



U.S. DEPARTMENT OF  
**ENERGY**

# DOE: the *Place-Based* Solutions Agency

Energy Communities Alliance

January 13, 2022



# Key Place-Based Executive Orders

A photograph of Joe Biden sitting at his desk in the Oval Office, wearing a dark face mask and looking down at a document. An American flag is visible in the background to the left. The photo is partially obscured by text boxes.

**Executive Order 13985:** Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

**Executive Order 14008:** Tackling the Climate Crisis at Home and Abroad

*Creates the Justice40 Initiative & the Interagency Work Group on Coal & Power Plant Communities*

**Executive Order 14017:** America's Supply Chains

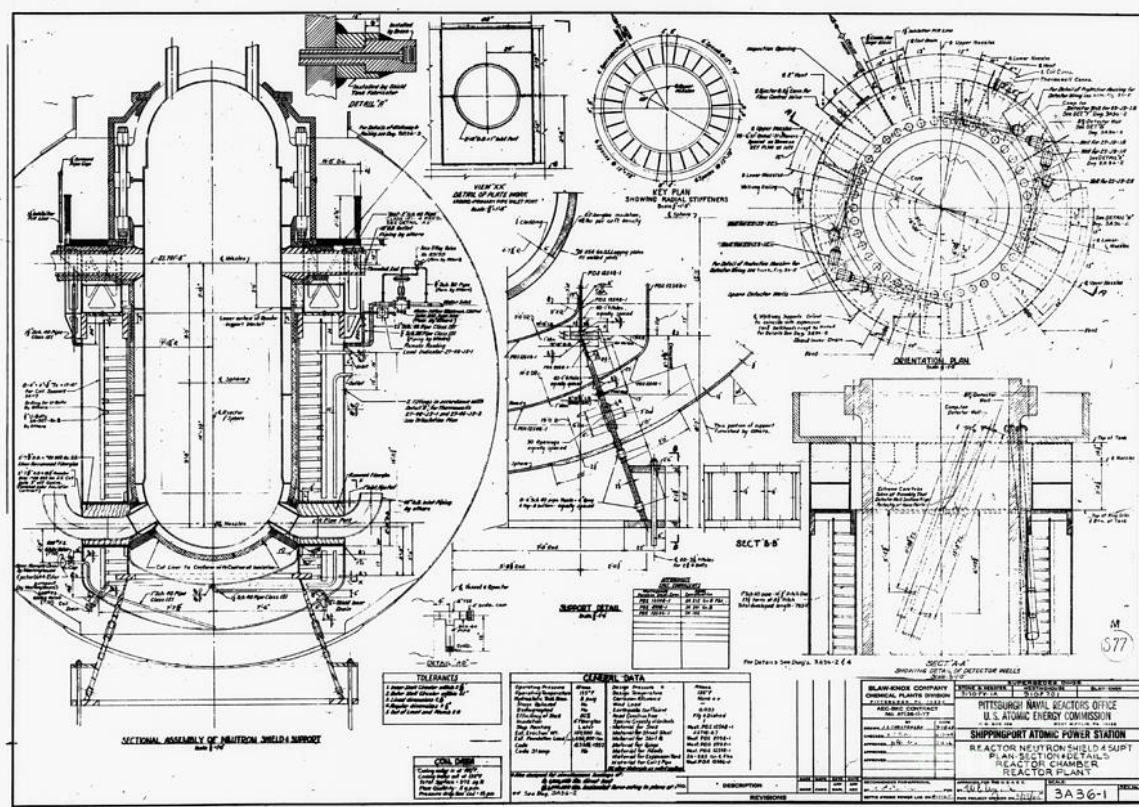
**Executive Order 14025:** Worker Organizing and Empowerment

**Executive Order 14030:** Climate-Related Financial Risk

EVAN WOODRUP

# DOE: Shift in Thinking

From Place-Neutral Technology...



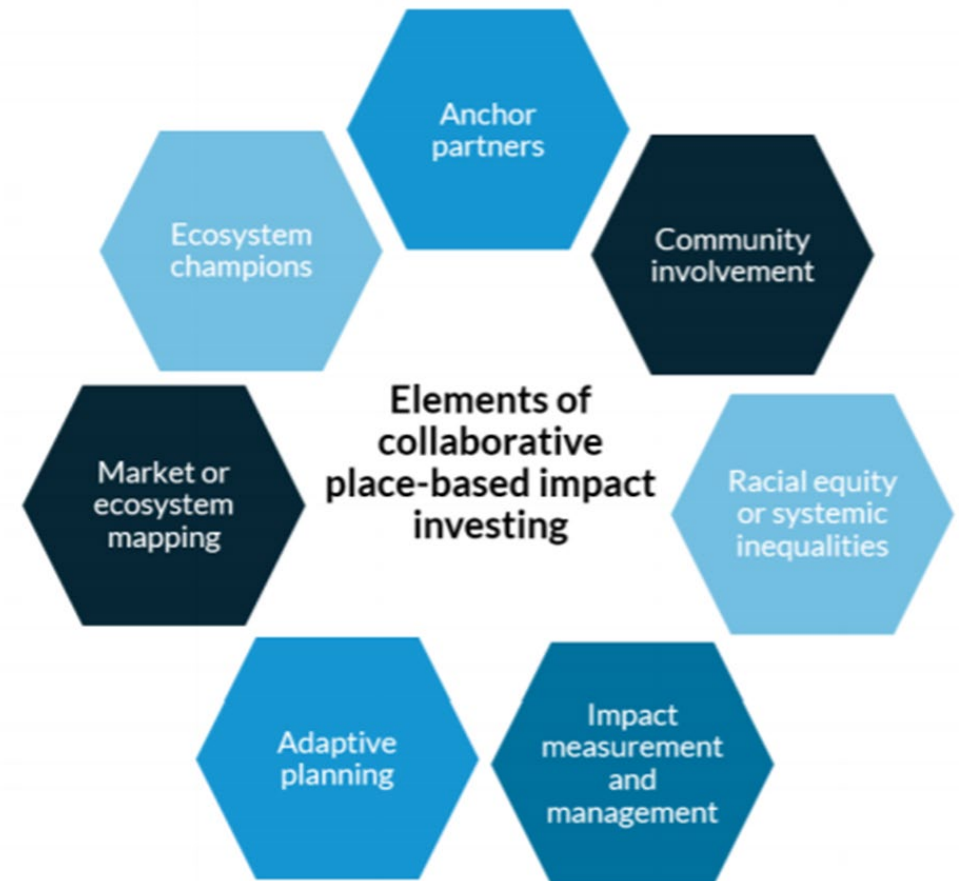
...to Place- and People-Based Approach



# What is “Place-Based”?

## Core elements for success:

- Include an **agreed-upon definition of “place”** for the purposes of the program or project (scope, geography, targeted population within a geography, etc)
- Recognize the **specific challenges and opportunities** of each place where investment is targeted (avoid “one size fits all” approaches)
- **Engage community members and stakeholders as active participants** in program development and implementation
- Take a **systems approach** that recognizes and addresses historic inequity and builds toward long-term change
- Continuously **learn and adapt** for better outcomes



