NATIONAL ACADEMIES Sciences Engineering Medicine

Accelerating Decarbonization in the United States

Technology, Policy, and Societal Dimensions

Agenda

The opportunity

Recent progress

Summary of recommendations

Next steps

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Committee expertise across social, health, environmental, and energy spheres

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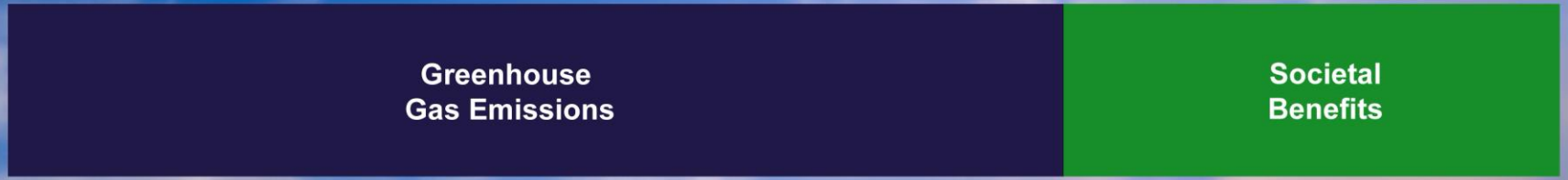
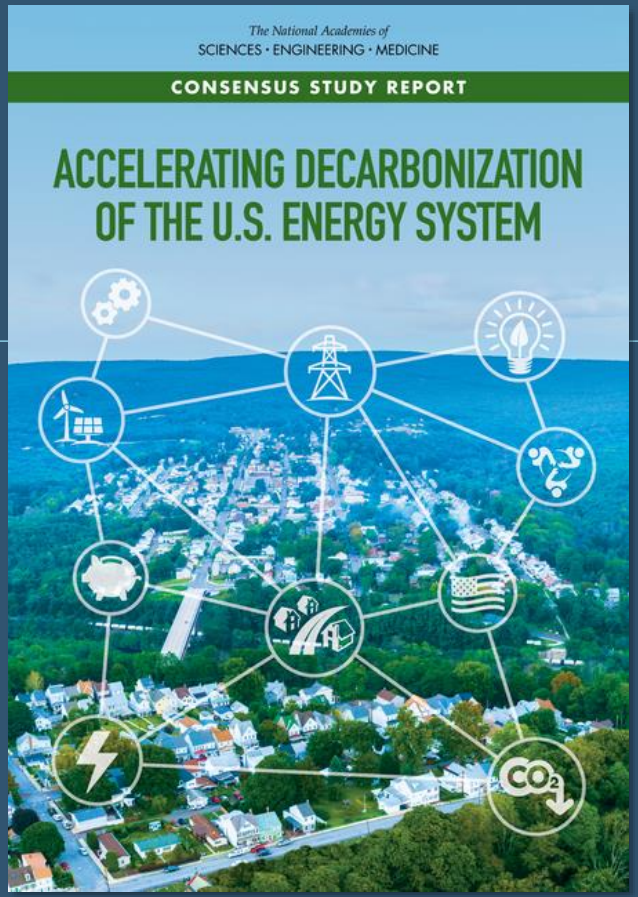
The committee was tasked to examine how the nation might achieve a just and equitable transition to net zero.

The report evaluates options for deep decarbonization and identifies the highest-priority actions to pursue.

Effect of emissions on humans, the environment, and the U.S. economy

As the nation reduces emissions, we can expect improved health, more high-quality jobs, and a stronger economy. Prioritizing actions that support workers and community members will ensure a just energy transition.





2021 Report

We recommended practical, achievable actions to advance decarbonization and:

- Boost the U.S. economy
- Revitalize the manufacturing sector
- Increase employment
- Ensure a fair and equitable transition
- Support public participation in decision making

