of society, can deliver U.S. emissions reductions of 50% by 2030, relative to 2005 levels.**
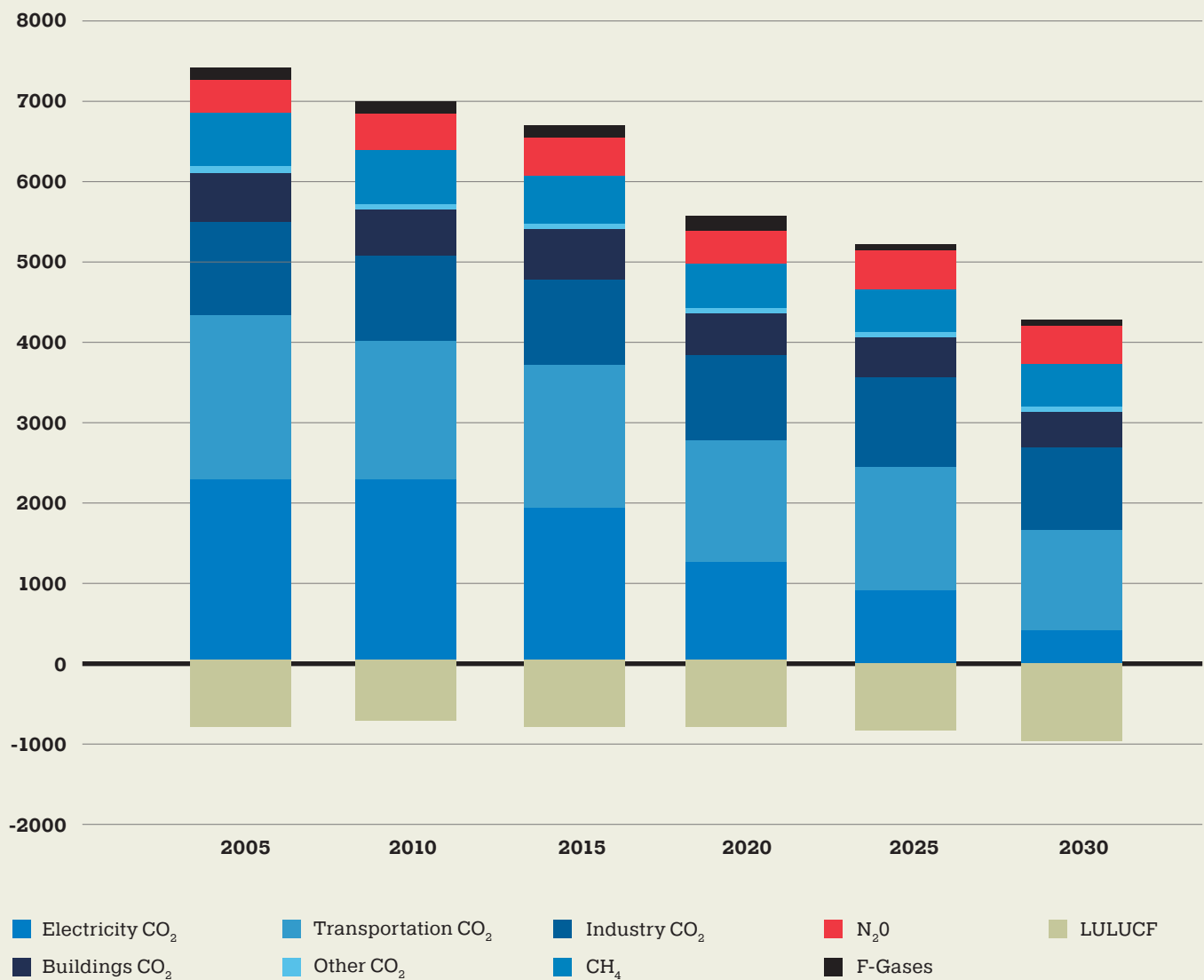
Figure 1: U.S. Greenhouse Gas Emissions to 2030

