Eco Museum Collaboration in Karaganda, Kazakhstan

Addressing the Climate Crisis: EPA's Role in Climate Action

November 28, 2023

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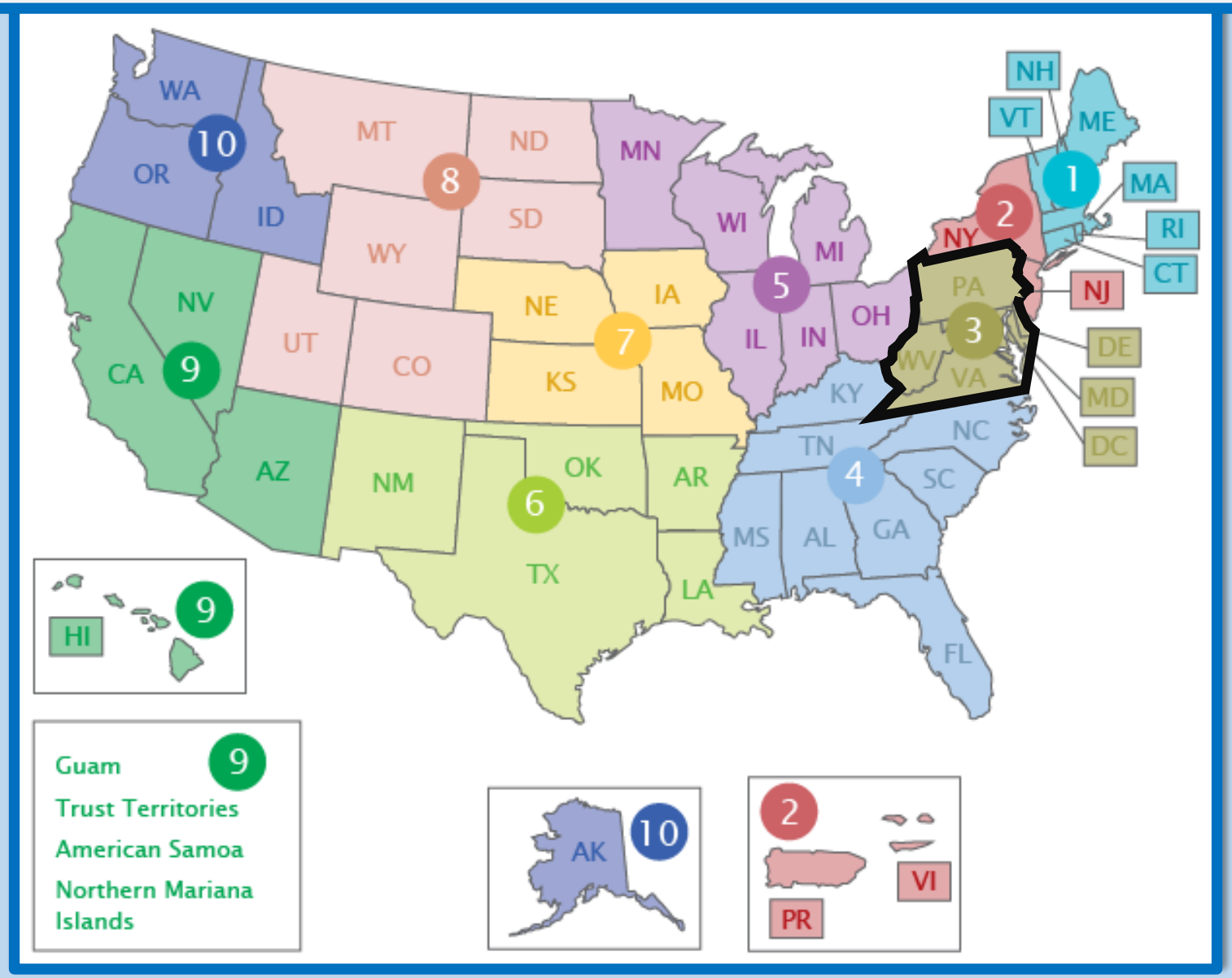
EPA Mid-Atlantic Region (Region 3)



Delaware (DE)

District of Columbia (DC)

Maryland (MD)

Pennsylvania (PA)

Virginia (VA)

West Virginia (WV)

