**United States Energy Policy Simulator (EPS) Summary Documentation**

# Estimating Economywide Emissions for the United States

The United States Energy Policy Simulator (EPS) accounts for emissions produced in the following sectors: electricity generation, building energy consumption, industrial energy consumption, industrial process emissions, agriculture process emissions, transportation, district heating, hydrogen production, land use change, and geoengineering (direct air capture).

Our primary sources are federal data sets from the Energy Information Association (EIA), Environmental Protection Agency (EPA), and the National Renewable Energy Lab (NREL). The table below summarizes our data sources and methodology. For benchmarking against historical emissions, see the Start Year ‘Calibration.xlsx’ file. For emissions projections, we primarily benchmark against the EIA’s [Annual Energy Outlook](https://www.eia.gov/outlooks/aeo/). As of version 4.0.0 of the EPS, we use the EIA’s Reference scenario.

## PRIMARY DATA SOURCES

| **Model component** | **Source** |
| --- | --- |
| ELECTRICITY | Existing capacity and heat rates: EIA’s [Form 923](https://www.eia.gov/electricity/data/eia923/) and EIA’s [Form 860](https://www.eia.gov/electricity/data/eia860/) &  Hourly load factors: NREL’s [Electrification Futures Study](https://data.nrel.gov/submissions/126)  Hourly capacity factors: NREL’s [Cambium data](https://scenarioviewer.nrel.gov/?project=82460f06-548c-4954-b2d9-b84ba92d63e2&mode=download&layout=Default)  Imports/exports: [EIA’s Annual Energy Outlook 2023](https://www.eia.gov/outlooks/aeo/)  Power plant costs and improvements in capacity factors for new plants: NREL’s [Annual Technology Baseline](https://atb.nrel.gov/), mid-case |
| BUILDING ENERGY USE | [EIA’s Annual Energy Outlook 2023](https://www.eia.gov/outlooks/aeo/) |
| INDUSTRIAL ENERGY USE | [EIA’s Annual Energy Outlook 2023](https://www.eia.gov/outlooks/aeo/) |
| INDUSTRIAL PROCESS EMISSIONS, INCLUDING AGRICULTURE | Start year emissions: EPA’s [Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2021](https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2021)  Most projections: emissions for each industry scaled by the growth in industrial output by industry from [EIA’s Annual Energy Outlook 2023](https://www.eia.gov/outlooks/aeo/)  Projections for HFCs: Data provided by the Rhodium Climate Deck  Process emissions abatement potential: [EPA Global Non-CO2 Greenhouse Gas Emissions Projections & Mitigation Potential: 2015-2050](https://www.epa.gov/global-mitigation-non-co2-greenhouse-gases/global-non-co2-greenhouse-gas-emission-projections) |
| LAND USE AND FORESTRY | EPA’s [Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2021](https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2021) |
| TRANSPORTATION | Transport demand, start year vehicles, and fuel economy: [EIA’s Annual Energy Outlook 2023](https://www.eia.gov/outlooks/aeo/)  On-road vehicle prices: Data provided by the International Council on Clean Transportation |
| INTEGRATED INPUT-OUTPUT MODEL | Organisation for Economic Co-operation and Development [Input-Output Tables](https://stats.oecd.org/Index.aspx?DataSetCode=IOTSI4_2018), supplemented by data from the U.S. Bureau of Labor Statistics and the U.S. Bureau of Economic Analysis where necessary  Growth rates for industrial output: [EIA’s Annual Energy Outlook 2023](https://www.eia.gov/outlooks/aeo/) |
| HEALTH IMPACTS | Health impacts per ton pollutant: EPA [Technical Support Document](https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf) |

# Understanding the Business-as-Usual and Reference Projections

The United States EPS model includes two scenarios. The first is a **business-as-usual (BAU) scenario**, which represents all federal and state policy that is currently finalized and binding. The BAU Scenario is the model’s foundation, capturing projected changes based on economic growth, technology and cost changes, and existing policy commitments. Notably, EPS 4.0 now includes the Inflation Reduction Act (IRA) in the BAU scenario. See the Appendix for a full accounting of which sections of the IRA are included and the methodology for each.

