



EPA Regulatory Updates

Taimur Shaikh, Ph.D.

Senior Policy Advisor – Energy

EPA Region 6

Topics

National Priorities & Executive Orders

Oil and Gas Methane Rules

GHG Power Plant Rules

Climate Pollution Reduction Grants

EPA's National Priorities

01

Restoring the role of
science and
transparency

02

Addressing climate
change

03

Prioritizing
environmental
justice

Executive Order Matrix Highlights

Executive Order	Executive Order 13990 of January 20, 2021 - Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis	Executive Order 14008 of January 27, 2021 - Tackling the Climate Crisis at Home and Abroad	Executive Order 14057 of December 8, 2021 - Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability	Executive Order 14096 of April 21, 2023 - Revitalizing Our Nation's Commitment to Environmental Justice for All
EPA	<ul style="list-style-type: none"> - <u>Revise Oil and Gas Methane Rules</u> - FIP 2016 Oil Natural Gas Industry Control Techniques Guidelines for the 2008 Ozone NAAQS in the Ozone Transport Region,..." 	<ul style="list-style-type: none"> - Established, within the Environmental Protection Agency, the White House Environmental Justice Advisory Council. - Strengthen enforcement of violations with disproportionate impact on underserved communities. 	<ul style="list-style-type: none"> - Agencies shall consider incorporating recommendations of the Justice40 Initiative, required by section 223 of Executive Order 14008. - Each agency shall increase facility energy efficiency and water efficiency and shall establish targets for fiscal year 2030. 	<ul style="list-style-type: none"> - Each agency should make achieving environmental justice part of its mission. - Evaluate relevant legal authorities and, as available and appropriate, take steps to address disproportionate and adverse human health and environmental effects (including risks) and hazards unrelated to Federal activities...;
EJ/Climate	<ul style="list-style-type: none"> - Heads of agencies shall seek input from the public and stakeholders, including...environmental advocates, and environmental justice organizations. - Social cost of carbon/methane 	<ul style="list-style-type: none"> - Establishes National Climate Taskforce - <u>Investing and building a clean energy economy turns disadvantaged communities into healthy, thriving communities.</u> 	<ul style="list-style-type: none"> - Incorporate environmental justice considerations into sustainability and climate adaptation planning, programs, and operations. 	<ul style="list-style-type: none"> - Advance environmental justice for all by implementing and enforcing the Nation's environmental and civil rights laws, preventing pollution, addressing climate change and its effects, ...
Energy	<ul style="list-style-type: none"> - Revoking the March 2019 Permit for the Keystone XL Pipeline 	<ul style="list-style-type: none"> - <i>Renewable Energy on Public Lands and in Offshore Waters.</i> - Moratorium on new Oil and Gas Development on federal land. 	<ul style="list-style-type: none"> - <u>100% Carbon free electricity annually at federal facilities by 2030</u> - <u>Net zero portfolio by 2045</u> 	<ul style="list-style-type: none"> - It is also necessary to prioritize building an equitable, inclusive, and sustainable economy that offers economic opportunities,... <u>and facilitating an equitable transition of the workforce as part of a clean energy future.</u>

EPA's 40 CFR 60 Subparts 0000b and 0000c Proposal

To Reduce Pollution from Oil and Natural Gas Operations

Crude Oil and Natural Gas Industry: Where EPA's Proposed Methane Rules Would Apply

Production & Processing

EPA's methane proposal covers equipment & processes at:

1. Onshore well sites
2. Storage tank batteries
3. Gathering & boosting compressor stations
4. Natural gas processing plants



Natural Gas Transmission & Storage

EPA's methane proposal covers equipment & processes at:

