NASEO
National Association of State Energy Officials

Implementing the Inflation Reduction Act: Energy, Emissions, and the States

AAPCA 2023 Spring Meeting
Oklahoma City, OK

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Photo Courtesy of RL Martin

Agenda

- About NASEO and the State Energy Offices
- Inflation Reduction Act (IRA)
  - Linkages and complementary to Infrastructure Act (IIJA/BIL)
  - Size, breadth, character (of energy and climate provisions)
  - Projected impacts
  - State roles and opportunities
  - Factors and issues
- Conclusions
- Resources

About NASEO

- The only national non-profit association for the governor-designated energy officials from each of the 56 states and territories
- Serves as a resource for and about the State Energy Offices through topical committees, regional dialogues, and informational events that facilitate peer learning, best practice sharing, and consensus building
- Advances the interests of the State and Territory Energy Offices before Congress and the Administration
- Learn more at www.naseo.org

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NASEO Programs and Priorities

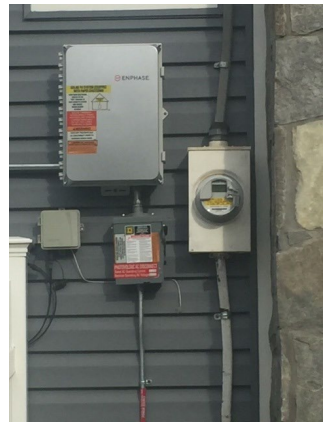
Buildings Electricity Climate Financing Workforce Resilience

Equity Planning Innovation Transportation Solar Policy Security

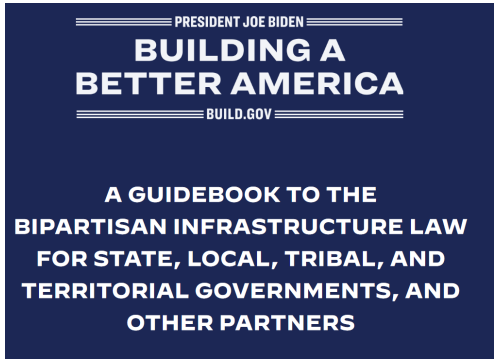
Also, Industry/Manufacturing, Hydrogen, CCUS, Critical Minerals and Supply Chain

State Energy Offices

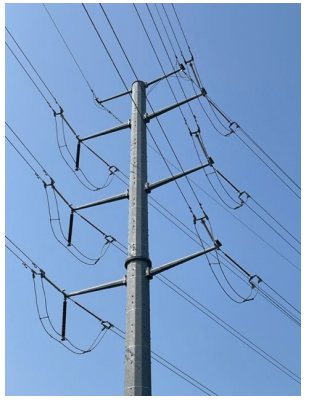
- Diverse
  - Governor's/Executive Office, Commerce/Economic Development, Environmental Agency, Utility Commission, Independent Agency
  - Large and small
- Multiple Roles and Objectives
  - Advise governors and legislatures
  - Policy development and implementation
  - State energy planning
  - Program development and implementation, incl. U.S. State Energy Program
  - Regulation (sometimes)
  - Energy emergency planning and operations (ESF #12), reliability and resilience
  - Technology advancement; economic development
  - Energy affordability, equity
  - Environmental stewardship
- Federal and State funding



Infrastructure Investment and Jobs Act (IIJA) aka Bipartisan Infrastructure Law (BIL)



- Should be considered in conjunction with IRA
  - Linkages among provisions and program intent and implementation
  - Some combined and complementary program and funding opportunities
    - E.g., DOE Advanced Energy Manufacturing and Recycling Grants - $ from both
    - E.g., IIJA/BIL DOI $4.7B complemented by IRA EPA $1.55B for oil/gas well CH_4 mitigation
- Clean Energy & Power ~$75B – clean power ($21.3B), clean energy demos ($21.5B) , energy efficiency & weatherization ($6.5B), clean energy mfg and workforce ($8.6B)



- Transportation
  - Electric vehicles, buses, ferries (>$18B)
  - Congestion mitigation & AQIP ($13.2B), C reduction (~$6.4B), truck emissions at ports ($0.4B)…
- Remediation - CH_4 abatement - orphan well plugging, remediation, restoration