## SUMMARY OF MAJOR POLICY ASSUMPTIONS

|  |  |
| --- | --- |
| **Sector** | **BAU Scenario** |
| Electricity | * Expected retirements from EIA’s Annual Energy Outlook * IRA tax credits and other provisions (e.g. support for rural co-operatives) * State-level clean electricity standards and renewable portfolio standards |
| Buildings | * Efficiency improvements and IRA incentives assumed in EIA’s Annual Energy Outlook |
| On-Road Transportation | * Includes current Federal Corporate Average Fuel Economy Standards (CAFE) standards * IRA tax credits for zero-emission vehicles (passenger and commercial vehicles) * Economic adoption of zero emission vehicles[[1]](#footnote-1) |
| Industry | * Includes the American Innovation and Manufacturing Act * IRA tax credits including credits for production of clean hydrogen, advanced manufacturing, and carbon capture and sequestration, in addition to other incentives such as the Advanced Industrial Facilities Deployment program * Includes EPA methane regulations for new and existing wells |
| Land use/Agriculture | * Extrapolated data from Second Biennial Update Report * IRA incentives for improved forestry practices and sustainable agriculture |

# Example Climate Mitigation Scenarios

## U.S. 1.5 Degree Scenario

Energy Innovation developed a US NDC Scenario, which is designed to put the US on an emissions trajectory consistent with its stated climate goals. This scenario reduces greenhouse gas (GHG) emissions by X% below 2005 levels by 2030, achieving the US NDC of 50%-52% below 2005 levels, and net zero GHGs by 2050. Details on policy assumptions and methodology are available on request.

# Calculating Policy Impacts

For additional information on Energy Innovation’s Energy Policy Simulator, please view the tutorial [here](https://us.energypolicy.solutions/docs/video-series.html). Detailed model documentation is also available [here](https://us.energypolicy.solutions/docs/).

### About the EPS

The Energy Policy Simulator is a non-partisan, open-source, and peer-reviewed model. The EPS was developed to evaluate the impacts of climate and energy policies on emissions, costs and savings, and fuel consumption. The EPS model is used by policymakers to select and refine climate legislation. For example, the US EPS model has been used to assess the impact of the Inflation Reduction Act[[2]](#footnote-2) and of climate policies for the U.S. House Select Committee on the Climate Crisis.[[3]](#footnote-3) EPS users input climate policies and the model then analyzes interacting policy impacts to forecast environmental and economic outcomes. The model generates a variety of data outputs including greenhouse gas emissions, criteria pollutant emissions, capital and operating cash flow changes, and macroeconomic changes to GDP and jobs. Energy Innovation and RMI have also produced EPS models for the lower 48 U.S. states.

The EPS model is available for download online [here](https://us.energypolicy.solutions/docs/download.html).[[4]](#footnote-4) And full documentation on methodology and assumptions are available online [here](https://us.energypolicy.solutions/docs/index.html).[[5]](#footnote-5)

# Contact

If you have questions about using the EPS, we recommend first watching our video series, available [here](https://us.energypolicy.solutions/docs/video-series.html).[[6]](#footnote-6) For further information on the EPS, contact us at [policy@energyinnovation.org](mailto:policy@energyinnovation.org).