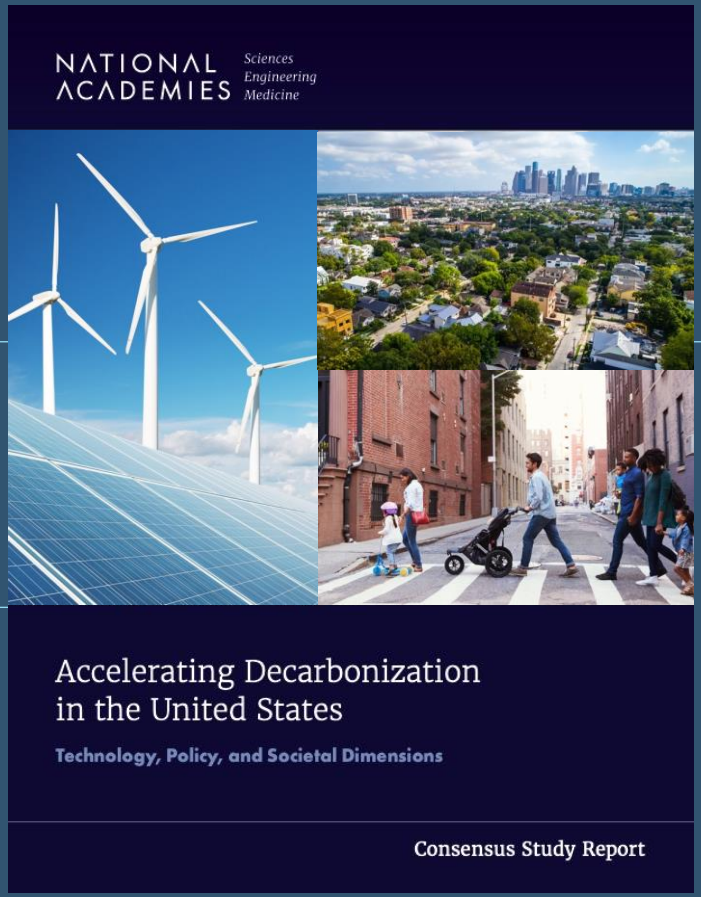
2023 Report

Cross-cutting Issues:

- Energy justice
- Public health
- Public engagement
- Workforce

Sectors:

- Electricity
- Transportation
- Buildings
- Land use
- Industry
- Fossil fuels
- Finance
- Subnational



Policy Revolution

2021 EXECUTIVE ORDER:
Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

2021 EXECUTIVE ORDER:
Tackling the Climate Crisis at Home and Abroad

Infrastructure Investment and Jobs Act of 2021

Inflation Reduction Act of 2022

Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022

2023 Proposed Regulation:
Greenhouse Gas and Criteria Pollutant Emission Standard for Light- and Medium-Duty Vehicles for 2027-2032