Source: Urban Institute, 2018

# DOE Place Based Work: DEFINITION

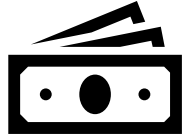
Place-based approaches are those that target **the specific energy- or technology-related challenges and opportunities of each community**, with the goal of supporting each region's **transition to a more sustainable, resilient, and equitable future**. They **engage local stakeholders as active participants** in development and implementation. DOE's place-based programs and investments are **part of a whole-of-government approach** that recognizes energy and related technologies as critical pieces of a larger set of factors requiring cross-sectoral and long-term response.

# DOE Place-Based Work: GOALS

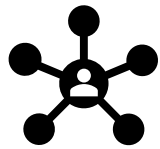
Ensuring the energy transition creates regional and local economies that are:

- **SUSTAINABLE:** Built around net-zero carbon technologies and programs accessible to all.
- **RESILIENT:** Anchored in a strong and diversified set of industries able to withstand both economic and climate shocks.
- **EQUITABLE:** Creators of high-quality jobs with pathways into those jobs, with clear focus on addressing systemic and historic inequities.

# DOE's Place-Based Work: TACTICS



- **TARGETED/INCREASED INVESTMENT:** grants, loans, loan guarantees, including connection to private sector



- **STREAMLINING** of DOE programs to provide easy access for communities



- **INTERAGENCY COLLABORATION/INTEGRATION** of workforce, economic development, and complimentary investment strategies across administration



- **CONNECTION** to broader domestic and international policy agenda



- **SPOTLIGHT** from Secretary, Deputy Secretary, and other administration leadership

# DOE Place-Based Work: EXAMPLES

## Biden Administration Initiatives:

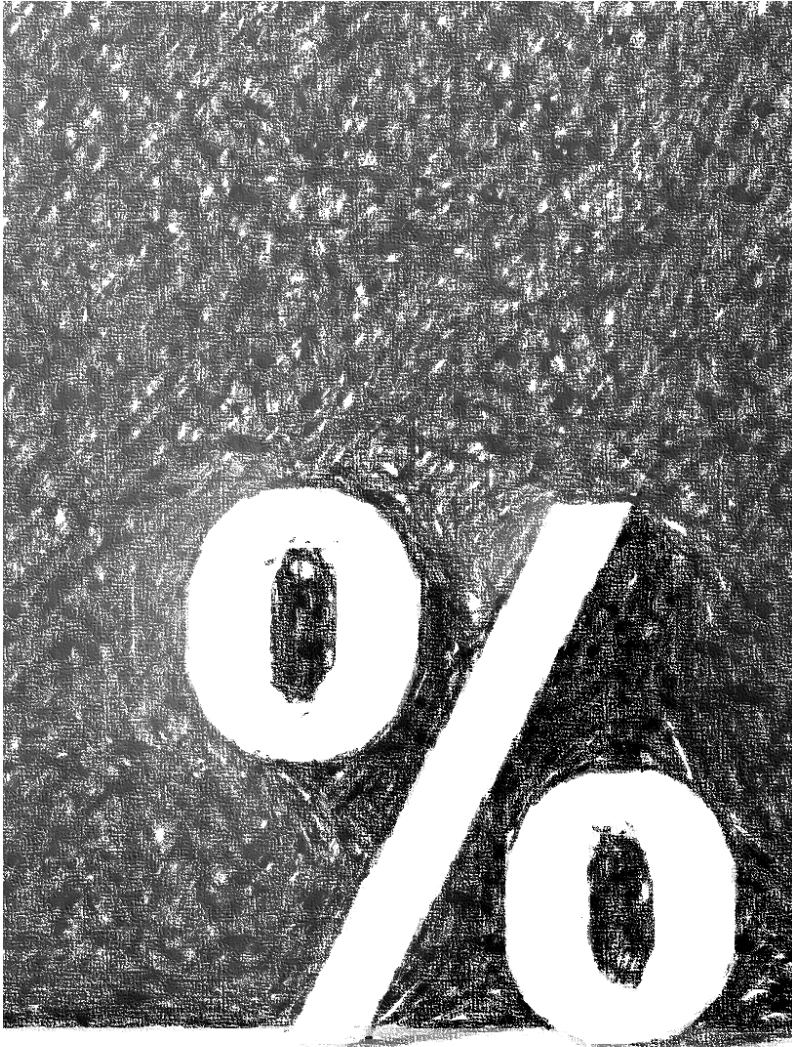
- Interagency Work Group on Coal & Power Plant Communities (11 agencies)
- Justice 40 (whole of govt)
- Communities LEAP (DOE + Labs, connections to other agencies)

## Current/Ongoing DOE Programs:

- Indian Energy, Arctic Energy
- Energy Transitions Initiative, Puerto Rico initiative
- Environmental Management, Legacy Management
- Consent-based siting
- Place-Based initiatives at the Labs – MANY!







# Justice40 Initiative

40% of the overall benefits of certain Federal investments—including investments in **clean energy** and **energy efficiency**; **clean transit**; **affordable and sustainable housing**; **training and workforce development**; the **remediation and reduction of legacy pollution**; and the development of **clean water infrastructure**—must flow to disadvantaged communities.

