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EPA's Proposed Carbon Standards for Fossil Fuel-Fired Power Plants

June 19, 2023

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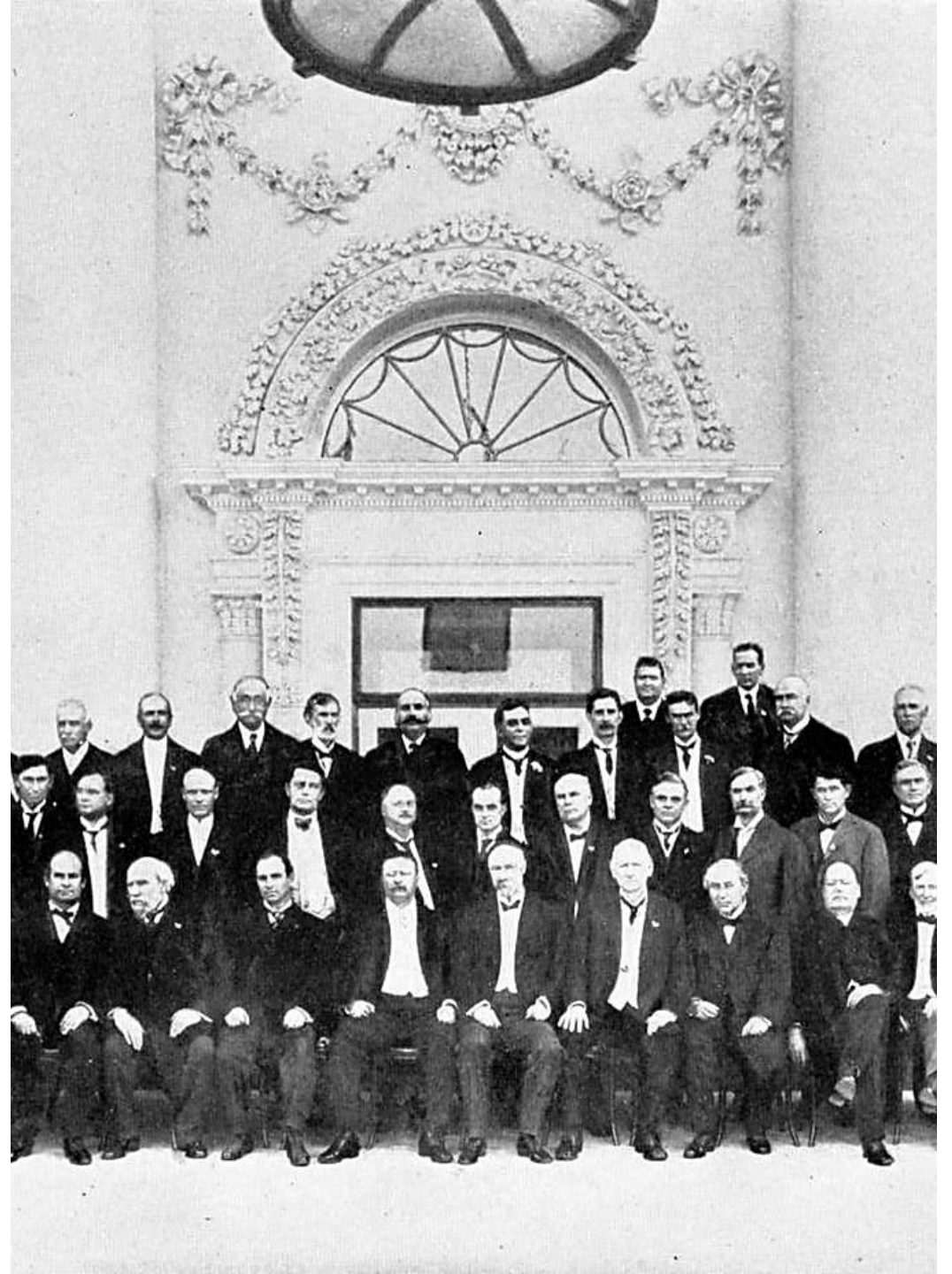
About NGA



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What is NGA?

Founded in 1908, the National Governors Association is the nonpartisan organization of the nation's 55 governors. Through NGA, governors share best practices, address issues of national and state interest and share innovative solutions that improve state government and support the principles of federalism.