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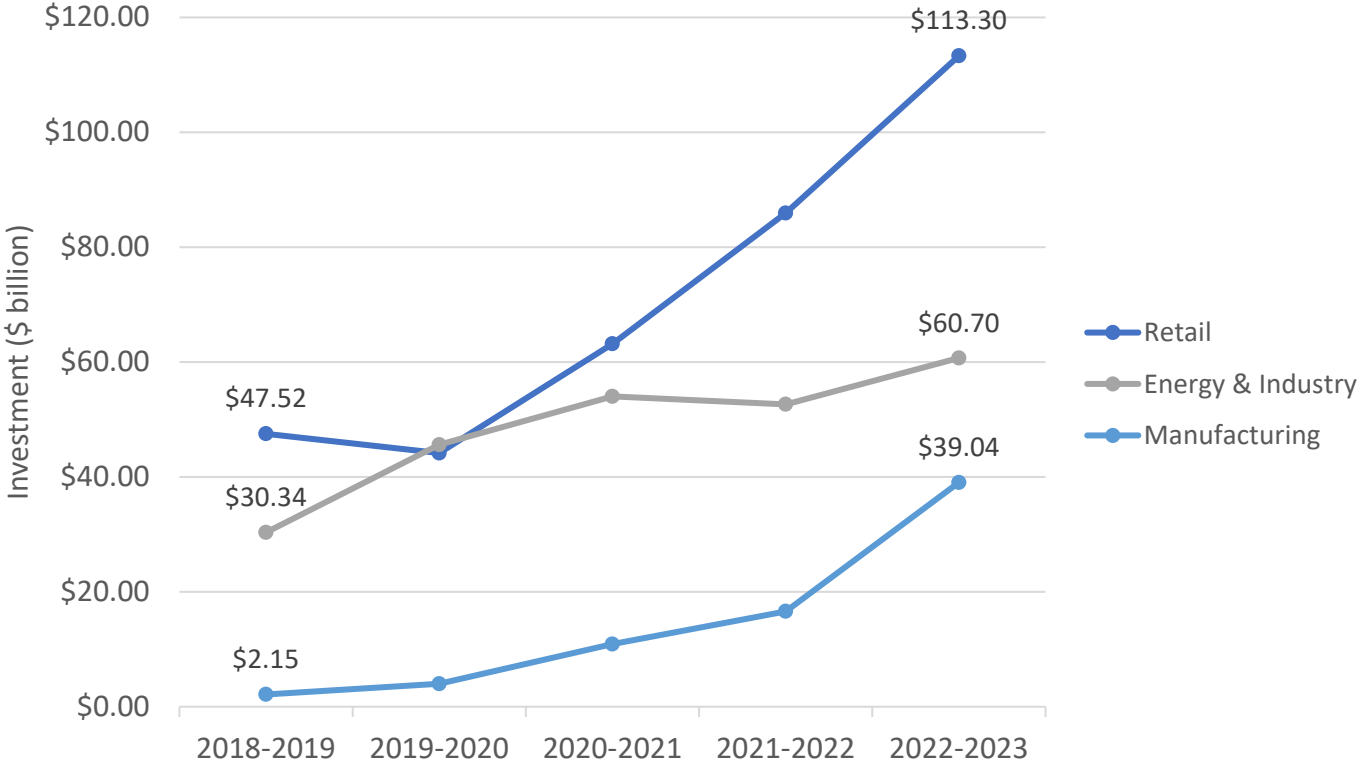
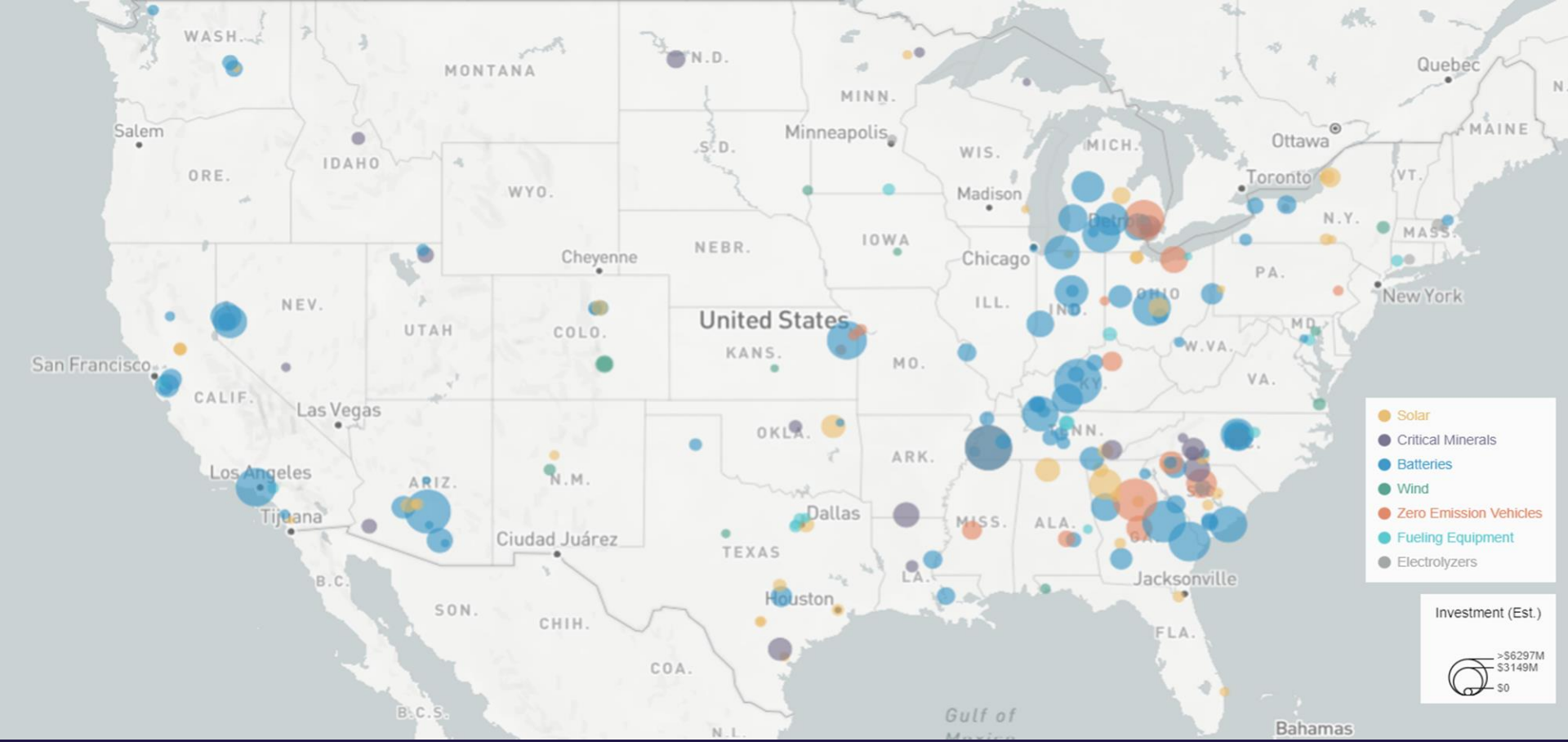
Investment in clean energy has increased