5. Compressor stations
6. Storage tank batteries



Distribution *(not covered by EPA rules)*

7. Distribution mains/services
8. City gate
9. Regulators and meters for customers

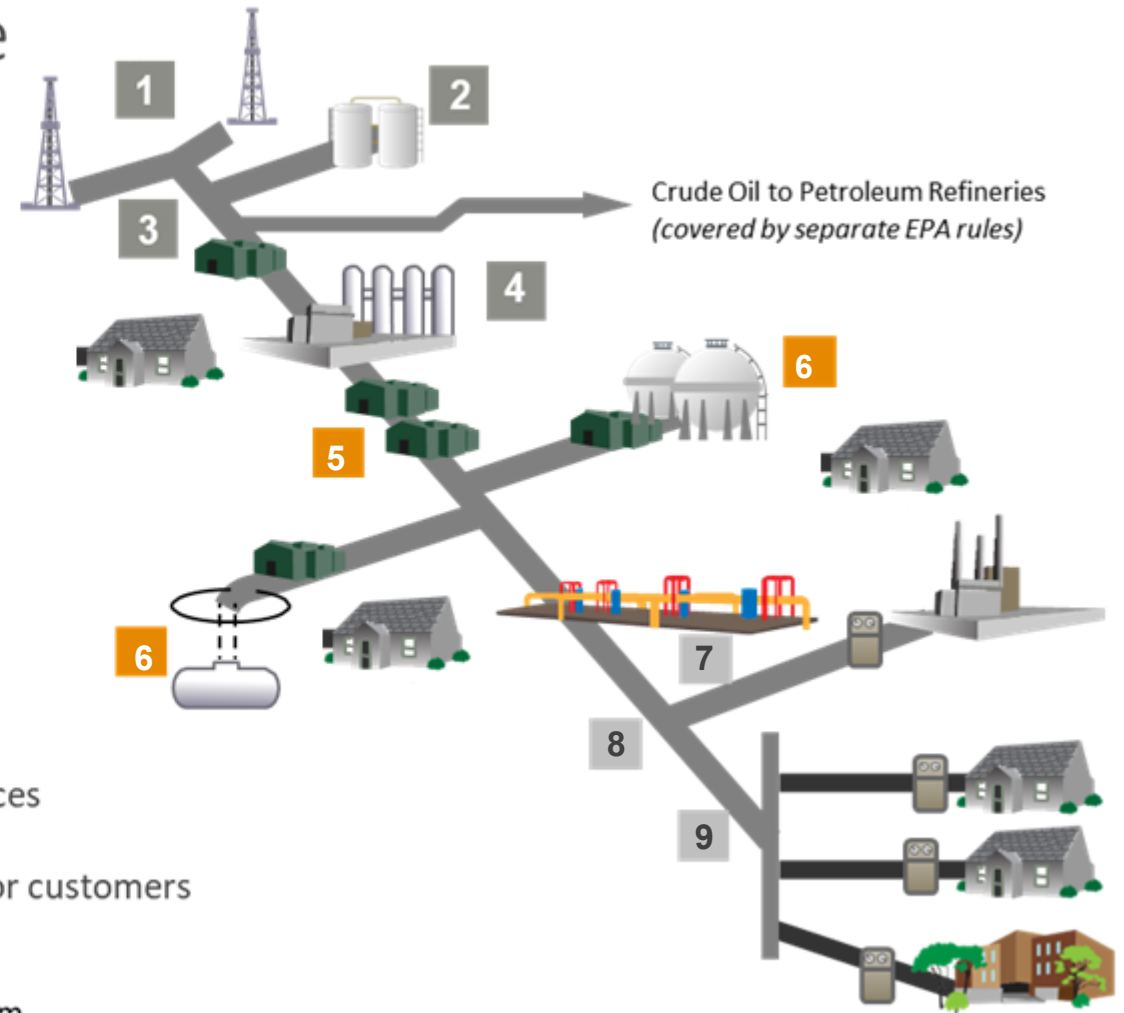
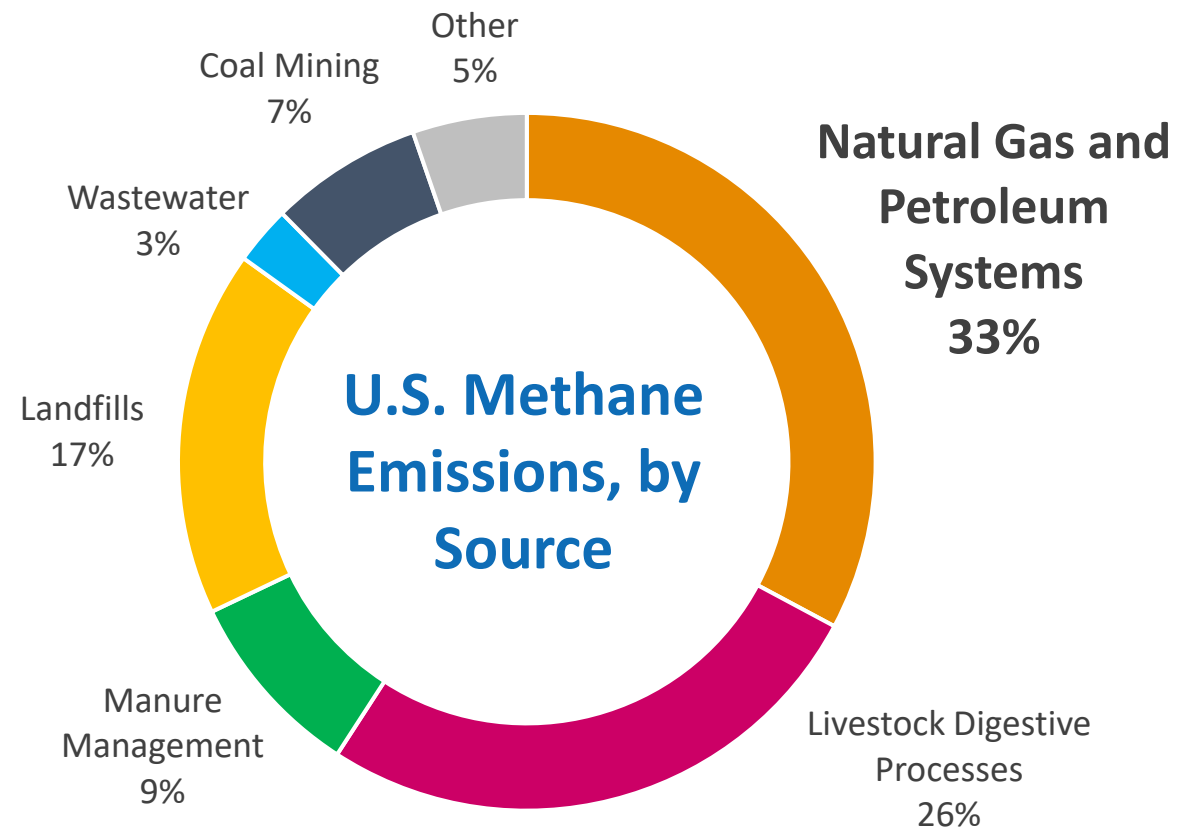