# Appendix: Full List of IRA Sections Included in BAU

|  |  |  |  |
| --- | --- | --- | --- |
| **Senate Section** | **Policy** | **Included in BAU?** | **Methodology** |
| **Finance** | | | |
| 13101 | Extension and Modification of Credit for Electricity Produced from Certain Renewable Resources | Yes | First, we calculate the percentage of new plants that will qualify for a) the prevailing wage and apprenticeship requirements and b) the domestic content requirements. For part a, we only calculate the share of plants that would meet the apprenticeship requirement and assume all these plants would also meet the prevailing wage requirement (varying assumptions on the share of qualifying plants across scenarios based on data for the construction industry from the ACP Labor Supply Report). For part b, we calculate the domestic content share for each power plant type. For onshore and offshore wind, we assume 100% of plants qualify for the bonus credit, based on a Net Zero America analysis, which lists domestic content shares for various wind components at well over the 55% domestic content requirement. For solar, we use the cited domestic content values for cells, modules, and inverters to calculate a weighted domestic content share, given the percentage of solar capital costs by component from the JEDI model. We assume a mid-case between scenarios where domestic content for solar PV remains constant and where domestic content can gradually increase to meet the 55% requirement by 2026. For batteries, we assume 100% of grid batteries will qualify, based on the volume of announced battery manufacturing projects in the U.S.  Next, we add in the energy community bonus, assuming that 50% of capacity additions qualify. We then calculate what the total credit value would be for each technology in each year for both the ITC and the PTC. For the PTC values, we also adjust the calculated credit by the present value over 10 years divided by the present value over the plant financing period, because the PTC is only available for the first 10 years of a plant's lifetime. Finally, we apply a transferability multiplier of 7.5%. This value reduces the credit value available to developers to account for the fact tax credits are transferable.   We begin phasing out tax credits once electricity emissions reach 25% of 2022 values, in the year 2039.  We limit our analysis to onshore and offshore wind, solar PV, solar thermal, geothermal, municipal solid waste, and battery storage. We do not model credits for qualifying hydro or biogas plants. For solar PV, we calculate a LCOE for both the ITC and PTC settings to determine whether that resource elects the ITC or the PTC in each year. |
| 13102 | Extension and Modification of Energy Credit | Yes | See 13101 |
| 13103 | Increase in Energy Credit for Solar and Wind Facilities Placed in Service in Connection with Low Income Communities | Yes | We assume that 1.8 GW of distributed solar is deployed as a result of this section each year the clean energy tax credits are in effect. |
| 13104 | Extension and Modification of Credit for Carbon Oxide Sequestration | Yes | For the power sector, we apply 45Q credits to all power plants with CCS.   The EPS is not currently equipped with endogenous industrial CCS based on economics. For the industry sector, we use a Rhodium analysis of CCS deployment under the IRA to determine the amount of CCS by industry category. We keep industry CCS constant after 2035. |
| 13105 | Zero-Emissions Nuclear Power Production Credit | Yes | The nuclear PTC runs through 2032, and we assume the credits are sufficient to keep all existing nuclear without planned retirement dates online through that time. We determined the credit values using calibration to find the value that kept all nuclear online through 2032. |
| 13201 | Extensions of Incentives for Biodiesel, Renewable Diesel and Alternative Fuels | Yes | Included in the Annual Energy Outlook, which we use as a primary source of input data |
| 13202 | Extension of Second Generation Biofuel Incentives | Yes | Included in the Annual Energy Outlook, which we use as a primary source of input data |
| 13203 | Sustainable Aviation Fuel Credit | Yes | Included in the Annual Energy Outlook, which we use as a primary source of input data |
| 13204 | Clean Hydrogen | Yes | We assume a 76% displacement of gray hydrogen with electrolytic hydrogen, and assume electrolyzers are powered by new clean electricity. This represents replacement of merchant H2, covering ammonia and all non-by product refinery demand. The credit is applicable through 2032 before it expires. We assume the same level of hydrogen production through electrolysis once the tax credits expire (considering producers will have already invested in the production process). |