2021 Executive Order on Climate

THE WHITE HOUSE

JANUARY 27, 2021

Executive Order on Tackling the Climate Crisis at Home and Abroad

BRIEFING ROOM › PRESIDENTIAL ACTIONS

EMPOWERING WORKERS THROUGH REBUILDING OUR INFRASTRUCTURE FOR A SUSTAINABLE ECONOMY

EMPOWERING WORKERS THROUGH REVITALIZING ENERGY COMMUNITIES

SECURING ENVIRONMENTAL JUSTICE AND SPURRING ECONOMIC OPPORTUNITY

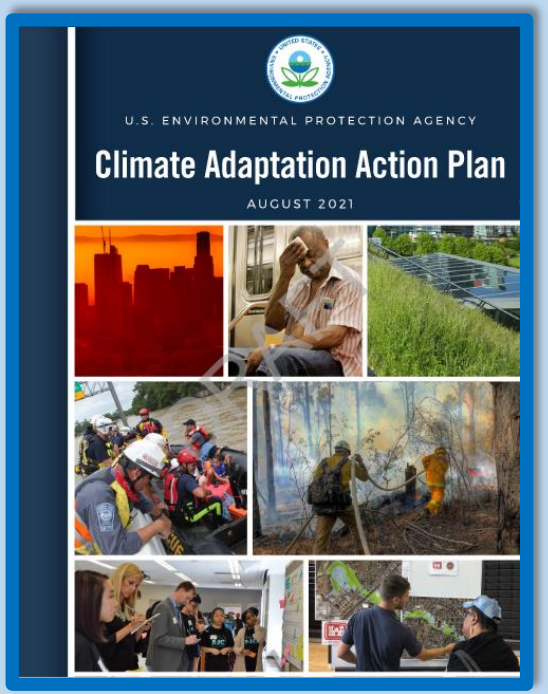
EMPOWERING WORKERS BY ADVANCING CONSERVATION, AGRICULTURE, AND REFORESTATION

PART I — PUTTING THE CLIMATE CRISIS AT THE CENTER OF UNITED STATES FOREIGN POLICY AND NATIONAL SECURITY

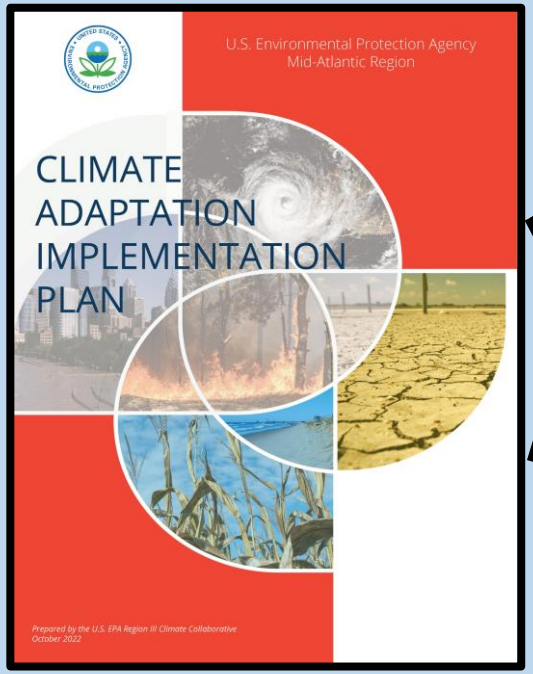
PART II — TAKING A GOVERNMENT-WIDE APPROACH TO THE CLIMATE CRISIS

EPA Climate Planning and Implementation

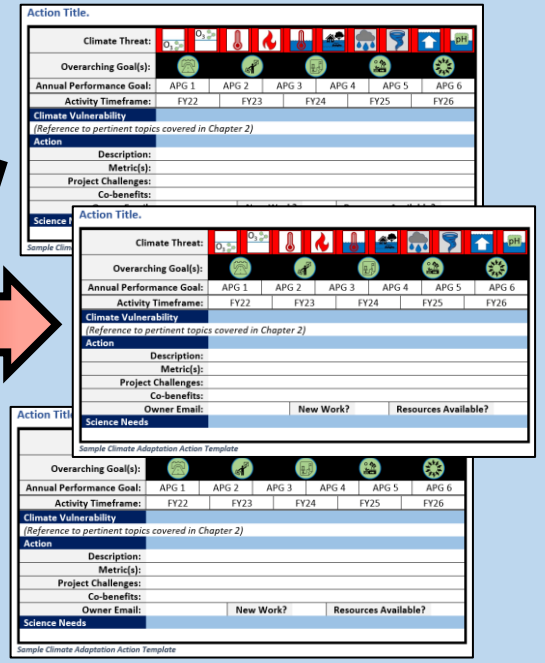