* Source: Rhodium Group



Announced Manufacturing Investments (as of June 2023)

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* Source: Rhodium Group

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Early Success

Announced by companies since the passage of the Inflation Reduction Act:

80,680

estimated new clean energy jobs

$90.8

billion estimated in clean energy investments

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Early Success

Spotlight on Georgia

12,791

estimated new clean energy jobs

$12.3

billion estimated in clean energy investments

*Source: E2 (Environmental Entrepreneurs)

Unprecedented opportunities.

Formidable challenges.

Create domestic jobs

Eliminate energy and environmental injustices

Revitalize the energy and industrial sectors

Increase U.S. economic competitiveness

Broaden and diversify the policy portfolio

KEY RECOMMENDATIONS:

- Establish a national emissions budget and carbon tax that protects low-income families and American businesses
- Develop clean energy standards for electricity
- Establish zero emission vehicle sales mandates

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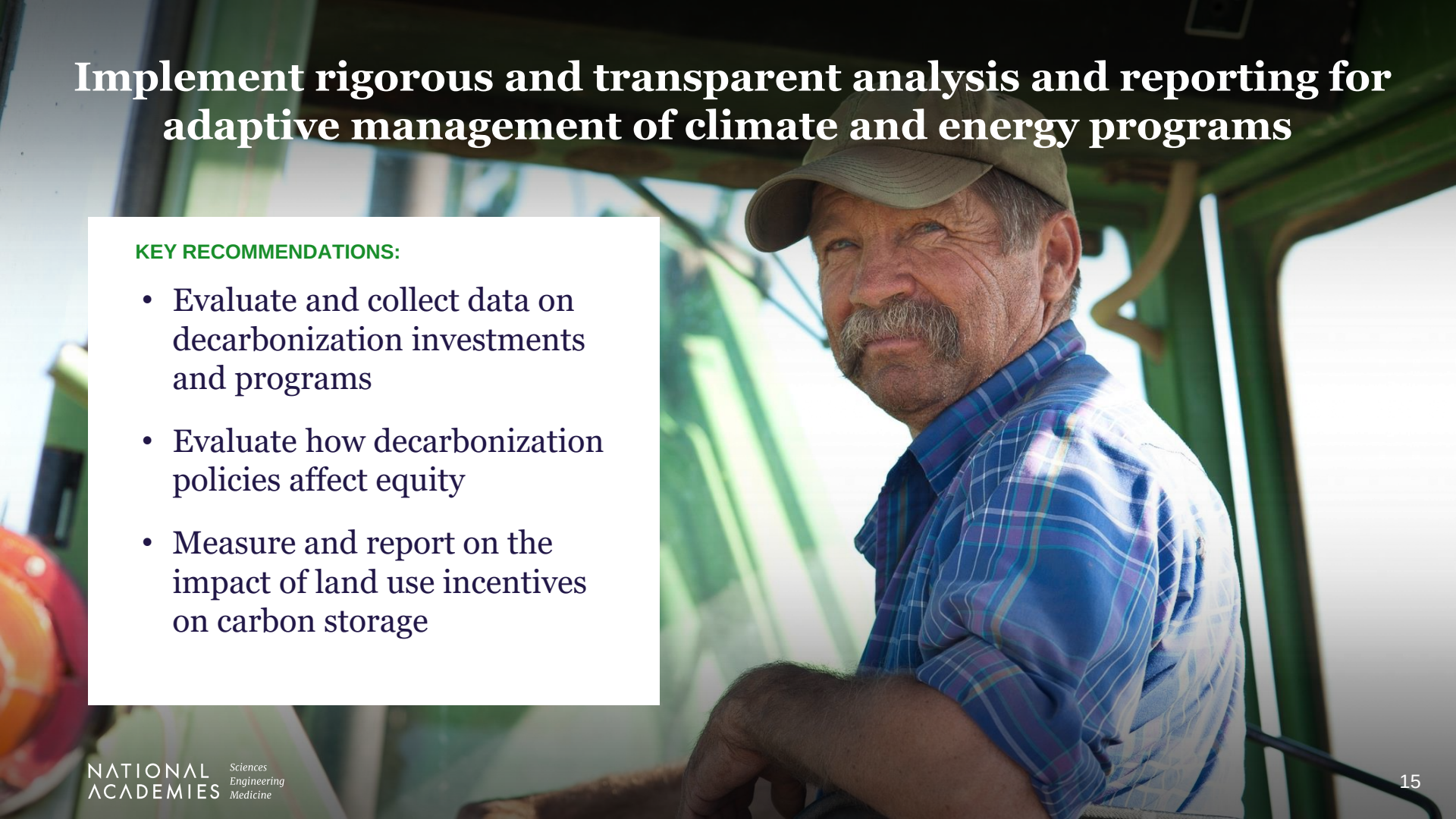
Implement rigorous and transparent analysis and reporting for adaptive management of climate and energy programs