Figure: Adapted from American Gas Association and EPA Natural Gas STAR Program

Methane Emissions and Oil and Gas Operations

- Methane is responsible for approximately **one-third of current warming** from human activities
- The oil and gas sector is the **largest industrial source of methane emissions** in the United States
- Oil and gas operations also emits **other harmful pollutants**, like smog-forming volatile organic compounds, and toxic chemicals like benzene



Background

- 2021 proposal: EPA received 470,000+ comments
- 2022 supplemental proposal: EPA received 515,000+ comments
- Combined 2021 & 2022 outreach
 - Trainings for each proposal for communities with EJ concerns, Tribes, and small businesses
 - Three-day virtual public hearings for each proposal
 - More than 600 total people spoke; hundreds more viewed on livestream
 - Tribal consultations were completed at request of:
 - 2021: Northern Arapahoe, MHA Nation, and Eastern Shoshone
 - 2022: MHA Nation and Ute Tribes
 - Numerous stakeholder calls

Overview of Rulemaking



Proposal

November 2021

Proposed to:

- Update and strengthen methane and VOC standards on the books for new sources
- Add standards for currently unregulated new sources
- Establish first nationwide Emission Guidelines for states to regulate existing sources

EPA received over 470,000 comments and held three days of public hearings



Supplemental Proposal

November 2022

Proposing to:

- Make proposed standards more comprehensive
- Promote use of innovative technologies
- Modify and refine proposed standards based on comments and information
- Provide implementation details for states
- Provide regulatory text