Agency Plan



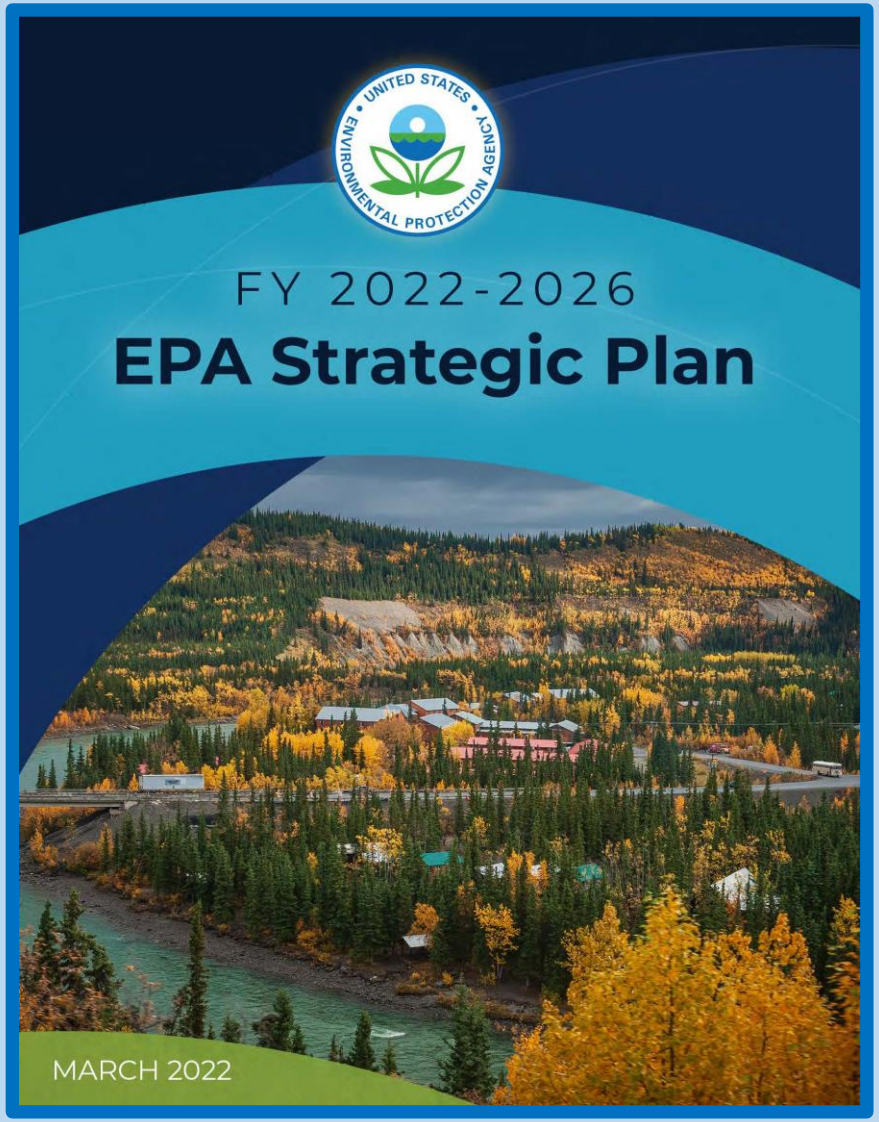
Region 3 Plan

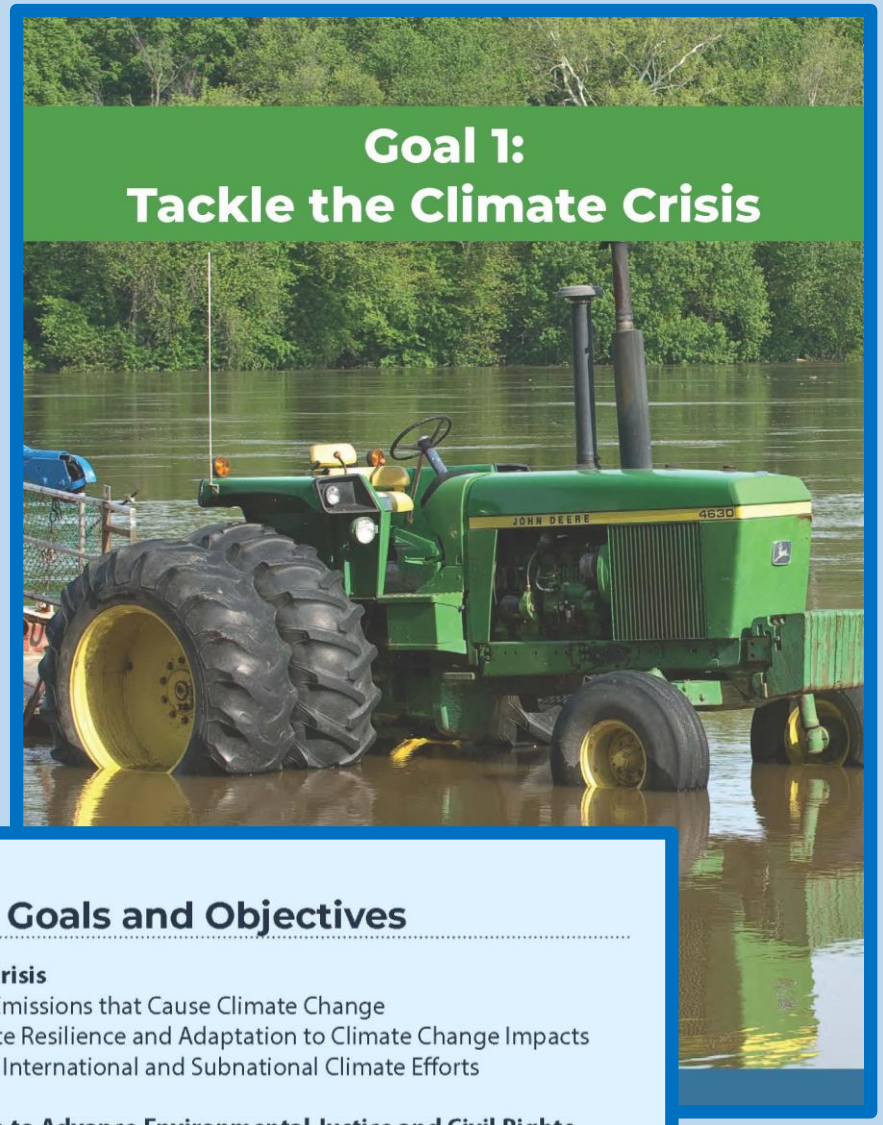


Region 3 Actions



EPA Strategic Plan

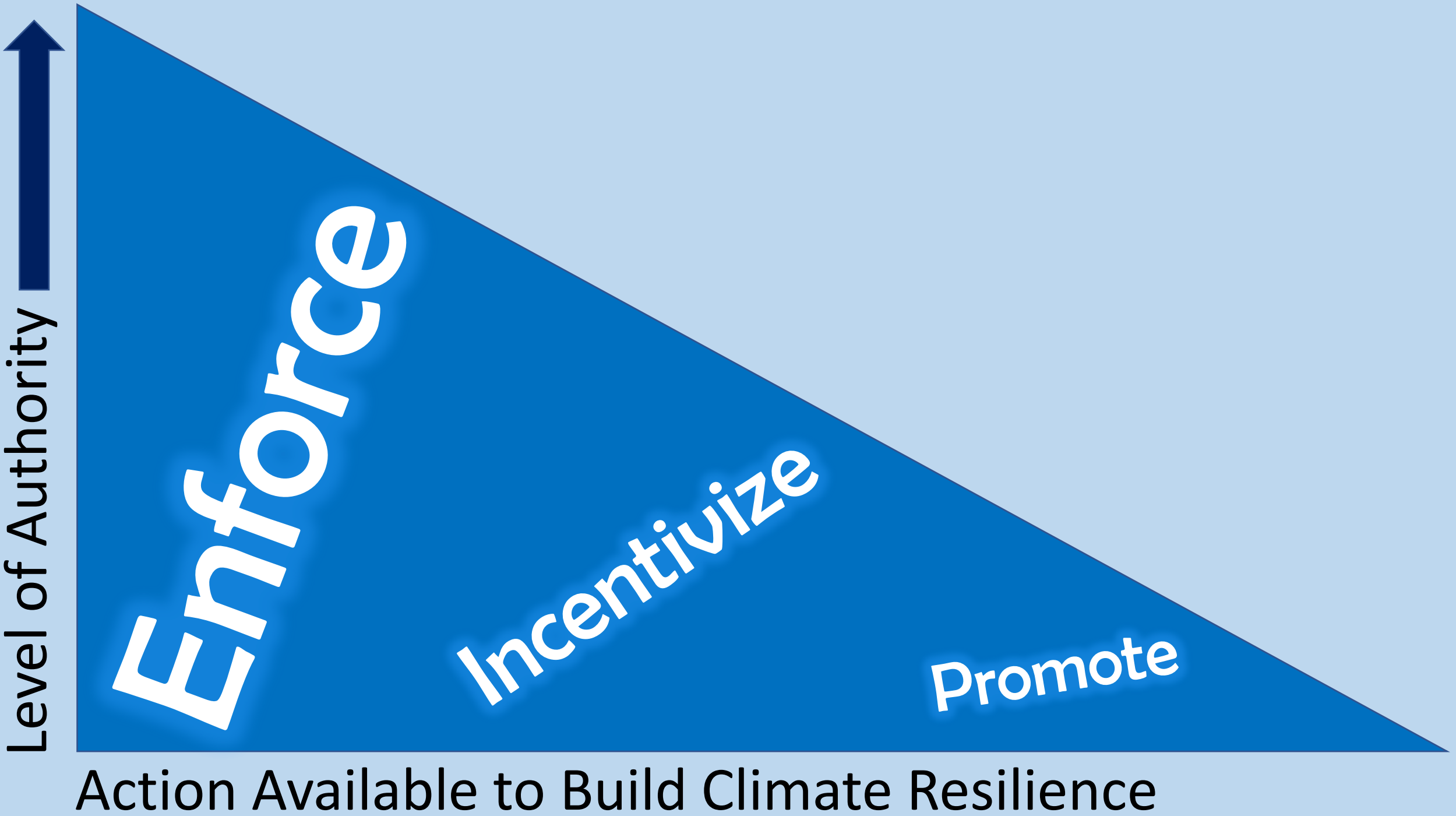


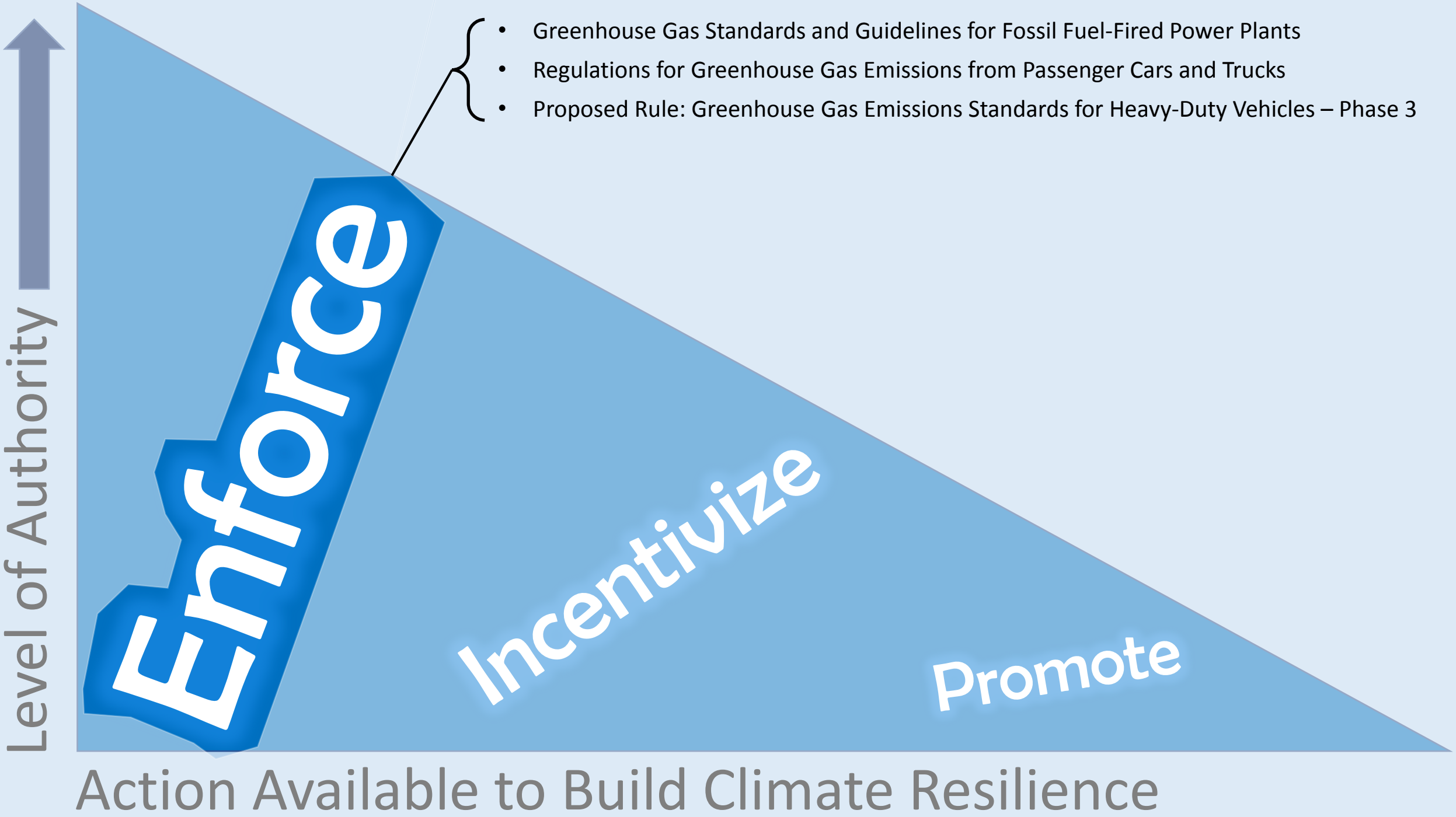


Strategic Goals and Objectives

Goal 1: Tackle the Climate Crisis
- **Objective 1.1:** Reduce Emissions that Cause Climate Change
- **Objective 1.2:** Accelerate Resilience and Adaptation to Climate Change Impacts
- **Objective 1.3:** Advance International and Subnational Climate Efforts

Goal 2: Take Decisive Action to Advance Environmental Justice and Civil Rights
- **Objective 2.1:** Promote Environmental Justice and Civil Rights at the Federal, Tribal,


Level of Authority
Enforce
Incentivize
Promote
Action Available to Build Climate Resilience

