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U.S. Clean Energy Policy Rollbacks

The Economic and Public Health Impacts Across States

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Summary of Findings

- **Federal clean energy policy rollbacks in the United States will lead to substantial economic and health damages across the country, with some severe state and local impacts, resulting in a $206 increase in average home energy costs in 2035, as well as an additional 22,800 deaths of Americans, a $1.1 trillion reduction in U.S. GDP, and a $160 billion income loss cumulatively over the next decade.** These rollbacks will also limit the rate of reduction of economy-wide greenhouse gas (GHG) emissions.
- While people and local economies in all states are affected, some states and regions experience greater impact in economic and health activity due to federal rollbacks. Texas, Florida, West Virginia, North Dakota, Pennsylvania, Michigan, Indiana, Ohio, Kentucky, Virginia, Maryland, Montana, and Alaska are among the states that experience high levels of negative impact.
- This analysis advances a state-of-the-art approach to assess the broad societal impacts of federal clean energy policy rollbacks across specific geographic regions in the United States. It does this by coupling an open-source global integrated assessment model with 50-state resolution in the U.S. with an air quality and health impact assessment model and an Input-Output model of the economy.
- This study finds that a full reversal of major current federal clean energy policies would lead to increased costs for Americans, with average home energy expenditures rising by $206 in 2035.
- The economic impacts of federal clean energy rollbacks also include a $194 billion loss in GDP and a $26 billion loss in disposable income relative to current policies in 2035.
    - States like Texas, Michigan, Indiana, and Montana experience the largest economic impacts, with $5.3 – $8.8 billion in GDP losses.
    - The largest percentage reductions are found in Alaska, Wyoming, Vermont, and Montana, which see GDP losses of 4.5% – 5.3%.
- Federal clean energy rollbacks would also substantially worsen air quality and health damages, resulting in nearly 10% higher annual PM2.5 concentration and 3,100 additional deaths annually compared to current policies in 2035.
    - Substantial increases in PM2.5, SO_2 and NO_x emissions are found in the power, buildings, and industrial sectors.
    - Increases in pollution and health damages are found in every state, but are unevenly distributed. The largest percentage increases are found in West Virginia (14%), North Dakota (13%), Pennsylvania (10%), Virginia (9%), Maryland (9%), Ohio (9%), and Kentucky (9%).

- Relative to current policies, the full rollback scenario would see the national share of renewable electricity drop from 51% to 46%, and new passenger electric vehicle (EV) sales shares fall from 66% to 42% in 2035. Methane emissions would increase by 5% relative to 2020 levels, compared to a 15% reduction under current policies. The full rollback scenario would also lead to lower electricity demand with 10% higher electricity rates.
- This study investigates the impact of maximum reversal of federal policies with consistent levels of clean energy policy from subnational actors such as states, cities, businesses, counties, tribal governments, and others. **However, levels of subnational action could also change as a result of national or global policy and economic factors. Notably, opportunities for enhanced subnational action on clean energy exist, and expanding this action can make up for some of the rollbacks at the federal level.**
- In addition, this study reviews examples of federal clean energy policy implementation across the United States. Widespread economic and health benefits are delivered to states, cities, businesses, healthcare facilities, public schools, and more through abandoned mine remediation, EV battery plant installations, clean energy upgrades for old buildings, brownfield transformations, and more.

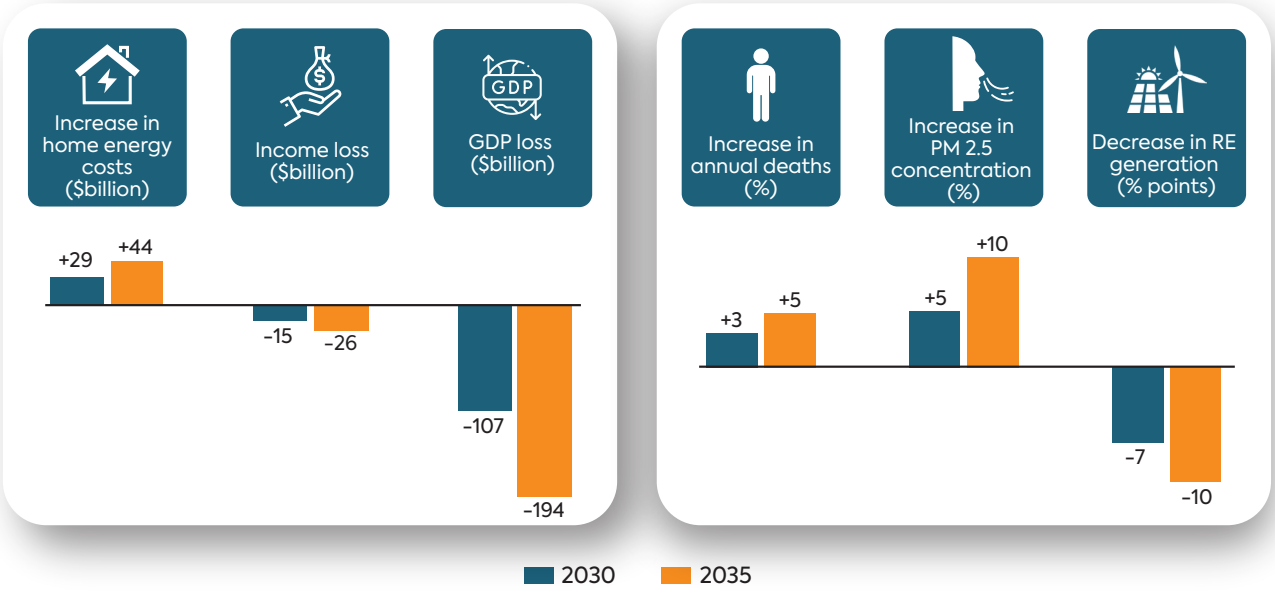


Fig 1. Comprehensive impacts of federal clean energy rollbacks across the economy, human health, and the energy system. Changes under *Federal Rollbacks* relative to *Current Policies* are evaluated across metrics in 2030 and 2035.

Introduction

Federal Clean Energy Policy Reversals Pose Risks to the U.S. Economy and the Health of Americans

Since taking office in January 2025, President Donald Trump has initiated a wide-ranging set of actions to reverse existing laws, regulations, policies, and other measures that were designed to generate investments in clean infrastructure, support the U.S. economy through new technologies and manufacturing, and protect the health of Americans through cleaner air. These actions include numerous Executive Orders to redefine U.S. energy goals,[1] prop up an unprofitable coal industry,[2,3] interfere with state clean energy policies,[4] and phase out landmark energy and environmental laws.[5] Under the administration's direction, federal agencies have moved to stop or rescind implementation of U.S. laws through regulatory and other actions and by canceling and freezing funding for states and businesses that is obligated to be issued under U.S. legislation (see details in Box 1). The President has also weakened the U.S.'s ability to influence other countries in their pollution reduction efforts through international diplomacy by withdrawing from the Paris Agreement.

Box 1. The status of federal clean energy policy reversals

Rolling back regulations: The U.S. Environmental Protection Agency (EPA) announced that the agency will reconsider or terminate 31 regulations[6], including:

- Power plant emissions regulations
- Vehicle fuel efficiency standards
- Oil and gas methane standards
- The technology transition rule within the AIM Act, which limits hydrofluorocarbon use

The EPA has also announced they will take action to reconsider the endangerment finding (which provides the legal basis for regulating greenhouse gases (GHGs)), overhaul use of the social cost of carbon, weaken GHG reporting requirements, and terminate environmental justice offices and resources.[6]

Canceling and freezing federal funding: Additionally, the administration has acted to cancel or freeze congressionally appropriated Inflation Reduction Act (IRA) and Bipartisan Infrastructure Law (BIL) funding, operating in defiance of court orders in some cases.[7] These projects include:

- $20 billion in Greenhouse Gas Reduction Funds[8]
- Grants for electric school buses[9]
- Department of Energy projects on carbon capture and hydrogen hubs, and industrial demonstrations[10]
- $3 billion in unspent funds allocated to the National Electric Vehicle Formula Program (NEVI)[11] to build out EV infrastructure across the country

Blocking state clean energy policies: Federal Executive Orders, Congressional Review Act (CRA) resolutions, and agency actions have also posed threats to state-led initiatives.