EPA has updated and improved its Regulatory Impact Analysis



Final Rule

2023

Schedule

Comment Period
Closed
February 13, 2023



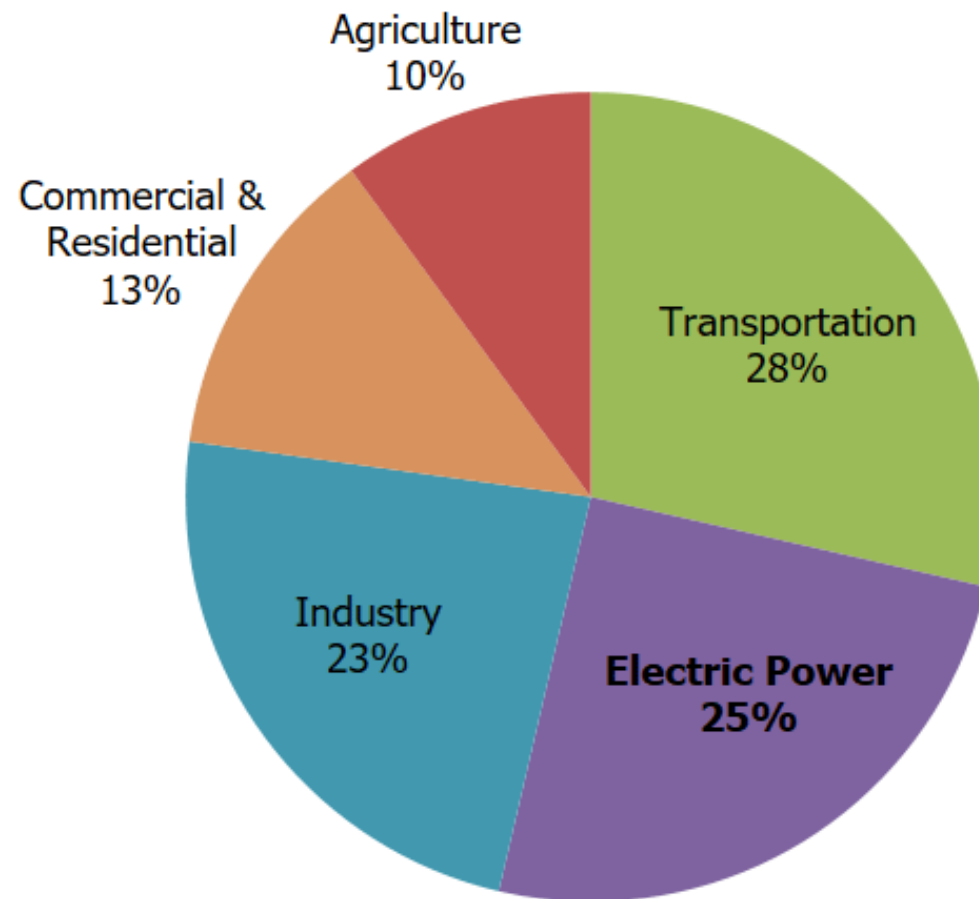
Final Rule
in 2023

CAA 111(b) and 111(d) Power Plant Rules

Overview

- On May 11, 2023, EPA issued proposed Clean Air Act emission limits and guidelines for carbon dioxide (CO₂) from fossil fuel-fired power plants based on cost-effective and available control technologies.
- In 2021, the power sector was the largest stationary source of greenhouse gases (GHGs), emitting 25 percent of the overall domestic emissions.

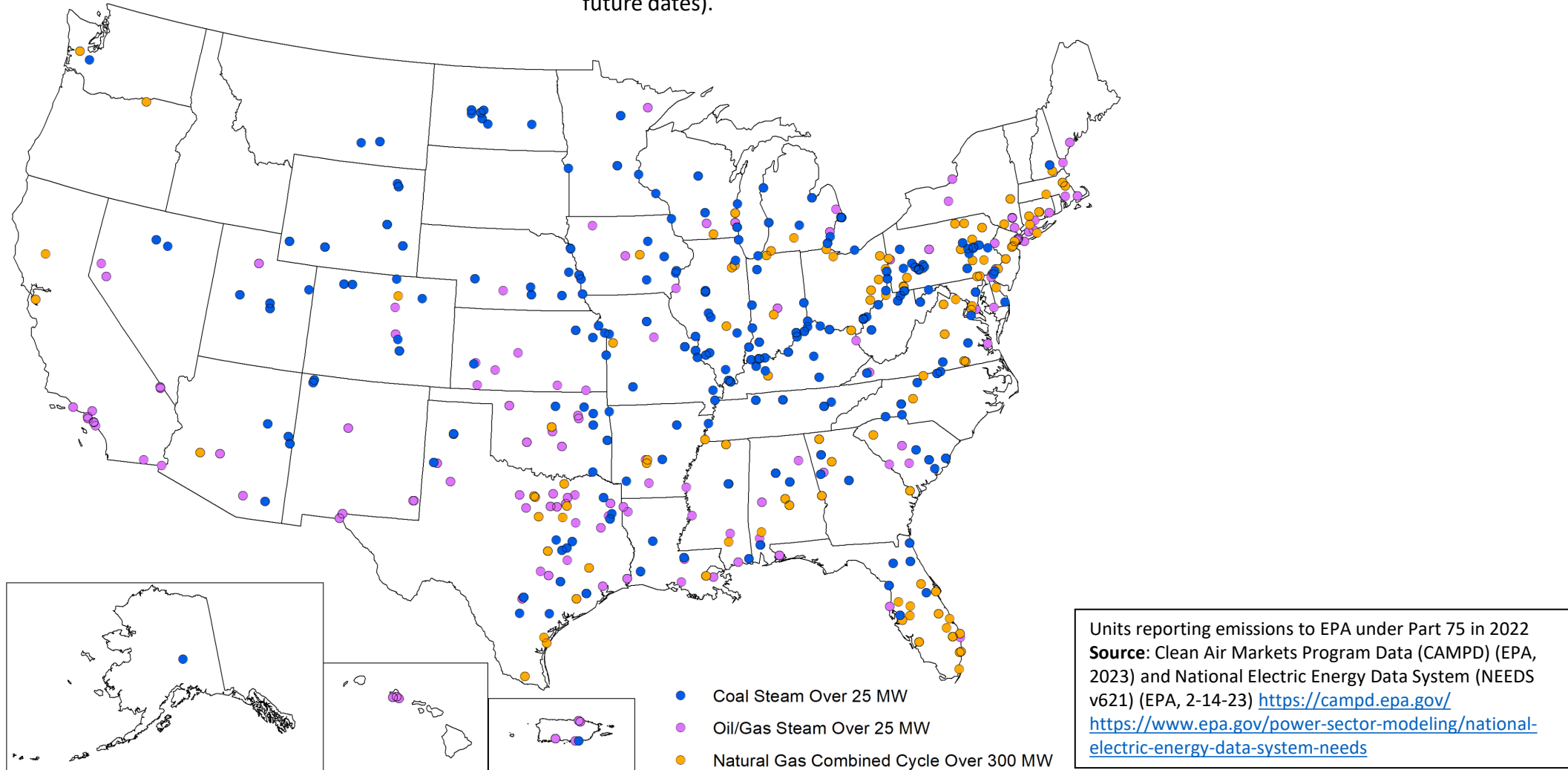
Total U.S. Greenhouse Gas Emissions by Economic Sector in 2021