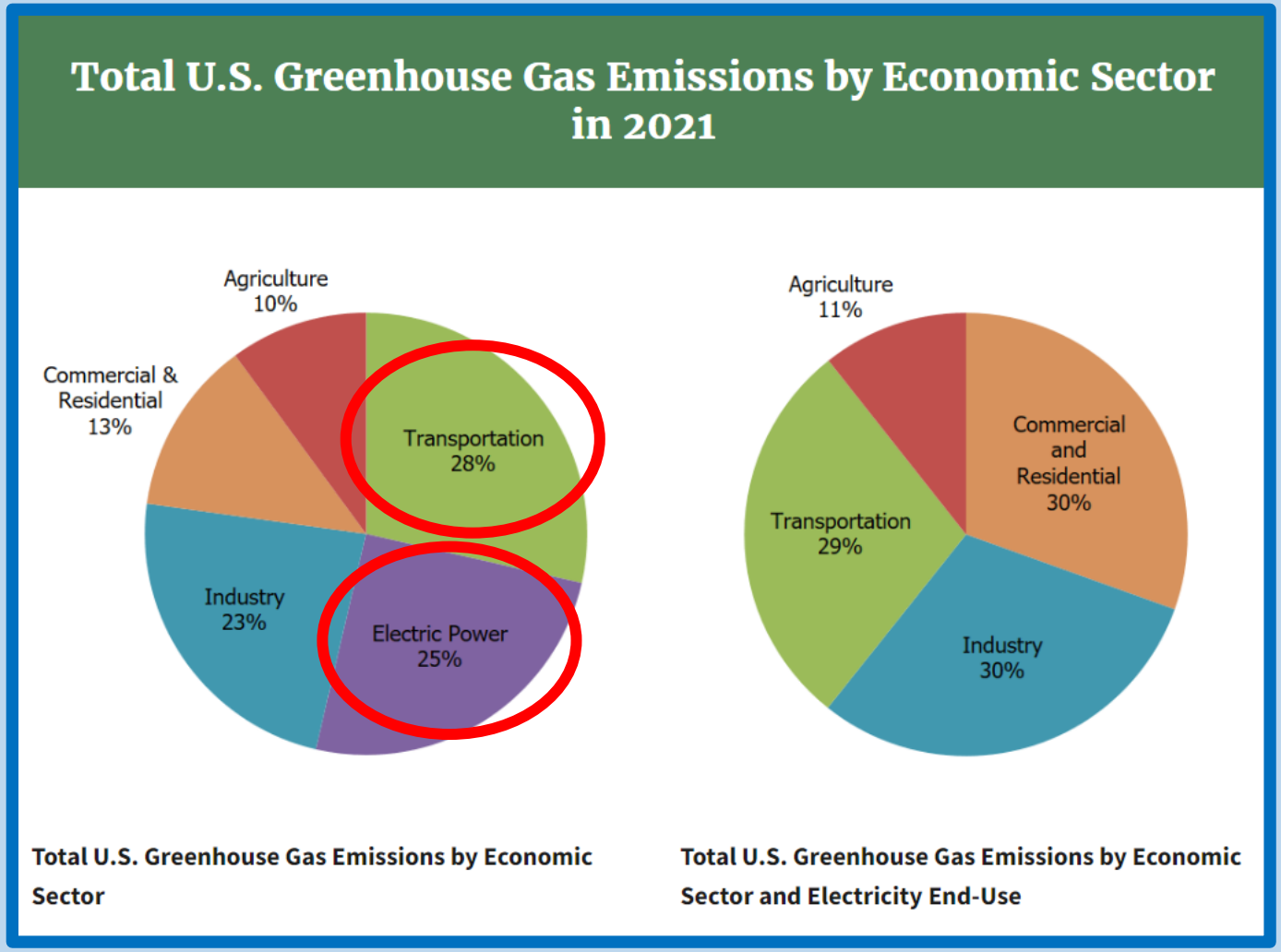


- Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants
- Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks
- Proposed Rule: Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3

Greenhouse Gas Reporting Program (GHGRP)

- Requires greenhouse gas reporting from large GHG emission sources in the US.
- Approximately 8,000 facilities required to report their emissions annually.
- Facility Level Information on Greenhouse Gases Tool (FLIGHT): https://ghgdata.epa.gov/ghgp/main.do
- Covers about 80% of emissions but doesn't cover sectors like land use, agriculture and small sources.

Inventory of U.S. Greenhouse Gas Emissions and Sinks



- Covers all US emissions, including land use, agriculture and small sources.
- Includes: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.
- Annual report going back to 1990
- Data accessible through the Greenhouse Gas Inventory Data Explorer (https://cfpub.epa.gov/ghgdata/inventoryexplorer/)
- Submitted to the United Nations in accordance with the Framework Convention on Climate Change

Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants

- Power sector is the largest stationary source of GHGs (25% of all domestic emissions)
- Updates to New Source Performance Standards (NSPS)
- Technology-based standards consistent with Clean Air Act pollution standards
- Technology-based limits based on existing technologies (CCS, low-GHG co-firing, natural gas co-firing)
- Guidelines for existing fossil fuel-fired combustion turbines and steam generating EGUs

Benefits (cumulative in 2042)

- Reduce CO_2 emissions by 617 million tons
- Reduce thousands of tons of PM2.5, SO_2, No_x
- Climate and health benefits of $64-$85B

Climate and Health Benefits (in 2030 alone)

- 1,300 avoided premature deaths
- more than 800 avoided hospital and emergency room visits
- approximately 2,000 avoided cases of asthma onset
- more than 300,000 avoided cases of asthma symptoms
- 38,000 avoided school absence days
- 66,000 lost workdays.

Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks

- Transportation sector is the largest source of GHGs (27% of all domestic emissions)
- Passenger cars and trucks make up 17% of domestic emissions
- Builds upon EPA's final standards for federal greenhouse gas emissions standards for passenger cars and light trucks for model years 2023 through 2026
- Proposed standards would phase in over model years 2027 through 2032

Benefits (cumulative in 2055)

- Reduce CO_2 emissions by 7.3B tons
- Reduce PM2.5 (15,000 tons), NO_x (66,000 tons), hydrocarbon (220,000 tons), which contribute to ozone formation
- Value of benefits: $850B-$1.6T

Costs and Consumer Savings

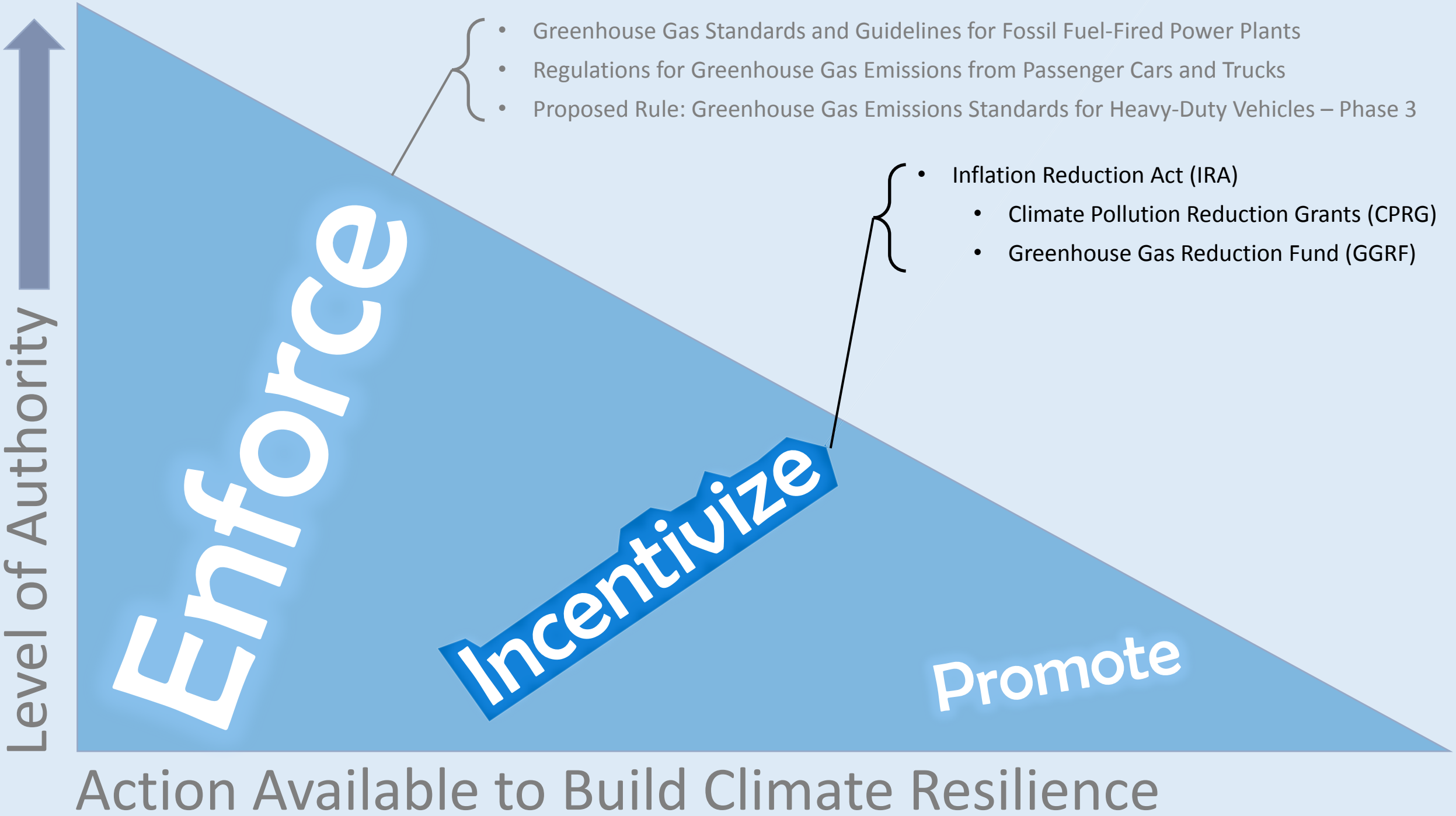
- Manufacturer compliance cost = $1,200 per vehicle
- Inflation Reduction Act provides up to $7,500 for the purchase of an electric vehicle
- Battery-electric vehicles (BEVs) save car owners $9,000 over an 8-year time period
- BEV pickups save an estimated $13,000

