

Emissions and Energy Impacts of the Inflation Reduction Act

How to make the most of the IRA and achieve up to 40% reductions by 2030

The US set an ambitious climate target in April 2021, aiming to reduce greenhouse gas emissions by 50-52% by 2030 compared to 2005 levels. The recently passed Inflation Reduction Act of 2022 (IRA) allocates nearly \$400 billion through 2031 to various programs, incentivizing clean energy, methane emission reduction, and addressing environmental justice concerns. Achieving these goals is crucial for the US to reach net-zero emissions by 2050 and contribute to a global 1.5°C-compatible future.

According to a recent 16-institution, multi-model comparison published in *Science*, IRA's clean energy investments could result in a 33%-40% reduction in economy-wide greenhouse gas emissions by 2030, compared to 25%-31% without the IRA. Beyond 2030, the modeling shows an even greater contribution from IRA: 43%-48% reduction in emissions by 2035. Therefore, the IRA not only helps to narrow the implementation gap in achieving the U.S. 2030 NDC, but also enables the U.S. to achieve other climate and environmental justice goals, such as achieving 100% carbon pollution-free electricity by 2035.

Key modeled impacts of the Inflation Reduction Act

1. Economy wide emissions reductions from the IRA are 33-40% below 2005 levels in 2030, with a 37% average. This is a significant reduction from the reference without IRA incentives, which has a 28% average.
2. In the power sector, wind and solar deployment growth rates from 2021 to 2035 range from 10-99 GW/yr (58 GW/yr average), which is more than twice the average without the IRA (27 GW/yr). Reductions in coal generation range from 38-92% declines from 2021 levels by 2031 with IRA, versus 3-60% without the IRA.
3. Regarding end-use demand, electric vehicles are 32-52% of new light-duty vehicle sales by 2030 with the IRA (41% average), compared with 22-43% (31% average) without. Additionally with the IRA, switching from fossil fuels to electricity in buildings, transport, and industrial sectors leads electricity's economy-wide share of final energy to increase from about 21% to today to 23-26% by 2030.
4. Climate benefits are substantial, and range from \$44-220B annually by 2030. Additionally, declining fossil fuels not only lowers GHG emissions, but also conventional air pollutants, which improves public health outcomes and lowers energy costs for households and businesses.

What are policy opportunities to make the most of IRA?

While the IRA accelerates decarbonization, including beyond 2030, no models indicate that the 2030 US climate target would be met with the IRA alone. Its net effects depend on clean energy adoption, producer choices, household purchases, and actions by policymakers.



An All-Of-Society Strategy

IRA allows bold climate actions by states, cities, and the private sector, and strategic use of funds can accelerate emissions reductions. Investments in renewable energy transition, electrification, energy efficiency, electric vehicles, and climate planning strengthen the momentum of non-federal climate leaders.



Power Sector

Take full advantage of the production and investment tax credits for renewables—enabling wind and solar deployment. Bolster the clean energy transition by deploying solar energy tax credits for low-income communities through the Greenhouse Gas Reduction Fund (GGRF).