- The Department of Justice sued New York and Vermont for its climate superfund laws, and Hawaii and Michigan for attempting to sue fossil fuel companies for damages.[12]
- In May 2025, the Senate voted to revoke California's emissions waivers under the CRA, defying guidance from both the Government Accountability Office and Senate Parliamentarian.[13] Though California plans to challenge the revocation, this action poses a long-term threat to state-led transportation mitigation, as policies revoked under the CRA cannot be reintroduced in a substantially similar form.
- In Michigan and Pennsylvania, the Department of Energy ordered that two fossil-powered plants continue operating despite state and grid operator plans for retirement, citing energy security risks.[14]

Existing structures, funding, and tax credits from the Inflation Reduction Act (IRA) are at risk of being repealed by Congress. The historic law, which was passed in 2022, provides billions of dollars to the U.S. economy and includes funding for American businesses, jobs, and new manufacturing centers in the areas of clean energy technologies, energy efficiency, methane mitigation, and more. Since its enactment, the IRA has spurred $321 billion in private sector clean energy investments.[15] Its household tax credit program has surpassed expectations, with 3.4 million households having invested $8 billion in clean energy technologies, including rooftop solar and heat pumps, in 2023.[16]

Congress is currently in the midst of developing and passing a budget reconciliation bill to support objectives set by the Trump administration, including massive cuts to the IRA. On May 22, 2025, the House of Representatives passed H.R. 1, a reconciliation package that, if passed by the Senate, would constitute a near-total repeal of the IRA.[17] The reconciliation bill terminates most transportation tax credits at the end of 2025. In the buildings sector, the New Energy Efficiency Home Credit, Residential Clean Energy Credit, and Energy Efficiency Home Improvement Credit all expire at the end of 2025. With the exception of nuclear, production and investment tax credits for electricity generation would functionally expire upon passage of the bill, given strict construction timelines and supply chain restrictions.

However, given the distribution of IRA investments across the country, with 77% of investments flowing to Republican-led districts,[18] reaching consensus on a full repeal may prove difficult.[19] Notably, 21 House Republicans signed onto a letter sent to the Ways and Means Committee discouraging unilateral cuts to IRA tax credits,[20] with 14 sending an additional letter encouraging the Committee to maintain IRA provisions including transferability and less stringent phaseout schedules.[21] Four Republican Senators have also opposed total repeal.[22]

In parallel with the clean energy policy rollbacks, the United States also faces high levels of economic uncertainty, which has additional implications for clean energy development in the country. In April 2025, the Trump administration imposed a flat 10% tariff on all U.S. imports and "reciprocal" tariffs on imports from around 90 countries, including those that

export critical clean energy technology components.[23] A 145% tariff was imposed on Chinese imports before the administration temporarily lowered it to 30% for 90 days on May 12th, while the two countries continue negotiations.[24] The administration has also implemented tariffs directly on clean energy manufacturing, including up to 3,521% on solar panel imports from four Southeast Asian countries.[25]

These tariffs are expected to drive up the cost of clean energy technologies and stall U.S. energy development at a time when the demand for affordable, reliable electricity continues to grow.[26] Repealing the IRA and other federal clean energy policies designed to support domestic clean energy production would further exacerbate these effects. The IRA includes many provisions to reduce U.S. foreign energy dependence, including the Advanced Manufacturing Production Credit, which has a domestic content requirement, as well as domestic content bonus credits that increase the value of existing tax credits for projects with domestically produced components.[27] With key IRA provisions at risk of being repealed along with looming tariffs, clean energy technology companies and developers have already canceled nearly $8 billion worth of clean energy investments, mainly factories.[28]

Box 2. The impacts of federal clean energy rollbacks so far

Communities and economies across the United States are already experiencing the impact of federal clean energy policy rollbacks.

Manufacturing: Amidst policy and tax credit uncertainty, manufacturers have closed or downsized almost $8 billion worth of clean energy projects in the first three months of 2025.[29] The loss of investment comes from 16 cancelled or downsized projects in states such as Arizona, Georgia, and South Carolina.[30,31,32]

Jobs: A tracker designed by Climate Power indicates that more than 42,000 clean energy jobs have already been put on hold or lost due to federal rollbacks.[33] Job loss has increased as planned energy projects, such as the Vineyard Offshore wind farm in Massachusetts, have been put on hold as a result of various White House actions, and as significant budget and workforce cuts have been made to relevant federal agencies.[34]

Community Programs: Cities, businesses, and nonprofit organizations have paused efforts to make communities more resilient as they await the release of a $20 billion investment from the Greenhouse Gas Reduction Fund. Impacted projects range from homeowner loans for solar panels in New Mexico to the development of affordable, energy efficient housing units in Texas to proposed programs to help drivers finance the purchase of EVs.[35] Hundreds of other programs and projects that benefit local communities, including the EPA's Clean School Bus Program and grants for community reforestation, also remain in flux.[9,36]

An Innovative Method to Evaluate the Broader Impacts of *Federal Rollbacks*

Federal clean energy policies, including the IRA, BIL, and EPA regulations, are key mechanisms for driving the U.S. clean energy transition, enhancing U.S. energy security, and keeping the U.S. on track toward its near and long-term climate commitments under the Paris Agreement.[37,38,39] Previous CGS studies have found that rolling back these federal policies would have significant implications for future GHG emissions and the clean energy transition.[40,41]

Beyond GHG emissions and clean energy, federal policy rollbacks can also have broad impacts on human health and the economy. Efforts to shift away from fossil fuels and improve energy efficiency can reduce air pollutants and therefore improve air quality. For example, the IRA is expected to improve respiratory health, reduce loss in working days, and reduce mortality from poor air quality.[42,43,44,45] Further, federal clean energy policies can reduce economic costs for Americans by lowering household energy bills and other expenditures and creating clean energy jobs.[45,46,47,48]

Building on CGS's previous analyses,[40,41] this study examines the impacts of federal clean energy policy rollbacks on the economy and human health and explores the distribution of these impacts across states through an innovative, integrated approach. In a close collaborative effort with research teams at Princeton University and the University of Maryland Geographical Sciences Department, this approach combines 1) a field-leading, integrated assessment model (IAM) with 50-state resolution in the United States, 2) an air quality and health impacts model to simulate air pollutant concentration and quantify health damages, and 3) an input-output model to perform economic impact analysis across 50 states.

This report uses two distinct scenarios from previous CGS analyses to represent the impacts of potential federal policy rollbacks.

- The *Current Policies* scenario includes key, on-the-books clean energy policies at the federal and non-federal levels (as of December 2024). These include provisions in the IRA and BIL, EPA regulations on fossil fuel power plants and tailpipe emissions, and state-level policies such as renewable portfolio standards, zero-emission vehicle mandates, and building efficiency standards.
- The *Federal Rollbacks* scenario assumes a complete repeal of federal clean energy legislation and regulations after 2025, but maintains the state-level policies under *Current Policies*. A repeal of California's emissions waivers was not modeled in this scenario.

These scenarios are first developed in the IAM to assess energy system and emissions impacts. The outputs from the IAM are then fed into the air quality and health impacts model and the input-output model to estimate the health and economic impacts associated with these scenarios. Note that the estimated economic impacts do not feed back into the energy system.

In addition to modeling the impacts of federal clean energy rollbacks, this study reviews concrete examples of federal clean energy policy implementation in the section *The Widespread Benefits of Federal Clean Energy Policies Across States*. This section showcases the economic and health benefits that have already been delivered to states, cities, businesses, healthcare facilities, public schools and more through abandoned mine remediation, EV battery plant installations, clean energy upgrades for old buildings, brownfield transformations, and more.