# DOE Place-Based Work: OPPORTUNITIES

- **Bipartisan Infrastructure Law (BIL)**
  - \$62 billion in new funding to DOE
  - Historic shift toward demonstration and deployment
  - Opportunities to:
    - Include clear place-based focus w/in programs & as direction to Labs
    - Build shared resources for place-based work including data collection and analysis, community engagement support)
    - Partner w other agencies through MOUs and other mechanisms
- **Build Back Better Act (pending passage by Congress)**
  - Major increase in loan program authority including to energy communities
  - Market, manufacturing, and workforce support through tax credits for multiple new advanced energy technologies including solar, wind, nuclear, hydrogen
  - Targeted investments for low-income and disadvantaged communities

# INFRASTRUCTURE INVESTMENT AND JOBS ACT

- Signed into law November 15, 2021
- Authorizes \$1 trillion in upgrades and investments to America's infrastructure including: transmission, transportation, broadband, clean energy manufacturing & supply chain.
- Key provisions for energy community economic prosperity:
  - \$11B for mine reclamation; \$4B for orphan well capping & remediation
  - \$7B into battery supply chain including critical minerals
  - \$1.5B for clean hydrogen manufacturing
  - \$11B for grid resilience; \$3B for smart grid investments
  - \$21B into clean energy demos including
    - \$500M on mine lands
  - \$10B for carbon capture, removal & industrial emissions
  - \$750M in manufacturing grants for coal communities



# **Place-Based Approaches to Manufacturing and Clean Energy Demonstration**

*DOE Office of Clean Energy Demonstrations*

# Office of Clean Energy Demonstration: Purpose

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DOE announced the new office of Clean Energy Demonstration to deliver more than **\$20 billion** provided by the Bipartisan Infrastructure Law to support clean energy demonstration projects.

The founding of this office represents a new chapter that builds on DOE's long-standing position as the premier international driver for clean energy research and development, expanding DOE's scope to fill a critical innovation gap between R&D and **widespread deployment** on the path to **net-zero emissions by 2050**.

# Office of Clean Energy Demonstration: Appropriations

The \$20 billion appropriated to the office will be used to speed the commercialization of emerging clean energy technologies in partnership with the private sector including:

- Clean hydrogen
- Carbon capture
- Grid-scale energy storage
- Small modular reactors
- Other key technologies

# Office of Clean Energy Demonstration: Place-based Approach

The office funding will unlock private sector capital to fund projects that **create good-paying union jobs and direct funding to underserved, rural, and energy transition communities** – a critical focus of President Biden's Justice40 initiative aimed at delivering 40% of clean energy investment benefits to disadvantaged communities.

These goals will be achieved with **extensive engagement** with environmental justice groups, labor, the private sector, and communities to help shape program development and execution.

# Priority Focus: Energy Asset Repurposing

*IWG, Multiple DOE programs + Labs*

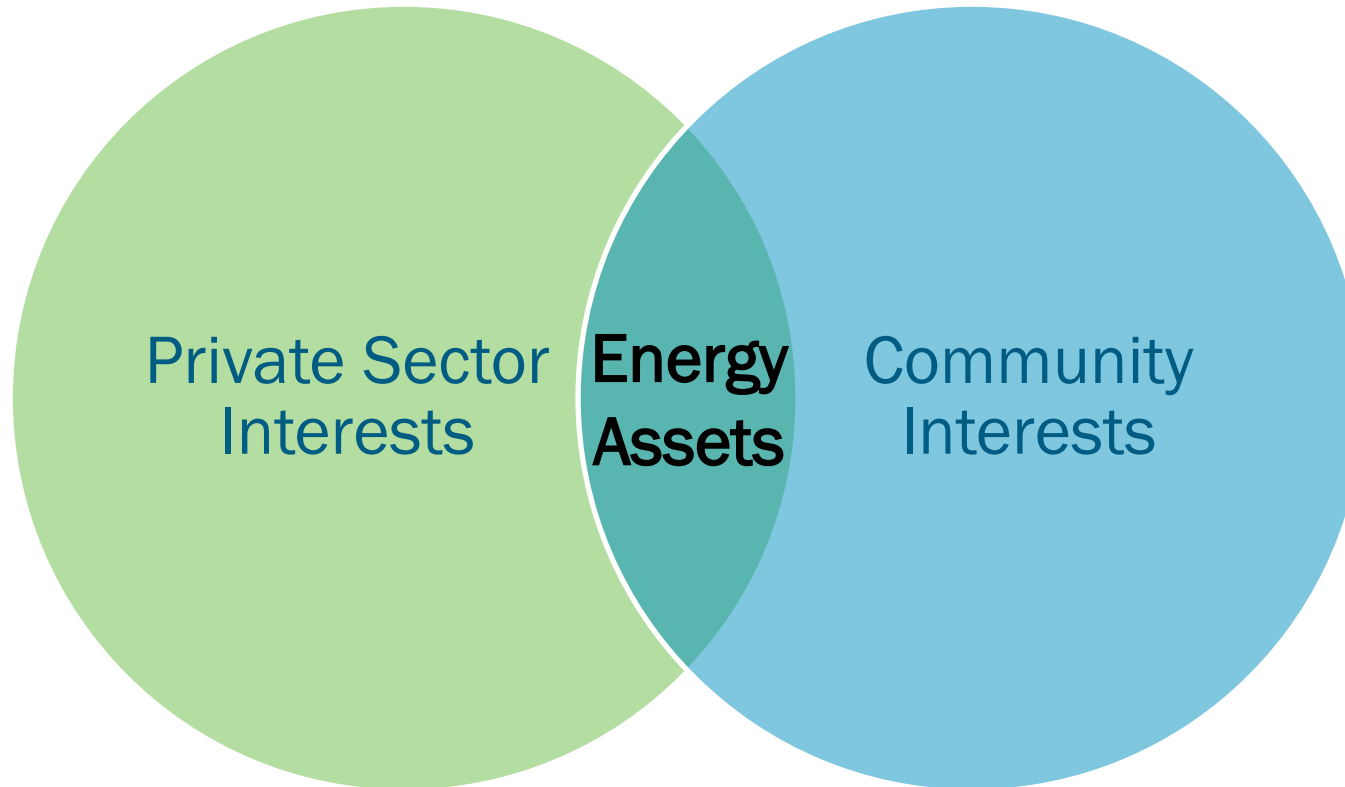


# Place-based Investment: Energy Asset Repurposing

Leveraging and transforming fossil assets through repurposing unites private sector and community interests.