NGA Center for Best Practices

The NGA Center develops solutions to today's most pressing public policy challenges. The Center is the only research and development firm directly serving the nation's Governors.

Program areas:

- Children and Families
- Cybersecurity
- **Energy**
- Environment
- Healthcare Delivery
- Homeland Security
- Infrastructure
- K-12 Education
- Land Management, Agriculture, and Wildlife



NGA Center for Best Practices. Energy Policy Learning Network



Provide **Governors** with **state-based** energy **solutions** that **enhance outcomes** for: economic and workforce development, reliability, resilience, sustainability, equity, health, and safety.



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Upcoming NGA Energy Resources

Written Products

- Guidance for Governors on *Advanced Grid Technologies* and *State Regulatory Approaches*
- Governor's guide to **Nuclear Energy Policies** and regulations
- **Energy Crisis Communications** Playbook (with NASEO)
- Supporting *Cybersecurity Talent Pipelines* for Energy and Critical Infrastructure
- Ensuring the **Security of Distributed Energy Resources**

Technical Assistance

- State participation in **GridEx VII**: November 2023
- **Legislative Energy Horizons Institute** – Applications accepted early 2024
- In-person **State Nuclear Learning Cohort** – Winter 2024
- Governors' Advisors **Energy Policy Institute** – Summer 2024
- **Transmission Workshop** – Fall 2024
- State Roundtable on **Physical Security** of Energy Systems – Fall 2024



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Background on EPA's Authority to Regulate CO₂ Emissions



Timeline of Proposed EPA Power Plant Emissions Regulations:

1970: Clean Air Act authorizes EPA to set standards for new (111(b)) and existing (111(d)) power plant pollutants

1990: Clean Air Act Amendments established a cap and trade program for SO₂ emissions from power plants

2007: Supreme Court rules that EPA can regulate GHG emissions as pollutants (MA vs. EPA)

2015: EPA Finalizes Clean Power Plan (CPP)

2016: Supreme Court stayed the CPP (preventing the CPP from taking effect)

2019: CPP repealed & replaced by the Affordable Clean Energy (ACE) Rule

2021: D.C. Circuit Court vacated the ACE Rule sending it back to the EPA for revisions

2022: Supreme Court rules that EPA can't use generation shifting approach (WV vs EPA)

May 11, 2023: EPA Proposes New Rule for New and Existing Power Plants



For the past 20 years+, there have been numerous legal cases pertaining to **state and federal authority to regulate greenhouse gas (GHG) emissions.**

Two key **U.S. Supreme Court** rulings are:

1. Massachusetts vs. EPA – 2007 ruling that greenhouse gases (GHGs) are air pollutants covered by the Clean Air Act (CAA) and can be regulated by EPA

2. West Virginia vs. EPA – 2022 ruling that EPA can't use "generation shifting" from higher carbon resources (coal & natural gas) to lower emission sources (natural gas & renewables) when determining the best system of emission reductions (BSER) under the CAA. *Note: this was an approach under the Clean Power Plan*

SUPREME COURT OF THE UNITED STATES

Syllabus

WEST VIRGINIA ET AL. v. ENVIRONMENTAL
PROTECTION AGENCY ET AL.

CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR
THE DISTRICT OF COLUMBIA CIRCUIT

No. 20–1530. Argued February 28, 2022—Decided June 30, 2022*



2015: Clean Power Plan (CPP)

- CPP established mandatory CO₂ emission performance rates for existing power plants
- States, territories, and tribes required to develop implementation plans to ensure reductions by 2030.
- Used three building blocks to determine Best System of Emission Reductions (BSER) In the final Clean Power Plan:

Building Block 1 - reducing the carbon intensity of electricity generation by improving the heat rate of existing coal-fired power plants.

Building Block 2 - substituting increased electricity generation from lower-emitting existing natural gas plants for reduced generation from higher-emitting coal-fired power plants.

Building Block 3 - substituting increased electricity generation from new zero-emitting renewable energy sources (like wind and solar) for reduced generation from existing coal-fired power plants.