Economic Impacts

Through its impacts on the clean energy value chain, the reversal of federal clean energy policies also alters the economy at various levels. Gross Domestic Product (GDP) is a key indicator used in this study to evaluate macroeconomic activity. GDP can comprehensively reflect the impacts on overall economic output as well as the ripple effects throughout the industrial value chain.[49] Household income and energy costs serve as additional metrics to evaluate macroeconomic changes and individual welfare.[50]

This section comprehensively assesses the overall impacts of the energy transition on GDP and household income across multiple dimensions and regions through modeling inter-regional industrial linkages and trade flow characteristics using an Input-Output model. This approach assesses the macroeconomic impacts of the energy system transition on the supply side, including indirect impacts through the supply chain and induced impacts through income change. However, it does not cover the impacts associated with transitions occurring in the end-use sectors on the demand side, including EV battery manufacturing, and thus likely underestimates the overall economic effects under federal clean energy policy rollbacks.

National impacts on GDP and household income

Federal clean energy policy rollbacks would worsen national economic output and household welfare. Compared with *Current Policies*, the *Federal Rollbacks* scenario leads to an estimated GDP loss of $194 billion and a disposable income reduction of $26 billion in 2035. The impact of these rollbacks on the U.S. economy becomes even more pronounced over the ten-year period between 2025 and 2035, with an estimated GDP loss of $1.1 trillion and a reduction in household income of nearly $160 billion.

Under *Federal Rollbacks*, the repeal of federal clean energy tax credits and subsidies increases financing costs and extends construction timelines for clean energy projects, thereby weakening the investment-driven ripple effects on upstream equipment manufacturing and downstream construction services.[51,52] At the same time, there is increased demand for fossil fuels under this scenario, which dampens, but does not offset, the negative spillover effects of the clean energy industry on GDP and income.[53]

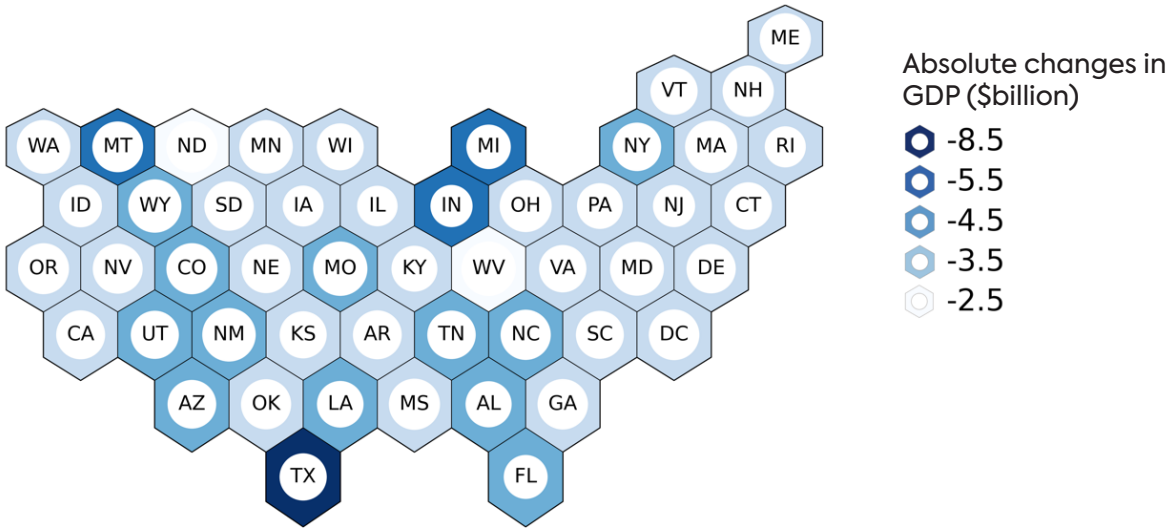
State-level impacts

All states see losses in GDP under *Federal Rollbacks* in 2035, though impacts vary across states (Figure 2). In terms of absolute GDP change, states like Texas, Michigan, Indiana, and Montana experience worse economic impacts than other states, with $5.3 billion – $8.8 billion in GDP losses (Figure 2a). However, in terms of percentage change relative to current policies, economic impact is particularly severe in Alaska, Wyoming, Montana, and Vermont, with GDP losses of 4.5% – 5.3% (Figure 2b).

The uneven distribution of economic impacts across states and regions is due to a combination of regional characteristics, including the size of the economy, level of reliance on fossil fuels, projected shift toward renewable resources, and interstate trade flows.

Without federal support for clean energy projects, state governments lose important incentives for generating clean energy and manufacturing clean energy technologies, and in some instances, rely more heavily on imports from other states to meet their growing energy demand. While some exporting states could benefit from these dynamics, all states are still worse off overall under federal rollbacks, with reductions in GDP and income across the board.

a. Absolute changes in GDP under *Federal Rollbacks*



b. Relative changes in GDP under *Federal Rollbacks*

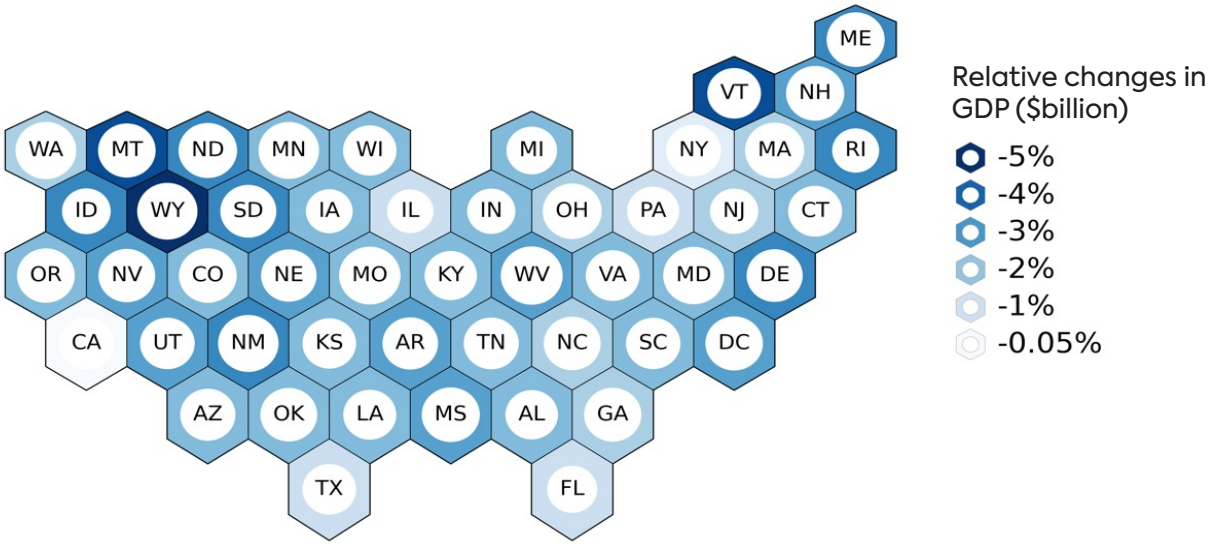


Fig 2. Changes in state-level GDP in 2035 under *Federal Rollbacks* relative to *Current Policies*. Panel a) shows absolute changes in GDP, in units of billion dollars. Panel b) shows relative changes in GDP, in units of percent change.

Impacts on household energy costs

Energy shifts under federal clean energy policy rollbacks would also lead to higher energy expenditures for households. Repealing federal policies that promote low-cost clean energy and energy efficiency, such as the IRA High Efficient Home Rebate Program and the Energy Efficient Home Improvement Credit, would increase average annual home energy costs, including energy bills, household appliance purchases, and appliance maintenance costs, by $206 per year in 2035 under *Federal Rollbacks* relative to *Current Policies*. The magnitude of this cost differential varies by state, with additional costs rising to $339 per year in some states in 2035. Note that these numbers do not include costs associated with transportation.

