Benefits of the Inflation Reduction Act by State

The funding portion of this analysis was carried out by separating provisions in the IRA by funding mechanism.

- Provisions where the funding mechanism is through a tax credit, we found the technology level by 2030 per state that is consistent with a Climate Ambitious level of action (typically by downscaling national values from the Net Zero America study's "E+RE+" scenario) and used the dollar value of the credit to calculate the total investment possible through the provision. We factored in constraints such as the domestic manufacturing requirements for the Clean Vehicle Tax Credit (30D) and the levels of tax credit rates based on prevailing wage, apprenticeship, domestic content, and energy community bonuses if applicable.
- Provisions where the funding mechanism is not through a tax credit are typically calculated by downscaling the Congressional Budget Score of the provision at the national level provided by enersection to the state using parameters that are related to the provision. We are continuing to refine this analysis as more federal information, such as the IRA Guidebook, is released regarding the national funding expected for each provision.
- In cases where the federal government has released formula funding allocations for specific provisions, such as the Home-Energy Performance-Based, Whole-House and the High Efficiency Electric Home Rebate Programs, we use those allocations. Much of this analysis uses data from the Energy Policy Simulator for states, developed by RMI and Energy Innovation.

Details are provided in Table 1 and 2 below.

The public health and jobs benefits calculations leverage Energy Innovation's national modeling of the IRA carried out in the United States Energy Policy Simulator and downscales the co-benefits to the state level by population.

Details are provided in Table 3 below.

Table 1

Provisions where Funding Mechanism is through a Tax Credit	
Transportation	We find the dollar amount of each tax credit per vehicle. The number of electric vehicles on the road in 2022 is estimated using the state Energy Policy Simulator (EPS). We disaggregate new, used, and commercial vehicles using Congressional Budget Office (CBO) analysis (fraction of funding dedicated to each). The "Climate-Aligned Target" is found through the approach used in the RMI State Scorecards, which estimates the number of electric vehicles on the road consistent with approx. slashing emissions in half by 2030 relative to 2005 levels. We subtract the number of electric vehicles on the road in 2022 from the 2030 target and multiply by the dollar amount of the credit to find the potential of funding. For the "new" electric vehicle tax credit (Section 13401) we add an additional multiplier set to 0.30 for the "Fraction of vehicles that will qualify by (2030)," which is based on internal RMI analysis that characterizes EV adoption under the IRA.

	In order to calculate funding flows from Section 13404 (Alternative Fuel Refueling Property) we use NREL data to estimate the number of various types of chargers required to support the Climate-Aligned passenger electric vehicle target by 2030 (3.4 DCFC, and 40 Level 2 charging ports are needed per 1,000 EVs). We find the cost of each type of charger and use the tax credit rate of 25% of project cost to estimate the estimated level of funding. The provisions related to sustainable fuels are calculated by downscaling the national CBO estimate to the state using transportation fuel consumption in the state relative to the United States (relying on data from the EPS) and assuming that a Climate Ambitious level of uptake will be twice the CBO score of the provision.
Electricity	Section 13701 Clean Electricity Production Tax Credit: The cents/KWh of credit is approximated by taking a weighted average of various rates utilities can receive if they meet certain criteria (ex. prevailing wage). The weights are based on internal RMI discussion on the likelihood of the state utilities meeting these requirements. We convert the weighted rate (cents/KWh) to annual $/MW by multiplying by number of hours in a year and the average capacity factors of grid-scale wind and solar (EIA data). We find the current capacity of wind and solar energy in the state using the state Energy Policy Simulator, and the Climate-Aligned Target using a similar approach as the RMI State Scorecards to estimate the renewable energy capacity consistent with approx. slashing emissions in half by 2030 relative to 2005 levels. We subtract the renewable energy capacity in 2022 from the quantity needed and multiply by the dollar amount of the credit ($/MW) to find the potential of funding. To convert from annual $/MW to total, we use the estimated median year of installation. Section 13702 Clean Electricity Investment Tax Credit: The percentage of the project cost returned by the credit is approximated by taking a weighted average of various percentages utilities can receive if they meet certain criteria (ex. prevailing wage). The weights are based on internal RMI discussion on the likelihood of the state utilities meeting these requirements. We use the same additional renewable capacity needed to meet the 2030 target calculated for Section 13701. NREL data is pulled to find the cost of constructing 1 MW of wind/solar respectively. We calculate weighted mean of construction cost by considering the ratio of wind to solar in 2030 using the state Energy Policy Simulator. This cost ($/MW) and the additional capacity required (MW) are multiplied to find the total project cost, and then it is assumed that utilities will be given the percentage specified by the credit. We apply similar methods to calculate the funding from Section 13105 (Nuclear Production Tax Credit). The funding from Section 13703 (Cost recovery for Qualified Facilities, Qualified Property, and Energy Storage Technology) is estimated by multiplying the CBO downscaled level by two to characterize an ambitious level of uptake.