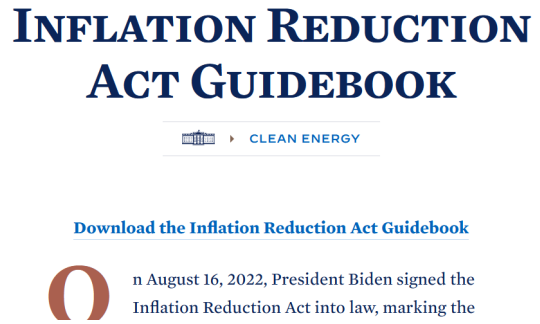
Inflation Reduction Act (IRA)

- **$490B, of which ~$392B for energy and climate provisions**

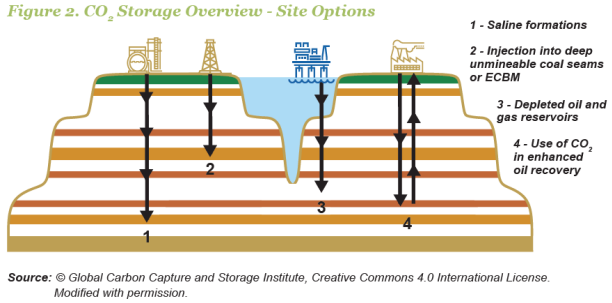
  [NY Times, Aug. 16, 2022, A Detailed Picture of What's in the Democrats' Climate and Health Bill]

  Lots of stuff – 105 entries on DOE page; 185 items in White House IRA guide

  - Clean electricity credits ($62.7B)
  - Clean manufacturing ($37.4B)
  - Nuclear credits ($30B)
  - Agricultural conservation ($16.7B)
  - Wind, solar credits ($51.1B)
  - Individual energy credits ($39.9B)
  - Green banks ($20B)



- **Multiple mechanisms** –
  - **Tax credits** – extensions/enhancements/new; some capped value but many not; often "direct pay" and transferability available
  - **Grants** – formula, competitive
  - **Loans and loan guarantees**
  - **Technical assistance**
  - **Incentivize both demand and supply**



- **Range of emission impact mechanisms** – from direct to indirect
  - From capping wells, diesel reduction, CCUS support, deploying renewables, to
  - Residential electrification rebates, EV tax credits to
  - Supporting critical mineral production/processing; clean tech manufacture; R&D; workforce
- Justice 40; diversity, equity, inclusion, accessibility; community engagement; labor

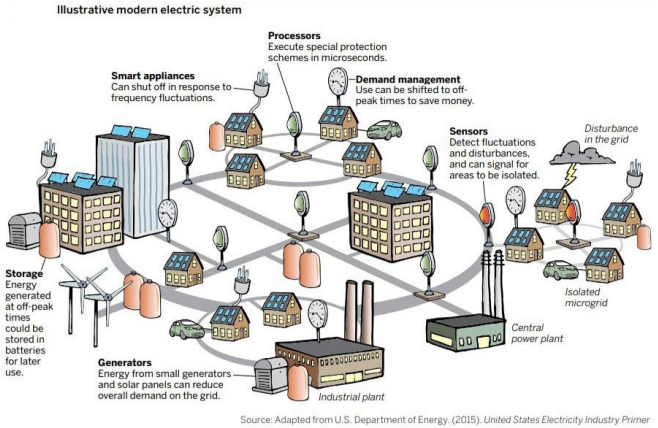
IRA: Some Provisions (non-EPA)

- Clean Energy Production and Investment Tax Credits
- DOE Loan Program Office and Energy Infrastructure financing
- Adv. Energy Project (48C) and Adv. Manuf. Production (45X) tax credits
- Industrial tech demos/deployment; grants under Defense Production Act
- Transmission financing; grants facilitating transmission siting
- USDA rural EE, RE, elec. infrastructure; DOI Tribal electrification
- Home EE, electrification rebates; EE, RE, storage tax credits; contractor training; state/local building energy code support
- Clean vehicle and refueling property tax credits; vehicle, component mfg loans, grants, credits
- Clean H_2 (45V), expanded CCUS (45Q) credits; clean fuels, aviation fuel