| 13301 | Extensions, Increase, and Modifications of Nonbusiness Energy Property Credit (25C) | Yes | Partially included in the Annual Energy Outlook, which we use as a primary source of input data |
| 13302 | Residential Clean Energy Credit (25D) | Yes | Partially included in the Annual Energy Outlook, which we use as a primary source of input data |
| 13303 | Energy Efficient Commercial Buildings Deduction (179D) | No | This section is not covered in the Annual Energy Outlook. Our back of the envelope calculations indicate the emissions savings from this program are quite small, and we therefore opt not to manually adjust Annual Energy Outlook energy demand projections for commercial buildings. |
| 13304 | Extensions, Increase, and Modifications of New Energy Efficient Home Credit (45L) | Yes | Partially included in the Annual Energy Outlook, which we use as a primary source of input data |
| 13401 | Clean Vehicle Credit | Yes | We calculate a weighted average incentive level based on the incentive amounst and the share of vehicles that would qualify based on manufacturing requirements, critical minerals, AGI cap, and MSRP cap. |
| 13402 | Credit for Previously-owned Clean Vehicles | No | We do not track used vehicle sales in the EPS |
| 13403 | Qualified Commercial Clean Vehicles | Yes | For commercial vehicle credits, we find that the credit caps of $7,500 for vehicles under 14,000 pounds or $40,000 for vehicles over 14,000 pounds apply in all years. We apply the credit to all new sales of commercial trucks, using a weighted average credit value for our freight LDV category which covers both light and medium duty trucks. We also apply the credit to a fraction of buses, excluding buses purchased by the government. The credit runs from 2023-2032. |
| 13404 | Alternative Fuel Refueling Property Credit | Yes | We calculate an incremental number of chargers deployed based on funding and the model's weighted average charger cost. We take estimated funding from the released JCT scores and assume 80% of the spending is directed toward public chargers. We do not attempt to model the effects of private chargers. The number of additional chargers is then fed into our model's calculations for the shadow price used to represent range/charging anxiety for passenger LDV owners, which is partially determined by the ratio of charging infrastructure to gasoline pumps. This adjustment helps to drop the shadow price in response to additional infrastructure and increase consumer adoption of electric vehicles. |
| 13501 | Extension of the Advanced Energy Project Credit | Yes | See methodology for Section 13502. |
| 13502 | Advanced Manufacturing Production Credit | Yes | The EPS explictly tracks tax credits for vehicle battery production. We therefore apply a credit of $35/kWh for battery cells and $10/kWh for assembly for onroad vehicle batteries. We use several external sources to determine the average kWh battery capacity for each vehicle type. We use ICCT research to determine what portion of the credits paid to producers is passed on to consumers in each year.  For other tax credits, we manually adjust industrial energy demand from the Annual Energy Outlook based on our own calculations. We use the sector breakdowns from a Data for Progress analysis. We leverage the tax credits into total increased output of industries. Next, we use the model's 'buy in-region' policy to increase outputs of selected industries by the correct totals. We assume the stimulus results in permanent job creation, even after the tax credits expire. |
| 13601 | Reinstatement of Superfund | No | Out of scope for model |
| 13701 | Clean Electricity Production Credit | Yes | See methodology for Sections 13101-13102. |
| 13702 | Clean Electricity Investment Credit | Yes | See methodology for Sections 13101-13102. |
| 13703 | Cost Recovery for Qualified Facilities, Qualified Property, and Energy Storage Property | Yes | Partially included in the Annual Energy Outlook, which we use as a primary source of input data |
| 13704 | Clean Fuel Production Credit | Yes | Included in the Annual Energy Outlook, which we use as a primary source of input data |
| 13801 | Elective Payment for Energy Property and Electricity Produced from Certain Renewable Resources, Etc. | No | Out of scope for model |
| 13802 | IRS Appropriations | No | Out of scope for model |