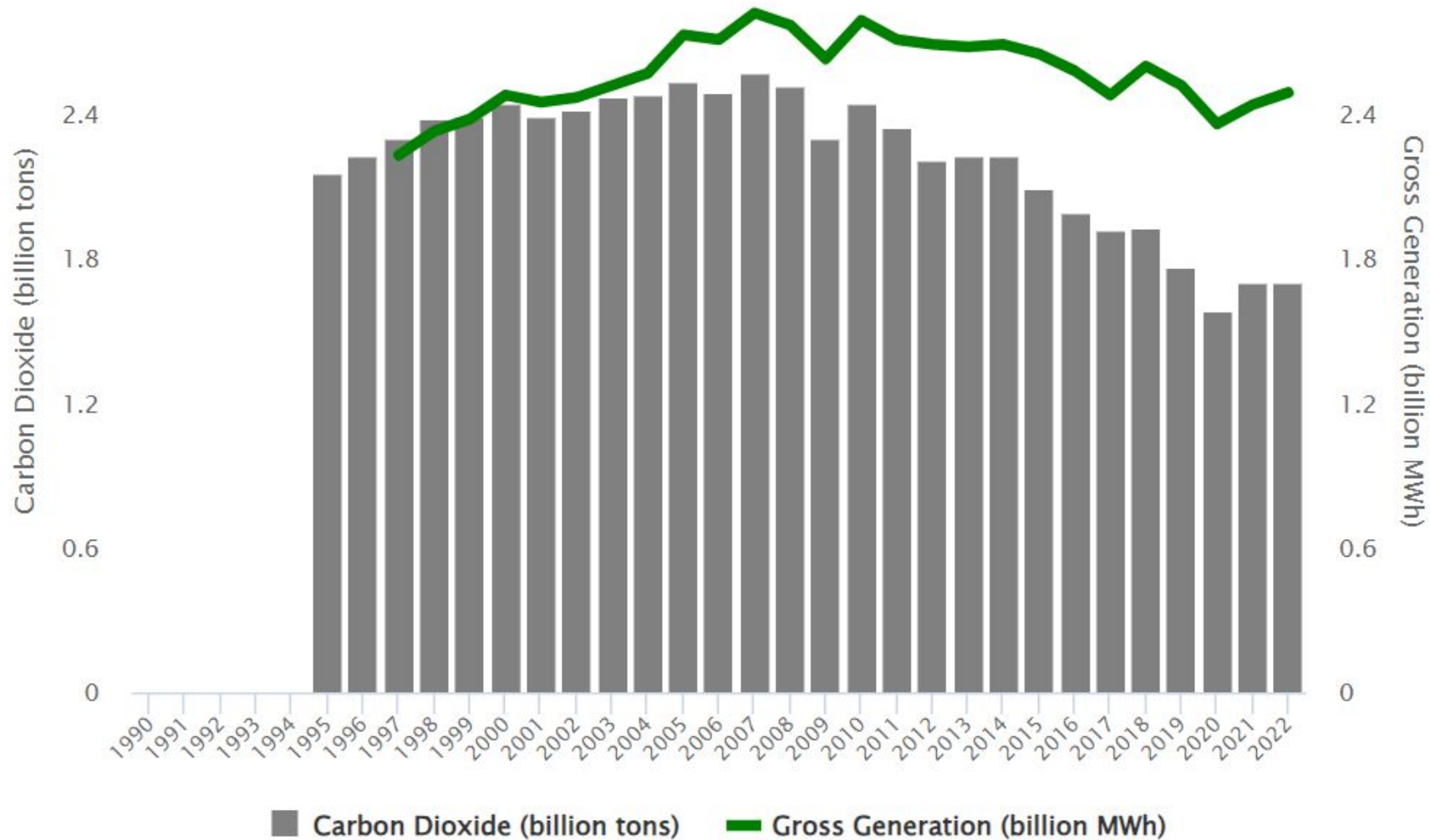
2019: Affordable Clean Energy (ACE) Rule

- ACE Rule established CO₂ emission guidelines for existing coal-fired EGUs
- Gave flexibility to states in establishing their own standards of performance
- Simultaneously repealed the Clean Power Plan



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Summary of Current EPA Proposal