IRA: Modeled GHG Impacts

- Rhodium Group [https://rhg.com/research/us-decarbonization-priorities-in-the-wake-of-the-inflation-reduction-act/
  - Relative to 2005, 32-42% reduction in CO_2e; 7-10% greater reduction than w/o IRA.
  - 2030 Projected U.S. emissions (million metric tons CO_2e)

	Without IRA	With IRA	Reduction from IRA
Transport	1543	1523	20
Industry	1512	1449	63
Power	980	485	495
Agric. and waste	750	750	0
Buildings	663	662	1
Carbon removal	-824	-908	84



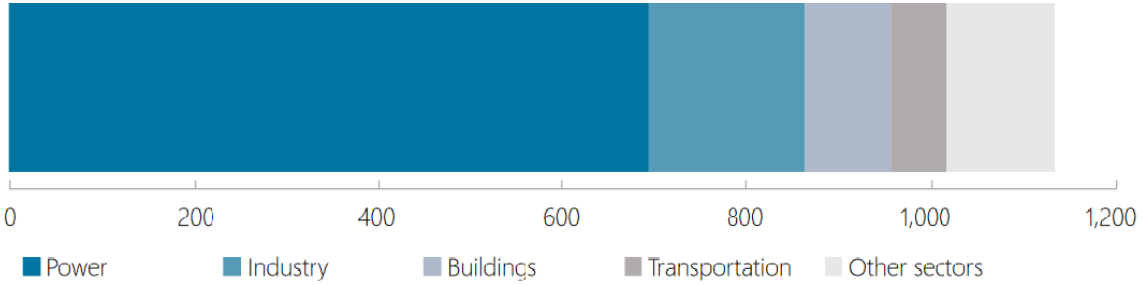
- Cumulative spending from IRA, 2022-2031 ($ billion)

	Direct spending	Tax expenditures	Total
Low emissions	181	371	552
Central emissions	181	279	459
High emissions	181	175	355

IRA+BIL: Modeled Impacts

- DOE Office of Policy [https://www.energy.gov/sites/default/files/2022-08/8.18%20InflationReductionAct_Factsheet_Final.pdf]

  Clean energy provisions 1 Gt reduction; + other climate, energy 1.15 Gt in 2030



Estimated Emissions Reductions in 2030 from *Inflation Reduction Act* and *Bipartisan Infrastructure Law* (2030, MMT CO_2e)

Evaluating Impacts of the Inflation Reduction Act and Bipartisan Infrastructure Law on the U.S. Power System

Daniel C. Steinberg,[1] Maxwell Brown,[1] Ryan Wiser,[2] Paul Donohoo-Vallett,[3] Pieter Gagnon,[1] Anne Hamilton,[1] Matthew Mowers,[1] Caitlin Murphy,[1] and Ashreeta Prasana[1]

1 National Renewable Energy Laboratory
2 U.S. Department of Energy, on detail from Lawrence Berkeley National Laboratory
3 U.S. Department of Energy

NREL is a national laboratory of the U.S. Department of Energy Office of Energy Efficiency & Renewable Energy Operated by the Alliance for Sustainable Energy, LLC

This report is available at no cost from the National Renewable Energy Laboratory (NREL) at www.nrel.gov/publications.

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Technical Report
NREL/TP-6A20-85242
March 2023

- NREL IRA+BIL power sector impacts [https://www.nrel.gov/docs/fy23osti/85242.pdf]

Clean electricity share 41% (2022) → 71-90% (2030)

CO_2 72-91% reduction 2030 (v. 2005); 600-900Mt reduction

SO_2 1.2Mt (2022) → 0.31 Mt (2030); 60% reduction v. "no new policy"

NO_x 1.5Mt (2022) → 0.35 Mt (2030); 57% reduction v. "no new policy"

Global climate damage cumulative reduction $670-960B (2023-2030)

Health: 11,000-18,000 avoided deaths, $120-190B avoided health damage (2023-2030)

Bulk power system costs reduction $50-115B (2023-2030)

State Roles and Opportunities: IRA (and IIJA/BIL)