Buildings	We find the dollar amount of the tax credit for each heat pump in Section 13301 Residential Energy Efficiency Tax Credit (space or water). To calculate a "Climate-Aligned Target" we downscale the number heat pumps in the Net Zero America study under the E+RE+ Scenario by the projected number of households in the state and the United States in 2030 respectively. We subtract the number of heat pumps in 2022 from the quantity needed and multiply by the dollar amount of the credit ($/heat pump) to find the potential of funding. To calculate an ambitious level of funding from Section 13304 (New Energy Efficient Homes), we use Census Bureau data to find the number of households in the state in 2022. We apply the population growth trajectory to find estimated households in 2030 and find the difference between these numbers to estimate the number of new homes by 2030. We assume that 10% of these new homes will be DOE or EPA energy efficiency rated (based on average Energy Star data by state) and use the $/home values of each category to find the total funding. For Section 13303 (Energy Efficient Commercial Buildings), we find an ambitious level of total energy consumption reduction from the commercial buildings sector by 2030 using the Net Zero America's E+RE+ scenario. We assume that about a quarter of buildings will meet this requirement and yield a total energy consumption reduction from the commercial buildings sector. We also downscale the sq footage of commercial buildings space from the United States to the state using energy consumption as a downscaling parameter. We assume that the reduction will occur evenly across the commercial buildings space to find a total funding flow estimate.
Industry	For Section 13104 (Credit for Carbon Sequestration), we first use Net Zero America's E+ scenario to calculate the level of carbon capture and downscale it to the state using industrial fuel consumption to calculate a state-specific climate-aligned target. We average the tax credit rate across technologies and base versus prevailing wage requirements to find the $/metric ton of carbon captured. This value and the Climate Aligned target can be used to estimate the total funding from Section 13104 expected in the state. We apply a similar method for Section 13204 (Clean Hydrogen), using Net Zero America's E+RE+ scenario to calculate the level of hydrogen expected in a Climate-Aligned scenario, and downscale it to the state using industrial energy consumption. We average the tax credit rate over prevailing wage/electrolysis types to find an aggregate rate and use this along with the state-specific target to find the total funding expected from Section 13204 under this ambitious scenario. For Section 13502 (Advanced Manufacturing Production Credit), we downscale the national CBO estimate and multiply by two to characterize an ambitious level of uptake.

Table 2

Provisions where Funding Mechanism is through Rebate, Grant, or Loan	
All Sectors	We downscale the CBO estimates for each provision using a downscaling metric that is related to the provision. For example, for the provision "Methane Emissions Reduction Program," we calculate the fraction of the national funding according to the state's methane emissions relative to the United States. Specific parameters and details are below.
Transportation	Downscaling metric examples: total automobiles in the state based on various datasets, including FWHA number of automobile and transportation fuel consumption.
Electricity	Downscaling metric examples: NREL's "Electrification 95 by 2035" scenario published in the Cambium datasets in 2021; similar to the methods described in the RMI State Scorecard methodology.
Buildings	Downscaling metric examples: the projected number of households or commercial buildings energy consumption in the state and the United States in 2030 respectively.
Industry	Downscaling metric examples: industrial fuel consumption in the state and the United States in 2030 respectively.

Cross-Cutting	Downscaling metric examples: population relative to the United States.

Table 3

Public Health and Jobs Benefits	
Link to Energy Innovation's national IRA modeling	We downscale Energy Innovation's co-benefits estimates from the IRA under their Moderate Scenario using the state population relative to the United States.