## Repurposing energy assets provides the private sector with:

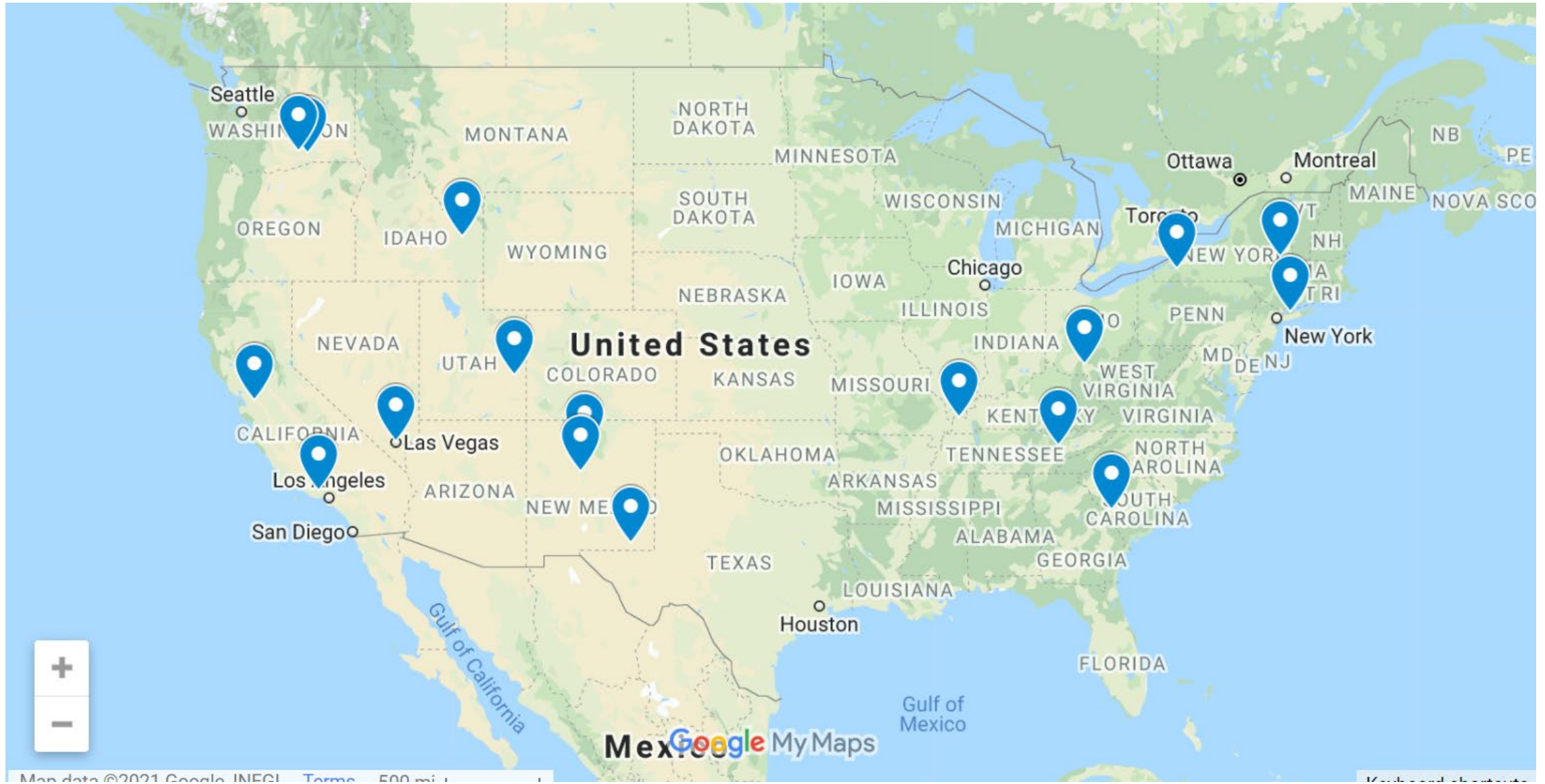
- Access to rail, ports, and waterways
- Highway transportation
- Direct grid connections
- Industrial land and facilities
- Workforce with skills match, familiarity with industrial operations



## Repurposing energy assets provides communities with:

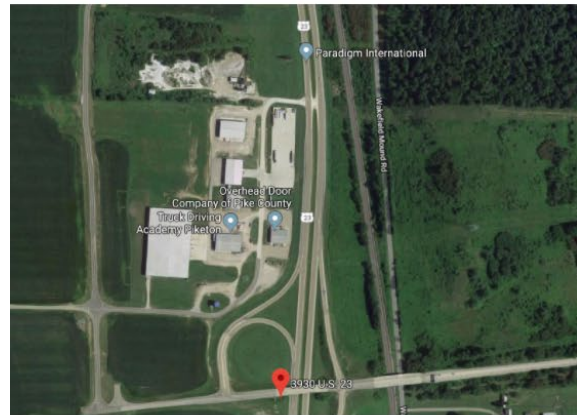
- A variety of both short-term and permanent family-wage jobs
- Worker retraining programs for community members
- Access to local work that does not require relocation
- Opportunities to work in cutting-edge technology sectors

# Cleanup Sites



# Portsmouth Gaseous Diffusion Plant, Piketon OH

## Site Summaries



### Southern Ohio PORTS Mega Site

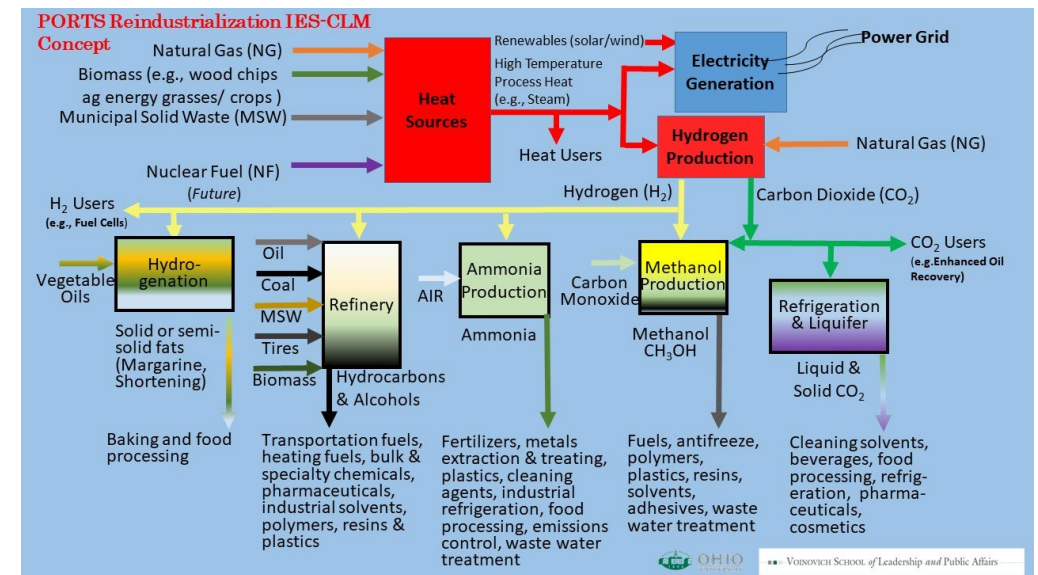
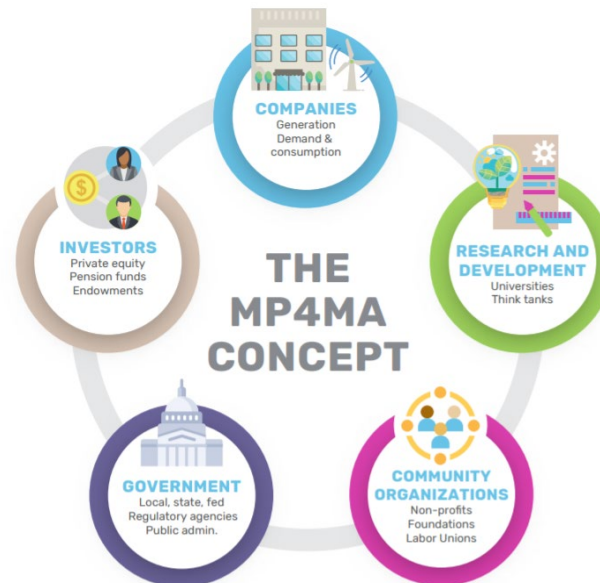
This 80-acre industrial site on former DOE site is ideal for advanced energy projects, manufacturing and for R&D/Data. The site is within a secure fenced industrial area with abundant water and sewer capacity as well as Fiber, compressed air and steam plant. Utilities include 345 and 765 kV line in the industrial park. Onsite security, fire/EMS and medical facility. Industrial park is served by NS and is adjacent to 4-lane highway.