In this analysis, income levels are not considered in the energy cost calculations. However it will be important to account for households that may not be able to afford these services altogether and are faced with energy service cancellations. The Low Income Home Energy Assistance Program is a federally funded program designed to make energy costs more affordable for low-income households, though the future of this program is in jeopardy due to recent funding cuts.[21] Energy Star, an EPA program designed to help consumers identify energy-efficient home appliances and one that has helped consumers save more than $500 billion in energy costs since its inception in 1992, is also slated to be eliminated.[54]

Health Impacts

Air pollution remains a serious public health threat in the United States, even after decades of progress driven by environmental regulations and a gradual decline in coal use. Ambient fine particulate matter (PM2.5) is one of the most harmful air pollutants. While some PM2.5 are directly emitted, NO_x and SO_2 are primarily released through the combustion of fossil fuels and are major contributors to the formation of secondary PM2.5 in the air.

Exposure to ambient PM2.5 is strongly associated with a range of adverse health outcomes, including cardiovascular and respiratory diseases, stroke, and premature death.[55] Current estimates suggest that ambient PM2.5 exposure leads to 100,000-200,000 early deaths annually in the U.S.[56,57] These health burdens are not evenly distributed, with low-income populations and communities of color disproportionately affected due to their greater likelihood of living near pollution sources.[58,59]

Different economic sectors contribute to air pollution in varying degrees. The industry sector is the leading source of SO_2, NO_x, and PM2.5 emissions, largely due to activities such as oil refining, cement production, and other fossil-heavy processes. The power sector also contributes significantly to SO_2 and NO_x emissions due to coal, and to a lesser extent, natural gas combustion. The transportation sector remains a major NO_x emitter due to gasoline combustion, while the residential and commercial sector contributes notably to PM2.5 emissions due to the burning of biomass for heating. These pollutants are precursors to ambient PM2.5 which is strongly associated with premature deaths every year.[60] Addressing sector-specific sources remains critical to reducing the health burden of air pollution.[61,62]

Federal clean energy policies that reduce dependence on fossil fuel uses are able to mitigate GHG emissions and air pollution simultaneously. Therefore, rolling back federal clean energy

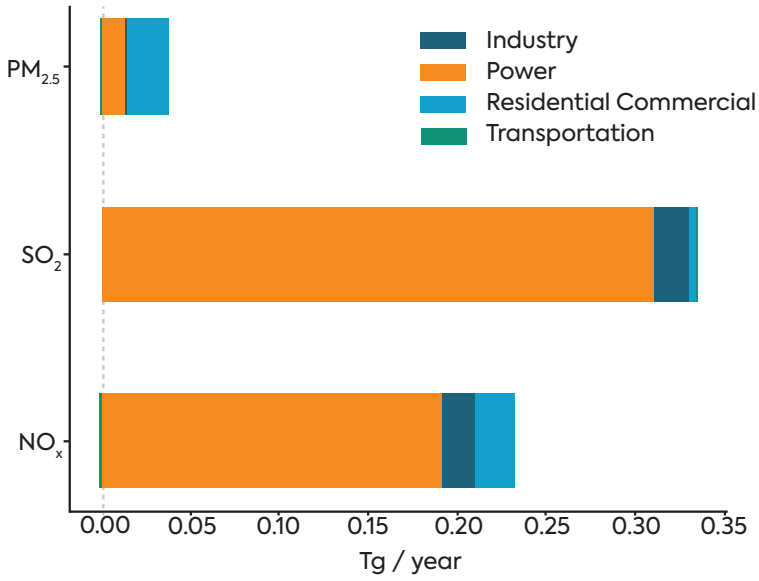
policies is expected to elevate the pollution level and the associated health damages. In this section, we compare the air pollution and health impacts of the *Current Policies* and *Federal Rollbacks* scenarios in 2035.

National air quality and health impacts

The *Federal Rollbacks* scenario is expected to worsen air quality and health damages compared to the *Current Policies* scenario. In 2035, 64,400 premature deaths attributable to the exposure to ambient PM2.5 are estimated under the *Current Policies* scenario. These deaths are expected to increase by 3,100 (5%) under the *Federal Rollbacks* scenario (Figure 3b). Additional deaths that result from federal clean energy policy rollbacks total 22,800 over the next decade, providing evidence of the pollution and health damages that may worsen under such policy change.

Repealing federal clean energy policies would have uneven impacts across sectors and air pollutants. Substantial increases in SO_2 and NO_x emissions are found in the power sector (250% and 140%, respectively) under *Federal Rollbacks* compared to *Current Policies*, as the rollbacks delay renewable energy deployment and enable continued coal power generation. Meanwhile, NO_x, SO_2, and PM2.5 emissions from the industrial and buildings sectors are expected to increase by 2% - 7% under *Federal Rollbacks* due to slower improvements in energy efficiency and end-use electrification without federal support (Figure 3a). Limited impacts are found in the transportation sector, as existing state-level zero-emission vehicle (ZEV) programs are expected to continue accelerating on-road electrification and mitigating the associated air pollutant emissions.

a. Change in air pollutant emissions under *Federal Rollbacks* in 2035



b. National PM2.5-attributable deaths in 2035

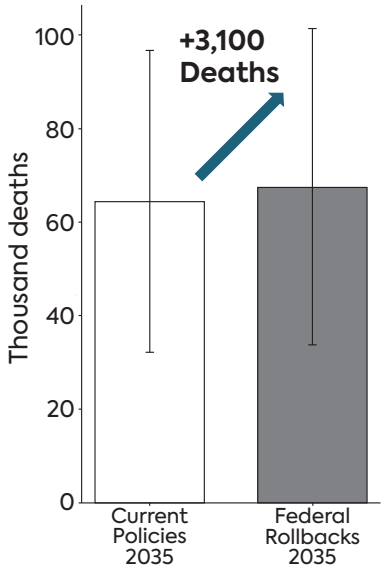
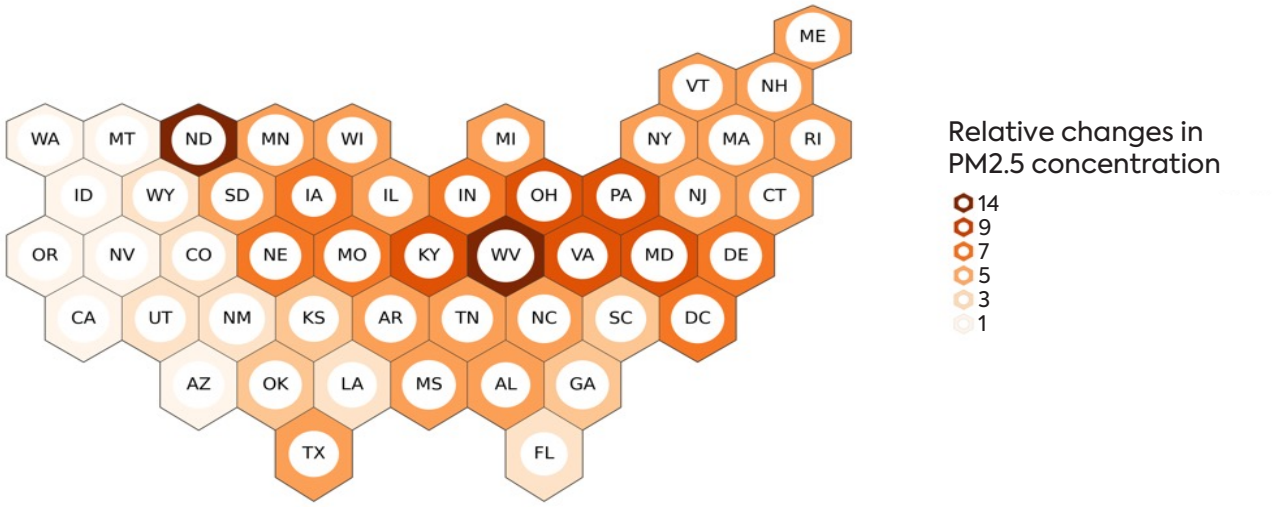


Fig 3. Changes in national air pollutant emissions and health damages in 2035. Panel a) depicts changes in annual PM2.5 ,SO_2, and NO_x emissions in *Federal Rollbacks* relative to *Current Policies* in 2035. The x-axis shows the absolute increase in emissions (in millions of tons per year). Panel b) shows the national premature deaths attributable to PM2.5 exposure in 2035. The error bars correspond to 95% confidence intervals of the relative risk functions used to estimate the health impacts.[63]