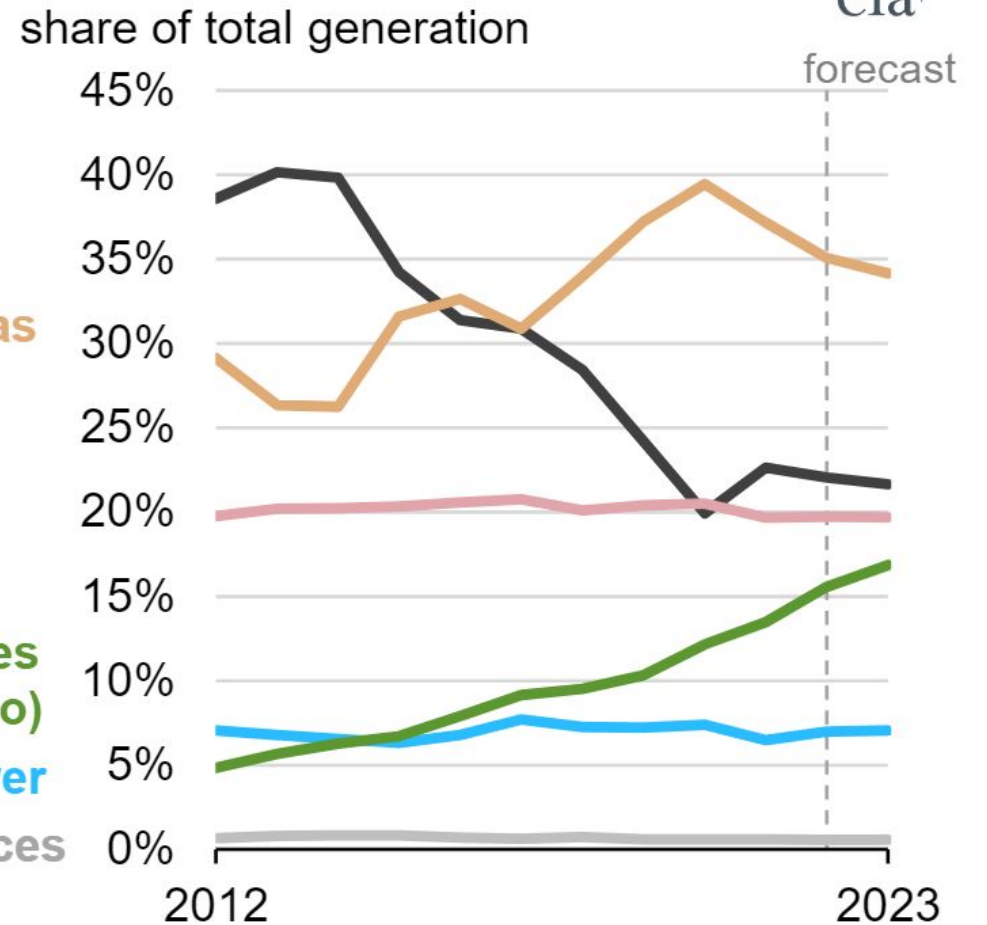
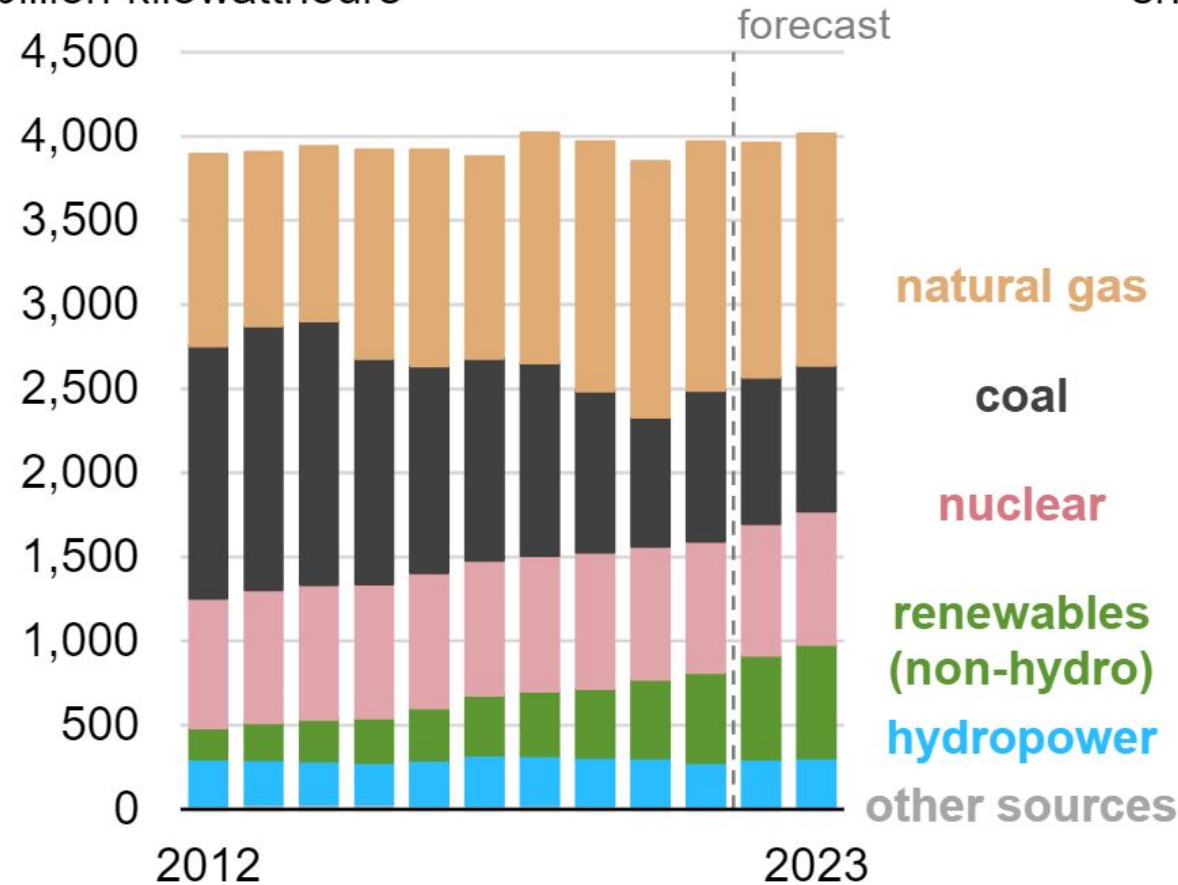