### Site Data

<b>Address</b>	<a href="#">3930 US Route 23, Piketon, OH</a>
<b>Use</b>	Advanced Energy, Mfg, R&D/Data
<b>For Sale/Lease</b>	For Sale
<b>Available Land</b>	80 acres

[LEARN MORE](#)

## MARSHALL PLAN FOR MIDDLE AMERICA ROADMAP



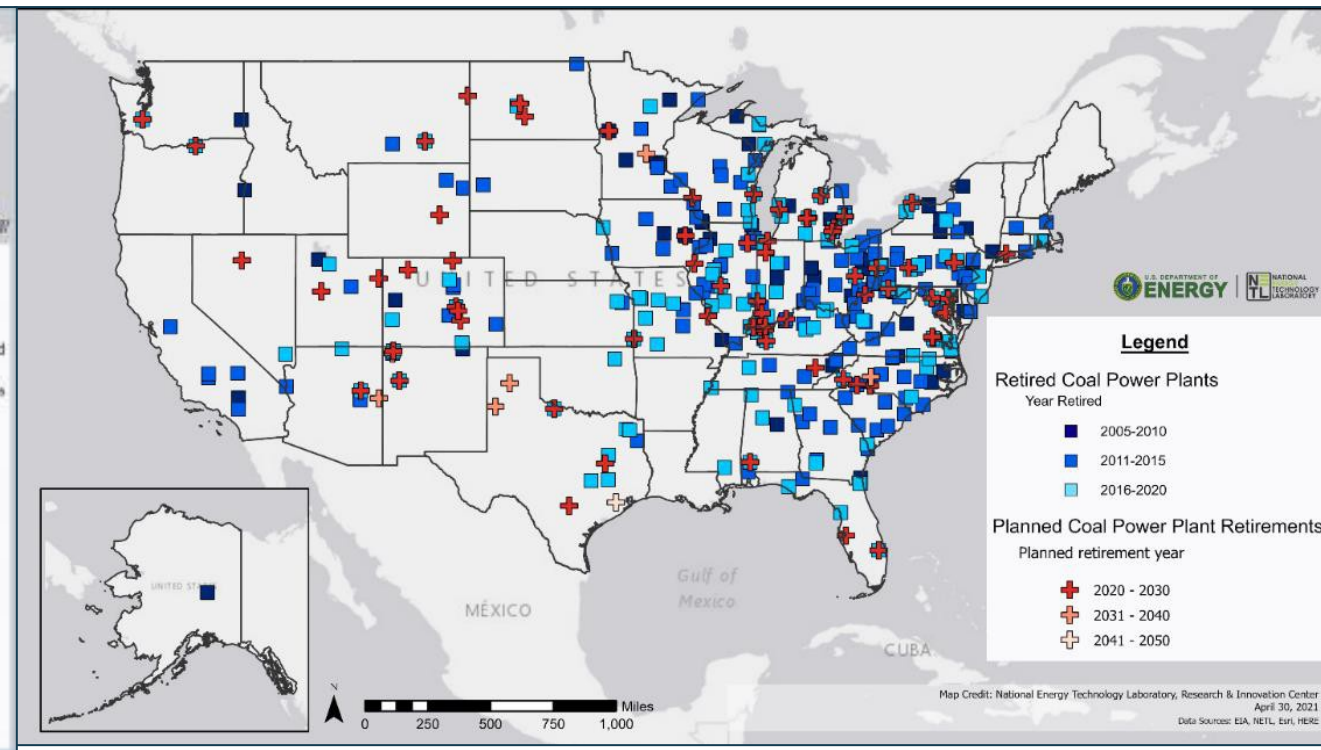
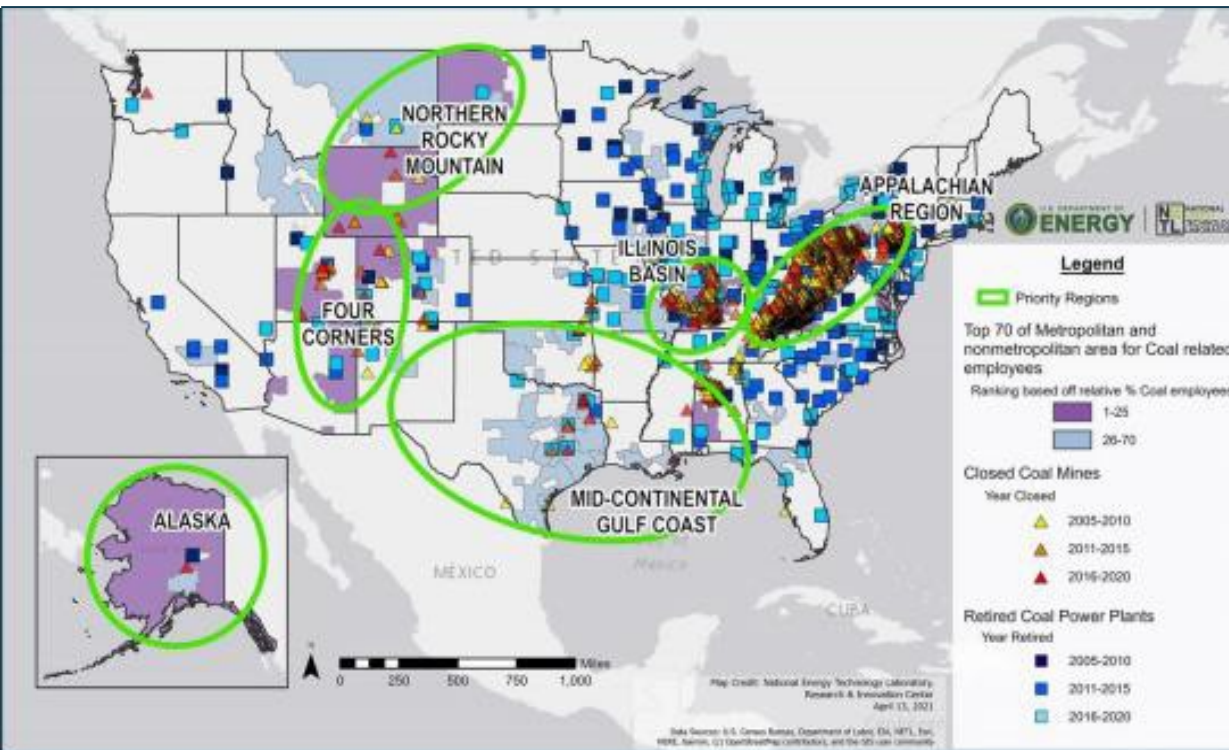
# Coal-Fired Generation in the U.S. – Closures and Planned Retirements