| 13901 | Extension of tax to fund Black Lung Disability Trust Fund | No | Out of scope for model |
| 13902 | R&D Credit | No | Out of scope for model |
| **Agriculture** | | | |
| 21001 | Additional Agricultural Conservation investments | Yes | Our approach is to calculate the amount of the model's 'crop and rice measures,' 'livestock measures,'improved soil measures' emissions abatement potential that matches the total funding in this Section. The corresponding emissions are then removed from our BAU totals. The remaining emissions abatement potential possible through policy levers is also adjusted.  The EPS assumes agricultural practices need to be consistently implemented in every year in order to maintain emissions reductions. To be conservative, we phase out agricultural practices incentivized by the IRA over a period of 4 years rather than assume permanent reductions. |
| 21002 | Conservation Technical Assistance | Yes | Our approach is to calculate the amount of the model's 'crop and rice measures,' 'livestock measures,'improved soil measures' emissions abatement potential that matches the total funding in this Section. The corresponding emissions are then removed from our BAU totals. The remaining emissions abatement potential possible through policy levers is also adjusted.  The EPS assumes agricultural practices need to be consistently implemented in every year in order to maintain emissions reductions. To be conservative, we phase out agricultural practices incentivized by the IRA over a period of 4 years rather than assume permanent reductions. |
| 22001 | Funding for Electric Loans for Renewable Energy (Sec. 317) | Yes | We combine 22001 and 22002 (Forgiveable loans for Renewable Energy + Rural Energy for America Program). We take historical energy spend by the Rural Utilities Service and apportion the new funding as in the past. We assume all funding not earmarked for energy efficiency goes toward retiring coal and replacing it with clean electricity. |
| 22002 | Rural Energy for America Program | Yes | See methodology for Section 22001 |
| 22003 | Biofuels Infrastructure and Agriculture Market Expansion | No | We do not track biofuel infrastructure in the EPS. |
| 22004 | USDA Assistance for Rural Electric Cooperatives | Yes | We assume a $500/kW incentive is enough to retire all majority owned co-op coal plants. We get data on co-op ownership shares from EIA 860. We exclude industrial CHP and non-CHP, because those facilities have different economics and offtakers (available on request; file is large). We also remove any plants that are already slated to be retired and therefore already included in our planned retirements data. Data on outstanding coal debt is taken from public sources as listed below. We allocate the reductions between 2023 and 2030. |
| 22005 | Additional USDA Rural Development Administrative Funds | No | Out of scope for model |
| 23001 | National Forest System Restoration and Fuels Reduction Projects | Yes | We sum forestry funding that aligns with the scope of the Energy Policy Simulator's LULUCF sector, then assign it to either the model's 'forest management' or 'afforestation and reforestation' potential. We then find the policy setting that matches total government spend over the period of 2023-2031. For Section 23001, we only include the protection of old-growth forests funding and exclude hazardous fuels reduction and vegetation management, which are outside the scope of the model. We then adjust our BAU forestry projections and policy potential accordingly.  The EPS assumes forest management practices need to be consistently implemented in every year in order to maintain emissions reductions. To be conservative, we phase out forest management practices incentivized by the IRA over a period of 4 years rather than assume permanent reductions. |
| 23002 | Non-Federal Land Forest Restoration and Fuels Reduction Projects and Research | Yes | We sum forestry funding that aligns with the scope of the Energy Policy Simulator's LULUCF sector, then assign it to either the model's 'forest management' or 'afforestation and reforestation' levers. We then find the policy setting that matches total government spend over the period of 2023-2031. For Sections 23002 and 23003, we include all funding. |
| 23003 | State and Private Forestry Conservation Programs | Yes | See Methodology for Section 23002 |
| 23005 | Administrative Costs | No | Out of scope for model |
| **Banking** | | | |
| 30001 | Enhanced Use of Defense Production Act of 1950 | No | Out of scope for model |