Legend: Electricity CO_2, Transportation CO_2, Industry CO_2, N_2O, LULUCF, Buildings CO_2, Other CO_2, CH_4, F-Gases

Table: Summary of Key Policies included in All-In Analysis

Policy	Non-Federal 2030 Assumptions	Federal 2030 Assumptions*
Clean Electricity Generation	Leading states achieve 60% renewable generation by 2030. States prevent some at-risk nuclear plants from retiring.	Federal clean electricity standard and tax incentives drive clean electricity generation to 77% by 2030, with renewables at 49%, nuclear at 17%, gas with ccs at 11%.
Fossil Fuel Generation	Significant coal generation is phased out except in regions with uncompetitive markets. Leading states constrain new gas plant builds, transitioning to cost-effective, clean new generation sources.	Additional federal policies result in near-complete phaseout of coal generation by 2030 and cause gas generation to peak by 2025 and then decline.
Transportation	Leading states implement zero-emissions vehicle mandates and incentives, with EVs (BEVs + PHEVs) reaching approximately 60% of light-duty vehicle sales and 15% of heavy-duty vehicle sales in 2030. LDV fuel economy standards are achieved through 2025 consistent with the California compromise. Leading states also set ambitious new vehicle standards post-2026, improving internal combustion engine efficiency by 4% annually.	Federal incentives and standards drive EVs to over 60% of light-duty vehicle sales, 100% of bus sales, and 15% of heavy-duty vehicle sales in 2030 nationwide. The federal government reinstates the current LDV standards through 2025 and improves internal combustion engine efficiency 4% annually from 2026-2030. Furthermore, the federal government incentivizes the removal of old and inefficient vehicles from the road.
Buildings	In leading states, policies are in place to ensure that appliances in new buildings and almost all replacements of appliances in existing buildings are electrified from 2030 onward. Leading states also enhance EERS policies, achieving 2% annual energy savings in commercial and residential buildings.	Due to new federal standards and policies all new buildings are 100% electrified and replacement appliances from 2030 onward are electrified. Federal financing for residential and commerical retrofits accelerates. All states achieve further levels of energy savings where economic with the assistance of federal funding.
Non-CO2 super pollutants	Leading states adopt comprehensive regulations covering new and existing sources, reducing fugitive methane emissions from oil and gas facilities by 60%. Leading states adopt comprehensive SNAP, RMP and other policies to rapidly phase down HFC usage and emissions.	Federal methane rules are reinstated and strengthened to cover new and existing sources. Fugitive methane emissions from oil and gas facilities are reduced by 60% nationwide. Federal actions including SNAP policies and Kigali phasedown implementation allow for comprehensive reduction in HFC usage and emissions nationwide.
Industry	Leading states incentivize industrial facilities to adopt best-in-class energy management practices and adopt electrified technology. States also promote CCUS for industrial uses and adopt standards targeting cement emissions.	Federal incentives lead all industrial facilities nationwide to adopt best-in-class energy management practices, and federal investments increase adoption of electrified technology. Federal policies and incentives promote adoption of CCUS.
Land Use	Leading states incentivize low-cost natural climate solutions such as natural forest management, optimal nutrient application, and the use of cover crops. All states mitigate agricultural methane and nitrous oxide emissions where it is cost effective.	Federal investments and incentives promote low-cost natural climate solutions nationwide. Strong federal incentives promote methane biodigesters to reduce methane from livestock.
Emissions Caps	RGGI states achieve mandated power sector emissions reductions through 2030. Leading states meet their legislated economy-wide emissions reduction mandates and partially meet their aspirational goals.	Additional states fully meet their aspirational economy-wide emissions reduction goals with the help of federal investment and support.

*This table provides a summary of policy assumptions including in the analysis. Full details on policies and climate actions evaluated, including those on smaller scales at the city and business level, can be found in the accompanying technical appendix.
**Unless stated otherwise, federal policy assumptions are layered on top of (and therefore are inclusive of) all non-federal policy assumptions.