## Closures

721 plants closed 2005-2020

## Planned Retirements

75 planned retirements through 2050



# Coal Mines in the U.S.

Coal is mainly found in 3 regions:

- The Appalachian coal region
- The Interior coal region
- The Western coal region

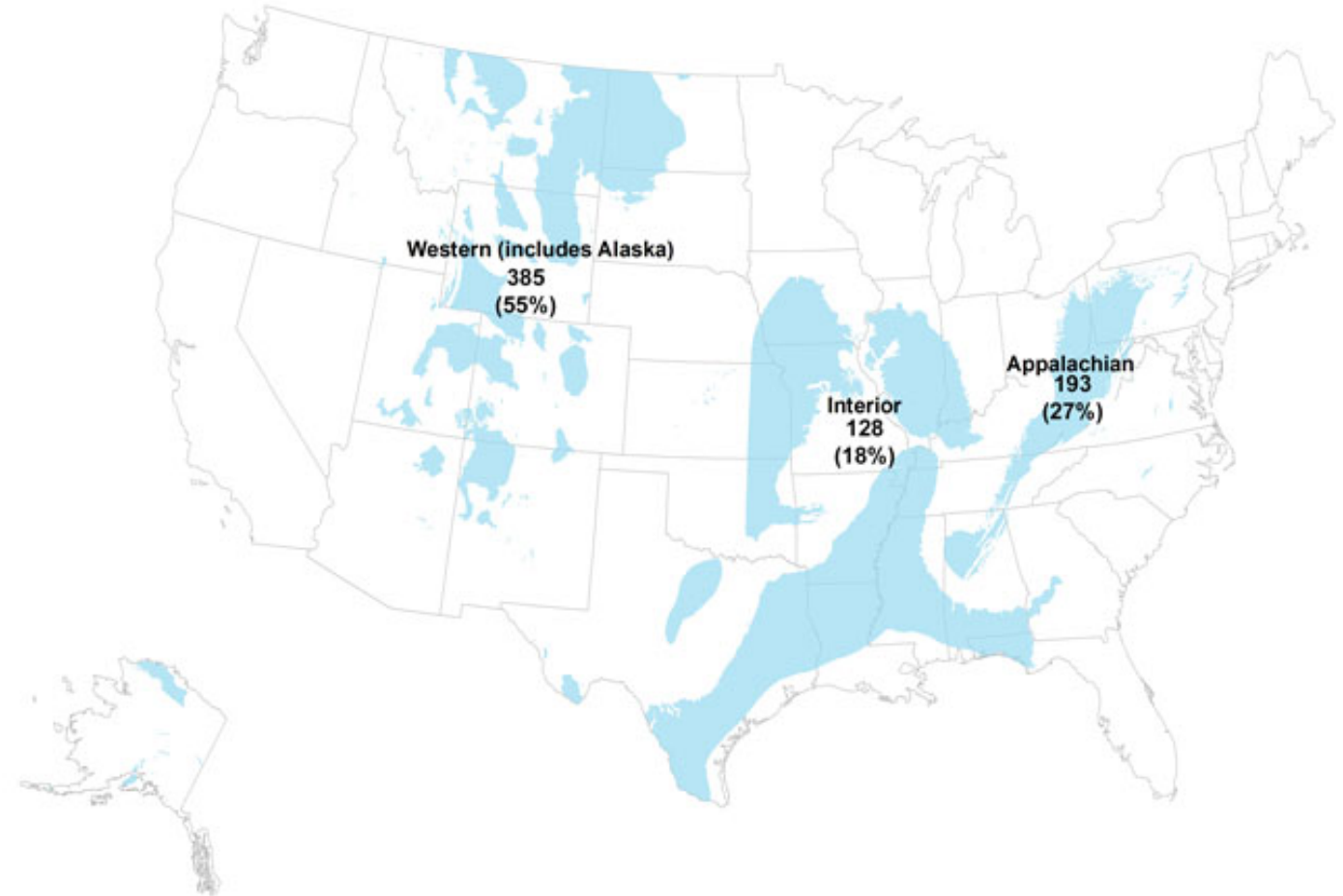
The top 5 coal producing states are:

- Wyoming
- West Virginia
- Pennsylvania
- Illinois
- North Dakota

2020 U.S. coal decreases (compared to 2019):

- Coal production decreased 24.2% year over year
- The avg. number of coal mine employees decreased by 10,645
- U.S. coal consumption decreased 18.7%
- The average sales price of bituminous coal decreased 15.1%

Coal production by region in million short tons and regional share of total U.S. production, 2019