| 30002 | Improving Energy Efficiency or Water Efficiency or Climate Resilience of Affordable Housing | No | This section is not covered in the Annual Energy Outlook. Our back of the envelope calculations indicate the emissions savings from this program are quite small, and we therefore opt not to manually adjust Annual Energy Outlook energy demand projections for residential buildings. |
| **Commerce** | | | |
| 40001 | Investing in Coastal Communities and Climate Resilience | No | Out of scope for model |
| 40002 | Facilities of NOAA and National Marine Sanctuaries | No | Out of scope for model |
| 40003 | NOAA NEPA | No | Out of scope for model |
| 40004 | Oceanic and Atmospheric Research and Forecasting for Weather and Climate | No | Out of scope for model |
| 40005 | NOAA Computing Capacity and Research for Weather, Oceans, and Climate | No | Out of scope for model |
| 40006 | Acquisition of Hurricane Forecasting Aircraft | No | Out of scope for model |
| 40007 | Alternative Fuel And Low-Emission Aviation Technology Program | No | Out of scope for model |
| **Energy and Natural Resources** | | | |
| 50121 | Home Energy Performance-Based, Whole-House Rebates | No | This section is not covered in the Annual Energy Outlook. Our back of the envelope calculations indicate the emissions savings from this program are quite small, and we therefore opt not to manually adjust Annual Energy Outlook energy demand projections for residential buildings. |
| 50122 | High-Efficiency Electric Home Rebate Program | No | This section is not covered in the Annual Energy Outlook. Our back of the envelope calculations indicate the emissions savings from this program are quite small, and we therefore opt not to manually adjust Annual Energy Outlook energy demand projections for residential buildings. |
| 50123 | State-Based Home Energy Efficiency Contractor Training Grants | No | Out of scope for model |
| 50131 | Assistance for Latest and Zero Building Energy Code Adoption | No | This section is not covered in the Annual Energy Outlook. Our back of the envelope calculations indicate the emissions savings from this program are quite small, and we therefore opt not to manually adjust Annual Energy Outlook energy demand projections for residential buildings. |
| 50141 | Funding for Department of Energy Loan Programs Office | No | Out of scope for model |
| 50142 | Advanced Technology Vehicle Manufacturing | No | Out of scope for model |
| 50143 | Domestic Manufacturing Conversion Grants | No | Out of scope for model |
| 50144 | Energy Infrastructure Reinvestment Financing | No | Out of scope for model |
| 50145 | Tribal Energy Loan Guarantee Program | No | Out of scope for model |
| 50151 | Transmission Facility Financing | No | The EPS now endogenously adds transmission infrastructure as new resources are added to the grid. Our back of the envelope calculations of transmission incentivisized by these sections is much lower than the amount of transmission already added to the grid in our BAU scenario. |
| 50152 | Grants to Facilitate the Siting of Interstate Electricity Transmission Lines | No | The EPS now endogenously adds transmission infrastructure as new resources are added to the grid. Our back of the envelope calculations of transmission incentivisized by these sections is much lower than the amount of transmission already added to the grid in our BAU scenario. |
| 50153 | Interregional and Offshore Wind Electricity Transmission Planning, Modeling, and Analysis | No | The EPS now endogenously adds transmission infrastructure as new resources are added to the grid. Our back of the envelope calculations of transmission incentivisized by these sections is much lower than the amount of transmission already added to the grid in our BAU scenario. |
| 50161 | Advanced Industrial Facilities Deployment Program | Yes | This program has a maximum government spend of 50% of total project costs and $6 billion in funding. We assume 40% public/60% private. We also add in $3 billion from the 48C program for industry. We then use EPS data on the costs to implement industrial efficiency policies to calculate annual efficiency improvements. We manually adjust energy demand projections from the Annual Energy Outlook by the expected efficiency improvements.  We assume industrial efficiency will improve through 2031 when the funding window ends. |
| 50171 | Department of Energy Oversight | No | Out of scope for model |
| 50172 | National Laboratory Infrastructure | No | Out of scope for model |
| 50173 | Availability of High-Assay Low-Enriched Uranium | No | Out of scope for model |