U.S. Environmental Protection Agency (2023). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2021

Proposed Greenhouse Gas Emission Guidelines for Fossil Fuel-Fired Power Plants: Potentially Affected Sources

This map is for illustrative purposes only and shows the universe of fossil fuel-fired power plants operating today (based on 2022 data) that are potentially affected by EPA's proposed Carbon Pollution Standards. Starting in 2030, the proposals would generally require more CO₂ emissions control at fossil fuel-fired power plants that operate more frequently and for more years and would phase in increasingly stringent CO₂ requirements over time. The proposed requirements vary by the type of unit (new or existing, combustion turbine or utility boiler, coal-fired or natural gas-fired), how frequently it operates (base load, intermediate load, or low load (peaking)) and its operating horizon (i.e., planned operation after certain future dates).



Overview

Technology-based standards that leverage cost-effective and available technologies

- Proposing standards and emission guidelines for new and existing fossil fuel-fired power plants based on proven, cost-effective control technologies.
 - Set limits for new gas-fired combustion turbines, existing coal, oil and gas-fired steam generating units, and certain existing gas-fired combustion turbines
- Consistent with EPA's traditional approach to establishing pollution standards under Clean Air Act section 111, based on technologies such as carbon capture and sequestration/storage (CCS), low-GHG hydrogen co-firing, and natural gas co-firing, which can be applied directly to power plants that use fossil fuels

Reduces climate and other health-harming pollution

- Through 2042, EPA estimates the climate and health net benefits of the standards on new gas and existing coal-fired power plants are **up to \$85 billion**, an annual net benefit of up to roughly \$6 billion
- Proposal for coal and new natural gas is expected to avoid up to 617 million metric tons of carbon dioxide (CO₂) through 2042, equivalent to annual national CO₂ emissions from natural-gas fired power generation in 2021
- Proposed standard for existing natural gas is expected to avoid up to 407 million metric tons of CO₂

Build on decades of technology advancements and momentum from recent changes in the sector driven by the Inflation Reduction Act and the Bipartisan Infrastructure law

- Proposals provide utilities options for meeting these standards as well as ample time to plan and invest for compliance, leverage the clean energy incentives and opportunities provided in the Inflation Reduction Act, and continue to support a reliable supply of affordable electricity.

Overview Continued

Flexible proposal and with time and options to plan investments

- EPA considered time alongside technology to give utilities options for planning their investments.
- Consider how different types of units are used and extensive industry input to EPA about unit operating horizons and lead times for control technologies.
 - Used this input to evaluate control technologies and create subcategories that give units flexibility.

Part of a larger, comprehensive suite of regulatory actions for power plants

- The Administrator announced this suite of actions over a year ago to fully address the climate, health, and environmental burdens from power plants, which all too often fall hardest on vulnerable or overburdened communities.
- Over the last few months, EPA:
 - issued a final "Good Neighbor Rule" to reduce smog-forming pollution from power plants and industrial facilities in 23 states;
 - finalized a finding that it is "appropriate and necessary" to regulate hazardous air pollutants from power plants under the Clean Air Act, restoring the legal foundation for our Mercury and Air Toxics Standards
 - proposed to strengthen MATS for mercury and other hazardous air pollutants from coal-fired power plants; and
 - proposed to strengthen limitations on wastewater discharges from power plants under the Clean Water Act.