Source: EPA



Annual U.S. electric power sector generation by energy source (2012–2023)

billion kilowatthours



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, January 2022



- EPA proposed its most recent rule to regulate carbon dioxide (CO₂) emissions from Coal and Gas-Fired Power Plants May 11, 2023
- All comments on the proposed rule were due August 8, 2023
- Emission limits would go into effect for affected existing units in 2030 and become increasingly stringent over time



Technology-based standards based on technologies such as carbon capture and sequestration/storage (CCS), low-GHG hydrogen co-firing, and natural gas co-firing

Applicability:

- New natural gas fired turbines (thru New Source Performance Standards)
- Existing coal, oil and natural gas fired steam generating electricity generating units (EGUs)
- Existing large stationary combustion turbines (typically natural gas-fired)

The “Best Systems of Emissions Reduction” are based on rates achieved by CCS, natural gas co-firing, or clean hydrogen co-firing.



| Capacity Factor | Best System of Emissions Reduction (BSER) |
|---|---|
| <20% (peaking units) | Low-emitting fuels (natural gas, distillate oil), emissions based on fuel type |
| Intermediate load (btwn 20% and tech-specific upper bound) | Phase 1: Efficient generation Phase 2: 30% low-GHG hydrogen by 2032 |
| Baseload (greater than upper-bound threshold) CCS Pathway | Phase 1: Efficient generation Phase 2: 90% capture CCS by 2035 |
| Baseload (greater than upper-bound threshold) Hydrogen Pathway | Phase 1: Efficient generation Phase 2: 30% low-GHG hydrogen by 2032 Phase 3: 96% low-GHG hydrogen by 2038 |



**For plants >300MW and 50% capacity factor
Standard = baseload standard for new plants**

| Capacity Factor | Best System of Emissions Reduction (BSER) |
|---|--|
| Baseload (greater than upper-bound threshold) CCS Pathway | 90% capture CCS by 2035 |
| Baseload (greater than upper-bound threshold) Hydrogen Pathway | Phase 1: 30% low-GHG hydrogen by 2032 Phase 2: 96% low-GHG hydrogen by 2038 |



| Operations Horizon | Best System of Emissions Reduction (BSER) | Projected CO2 Reduction |
|---|---|-------------------------|
| Long-term operations (2040 and beyond) | CCS with 90% capture of CO2 | 88.4% |
| Cease operations before 1/1/2040 | Co-fire 40% natural gas | 16% |
| Cease operations before 1/1/2035 with 20% capacity factor | Routine operations | No change |
| Cease operations before 1/1/2032 | Routine operations | No change |



Per 111(d) of Clean Air Act: States must submit plans to EPA that establish, implement and enforce standards for existing sources

Deadline: Within 24 months of effective date

Compliance Flexibility: EPA proposes allowing “trading and averaging” for state plans at state’s discretion.