- (IIJA/BIL) State energy security plans pre-requisite for certain funding
- State eligibility for program and project funding – state, multi-state, state-partnered applications
- Support and partner with localities, Tribes, businesses, institutions, NGOs
  - Awareness, facilitate collaborations, letters of support, political
  - Provide non-federal match funding
  - State finance or credit enhancement can allow DOE Loan Program Office to waive innovative tech requirement
  - Technical assistance
- Program administration (e.g., home EE/electrification rebates, weatherization, State Energy Program, EECBG)
- Supportive and complementary policies, regulations, and programs
  - Including permitting, siting, reviews; emission targets and regulation
  - Utility regulation, compensation, rate design
  - Funding/incentives, finance/green banks, financing law/rules (ESPC, C-PACE)

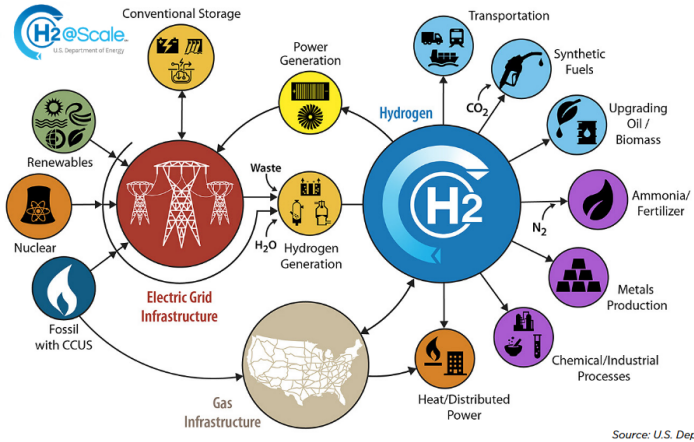
Factors and Issues

- Speed and efficiency of expenditures
- Uptake of tax incentives and rebates
- Siting and permitting – time and cost
- Supply-chain, workforce
- Out year budgets

Also—

- State policies, planning, and regulations
- Technological change
- Economies of scale, scope, agglomeration; market transformation
- Exogenous or not-so-exogenous stuff

FIGURE 1. H2@SCALE CONCEPT[17]



Source: U.S. Department of Energy

Conclusion

- IRA works in conjunction with IIJA/BIL and other laws (CHIPS and Science).
- Important state implementation roles.
- As much industrial policy as energy, environmental, climate policy.
  - Industrial competitiveness and supply chain for clean technologies.
- Multiple approaches (grants, loans, tax breaks, procurement, TA) to incentivize demand and supply of clean tech products.
- Direct and indirect impacts on emissions.
- Potentially very large GHG reduction (2030 CO_2e 32-43% reduction vs. 2005), but not enough by itself to achieve Admin's 2030 goal (50-52% decrease).
- Reductions in criteria pollutants, damages; some provisions explicitly cite AQ benefits, including regarding disadvantaged communities, EJ considerations.
- Equity, diversity, inclusion; communities; labor are all prominent criteria.
- Implementation is more than allotting money – early days, both challenges and opportunities: uptake, siting, permitting, supply chain, workforce.

Resources

- White House IIJA/BIL Guidebook https://www.whitehouse.gov/build/guidebook/
- White House IRA Guidebook https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/
- DOE Clean Energy Infrastructure Program and Funding Announcements https://www.energy.gov/clean-energy-infrastructure/clean-energy-infrastructure-program-and-funding-announcements
- DOE IRA Factsheet https://www.energy.gov/sites/default/files/2022-08/8.18%20InflationReductionAct_Factsheet_Final.pdf
- DOE Power Sector Transitions Factsheet https://www.energy.gov/sites/default/files/2023-03/Power-Sector%20Transitions%20Fact%20Sheet.pdf with link to full NREL report
- Rhodium Group https://rhg.com/research/inflation-reduction-act/
- McKinsey & Co. https://www.mckinsey.com/industries/public-and-social-sector/our-insights/the-inflation-reduction-act-heres-whats-in-it
- Rocky Mountain Institute
  - State Implementation Guides https://rmi.org/ira-implementation-guidance-states
    - Home Efficiency Rebate Programs
    - Home Electrification Rebate Program
    - Greenhouse Gas Reduction Fund
    - Climate Pollution Reduction Grants
    - Environmental and Climate Justice Block Grants
  - Energy Policy Simulator https://rmi.org/energy-policy-simulator/