KEY RECOMMENDATIONS:

- Evaluate and collect data on decarbonization investments and programs
- Evaluate how decarbonization policies affect equity
- Measure and report on the impact of land use incentives on carbon storage

Establish a strong process to engage the public in planning new infrastructure

KEY RECOMMENDATIONS:

- Build regional and community capacity for community-led solutions
- Strengthen energy system policies and approaches that deliver local benefits from decarbonization investments
- Develop collaborative renewable energy deployment plans at the regional level

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Add new transmission capacity and pathways

KEY RECOMMENDATIONS:

- Support the expansion of the electricity transmission grid
- Convene a working group for transmission siting process innovation
- Increase equitable access to distributed energy resources like solar and storage

Issue more ambitious emissions targets for buildings and industry, and as a backstop for transportation

KEY RECOMMENDATIONS:

- Invest in energy efficiency and materials efficiency in buildings and industry
- Accelerate the electrification of vehicles, appliances, and industrial processes
- Spur innovation to achieve price parity for low-carbon solutions

Ensuring equity, justice, health, and fairness of impacts from the clean energy transition

KEY RECOMMENDATIONS:

- Establish durable transition policy modeled on the Justice40 Initiative
- Integrate health impact assessments into decarbonization decision-making
- Make funding available for local Climate Opportunity Zones

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Managing the future of the fossil fuel sector

KEY RECOMMENDATIONS:

- Support state transition offices to address transitions in coal, oil, and natural gas communities
- Fund just transitions for communities historically dependent on fossil fuels
- Ensure the safe operation of municipal gas distribution networks despite a declining number of payers

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Train the workforce needed for a clean energy transition

KEY RECOMMENDATIONS:

- Invest in connecting people to high quality jobs
- Support the development of an energy systems education network and skill-building programs
- Expand reliable and flexible funding to state and local governments for training and capacity building

Reform financial markets to make access to capital fairer and account for climate-related risks

KEY RECOMMENDATIONS:

- Fill gaps in federal financial risk data and information collection rules
- Increase access for low-income households to financial incentives and programs supporting decarbonization
- Strengthen climate reporting rules and standardize their data and collection

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Broaden the research, development, demonstration, and deployment portfolio

KEY RECOMMENDATIONS:

- Continue funding technology innovation to enable the energy transition beyond 2030
- Ensure that clean energy and net-zero transition RDD&D integrates equity indicators
- Invest and integrate social science research into transition decision making

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The stakes could not be higher.

Decision makers have an opportunity to do deep decarbonization in a way that strengthens the U.S. economy, makes energy affordable, protects against extreme weather, and improves the health of their communities.

Thank you to our Committee, Sponsors, and National Academies staff who made this report possible.