Reducing emissions by 50% will require mitigation across all sectors of the economy, spurred by policies and actions across all actors and levels of government. Our analysis focuses on ambitious federal incentives and mandates, backstopped and reinforced by leading non-federal actors, that together yield a robust decarbonization pathway to 2030. Notably, electricity generation and transportation stand out as particularly important in the period to 2030:

- Electricity sector reductions alone account for over half of the net economy-wide reductions relative to 2005 (a 31% reduction, compared to our overall estimate of 50%). U.S. climate ambition by 2030 hinges fundamentally on the ability to rapidly shift to zero-emissions electricity generation. This includes robust clean electricity standards at the state and federal level, eliminating coal-fired electricity generation without carbon dioxide capture and storage (CCS) by 2030, and significantly reducing gas-fired electricity.

- The transportation sector, now the largest emitting sector in the U.S., is also critical to 2030 ambition. In this analysis, transportation emissions reductions amount to nearly one-fifth of the total reductions in 2030 (a 9% reduction, compared to our overall estimate of 50%). A combination of enhanced GHG performance standards on light- and heavy-duty vehicles, tax credits for electric vehicle (EV) purchases, sales mandates implemented at the state or federal level, and cash-for-clunker incentives to remove old and inefficient vehicles from the road could ensure the transition to electric vehicles, deliver major reductions in transportation emissions by 2030 and pave the way for deeper reductions beyond 2030.

Actions across other sectors, while they do not deliver as much as electricity and transportation in absolute reductions to 2030, are nevertheless essential to achieve high levels of reduction by 2030 and to set the stage for deeper reductions after 2030 on a pathway to net zero in 2050. For example, energy-sector actions to electrify buildings, improve building energy efficiency, and scale electrification and CCS in industry will lead to reductions by 2030 and will be important to set the stage for additional reductions beyond 2030. Actions in non-CO2 gases also can deliver near-term and, in some cases, low-cost reductions, such as strong standards on oil and gas methane, actions to reduce nitrous oxide from agricultural production, and phasing out production and consumption of hydrofluorocarbons (HFCs). Finally, substantial new investment in protecting and building the U.S. land-sector sink is critical for both the 2030 period and beyond. In this analysis, this investment not only avoids the projected degradation in the land-sector, but it also enhances the sink to absorb 940 MMT of carbon dioxide by 2030.

Our results are based on the latest available data for key driving forces such as technological change, oil and gas prices, economic growth and the speed of recovery from COVID-19, and the carbon uptake of natural and working lands. However, there are large sources of uncertainties embedded in these assumptions. We conducted a sensitivity analysis surrounding population and GDP growth, oil and gas price levels, emissions related to natural and working lands. Details about the assumptions in the high and low emissions scenarios can be found in the **Technical Appendix**.

Our analysis demonstrates that an all-in, all-of-society approach to climate action in the United States can deliver emissions reductions of 50% by 2030, relative to 2005 levels. Furthermore, this and other analyses have shown the tremendous strength and potential benefits to long-term implementation and robustness by building climate action in the U.S. across all actors. As the U.S. develops such a strategy and communicates its potential impact as part of its upcoming Nationally Determined Contribution (NDC) taking this all-in, all-of-society approach to heart can deliver an ambitious and robust emissions target.

This updated analysis was carried out using the assessment methodology and overall policy framework developed in earlier America's Pledge analyses. The analysis uses a version of the GCAM modeling platform, GCAM-AP, combined with a subnational data aggregation methodology. It includes updated assumptions and policies for the largest emitting sectors. Additional detail is available in the online **Technical Appendix**. The analysis was conducted by the America Is All In analytical team, based at the University of Maryland, World Resources Institute, and Rocky Mountain Institute, in partnership with the broader All In members and coalition.

Endnotes:

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