State-level distribution of air quality and health impacts

Increases in pollution and deaths are found in every state under federal clean energy policy rollbacks, though the impacts are unevenly distributed across states (Figure 4). State variations in pollution levels, combined with local socio-demographic patterns, contribute to large variations in deaths. The largest percentage increases are in West Virginia (14%), North Dakota (13%), Pennsylvania (10%), Virginia (9%), Maryland (9%), Ohio (9%), and Kentucky (9%) (Figure 4b). Since the population size and baseline mortality rates are held constant across both scenarios, the differences in PM2.5-attributable deaths are driven solely by changes in ambient PM2.5 concentrations and their impact on mortality rates.

a. Relative changes in PM2.5 concentration under *Federal Rollbacks*



b. Relative changes in PM2.5 – attributable deaths under *Federal Rollbacks*

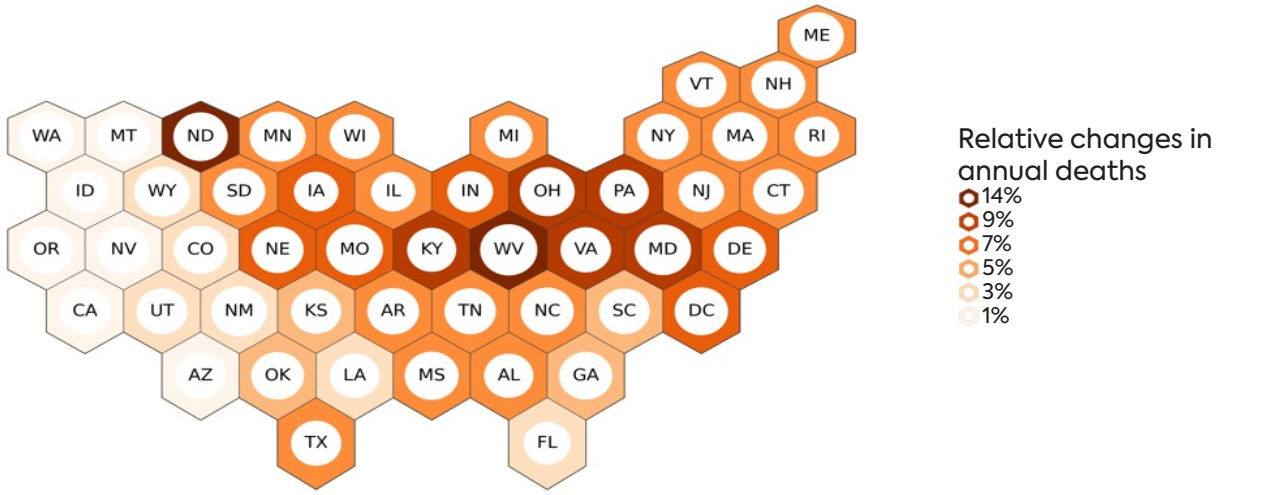


Fig 4. Increases in air pollution and deaths in 2035 under *Federal Rollbacks* relative to *Current Policies*. Panels a) and b) show percentage changes in the state-level annual average PM2.5 concentrations and PM2.5-attributable deaths in 2035, respectively.

Increases in annual average ambient PM2.5 concentrations vary from 1% -14% (0.002 to 1 μg/m^3) across states under *Federal Rollbacks* (Figure 4a). These variations across states are largely due to differences in energy structures, as well as the extent to which existing state-level clean energy policies are able to counteract the effects of federal policy rollbacks. For instance, some of the largest percentage increases are found in West Virginia (14%), North Dakota (13%), Pennsylvania (10%), and Ohio (9%), states that rely on coal for electricity and do not currently have ambitious policies to transition to renewable energy. Rolling back federal clean energy policies therefore slows down coal phaseout in these states, leading to more air pollution from continued coal use. In contrast, increases are smallest in Western states such as California, Nevada, Washington, Idaho, and Oregon (1%-3%). The energy mixes in these states are fairly clean under both scenarios due to state-level renewable portfolio standards, coal retirement announcements, and market forces.

State-level differences in air pollution outcomes also reflect underlying variation in buildings and industry structures. For instance, significant increases in PM2.5 concentrations are observed across states such as New York (5%), Vermont (4.8%), Rhode Island (4.5%), and New Jersey (4.5%), which are driven by reliance on combustion-based heating and limited progress in electrification and fuel switching in the buildings sector. There are also notable increases in PM2.5 concentrations in Indiana (7%), Texas (5%), and Illinois (4.8%), which are primarily from oil refining, cement production, and fuel-intensive industrial processes that rely on coal and high-sulfur residual fuel oil.

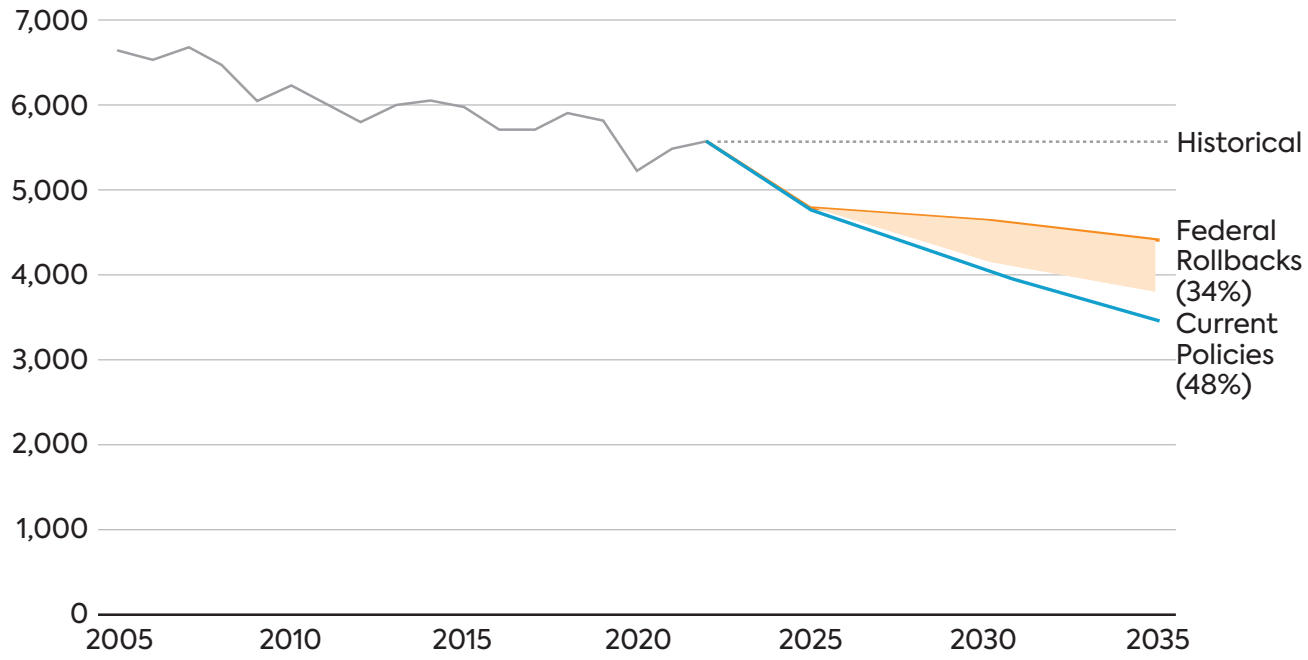
Climate and Energy System Impacts

Rolling back federal clean energy legislation and regulations would directly impact GHG emissions across all sectors, with the most pronounced effects in the electricity, methane, transportation and industry sectors. This section assesses the climate and energy system impacts under *Federal Rollbacks* in 2035.