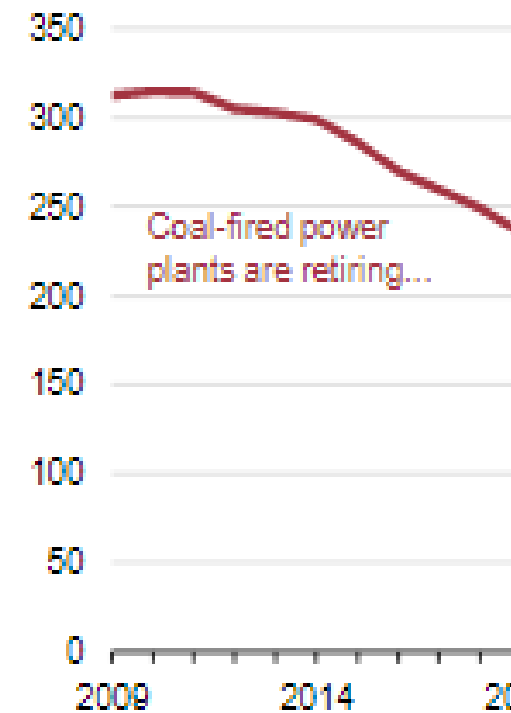
Note: Excludes refuse recovery coal. Sum of shares may not equal 100% because of independent rounding.  
Source: U.S. Energy Information Administration, *Annual Coal Report*, October 2020

# Declining Utilization of Coal-Fired Assets

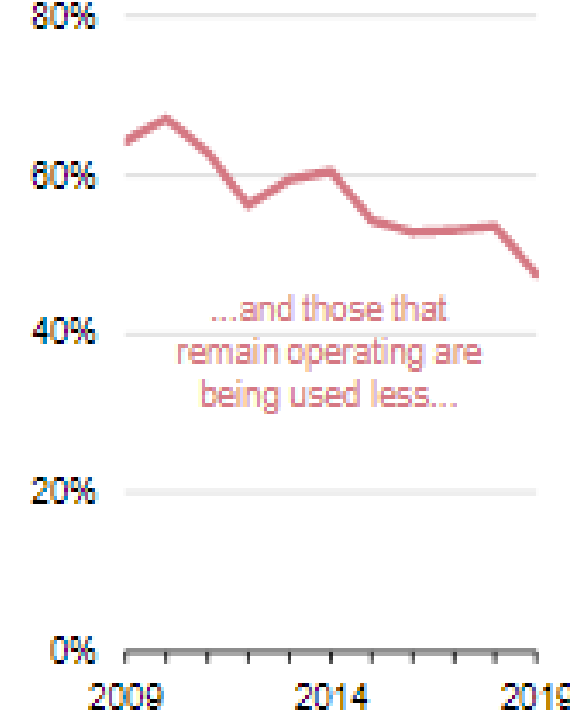
- US Coal-fired generation has decreased
- Some areas in the Midwest/West had fewer retirements yet, every region had substantial declines in generation in 2019
- The Southeast, East North Central, and West South-Central regions (all large coal capacities), each had reductions of >18% in coal-fired generation

Coal-fired generating capacity, capacity factors, and electricity generation (2009-2019)