Pertinent IIJA and IRA Programs

IIJA:

- Regional Clean Hydrogen hubs grant program
- Clean Hydrogen Electrolysis Program
- Clean hydrogen manufacturing and recycling initiatives

IRA:

- Advanced Energy Project Credit
- Clean Hydrogen Production Tax Credit
- Carbon Capture and Sequestration Tax Credit
- Energy Storage Credit (includes hydrogen storage)

NGA IIJA and IRA Resources Pages



- Provides the latest federal resources, including a calendar of current IIJA funding opportunities, RFIs and other deadlines
- Offers a searchable table of IIJA programs with latest information and links to Federal pages
- Offers insights from Associations and NGA partners
- Provides the latest NGA analysis and updates
- IIJA: www.nga.org/iija-implementation
- IRA: <https://www.nga.org/ira-resources/>

Federal Resources

- ▶ Department of Transportation
- ▶ Department of Commerce / National Telecommunications and Information Agency
- ▶ Department of Energy
- ▶ Environmental Protection Agency
- ▶ Federal Permitting Improvement Steering Council
- ▶ Additional Federal Resources

IIJA Guidebook Released

After previewing the Infrastructure Investment and Jobs Act guidebooks to Governors at the Winter Meeting, the White House released the [online version](#) to provide information outlining resources in the infrastructure package. This guidebook is a roadmap to the funding available under the law, as well as an explanatory document that shows direct federal spending at the program level. The White House has also released an IIJA [Rural Playbook](#), which identifies programs set aside for rural communities under the law and overviews key flexibilities and other benefits available.

The White House hosted a series of webinars for implementation stakeholders to provide an in-depth look into the programs contained within chapter of the IIJA Guidebook. Summaries of select webinars can be found [here](#). Full videos of the infrastructure school webinars can be found [here](#).

Full details of all transportation and broadband programs, and other select programs, are available in a [searchable table](#) below.

Calendar Of Upcoming IIJA Funding Opportunities And Milestones

- May 13, 2022 onwards – eligible entities can submit a corridor proposal under the FRA Corridor Identification Program
- July 18, 2022 – Completed Letter of Intent for NTIA's Broadband Equity, Access and Deployment Program due through application portal
- July 19, 2022 – Submission deadline for full applications for DOE Electric Drive Vehicle Battery Recycling and Second-Life Applications Funding Opportunity
- July 25, 2022, proposals due for USDOT's Pilot Program for Transit Oriented Development (TOD) Planning
- July 21, 2022 – Full Proposals due for USDA/DOI/DOD's America the Beautiful Challenge 2022 Request for Proposals
- July 25, 2022 – Planning Funding Opportunity applications due for 2022 Competitive Bridge Investment Program
- July 28, 2022 – Applications close for WaterSMART Water and Energy Efficiency Grants for FY2023
- July 29, 2022 – Letters of Intent due for NOAA's Coastal Zone Management Habitat Protection and Restoration Grant program
- July 29, 2022 – Letters of Intent due for NOAA's National Estuarine Research Reserve System Habitat Protection and Restoration Grants program



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Transmission Planning, Siting, and Permitting

2023 Governors' Energy and Infrastructure Working Group

Utah Governor Spencer Cox (co-chair)
Montana Governor Greg Gianforte
New Hampshire Governor Chris Sununu
North Dakota Governor Doug Burgum
Oklahoma Governor Kevin Stitt

Louisiana Governor John Bel Edwards (co-chair)
Illinois Governor JB Pritzker
Maine Governor Janet Mills
Puerto Rico Governor Pedro Pierluisi

[Bipartisan Vision to Accelerate Project Delivery:](#)

- Improve the NEPA process while protecting the integrity of reviews
- Prioritize state and territory permitting efforts
- Preserve environmental safeguards and community engagement

New [Energy and Infrastructure Permitting](#) Resources Page

Transmission Siting and Permitting



How Governor Leadership Can Advance Projects



Transmission Siting and Permitting: How Governor Leadership can Advance Projects

Report available at:

<https://www.nga.org/publications/transmission-siting-and-permitting-how-governor-leadership-can-advance-projects/>



Thank You!

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