Alfred P. Sloan Foundation

Heising-Simons Foundation

Quadrivium Foundation

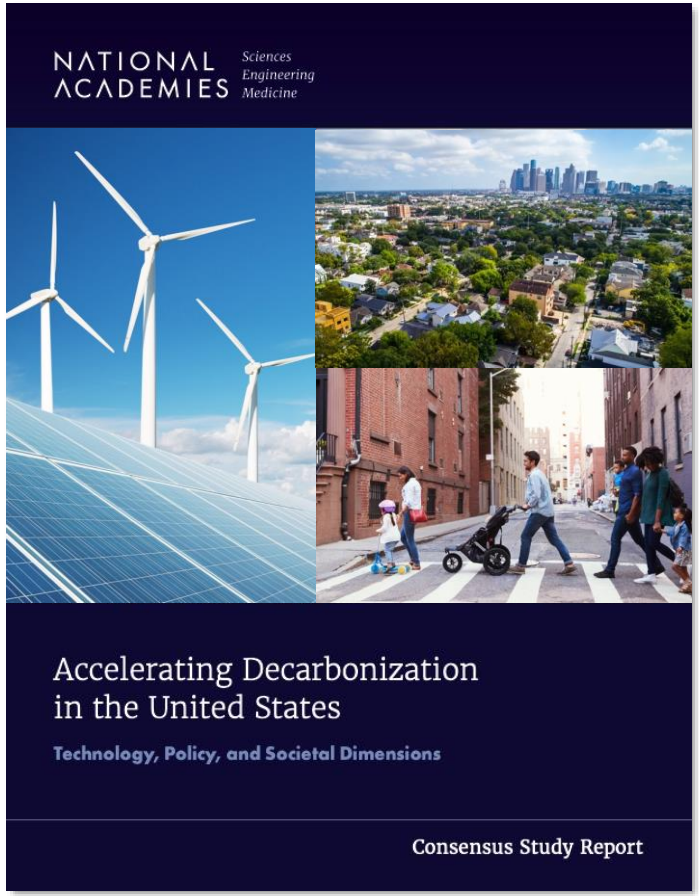
Breakthrough Energy

Incite Labs

U.S. Energy Foundation

National Academy of Sciences President's Fund

Read the report. Access resources. Stay connected.



nationalacademies.org/decarbonization-report
https://nap.nationalacademies.org/resource/25931/interactive

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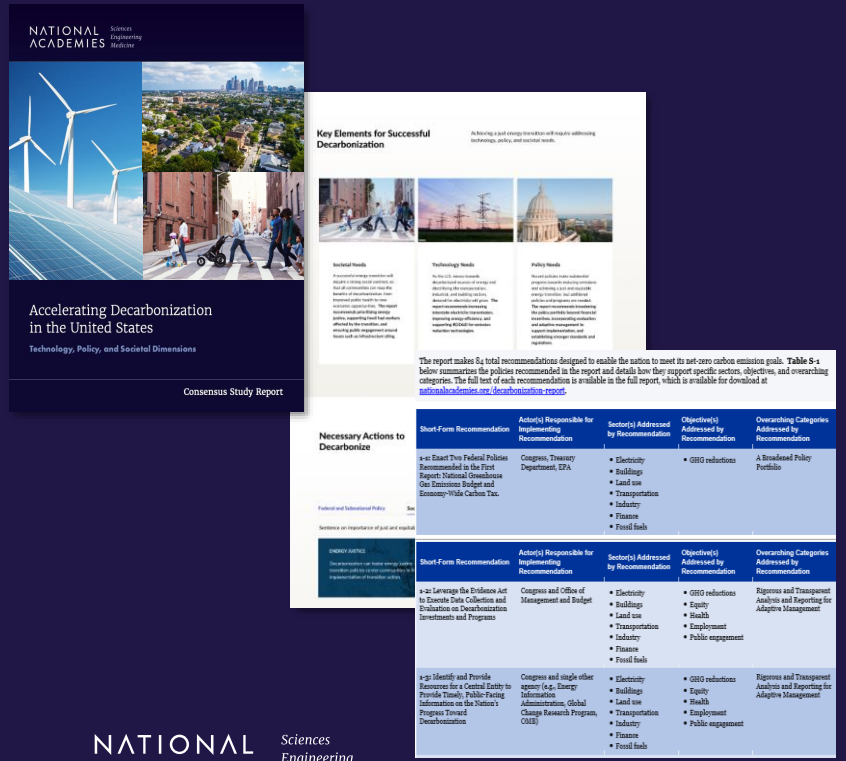

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- **Public Facing Resources***
  - Full report
  - Digital interactive report summary
  - 6 topical report highlights documents:
    - Federal policy
    - Subnational policy
    - Energy justice
    - Workforce
    - Electricity
    - Transportation

*Spanish translation is planned for major content pieces

nationalacademies.org/decarbonization-report