| 50221 | National Parks and Public Lands Conservation and Resilience | No | Out of scope for model |
| 50222 | National Parks and Public Lands Conservation and Ecosystem Restoration | No | Out of scope for model |
| 50223 | National Park Service Field Employees | No | Out of scope for model |
| 50231 | Bureau of Reclamation Domestic Water Supply Projects | No | Out of scope for model |
| 50232 | Canal Improvement Projects | No | Out of scope for model |
| 50241 | Office of Insular Affairs Climate Change Technical Assistance | No | Out of scope for model |
| 50251 | Leasing on the Outer Continental Shelf | No | Out of scope for model |
| 50261 | Offshore Oil and Gas Royalty Rate | Yes | Included in the Annual Energy Outlook, which we use as a primary source of input data |
| 50262 | Mineral Leasing Act Modernization | Yes | Included in the Annual Energy Outlook, which we use as a primary source of input data |
| 50263 | Royalties on All Extracted Methane | No | Not included in the Annual Energy Outlook, which we use as a primary source for fuel prices |
| 50264 | Lease Sales Under The 2017-2022 Outer Continental Shelf Leasing Program | Yes | Included in the Annual Energy Outlook, which we use as a primary source of input data |
| 50265 | Ensuring Energy Security | No | Not included in the Annual Energy Outlook, which we use as a primary source for fuel prices |
| 50271 | United States Geological Survey 3D Elevation Program | No | Out of scope for model |
| 50281 | Department of the Interior Oversight | No | Out of scope for model |
| 50301 | Department of Energy NEPA | No | Out of scope for model |
| 50302 | Federal Energy Regulatory Commission NEPA | No | Out of scope for model |
| 50303 | Department of the Interior NEPA | No | Out of scope for model |
| **Environment and Public Works** | | | |
| 60101 | Clean Heavy-Duty Vehicles | No | Our back of the envelope calculations indicate that incremental vehicle sales due to this section will be lower than the amount of heavy-duty vehicles deployed in the BAU case (due to a combination of economics and sales requirements through Advanced Clean Trucks states). Therefore, we do not make any manual adjustments to vehicle sales, which are calculated endogenously in the model. |
| 60102 | Grants to Reduce Air Pollution at Ports | No | Out of scope for model |
| 60103 | Greenhouse Gas Reduction Fund (Technology Accelerator) | Partial | Using the cost for distributed solar, we calculate the capacity of distributed solar deployed each year due to the $7 billion carve-out for zero-emission technologies in low-income and disadvantaged communities.  We do not attempt to calculate the energy and emissions impacts of the remaining funding. The EPA has not yet announced the criteria for qualifying projects, making it difficult to predict which types of projects will be funded. |
| 60104 | Diesel Emissions Reductions | No | There is not enough specificity in this section to determine what types of projects will be funded or what their impact will be. |
| 60105 | Funding for Air Pollution Monitoring | No | Out of scope for model |
| 60106 | Funding to Address Air Pollution at Schools | No | Out of scope for model |
| 60107 | Low Emissions Electricity Program | No | Out of scope for model |
| 60108 | Funding for Section 211(O) of the Clean Air Act | No | Out of scope for model |
| 60109 | Funding for Implementation of the American Innovation and Manufacturing Act | Yes | The American Innovation and Manufacturing Act is assumed to be met in our BAU. |
| 60110 | Funding for Enforcement Technology and Public Information | No | Out of scope for model |
| 60111 | Greenhouse Gas Corporate Reporting | No | Out of scope for model |
| 60112 | Environmental Product Declaration Assistance | Yes | We rely on external research reporting a range of emissions outcomes for cement as a result of these initiatives. We implement these in the EPS as energy efficiency (i.e. a reduction in energy consumption in our industrial energy demand file). The estimates include ranges for the combined impact from both procurement pilots and EPD programs. We do not include spillover effects.   For concrete, it is assumed that the primary way of lower emissions is through different mixing ratios. For example, existing EPDs suggest significant reductions are possible through using less cement in ready-mixed concrete. Because the concrete and cement sectors are the same in the EPS, this is approximated as a reduction in energy consumption and process emissions rather than a reduction in product demand. |