PROPOSED BEST SYSTEM FOR EMISSIONS REDUCTIONS (“BSER”) LEVELS FOR 111(B) - NEW STATIONARY COMBUSTION TURBINES

Phase I (By date of promulgation or upon initial startup)	Phase II Beginning in 2032-2035	Phase III Beginning in 2038
Low Load Subcategory (Capacity Factor <20%)		
BSER: Use of low emitting fuels (e.g., natural gas and distillate oil) <u>Standard:</u> From 120 lb CO ₂ /MMBtu to 160 lb CO ₂ /MMBtu, depending on fuel type	No proposed Phase II or Phase III BSER component or standard of performance	
Intermediate Load Subcategory (Capacity Factor 20% to ~50%*) *Upper bound limit based on EGU design efficiency and site-specific factors		
BSER: Highly efficient simple cycle generation <u>Standard:</u> 1,150 lb CO ₂ /MWh-gross	BSER: Continued highly efficient simple cycle generation with 30% (by volume) low-GHG hydrogen co-firing beginning in 2032 <u>Standard:</u> 1,000 lb CO ₂ /MWh-gross	No proposed Phase III BSER component or standard of performance
Base Load Subcategory (Capacity Factor >~50%*) *Limit		
BSER: Highly efficient combined cycle generation <u>Standard:</u> 770 lb CO ₂ /MWh-gross (EGUs with a base load rating of 2,000 MMBtu/h or more) <u>Standard:</u> 770 lb – 900 lb CO ₂ /MWh-gross (EGUs with a base load rating of less than 2,000 MMBtu/h)	Low-GHG Hydrogen Pathway BSER: Continued highly efficient combined cycle generation with 30% (by volume) low-GHG hydrogen co-firing beginning in 2032 <u>Standard:</u> 680 lb CO ₂ /MWh-gross CCS Pathway BSER: Continued highly efficient combined cycle generation with 90% CCS beginning in 2035 <u>Standard:</u> 90 lbCO ₂ /MWh gross	Low-GHG Hydrogen Pathway BSER: Co-firing 96% (by volume) low-GHG hydrogen beginning in 2038 <u>Standard:</u> 90 lb CO ₂ /MWh-gross CCS Pathway: No Phase III BSER component or standard of performance
The proposed definition of low-GHG hydrogen is hydrogen produced with less than 0.45kgCO ₂ e/kgH ₂ overall well to gate emissions, consistent with IRC section 45V(b)(2)(D).		

Low-GHG Hydrogen

- EPA included a proposed definition of low-GHG hydrogen to ensure co-firing achieves the maximum possible overall emissions reductions
- Low-GHG hydrogen is defined in this proposal as hydrogen produced with less than 0.45 kilograms of CO₂ equivalent overall emissions per kilogram of hydrogen (kgCO₂-e/kgH₂) from “well to gate” (meaning from input feedstock extraction to the exit gate of the hydrogen production facility)
- This is consistent with Congress’ definition of the lowest GHG hydrogen tier identified for the highest tax credits in the Inflation Reduction Act

PROPOSED BSER LEVELS FOR 111D – EXISTING COAL, OIL AND NATURAL GAS-FIRED BOILERS
AND LARGE, FREQUENTLY USED NATURAL GAS COMBUSTION TURBINES

Coal-Fired Boilers	Natural Gas and Oil-Fired Boilers	Natural Gas Combustion Turbines
<p>For units operating past December 31, 2039, BSER: CCS with 90% capture of CO₂ an (88.4% reduction)</p>	<p>BSER: routine methods of operation and maintenance with an associated degree of emission limitation of no increase in emission rate (lb CO₂/MWh-gross).</p>	<p>For turbines >300MW, >50% capacity factor</p> <p>CCS Pathway BSER: By 2035: highly efficient generation coupled with CCS with 90% capture of CO₂ (90 lb CO₂/MWh)</p> <p>Low-GHG Hydrogen Pathway BSER: By 2032: highly efficient generation coupled with co-firing 30% (by volume) low-GHG hydrogen (680 lb CO₂/MWh) By 2038: highly efficient generation coupled with co-firing 96% low-GHG hydrogen (90 lb CO₂/MWh)</p>
<p>For units that cease operations before January 1, 2040 and are not in other subcategories, BSER: co-firing 40% (by volume) natural gas with emission limitation of a 16% reduction in emission rate (lb CO₂/MWh-gross basis)</p>		
<p>For units that cease operations before January 1, 2032, and units that cease operations after January 1, 2035, that adopt enforceable annual capacity factor limit of 20%, BSER: routine methods of operation and maintenance with associated degrees of emission limitation of no increase in emission rate</p>		

The proposed definition of low-GHG hydrogen is hydrogen produced with less than 0.45kgCO₂e/kgH₂ overall well to gate emissions, consistent with IRC section 45V(b)(2)(D).

Environmental Justice Assessment

- In conjunction with other policies such as the Inflation Reduction Act, these proposals will play a significant role in reducing GHGs and move us a step closer to avoiding the worst impacts of climate change, which is already having a disproportionate impact on EJ communities.
- These proposals include an environmental justice analysis that quantitatively evaluates:
 - the proximity of affected facilities to potentially vulnerable and/or overburdened populations for consideration of local pollutants impacted by these proposals and
 - the distribution of ozone and PM_{2.5} concentrations in the baseline and changes due to the proposed rulemakings across different demographic groups on the basis of race, ethnicity, poverty status, employment status, health insurance status, age, sex, educational attainment, and degree of linguistic isolation.
- The environmental justice assessment also includes discussions of climate impacts across various demographic groups.
- Overall, the EJ analysis of ozone and PM_{2.5} concentration changes due to the proposed rulemakings indicates that the air quality benefits of these proposals in three of the four future years would lead to similar reductions in exposures across all demographic groups.