Proposed Rule: Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3

- Transportation sector is the largest source of GHGs (27% of all domestic emissions)
- Passenger cars and trucks make up 17% of domestic emissions
- Goes beyond the current standards that apply under the Heavy Duty Phase 2 Greenhouse Gas program.
- Proposed standards would phase in over model years 2027 through 2032

Benefits (cumulative in 2055)

- Reduce CO_2 emissions by 1.8 tons
- Reduce PM2.5 (650 tons), NO_x (72,000 tons), VOCs (21,000 tons), which contribute to ozone formation
- Value of benefits: $320B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• Proposed Rule: Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3
• Inflation Reduction Act (IRA)
• Climate Pollution Reduction Grants (CPRG)
• Greenhouse Gas Reduction Fund (GGRF)
Action Available to Build Climate Resilience

Inflation Reduction Act (IRA)

- Signed into law by President Biden on August 16, 2022.
- Building A Clean Energy Economy: A Guidebook to the Inflation Reduction Act's Investments in Clean Energy and Climate Action
- **Guidebook** lists 127 separate programs (104 funding, 23 tax credit)
- **Tax credit program example:** "Credit for Carbon Oxide Sequestration" - reduces the tax burden for facilities that capture carbon and either sequester it, use it for enhanced oil recovery, or utilize it.
- **Department of Treasury** also runs the 23 tax credit programs.
- Total cost of **funded programs**: $1.54B; EPA programs $41.5 (27% of the total)
- Majority of the funded programs (~90%) run out of five departments/agencies
  - **Department of Energy** ($55.4B, one program jointly run by Department of the Treasury)
  - **Department of Agriculture** ($43.4B)
  - **Environmental Protection Agency** ($41.5B)
  - **Department of the Interior** ($6.6B)
- 23 of the funded programs delegated to EPA
  - 17 of those run out of the Office of Air and Radiation
  - GGRF run out of the Office of the Administrator – single largest program at $27B

IRA: Climate Pollution Reduction Grants (CPRG)

- **$5B in grants** to states, local governments, tribes and territories
- Develop and implement ambitious plans for reducing GHGs and other harmful air pollution
- **Two phases**
  - **Phase I:** $250M for noncompetitive planning grants
    - Design climate action plans that reduce GHG emissions from across their economies in six key sectors (electricity generation, industry, transportation, buildings, agriculture/natural and working lands, and waste management).
    - **Priority Climate Action Plan** -- due March 1, 2024 (states and Metropolitan Statistical Areas (MSAs)) and due April 1, 2024 (tribes, tribal consortia, and territories)
    - **Comprehensive Climate Action Plan** – due two years after planning grant award, or approximately mid-2025 (states and MSAs) and due at the close of the grant period (tribes, tribal consortia, and territories)

CLIMATE POLLUTION REDUCTION GRANTS

U.S. Environmental Protection Agency

IRA: Climate Pollution Reduction Grants (CPRG)

- **$5B in grants** to states, local governments, tribes and territories
- Develop and implement ambitious plans for reducing GHGs and other harmful air pollution
- **Two phases**
  - **Phase II:** $4.6B for implementation grants
    - Two competitions: **General** (for applications from states, municipalities, tribes, tribal consortia, and territories) and **Targeted** (tribes, tribal consortia, and territories only).
    - Open to entities that received Phase I planning grants as well as entities with qualifying climate action plans.
    - Funding is only for measures contained in an applicable PCAP.
    - General competition grants between $2 million and $500 million
    - Targeted competition grants between $1 million to $25 million.

CLIMATE POLLUTION REDUCTION GRANTS

U.S. Environmental Protection Agency

IRA: Greenhouse Gas Reduction Fund (GGRF)

- **$27B investment to:**
  - Mobilize financing and private capital to address the climate crisis
  - Ensure US economic competitiveness
  - Promote energy independence
  - Deliver low-cost energy and economic revitalization
- **GGRF Program objectives:**
  - Reduce greenhouse gas emissions and other air pollutants.
  - Deliver the benefits of greenhouse gas- and air pollution-reducing projects to American communities, particularly low-income and disadvantaged communities.
  - Mobilize financing and private capital to stimulate additional deployment of greenhouse gas and air pollution reducing projects.

- **Implemented via *three* grant competitions:**

National Clean Investment Fund ($14B)

- Grants for 2-3 national nonprofit clean financing institutes
- enable families, small businesses, communities and many others to access the capital they need to install cost-saving and air pollution reducing clean technology projects
- 40% of capital to low-income and disadvantaged communities

IRA: Greenhouse Gas Reduction Fund (GGRF)

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  - Mobilize financing and private capital to stimulate additional deployment of greenhouse gas and air pollution reducing projects.

- **Implemented via *three* grant competitions:**

Clean Communities Investment Accelerator ($6B)

- Grants to 2–7 hub nonprofits that will deliver funding and technical assistance to build the clean financing capacity of local community lenders
- Will enable hundreds of community lenders (e.g., credit unions, green banks, housing finance agencies, etc.) to finance clean technology projects in low-income and disadvantaged communities
- 100% of funds dedicated to low-income and disadvantaged communities.

IRA: Greenhouse Gas Reduction Fund (GGRF)