| 60113(a) & (b) | Methane Emissions Reduction Program (Spending) | No | The BAU scenario inlcudes EPA's Oil and Gas Methane Rules, finalized in December 2023. The Regulatory Impact Assessment for the Oil and Gas Rules do not appear to account for the Methane Fee included in the Inflation Reduction Act, which is still being finalized. To avoid double counting emissions reductions between the programs, we currently only inlcude the effect of oil and gas rules. It is likely there is a very large overlap between the methane emissions reductions we estimated from the Methane Emissions Reduction Program in our 2022 IRA analysis and the EPA's estimated emissions reductions from the Oil and Gas Methane Rules. |
| 60113(e) | Methane Emissions Reduction Program (Revenue) | Yes | Out of scope for model |
| 60114 | Climate Pollution Reduction Grants | No | Out of scope for model |
| 60115 | Environmental Protection Agency NEPA | No | Out of scope for model |
| 60116 | Low-Embodied Carbon Labeling for Construction Materials | Yes | See methodology for section 60112 |
| 60201 | Environmental and Climate Justice Block Grants | No | Out of scope for model |
| 60301 | Endangered Species Act Recovery Plans (NEPA) | No | Out of scope for model |
| 60302 | Funding for the United States Fish and Wildlife Service to Address Climate-Induced Weather Events | No | Out of scope for model |
| 60401 | Environmental and Climate Data Collection | No | Out of scope for model |
| 60402 | Council on Environmental Quality NEPA | No | Out of scope for model |
| 60501 | Neighborhood Access and Equity Grant Program | No | Out of scope for model |
| 60502 | Assistance for Federal Buildings | No | This section is not covered in the Annual Energy Outlook. Our back of the envelope calculations indicate the emissions savings from this program are quite small, and we therefore opt not to manually adjust Annual Energy Outlook energy demand projections for commercial buildings. |
| 60503 | Use of Low-Carbon Materials | Yes | See methodology for section 60112 |
| 60504 | General Services Administration Emerging Technologies | No | Out of scope for model |
| 60505 | Department of Transportation - Federal Highway Administration NEPA | No | Out of scope for model |
| 60506 | Low-Carbon Transportation Materials Grants | Yes | See methodology for section 60112 |
| **Homeland Security and Government Affairs** | | | |
| 70001 | DHS Office of Chief Readiness Support Officer (Clean Procurement) | No | Out of scope for model |
| 70002 | USPS Clean Fleets | No | Our back of the envelope calculations indicate that incremental vehicle sales due to this section will be lower than the amount of heavy-duty vehicles deployed in the BAU case (due to a combination of economics and sales requirements through Advanced Clean Trucks states). Therefore, we do not make any manual adjustments to vehicle sales, which are calculated endogenously in the model. |
| 70003 | USPS Oversight | No | Out of scope for model |
| 70004 | GAO Oversight | No | Out of scope for model |
| 70005 | OMB Oversight | No | Out of scope for model |
| 70006 | FEMA Building Materials Program | No | Out of scope for model |
| 70007 | FPISC | No | Out of scope for model |
| **Indian Affairs** | | | |
| 80001 | Tribal Climate Resilience | No | Out of scope for model |
| 80002 | Native Hawaiian Climate Resilience | No | Out of scope for model |
| 80003 | Tribal Electrification Program | No | Out of scope for model |
| 80004 | Emergency Drought Relief for Tribes | No | Out of scope for model |

1. Zero-emission vehicle adoption in the BAU case is based on economic adoption modeled in the EPS, detailed info available here: <https://us.energypolicy.solutions/docs/transportation-sector-main.html>. EPS transportation data, such as vehicle prices, is largely taken from EIA and the ICCT, and the resulting zero-emission vehicle adoption curve rates are similar to other studies, including the “Electric Vehicle Outlook 2023”: https://assets.bbhub.io/professional/sites/24/2431510\_BNEFElectricVehicleOutlook2023\_ExecSummary.pdf. [↑](#footnote-ref-1)
2. https://energyinnovation.org/wp-content/uploads/2022/08/Updated-Inflation-Reduction-Act-Modeling-Using-the-Energy-Policy-Simulator.pdf [↑](#footnote-ref-2)
3. https://energyinnovation.org/2020/07/28/hal-harveys-insights-and-updates-congressional-climate-plan-is-a-bet-your-country-moment/ [↑](#footnote-ref-3)
4. https://us.energypolicy.solutions/docs/download.html [↑](#footnote-ref-4)
5. https://us.energypolicy.solutions/docs/index.html [↑](#footnote-ref-5)
6. https://us.energypolicy.solutions/docs/video-series.html [↑](#footnote-ref-6)