Meaningful Engagement

- Proposed emission guidelines would require states to undertake meaningful engagement with affected stakeholders.
- With regard to CCS, EPA is proposing that CCS is a component of the BSER for new base load stationary combustion turbine EGUs, existing coal-fired steam generating units that intend to operate after 2040, and large and frequently operated existing stationary combustion turbine EGUs.
- EPA recognizes and has given careful consideration to the various concerns that potentially vulnerable communities have raised with regard to the use of CCS.
- EPA and our fellow federal agencies are committed to responsible and safe deployment of CCS and there is a robust existing regulatory framework to ensure that.
- Deployment of CCS should take place in a manner that is protective of public health, safety, and the environment, and that includes early and meaningful engagement with affected communities and the public.

Community and Tribal Webinars

- To help engage with environmental justice communities, tribal nations, and tribal environmental professionals on the proposed rule, EPA will hold two informational webinars.
- These webinars will provide an overview of the proposed rule, information on how to effectively engage in the regulatory process, and an opportunity to participate in a Q&A session.
- These virtual events are free and open to the public and will be held on **June 6th** and **June 7th**. Further details, including how to register for the webinars will be provided on EPA's website at <https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power>

Public Hearing and Comment

- EPA will hold a virtual public hearing for this proposed action. Further details will be announced at [Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants](#).
- EPA will accept comment on the proposal for 60 days after publication in the Federal Register. Comments, identified by Docket ID No. EPA-HQ-OAR-2023-0072, may be submitted by one of the following methods:
 - Go to <https://www.regulations.gov/> and follow the online instructions for submitting comments.
 - Send comments by email to a-and-r-docket@epa.gov, Attention Docket ID No. EPA-HQ-OAR-2023-0072 in the subject line of the message.
 - Fax your comments to: (202) 566-9744, Attention Docket ID No. EPA-HQ-OAR-2023-0072.
 - Mail your comments to: EPA Docket Center, Environmental Protection Agency, Mail Code: 28221T, 1200 Pennsylvania Ave, NW, Washington, DC 20460, Attention Docket ID No. EPA-HQ-OAR-2023-0072.
 - Deliver comments in person to: EPA Docket Center, 1301 Constitution Ave., NW, Room 3334, Washington, DC. Note: In-person deliveries (including courier deliveries) are only accepted during the Docket Center's normal hours of operation. Special arrangements should be made for deliveries of boxed information.

For More Information

- Interested parties can download a copy of the proposed rule from [Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants](#)
- The proposed rule and other background information will also be available electronically at <https://www.regulations.gov/>, EPA's electronic public docket and comment system.
- After publication, materials for this proposed action can be accessed using Docket ID No. EPA-HQ-OAR-2023-0072.



Climate Pollution Reduction Grants

What are the CPRGs?

- The Climate Pollution Reduction Grants (CPRG) program provides grants to states, local governments, tribes, and territories to:
 - Develop and implement plans for reducing greenhouse gas emissions and other harmful air pollution.
 - Section 60114 of the Inflation Reduction Act provides an investment of \$5 billion to support efforts by states, municipalities, air pollution control agencies, tribes, and groups thereof to develop and implement strong, local greenhouse gas reduction strategies.
- This two-staged grant program provides funding of \$250 million for noncompetitive planning grants, and \$4.6 billion for competitive implementation grants.