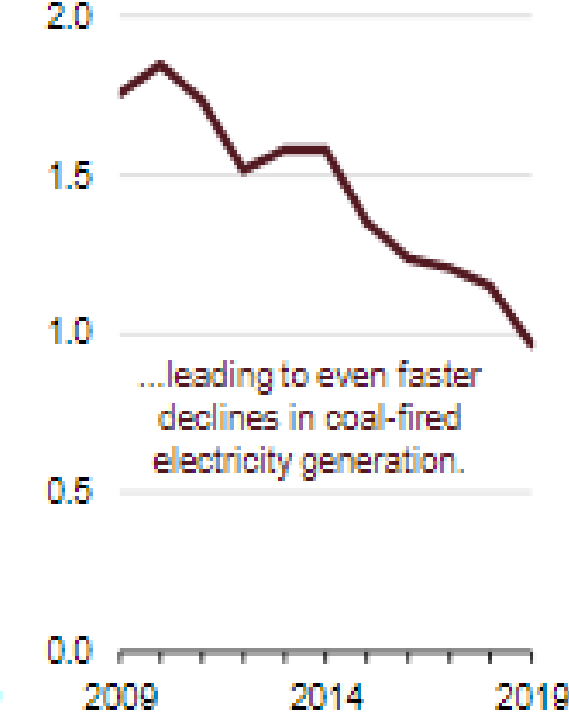
generating capacity  
gigawatts



capacity factor  
percentage



electricity generation  
billion megawatthours



Source: U.S. Energy Information Administration, *Electric Power Monthly*

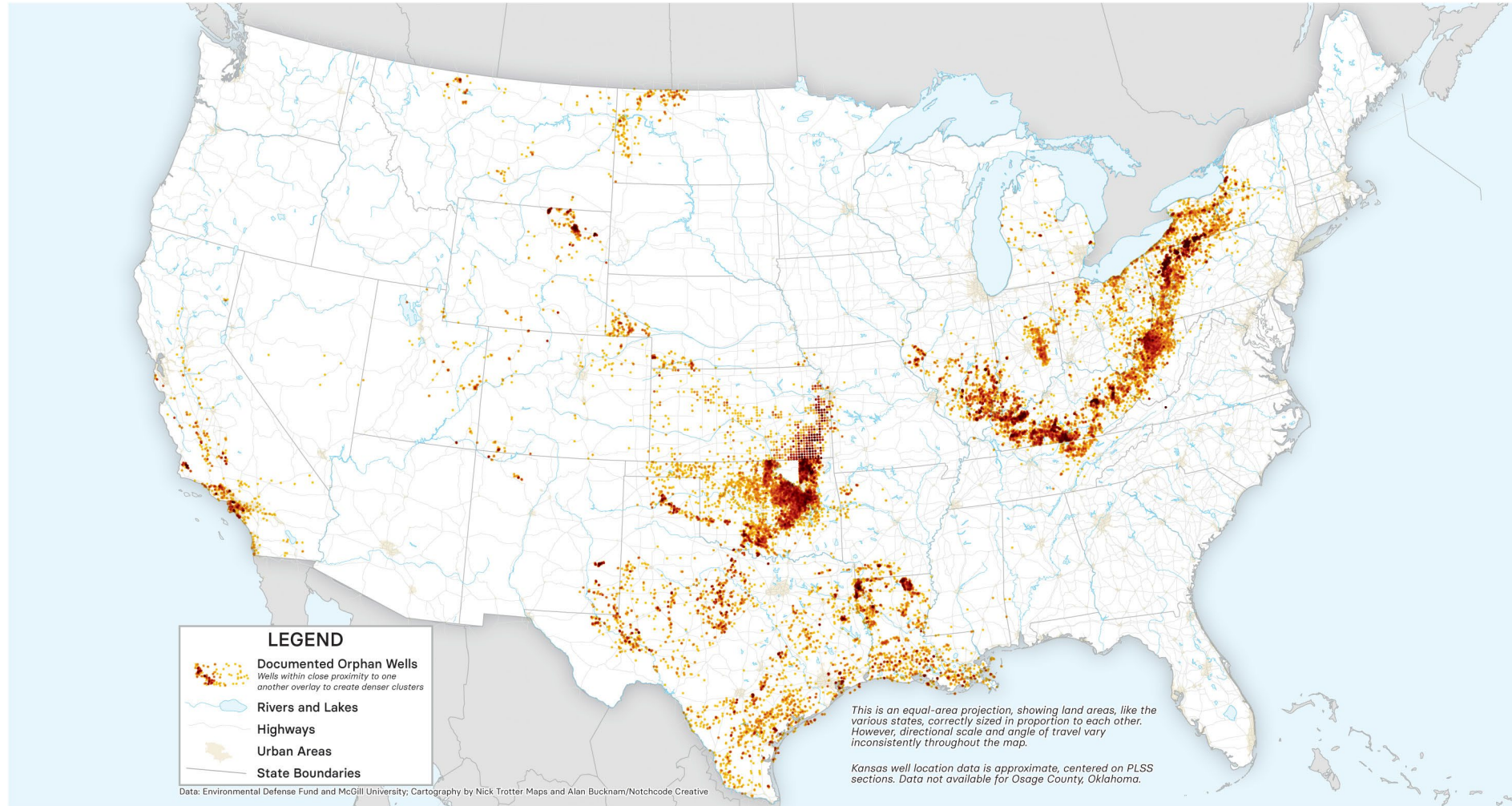


# Orphaned Oil and Gas Wells in the U.S.

The Environmental Defense Fund (EDF) has mapped **81,000** orphaned wells (across 28 states), whose proposed federally funded closure would protect the environment, climate and communities while creating jobs.

According to the EPA, there are **over 3.2 million** orphaned wells in the U.S. and **2.1 million** are unplugged.

The Bipartisan Infrastructure Law provided **\$250 million** to **identify and remediate orphaned wells on federal lands**. The Bureau of Land Management (BLM) is leading the creation of this program.



# Options for Repurposing Energy Assets

- **Built-in infrastructure and components can be repurposed for new industry:**
  - Transportation: access to roads, rail, ports and waterways
  - Transmission: Pre-existing direct grid connection at the power plant
  - Water: existing access and water rights
- **Options for Conversion to Clean Energy Assets:**
  - Nuclear (SMRs and Microreactors)
    - TerraPower 345 MW demonstration project – former coal generation site in Wyoming
    - Numerous technologies are expected to have NRC licenses by 2025
  - Hydrogen
  - Battery Energy Storage System (BESS)
  - Solar and Wind
    - Can help utilities meet state RE mandates
    - Require larger tracts of land that may not be available on the existing footprint
  - Thermal Energy Storage (TES)
    - Great match with labor skillsets from previous coal-fired generation facility





# Examples of Repurposed Energy Assets



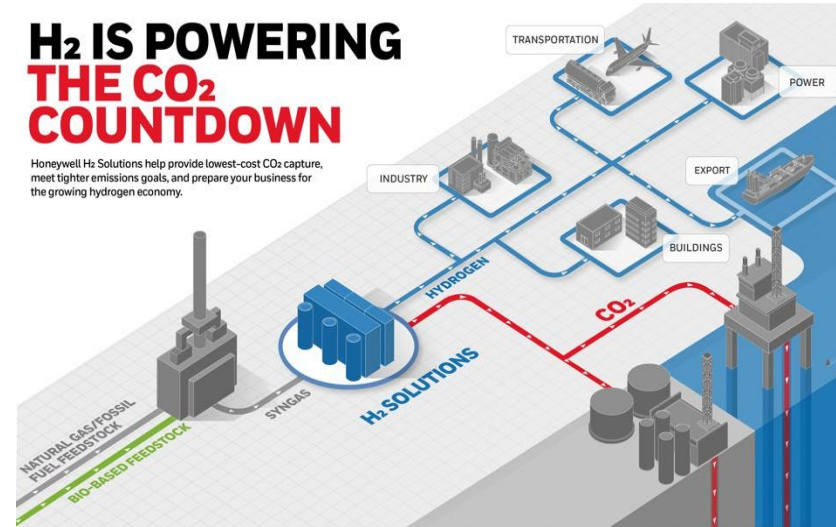
Mockup of the TerraPower 345 MW nuclear demonstration project: A former coal generation site in Wyoming.



ENGIE North America and Holyoke Gas & Electric: The largest energy storage system (with solar) in Massachusetts, located at the site of the old Mt. Tom power plant.



The Powerhouse Eatery: A former coal powerplant turned into a restaurant in Pennsylvania.



A former gasification plant in West Terre Haute, Indiana: Wabash Valley Resources and Honeywell are converting the plant into a hydrogen facility. The fuel will be sold to power generators and chemical makers.

# Examples of Repurposed Energy Assets: Renewable Energy + Storage

## Xcel Energy has proposed to close all remaining powerplants in the MN region by 2030

- They plan to close their Sherburne County plant (a 2,300 MW coal-fired facility from 1970) and replace some of the energy with a 460 MW solar farm that will flank the site, span 3,500 acres, and represent a \$500M+ investment.
- This location is largely dictated by the availability of transmission rights.
- Solar PV is the dominant renewable energy technology.

## Vistra's Moss Landing Energy Storage Facility is part of their 'Vistra Zero' portfolio

- Phase I is housed inside the power plant's refurbished former turbine building and is the world's largest battery energy storage system.
- Battery Energy Storage System is the dominant storage technology.

# Repurposing Energy Assets: Key Takeaways

Repurposing and redeveloping fossil assets allows for the **ideal marriage of company, community, and economic interests**

Repurposing and redevelopment of fossil assets shows us what a **future with stable, high-quality jobs for all and a productive, energy efficient, and climate-positive future will look like**

The variety of options available mean that companies and communities can **find the right fit based on their economic, geographic, and workforce needs**

# How to Find Me

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I am here to brainstorm, plot, leverage, and trumpet your place-based work.  
Please reach out!

**Kate Gordon**

**Senior Advisor to Secretary Granholm**

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