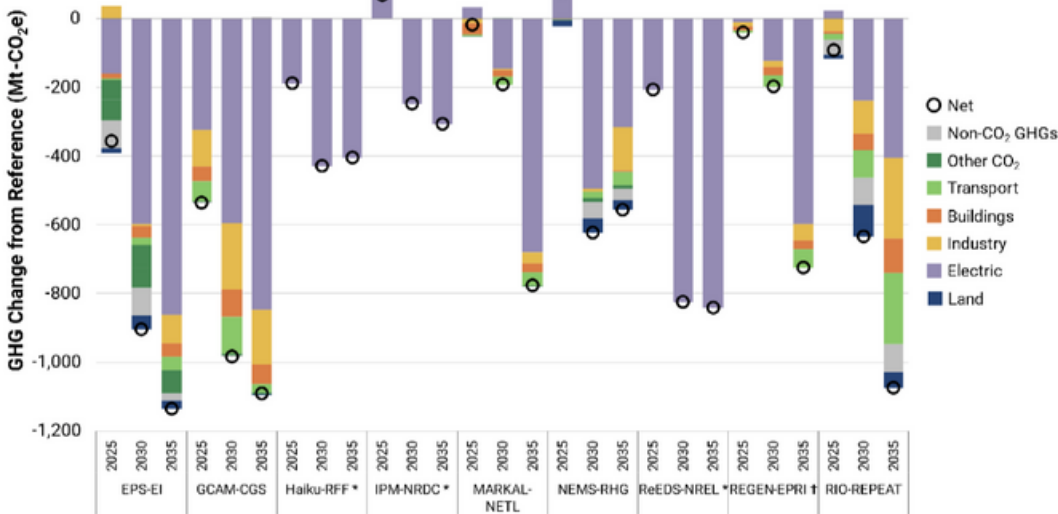
Buildings Sector

Take full advantage of IRA clean energy credits for residential buildings and energy efficiency credits/rebates for residential and commercial buildings. Utilize the IRA's \$200M to the Home Energy Efficiency Contractor Training program.



Transportation Sector

To boost EV adoption, use tax credits for new and used zero-emissions vehicles (ZEVs), invest in charging stations, and allocate special funds like the Tax Credit for Alternative Refueling Property to boost EV charging infrastructure in low-income communities.

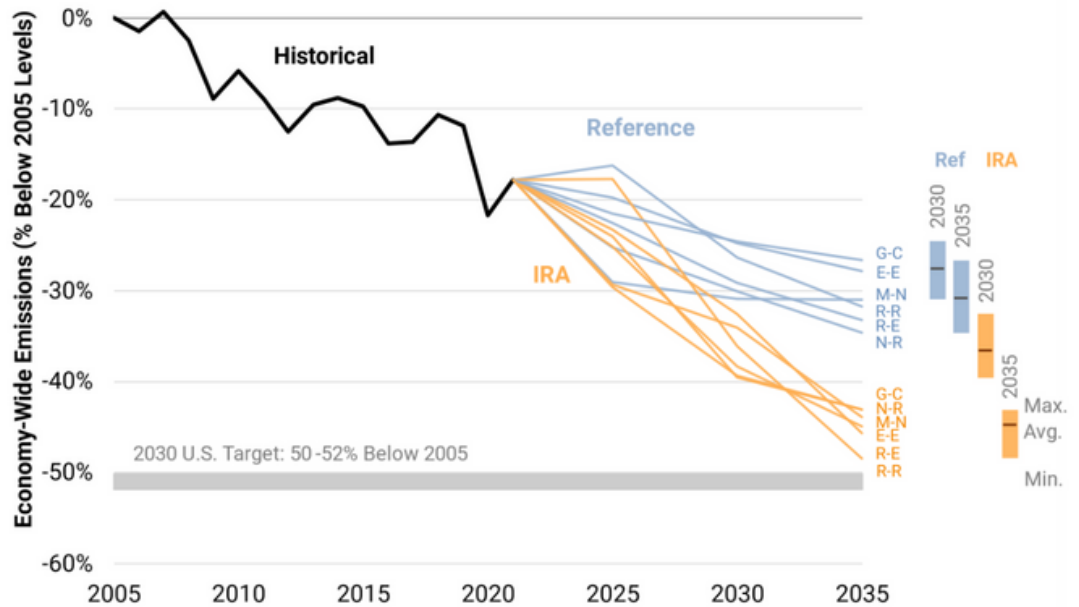


Emissions reductions by sector and model

Emissions reductions by sector and model in 2030 under IRA scenarios relative to reference levels. Models with * designate that electric sector IRA provisions are only represented, and † denotes energy CO2 IRA provisions only.

Historical and Projected Economy-Wide GHG Emissions

Historical emissions and 100-year Global Warming Potential values (for models representing non-CO2 GHGs) are based on the U.S. EPA's "Inventory of U.S. Greenhouse Gas Emissions and Sinks."



Science Article Institutions

Electric Power Research Institute; National Renewable Energy Laboratory; Resources for the Future; Evolved Energy Research; U.S. Environmental Protection Agency; Princeton University; Rhodium Group; Natural Resources Defense Council; Energy Innovation; Center for Global Sustainability, University of Maryland; Binghamton University; Carbon Impact Consulting; National Energy Technology Laboratory; Stanford University; Lawrence Berkeley National Laboratory; MIT Joint Program on the Science and Policy of Global Change.

More Information

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Download the full Science paper: <https://bit.ly/IRAm modeling>