Under the *Current Policies* scenario, the United States is projected to reduce net GHG emissions by 48% by 2035 relative to 2005 levels (3,473 MMTCO$_2$e), while the *Federal Rollbacks* scenario achieves only a 34% reduction in the same year (4,180 MMTCO$_2$e) (Figure 5a). These numbers are based on a previous CGS study which finds that varying levels of federal clean energy policy rollbacks can result in a 33-43% GHG reduction by 2035. The new *Federal Rollbacks* scenario is roughly at the low end of this range, which assumes a full repeal of both federal legislation and regulations, as recent policy discussions are trending in this direction.[40] This would put the U.S. 2035 climate target, which aims to achieve a 61-66% reduction in 2035, far out of reach.

National energy transition and sectoral impacts

a. Net GHG emissions



b. GHG emissions by sector and gas

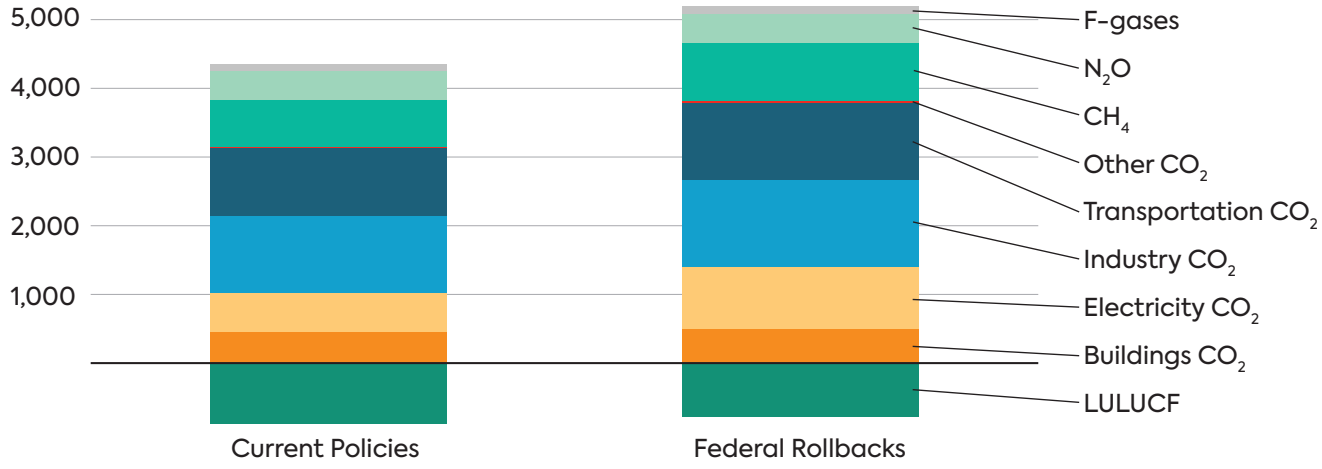


Fig 5. GHG emissions under *Federal Rollbacks* and *Current Policies*. Panel a) shows net GHG emissions, in units of in units of $MMTCO_2e$, with historical data through 2022 is taken from the EPA inventory.[64] Under *Federal Rollbacks*, GHG emissions reductions reach 34% by 2035, relative to 2005 levels, compared to 48% under *Current Policies*. For context, a range is provided from a previous CGS study, which finds that federal rollbacks could reduce GHG emissions by 33-43% depending on the severity of the rollbacks.[40] The new *Federal Rollbacks* scenario is roughly at the low end of this range, which assumes a full repeal of both federal legislation and regulations, as recent policy discussions are trending in this direction. Panel b) shows GHG emissions by sector and gas in 2035, in units of $MMTCO_2e$.

The electricity sector is the most impacted by clean energy rollbacks, accounting for 37% of the total emissions differences between the two scenarios by 2035 (356 $MMTCO_2e$) (Figure 5b). Electricity emissions fall by 37% under *Federal Rollbacks*, relative to 2020 levels, compared to 62% under *Current Policies* in 2035. In 2035, the share of clean generation reaches 72% and renewable generation reaches 46% under *Federal Rollbacks*, compared to a 76% and 51% share under *Current Policies*, respectively. These differences can be attributed to repeals of electricity – related IRA provisions, including technology – neutral tax credits designed to lower low-carbon electricity costs, 45Q tax credits to promote carbon capture and sequestration (CCS) technology deployment, a DOE loan program designed to finance clean energy infrastructure, and EPA regulations on coal and new natural gas power plants.

Notably, electricity demand increases by just 23% from 2020 levels under *Federal Rollbacks*, compared to 36% under *Current Policies* in 2035. Despite having lower demand, *Federal Rollbacks* has higher electricity rates, with the national average wholesale electricity price in 2035 almost 10% higher than under *Current Policies*.

Methane is responsible for 17% of the emissions differences between the two scenarios. Under *Federal Rollbacks*, total methane emissions increase by 5% relative to 2020 levels, compared to a 15% decrease under *Current Policies*. Emissions from energy sector methane are primarily impacted, with the roll back of the IRA's methane fee and EPA regulations on oil and gas methane increasing energy sector methane emissions by 6%, compared to a 47% cut under *Current Policies*.

Transportation emissions decline by 29% under *Federal Rollbacks*, compared to 37% with *Current Policies*. A full repeal of the IRA's EV tax credits, BIL's EV charging infrastructure investments, and the EPA's regulations on tailpipe emissions regulations slows progress toward the EV transition. Still, 2035 EV sales shares remain relatively high at 42% (Figure 6). This is due to continued implementation of state-level policies, most notably the Advanced Clean Cars (ACC) II and Advanced Clean Trucks (ACT) programs, which accelerate EV sales in certain states despite the loss of federal support. Repealing the California waiver (see Box 1), however, would entail lower EV sales and therefore higher transportation sector emissions under federal clean energy rollbacks.

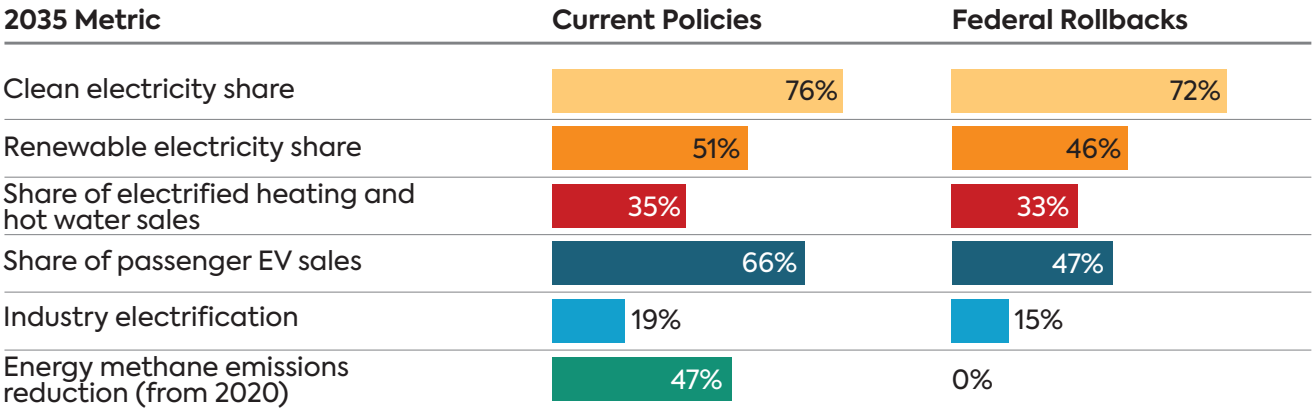


Fig 6. Changes across sectors in 2035 under *Current Policies* and *Federal Rollbacks*.

Federal clean energy policies are also important for decarbonizing the industrial sector. Industrial emissions rise by 13% under *Federal Rollbacks*, compared to just 1% under *Current Policies* in 2035. This gap is attributable to the repeal of major IRA provisions that would incentivize low-carbon fuels and efficiency, including tax credits for CCS technology deployment, hydrogen production, and clean manufacturing.

Other sectors, including buildings, lands, F-gases, and N_2O, collectively contribute to the remaining 19% in emissions differences. The roll back of IRA tax credits and rebates for home electrification and efficiency retrofits, IRA and BIL investments in agriculture and forestry practices, and the EPA's Technology Transitions Program under the AIM Act lead to additional emissions from these sectors under the *Federal Rollbacks* scenario.