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  - Ensure US economic competitiveness
  - Promote energy independence
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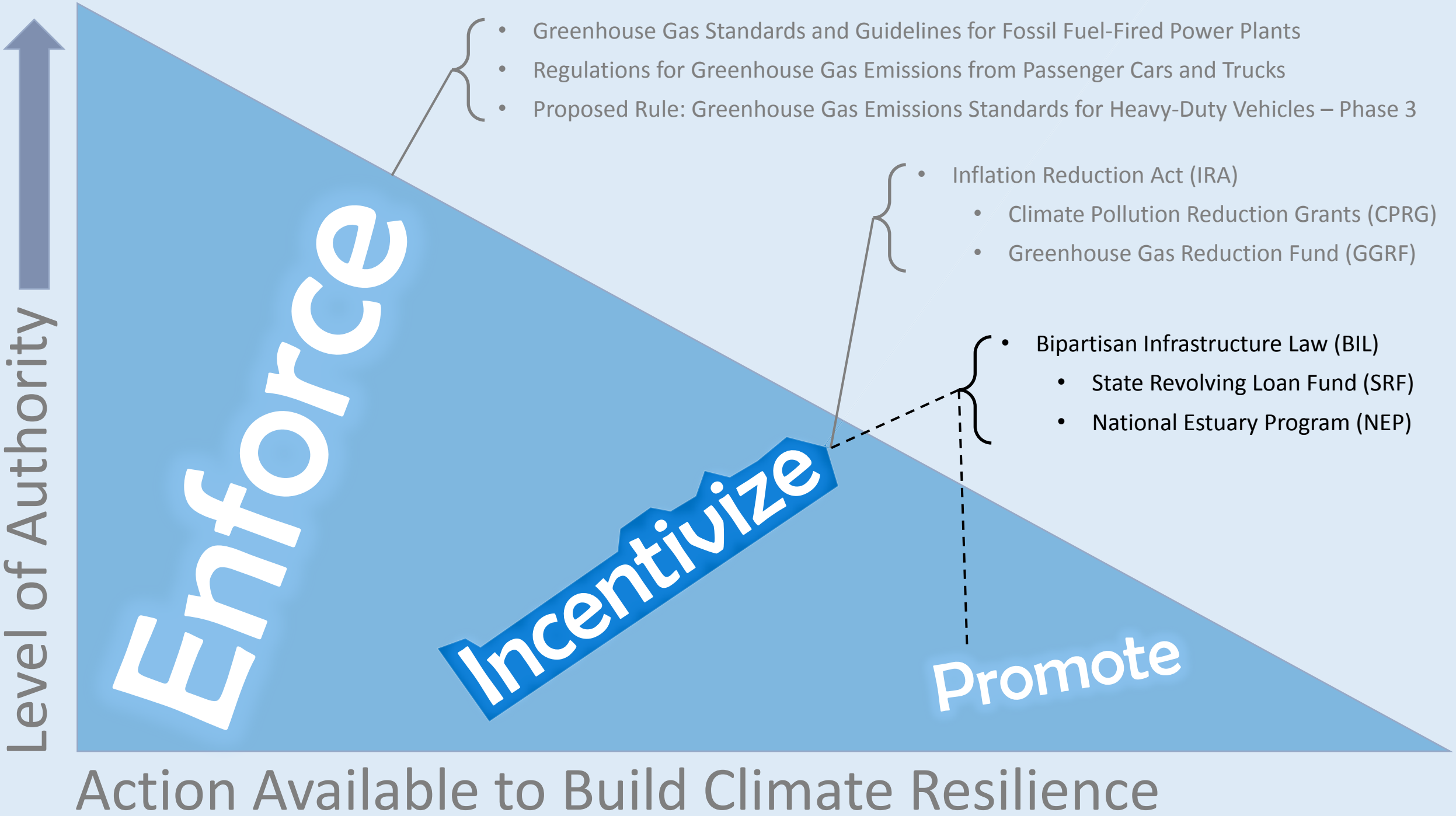
  - Mobilize financing and private capital to stimulate additional deployment of greenhouse gas and air pollution reducing projects.

- **Implemented via *three* grant competitions:**

Solar for All ($7B)

- Up to 60 grants to states, territories, Tribal governments, municipalities, and nonprofits to expand the number of low-income and disadvantaged communities primed for residential solar investment
- Focused on funding programs that provide financial assistance and technical assistance to enable low-income and disadvantaged communities to deploy and benefit from residential solar.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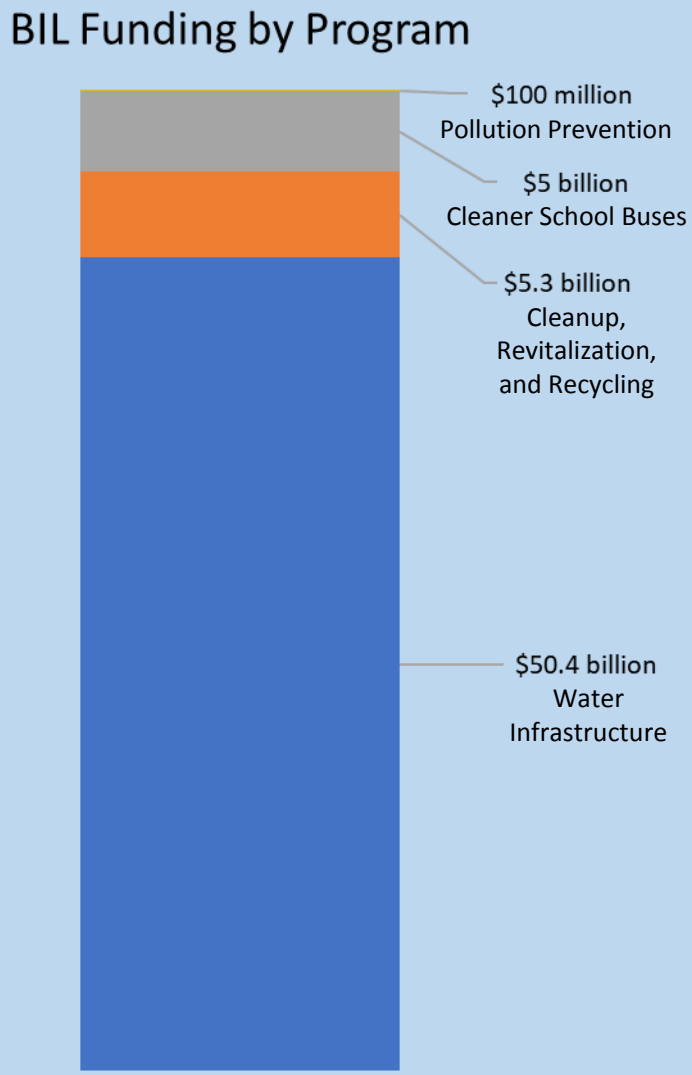
• Bipartisan Infrastructure Law (BIL)
• State Revolving Loan Fund (SRF)
• National Estuary Program (NEP)
Action Available to Build Climate Resilience

Bipartisan Infrastructure Law (BIL)

- Signed into law by President Biden on November 15, 2021.
- Single largest investment in water that the federal government has ever made
- This historic investment includes $60 Billion to EPA over 5 years
  - **$100M for Pollution Prevention**
  - **$5B for Cleaner School Buses**
  - **$5.3B for Cleanup, Revitalization, and Recycling**
  - **$50.4B for Water Infrastructure**
    - Safe Drinking Water
      - $11.7B to the Drinking Water State Revolving Fund (SRF)
      - $15B to the Drinking Water SRF for Lead Service Line Replacement
      - $4B to the Drinking Water SRF for Emerging Contaminants
      - $5B to Water Infrastructure Improvements for the Nation (WIIN) Grants to address emerging contaminants.
    - Clean Water for Communities
      - $11.7B for the Clean Water State Revolving Fund SRF.
      - $1B for the Clean Water SRF for Emerging Contaminants.
    - Protected Regional Waters
      - $1.7B for Geographic Programs.
      - $267M for the National Estuary Program, Gulf Hypoxia Program, etc.