Eligibility

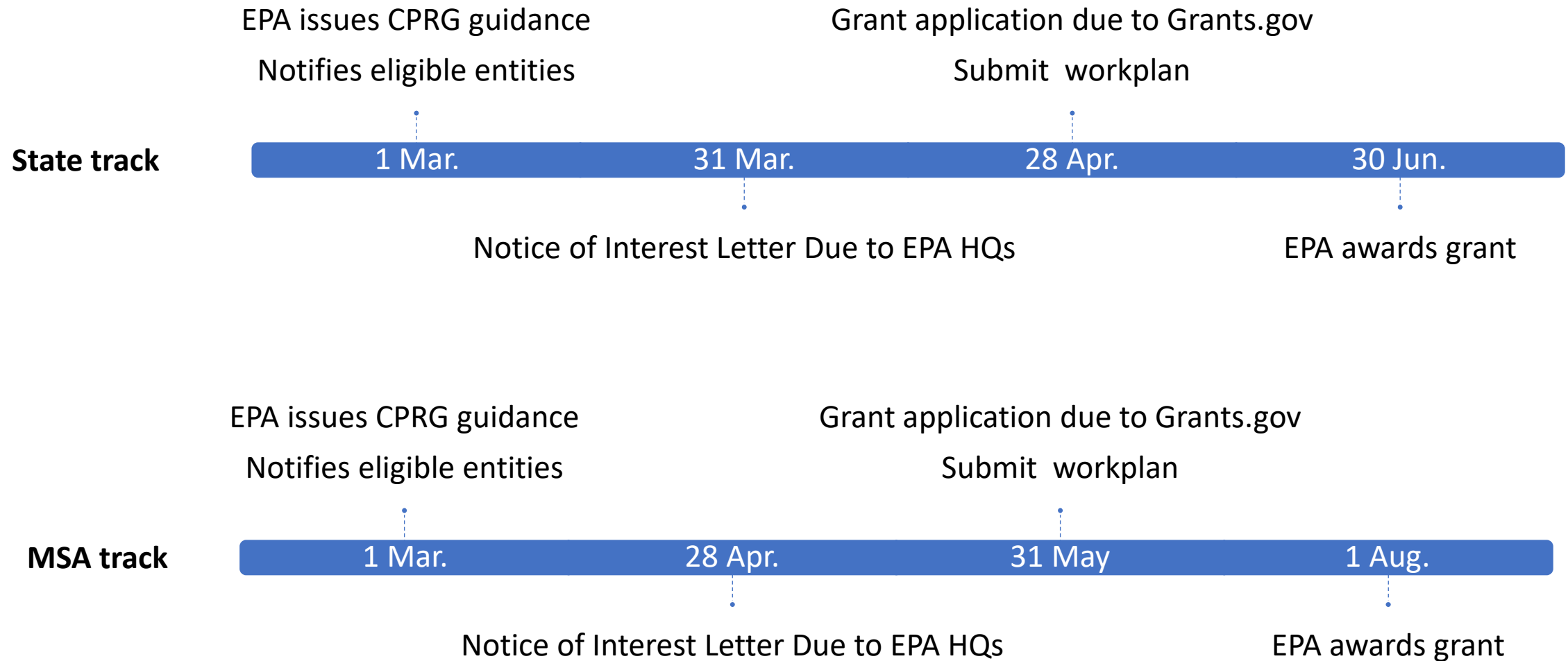
Phase I - Planning

- **Presumptive Allocations**
 - States, District of Columbia, Puerto Rico: \$3 million
 - [Metropolitan Statistical Areas](#): \$1 million to 67 most populous
 - Territories: \$500,000
 - Tribes: \$25 million set-aside

Phase II - Implementation

- **Competitive Process**
 - Awarded through a competitive process to implement measures contained in plans developed with planning grants.
 - Entities included in, or covered by, such plans will be eligible to apply for implementation funding.

CPRG Planning Grants - Key Dates



A R6 Planning Grant Update – States, Locals and Tribes

States - \$3 million	R6 MSAs within the top 67 nationally - \$1 million	Tribes – TBD out of \$2.5 million (Max individual amount - \$500,000)
Arkansas Department of Energy and Environment	Dallas-Fort Worth-Arlington, TX Metro Area (4)	Choctaw Nation
Louisiana Department of Administration	Houston-The Woodlands-Sugarland, TX Metro Area (5)	Muscogee (Creek) Nation
New Mexico Environment Department	San Antonio-New Braunfels, TX Metro Area (24)	United Keetoowah Band
Oklahoma Office of the Secretary of Energy and Environment	Austin-Round Rock-Georgetown, TX Metro Area (28)	Cheyenne & Arapaho
Texas Commission on Environmental Quality	Oklahoma City, OK Metro Area (42)	Sandia Pueblo
	New Orleans-Metairie, LA Metro Area (47)	Kickapoo Tribe of OK
	Tulsa, OK Metro Area (56)	Kaw Nation
	Albuquerque, NM Metro Area (62)	Pueblo of Santa Ana
	McAllen-Edinburg-Mission TX Metro Area (66)	Comanche Nation
	Baton Rouge, LA Metro Area (67)	Pueblo de San Ildefonso
	El Paso, TX Metro Area (68)	Caddo Nation
		Pueblo of Pojoaque

Goals

- EPA is committed to supporting the development of climate action plans and the expeditious implementation of investment-ready policies, programs, and projects to reduce greenhouse gas emissions in the near term.
- Through the CPRG program, EPA will support the development and deployment of technologies and solutions that will reduce GHGs and harmful air pollution, as well as transition America to a clean energy economy that benefits all Americans.

Questions & Discussion

Oil and Gas Methane Rules:

<https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/actions-and-notice-about-oil-and-natural#regactions>

CAA 111(b) and (d) EGU GHG Rules:

<https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power#rule-summary>

CPRG:

<https://www.epa.gov/inflation-reduction-act/climate-pollution-reduction-grants>