State-level transitions

Generally, states with weak or no clean energy policies are more impacted by federal clean energy policy rollbacks, as they rely more on federal support to decarbonize across sectors, while states with more ambitious policies experience less severe impacts. For example, states with ambitious renewable portfolio standards (RPS) and/or participation in a regional cap-and-trade program, such as New York, Pennsylvania, Massachusetts, Minnesota, and Washington, tend to see minimal differences in renewable generation under *Federal Rollbacks* relative to *Current Policies* (Figure 7). States like South Dakota, which lack ambitious policies but have large renewable shares driven by market dynamics, are also minimally affected. In contrast, renewable generation shares drop by up to 25 percentage points for states including Arkansas, Kansas, West Virginia, North Dakota, and Wyoming, which lack an RPS. Trade dynamics can impact how states achieve their renewable electricity targets. California, which has an ambitious renewable energy target, sees a moderate difference in renewable share under *Federal Rollbacks* compared to *Current Policies* due to heavier reliance on imported electricity to meet its target.

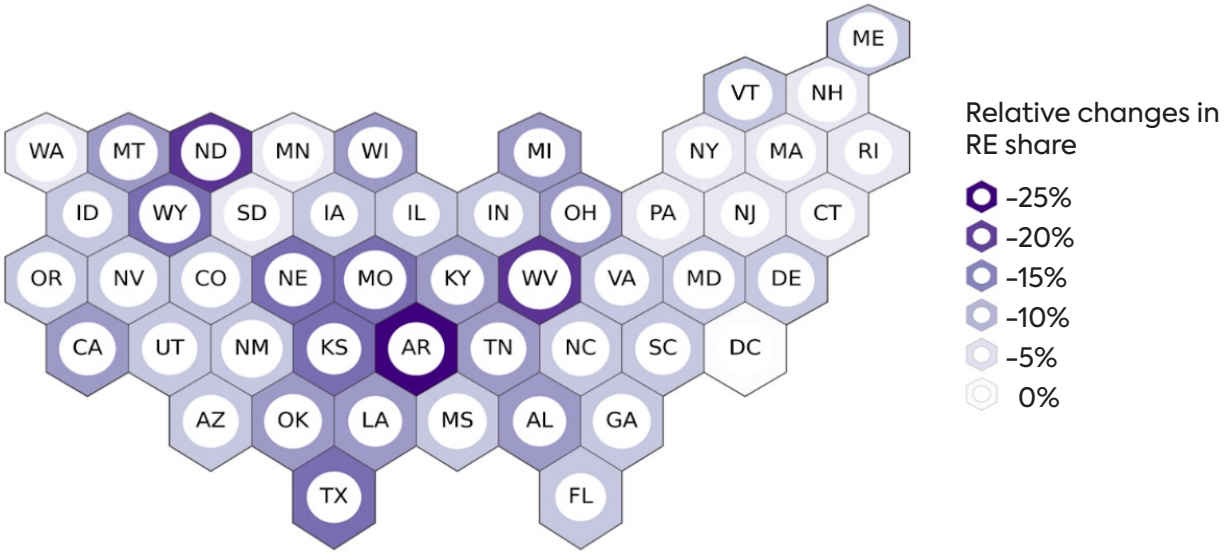
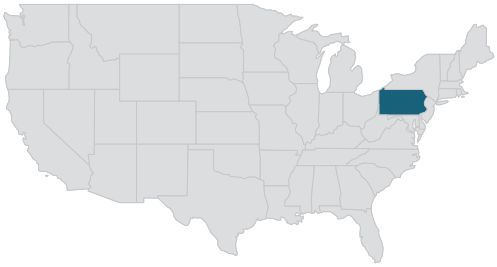


Fig 7. Changes in state-level renewable electricity share, in units of percentage points, in 2035 under *Federal Rollbacks* relative to *Current Policies*.

The Widespread Benefits of Federal Clean Energy Policies Across States

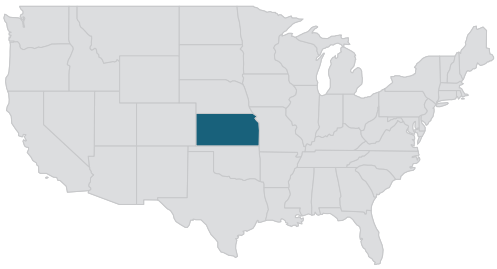
Federal clean energy policies like the IRA and BIL have already delivered widespread economic and health benefits to states, cities, businesses, healthcare facilities, public schools, and more. The case studies below highlight the different ways that these benefits are being realized across states.



Pennsylvania: IRA and BIL funds support abandoned mine remediation and improve health conditions

In Western Pennsylvania, streams and rivers run orange and reek of sulfur from water polluted with acid and metals from abandoned mines. Long after coal mines have been closed and abandoned, many coal communities in Appalachia continue to face health impacts from polluted waters. Drainage from abandoned mines is 10,000 times more acidic than clean water and is the second highest cause of water pollution in Pennsylvania, which can cause serious health risks in the surrounding communities that use the water.

Indiana County, Pennsylvania, received $6.3 million in federal funds from the IRA and BIL for abandoned mine remediation.[65] States and nonprofit groups have been working to reclaim and remediate land and water impacted by abandoned mines for decades, and with additional federal funding from the IRA and BIL, progress on cleaning up these waters has increased. **Recognizing that these abandoned mines are not just a public health risk but also a loss in economic opportunity, the IRA also includes an energy community bonus tax credit that incentivizes clean energy project developers to invest in coal communities.** With far-ranging policies to address the unique needs of regions across the country, the IRA is helping local workers, families, and communities access safer water, obtain clean energy jobs, and benefit from investments supporting local economies, as demonstrated by these projects in Appalachia.

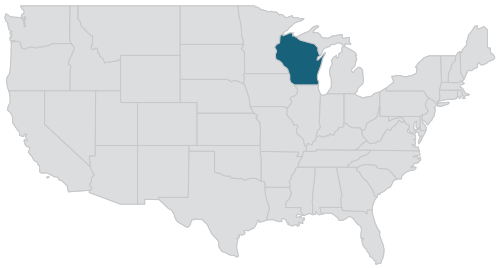


Kansas: Advanced Manufacturing Production Credit catalyzes local economic development

In De Soto, Kansas, the IRA is catalyzing local economic development through clean energy investments and workforce training. Panasonic's $4 billion EV battery plant—touted as the largest in the world—is a direct result of the Advanced Manufacturing Production Credit in the IRA. Expected to employ 4,000 workers, the facility has already triggered a surge in local hiring, infrastructure investment, and tax revenue.[66]

To staff the factory, Panasonic partnered with Kansas City Kansas Community College (KCKCC) and Johnson County Community College to launch an accelerated eight-week apprenticeship program. The curriculum, funded by Panasonic and shaped in collaboration with the colleges, delivers hands-on training tailored to factory needs. The program, which includes paid tuition and instructor salaries, is expected to graduate 200 students annually, preparing them for high-demand, high-wage jobs starting at over $50,000.[67]

The broader economic impact following the massive investment has been significant. **In De Soto, sales tax revenue jumped 130%, resulting in property tax bills that will be about $150 to $200 cheaper for the average homeowner in the city.**[68] The training programs also serve as a model for workforce development nationwide, backed by federal funding and coordinated through national hubs like the American Association of Community Colleges' Electric Vehicles Hub.