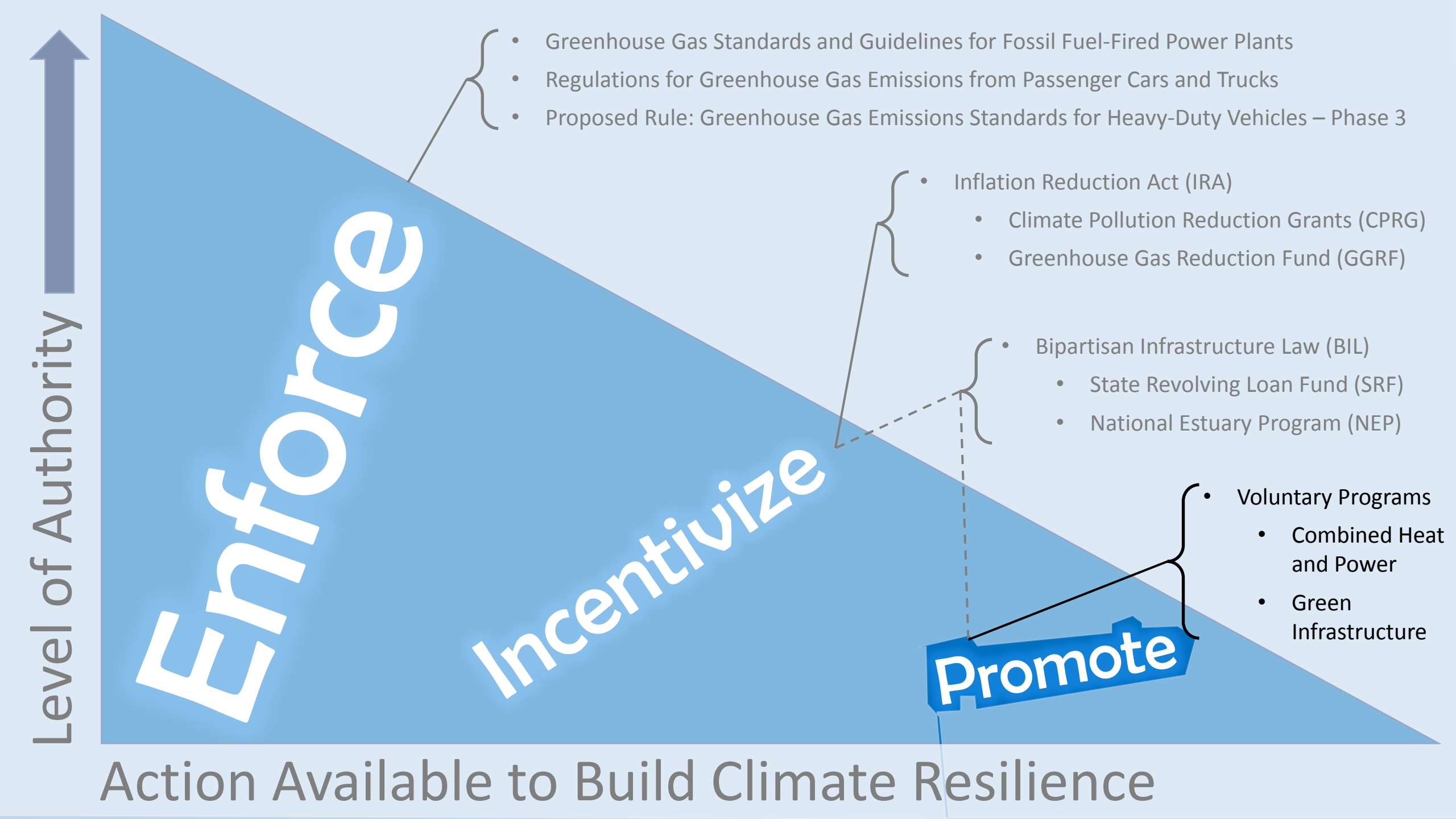


BIL: State Revolving Loan Fund (SRF)

- Federal-State partnership
- EPA's largest grant program - even before BIL
- Drinking water, wastewater, stormwater and nonpoint source
- SRFs are fundamentally State programs function like banks
- States set their own priority ranking systems
- Low interest loans; flexible repayment terms
- Loan Forgiveness / Additional Subsidy/ Grants
  - Disadvantaged communities (urban and rural)
- FEMA-EPA MOU to support disaster response and recovery

BIL: National Estuary Program (NEP)

- Non-regulatory program authorized by Section 320 of the Clean Water Act in 1987
- Protect and restore water quality and ecological integrity of estuaries of national significance
- Currently 28 NEPs
- Located in a variety of institutional settings, including state and local agencies, universities and individual nonprofits
- EPA oversees and manages the national program and provides annual funding, national guidance and technical assistance
- NEPs develop and implement Comprehensive Conservation and Management Plans (CCMPs)
- CCMPs include a Climate Vulnerability Assessment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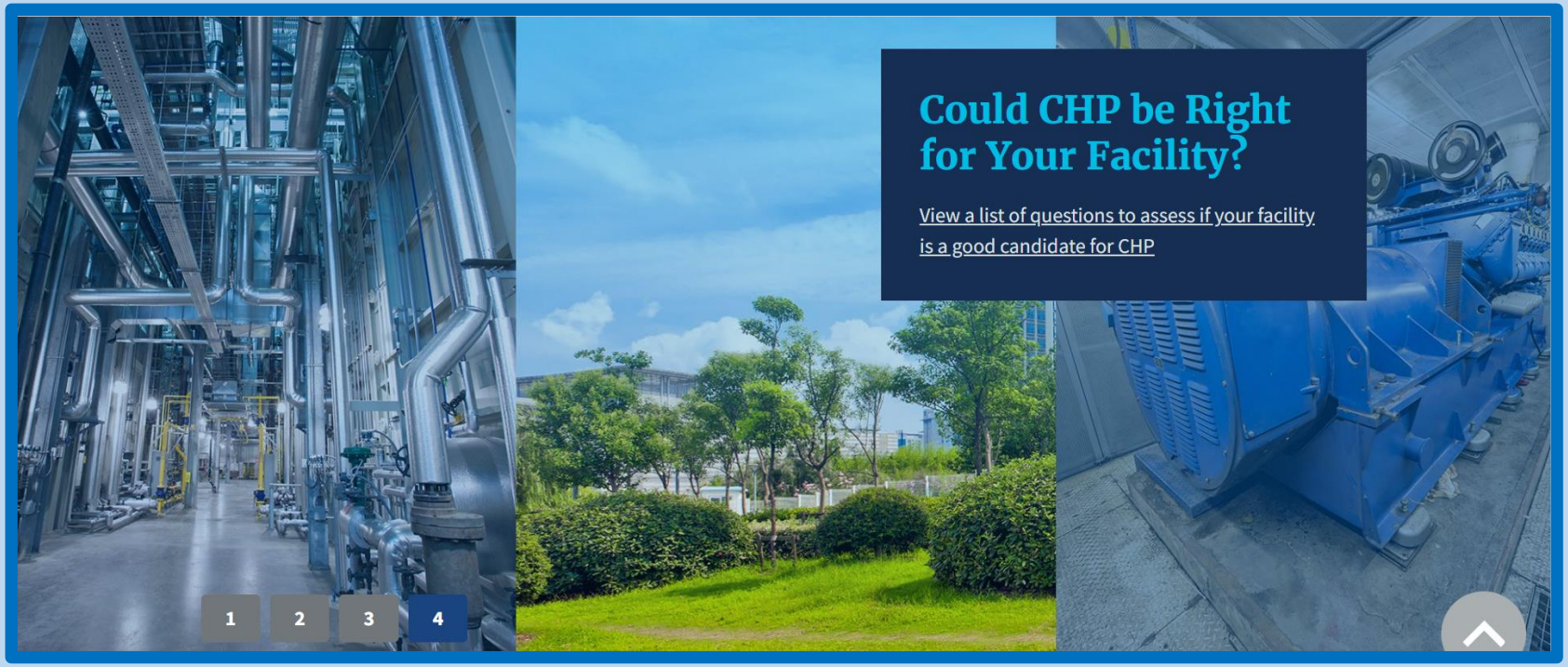
National Estuary Program (NEP)
Voluntary Programs
Combined Heat and Power
Green Infrastructure
Action Available to Build Climate Resilience

Combined Heat and Power Partnership

The Combined Heat and Power (CHP) Partnership serves as a knowledge base for impartial tools, policy information, and other resources to help promote environmentally beneficial combined heat and power.

Currently, a diverse set of 350 partners are working alongside EPA to promote CHP's role in providing affordable, reliable, and low emission energy.



Benefits:

- Uses "waste" heat for process heating, steam, hot water, or even chilled water
- Produces electricity and thermal energy at high efficiencies
- Uses a range of technologies and fuels
- Minimizes power loss through on-site power production
- Can provide resilient power 24/7 in the event of grid outages
- Can be paired with other distributed energy technologies like solar photovoltaics (PV) and energy storage.

Green Infrastructure in the Clean Water Act

Section 5 of the 2019 Water Infrastructure Improvement Act amends the Clean Water Act to include green infrastructure.

- Section 502 is amended to include a definition of green infrastructure.

(27) Green infrastructure

The term green infrastructure means the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and ***reduce flows to sewer systems or to surface waters****.*

Green Infrastructure in the Clean Water Act

Section 5 of the 2019 Water Infrastructure Improvement Act amends the Clean Water Act to include green infrastructure.