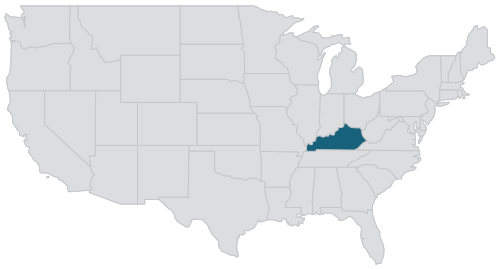


Wisconsin: Energy Efficient Home Improvement and Residential Clean Energy credits reduce energy costs for residents

Amidst rising energy prices, American consumers have access to federal and state tax credits and rebates that can help them power their homes, improve energy efficiency, and ultimately save money on their energy bills. The IRA expanded the Energy Efficient Home Improvement and Residential Clean Energy credits, allowing residents to claim:

- 30% of the cost for heat pumps (up to $2,000)
- $1,200 annually for projects such as insulation, air sealing, and ventilation[69]
- 30% of the cost of geothermal heating, solar panels, and battery storage installations[70]

In 2023, more than 73,000 families in Wisconsin claimed over $90 million of these federal tax credits, improving their homes' energy efficiency with electric heat pumps, better insulation, window upgrades, and more.[71] In addition to residential tax credits, Wisconsin became the first state in the country to begin using IRA funds for the Home Efficiency Rebate Program.[72] With rebates for whole-home energy projects, such as improving insulation and heating and cooling equipment, Wisconsin residents can save anywhere from $1,500 to $10,000 on these purchases. Collectively, tax credits and rebates are positively impacting Wisconsin households overburdened by energy costs.

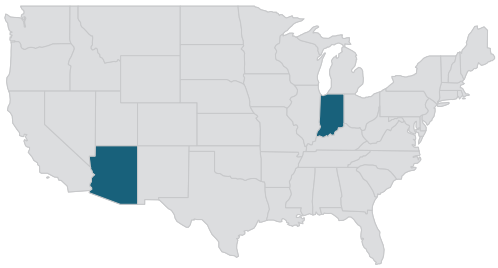


Kentucky: Investment tax credits support public school infrastructure

Jefferson County Public Schools (JCPS) serves over 95,000 students in Louisville, Kentucky, and is undertaking a major infrastructure overhaul to replace aging, inefficient school buildings that pose environmental health risks.[73] The district is investing $150–$180 million annually in new construction, backed in part by the IRA. In 2023, JCPS opened two new schools, Echo Trail Middle and Dr. William H. Perry Elementary, designed with ground-source heat pumps and advanced insulation to improve energy efficiency and indoor air quality. These clean energy upgrades earned JCPS $1.8 million in federal tax credits through the IRA's Elective Pay and Investment Tax Credit provisions.

With plans to complete six more schools by the end of 2025, the district expects to generate millions more in tax credits and create between 533 and 1,134 construction jobs. Their

ultimate goal is to build 26 new schools over the next decade. Superintendent Marty Pollio emphasized the transformative impact: "Just imagine what it's going to be like on day one for these young people to walk into this brand new school building, after they've been in a school building that probably needed to be condemned several decades ago."[74]



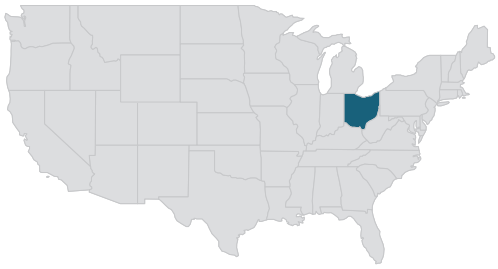
Arizona and Indiana: Direct pay and transferability provisions in the IRA create resilient health care systems

The IRA is accelerating the clean energy transition in rural health care through its direct pay and credit transferability provisions. These provisions make previously inaccessible clean energy incentives available to tax-exempt institutions, enabling critical investments in energy efficient and resilient public health infrastructure.

Margaret Mary Health (MMH) in Batesville, Indiana, is using the IRA's Investment Tax Credit for clean energy to support construction of a $115 million replacement hospital, set to be one of the most energy-efficient hospitals in the state.[75] The all-electric facility is on track to open in 2026,[76] and includes a geothermal energy system with 200 wells that significantly reduce energy use and operating costs. IRA payments are projected to save MMH over $2 million, helping to advance the hospital's long-term energy and sustainability goals without increasing costs.[77]

Chiricahua Community Health Centers, Inc., the largest primary care provider in rural southeastern Arizona, recently installed a solar and battery storage system to power 100% of its Douglas facilities.[78] Operating in a region facing frequent outages and extreme heat, the system provides backup power, protects sensitive medical supplies, and eliminates diesel generator use. The project was financed and developed by Collective Energy Company at no upfront cost to Chiricahua. Through the IRA's transferability provision, the developer was able to monetize the Investment Tax Credit and keep Chiricahua's payments equal to its previous utility bills.

These cases demonstrate how IRA provisions are enabling rural health centers to adopt clean, resilient energy systems that support public health, reduce emissions, and enhance service continuity in the face of climate-related disruptions.



Ohio: Climate Pollution Reduction Grant replaces contaminated site with clean energy

Closed landfills and other contaminated sites called brownfields often pose long-term environmental and public health risks.[79] Though capped, these sites can leak methane—a potent greenhouse gas—and other pollutants into the air and groundwater. Their limited reuse also leaves large swaths of land vacant while still requiring costly monitoring and maintenance.

A Climate Pollution Reduction Grant of approximately $130 million from the IRA is turning this challenge into opportunity across Northeast Ohio.[80] Utilizing funding awarded to Cuyahoga County, Cleveland, and Painesville, the region is advancing one of the largest landfill solar efforts in the Midwest. Cuyahoga County and Cleveland are installing 28 MW of solar across five sites, including at the Cleveland Hopkins International Airport and a future county services complex. Painesville is replacing its coal-fired peaker plant located on a brownfield near Lake Erie with a 35 MW solar array and 10 MW of battery storage.

These historic investments are expected to "reduce the cost of electricity for our residents, help power our airport operations, and benefit community members by transforming landfills and brownfields into "brightfields" that generate power from the sun," said Cleveland Mayor Justin M. Bibb.[80]

Conclusion

Over the coming decade, the IRA and other existing federal clean energy policies are expected to provide a range of benefits in addition to accelerating the clean energy transition. A repeal of these policies would cause substantial damages to economic and health outcomes across the country, resulting in a $206 increase in average annual home energy costs in 2035, as well as an additional 22,800 deaths of Americans and a $1.1 trillion reduction in U.S. GDP cumulatively between 2025 and 2035.

This study finds that Americans in all states and regions experience economic and health impacts associated with federal clean energy rollbacks, though the distribution of impacts is uneven. Generally, regions with weak clean energy policies and more reliance on fossil fuels experience the worst impacts, though inter-state trade flows, economy size, and other dynamics also play a role. Texas, West Virginia, North Dakota, Pennsylvania, Michigan, Indiana, Ohio, Kentucky, Virginia, Maryland, Montana, and Alaska are among the states that experience high levels of negative impact in this study. These states would benefit greatly from the funding and incentives provided through IRA, BIL, and other federal clean energy policies to invest in low-cost clean energy infrastructure, spur local manufacturing, and reduce air pollution.

This study captures the impacts of clean energy policy rollbacks as they relate to GDP, income, energy bills, and air quality. However, as climate-related events become more frequent and unpredictable, the additional impacts of climate change and its environmental consequences should also be considered when evaluating the economic and health costs to Americans. For example, extreme heat, wildfires, storms, floods, and droughts driven by climate change will continue to exacerbate the number of infectious diseases, respiratory, cardiovascular, and neurological diseases, and deaths.[81] Additionally, growing climate risks have the potential to hike up insurance premiums by nearly 30% nationally by 2055, while costing the United States over a trillion dollars in net property value losses.[82]

It is also important to note that this analysis assumes consistent levels of clean energy policy from non-federal actors, including states, cities, businesses, tribes, hospitals, religious institutions, and more, under both scenarios. In reality, non-federal actions could also change as a result of national or global policy and economic factors. Notably, subnational

governments have opportunities to expand on their current action and counteract some of the impacts of federal rollbacks.[40] Nearly half of U.S. states remain committed to meeting the 2035 U.S. NDC and achieving net-zero emissions by 2050 through their participation in the U.S. Climate Alliance.[83] Despite uncertainties in federal clean energy policy, the sustained and enhanced engagement of non-federal actors can continue to serve as a cornerstone of U.S. climate governance and deliver economic and health benefits to people across the country.

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