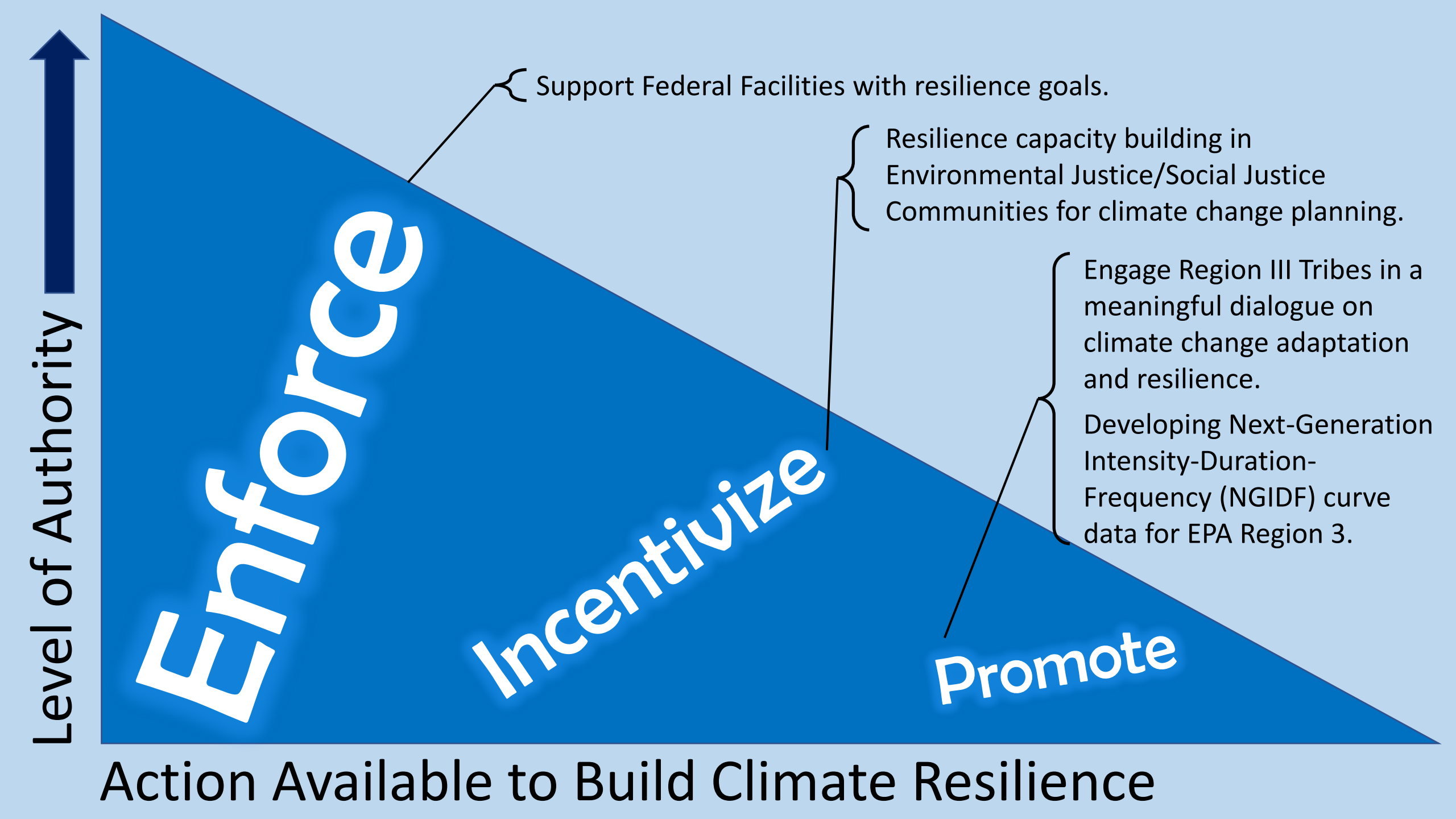
- Section 519 is added to promote the practice at the national and regional levels.

(c) Regional green infrastructure promotion

The Administrator shall direct each regional office of the Environmental Protection Agency, as appropriate based on local factors, and consistent with the requirements of this Act, to promote and integrate the use of green infrastructure within the region, including through—

*(1) **outreach and training regarding green infrastructure** implementation for State, tribal, and local governments, tribal communities, and the private sector; and*

*(2) the **incorporation of green infrastructure into permitting and other regulatory programs**, codes, and ordinance development, including the requirements under consent decrees and settlement agreements in enforcement actions*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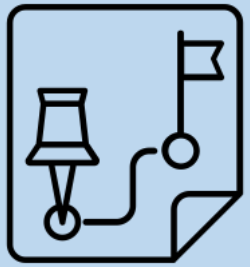
Support Federal Facilities with resilience goals.
Resilience capacity building in Environmental Justice/Social Justice Communities for climate change planning.
Engage Region III Tribes in a meaningful dialogue on climate change adaptation and resilience.
Developing Next-Generation Intensity-Duration-Frequency (NGIDF) curve data for EPA Region 3.
Action Available to Build Climate Resilience

Support Federal Facilities with resilience goals.

Community Infrastructure & Disaster Resilience

Program Integration & Decision Support

Mapping & Tools



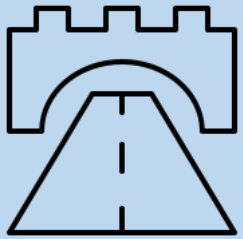
Watershed and Ecosystem Health

Training & Outreach

- *Federal Facilities Enforcement (FFE) has been **difficult to achieve** in a timely manner.*
- *Targeting federal facilities **located in river valleys or in coastal areas** may be able to support resiliency plans for sea-level rise and worsening flooding, as a supplement to monetary penalties.*
- *Many federal facilities are in **non-attainment areas** where the use of emergency generators in the summer ozone season may have an increased impact on air quality and climate health.*
- ***Chemical storage upgrades** provide opportunities in low lying areas that may be another area for resiliency to combat sea level rise and worsening flooding.*
- *Number of inspections/offsite compliance monitoring conducted*
- *Potential Mitigation Projects undertaken*

Resilience Capacity Building in Environmental Justice/Social Justice communities for climate change planning.

Community Infrastructure & Disaster Resilience



Program Integration & Decision Support

Mapping & Tools

Watershed and Ecosystem Health

Training & Outreach

- *Many environmental/social/climate justice communities in Region lack the resilience to offset expected climate changes, including changes in natural hazards. Few of these communities have specific climate change plans.*
- *Primary science question:* ***Can established scientific data, results, and policies be used to build effective, meaningful, and positive resilience to climate events in underserved communities?***
- *This research project will directly contribute to two critical EPA Region 3 priorities: a more comprehensive implementation of climate change adaptation and resilience and the development of a Standard Operating Procedure (SOP) for a multi-media EPA process to address environmental injustices in communities of concern.*

Engage Region III Tribes in a meaningful dialogue on climate change adaptation and resilience.

Community Infrastructure & Disaster Resilience

Program Integration & Decision Support

Mapping & Tools

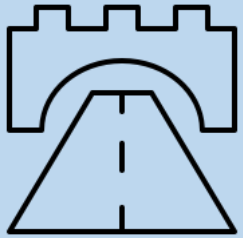
Watershed and Ecosystem Health

Training & Outreach

- *Host a standalone **climate adaptation workshop** for federally recognized tribes in FY2023.*
- *Use the Regional Tribal Operations Committee **(RTOC) as a forum for ongoing climate change adaptation** information sharing, training, and capacity building.*
- ***Exchange information with the National Tribal Science Council** on national tribal climate change adaptation needs and directions, as appropriate.*
- *Support and encourage the use of **General Assistance Program (GAP) grants, and other available funds for climate change adaptation**, as particular funds allow (e.g., education of staff and members, assessing their community and environment, and developing climate change adaptation plans).*

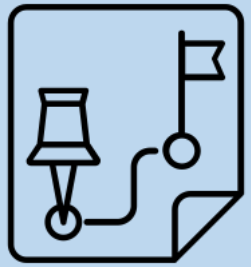
Developing Next-Generation Intensity-Duration-Frequency (NGIDF) curve data for EPA Region 3.

Community Infrastructure & Disaster Resilience



Program Integration & Decision Support

Mapping & Tools



Watershed and Ecosystem Health

Training & Outreach

- *Extreme rainfall events have been increasing over the past few decades, exacerbating flooding and stormwater challenges throughout the Mid-Atlantic region.*
- *Build out an existing Chesapeake Bay Program webtool to provide Next-Generation Intensity-Duration-Frequency (IDF) curves developed using projected future extreme precipitation data for all of Region 3.*
- *The project will incorporate data currently being developed by ORD for the next update of the Intergovernmental Panel on Climate Change and the National Climate Assessment and newer methodological advances that allow for more accurate characterization of precipitation extremes.*
- *Incorporate the data into existing EPA tools, like the EPA Region 3 Climate National Priorities List (NPL) Flood/Climate Vulnerability Mapping Tool and EnviroAtlas.*

Successful ROAR grants.

Thank You!

November 28, 2023

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