The background of the image is a top-down aerial view of a large solar panel farm. The panels are arranged in several parallel rows, stretching across a green, grassy field. The panels are blue with a grid pattern. A large, semi-transparent green rectangular box is positioned in the upper right quadrant of the image, containing the title text.

# HOW CAN THE FEDERAL GOVERNMENT SUPPORT CITIES IN A JUST AND RAPID DECARBONIZATION OF THE POWER SECTOR?

MAY 2023

# HOW CAN THE FEDERAL GOVERNMENT SUPPORT CITIES IN A JUST AND RAPID DECARBONIZATION OF THE POWER SECTOR?

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## INTRODUCTION: ECONOMIC CONTEXT, APPROACH, AND CHALLENGES

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### **Key findings**

- Cities within the United States experience many of the adverse environmental, economic, and social impacts of fossil fuel plants, but they also face challenges in phasing out fossil fuels.
- While past regulatory actions, recent legislation, and market forces have incentivized a clean energy transition, additional federal action is needed to ensure that necessary policies and actions are enacted to accelerate this transition, though new and old challenges to such actions persist.
- Despite challenges posed by Congressional gridlock, a recent Supreme Court decision, and states with preemptive laws, the federal government can still further promote renewables and phase out fossil fuel power in cities through financial incentives, refinancing and securitization, and regulatory reform.
- To ensure a lasting clean and just transition, the federal government can follow state examples and create a permanent Just Transition Bureau to allow for information sharing and coordination with cities across the country, provide additional funding for local just transition initiatives, and help finance early coal plant closures.
- Coupled with federal actions, cities can craft locally specific policies, share with other localities, and collaborate with state agencies and the federal government to bring about fossil fuel phaseout and just transition.

Transitioning away from fossil fuels is essential to achieving national climate targets in the United States and keeping global warming at or below 1.5°C.<sup>1</sup> In addition to contributing to greenhouse gas emissions, combustion from fossil fuel plants is also responsible for air pollution, water contamination, and toxic waste, and leads to detrimental public health impacts, ranging from respiratory diseases to premature death.<sup>2</sup> As a substitute for fossil fuels, renewable technologies have advanced and become increasingly affordable in recent years. The levelized cost of generating electricity through solar and onshore wind has dropped below the cost of natural gas and coal,<sup>3</sup> and recent federal policies, especially the Inflation Reduction Act of 2022 (IRA), are expected to further increase the cost-competitiveness of renewables.<sup>4</sup> In fact, nearly 130 GW of coal capacity has been retired since 2005, and many plants have announced that they will retire by 2030.<sup>5</sup>

However, current efforts are insufficient to phase out fossil fuels. New, expanded actions are needed to continue accelerating the clean energy transition. At the same time, shutting down fossil fuel power plants has broad societal and economic impacts, and just transition policies are needed to turn these impacts into opportunities. A just transition should maximize the social and economic opportunities of fossil fuel phaseout, including through new job opportunities and investments, community renewal, and resilience, eradication of social injustices and poverty, and health benefits.<sup>6,7</sup> In this analysis, we focus on strategies and policies to implement a rapid and just decarbonization within the power sector, which will be key for achieving U.S. NDC and net-zero climate targets, and discuss how federal and local—specifically city—governments can both contribute to fossil phaseout with complementary efforts.

Cities can play a key role in this energy transition. For cities, fossil fuel phaseout in the power sector helps achieve both decarbonization and development goals, as the adverse environmental, health, and social impacts of fossil plants are often experienced at the local level. In the United States, 13 cities with a

population greater than 100,000 people have at least one coal plant, and 188 cities are within the airshed of a coal plant (Figure 1).<sup>8</sup> Gas plants are even more likely to impact cities; 109 cities in the U.S. have at least one gas plant, and the vast majority of cities are within the airshed of a gas plant (Figure 1).<sup>9</sup> Though this paper focuses on the power sector, most cities also contain extensive gas distribution infrastructure that is responsible for methane and other<sup>10</sup> local air pollution. While some cities have taken actions to reduce their use of fossil fuels, they often face tremendous political, financial, and structural challenges in achieving fossil phaseout, where federal leadership is needed to help fill the policy gap.

The federal government can provide support and empower cities in their energy transition through multiple approaches, including investments, regulation, and coordination. Recent legislation, such as the Infrastructure Investment and Jobs Act of 2021 (IIJA) and the IRA, provides substantial funds to invest in clean energy and incentivize a transition away from fossil fuels. Regulatory actions in the last decade have also played a large role in accelerating fossil fuel phaseout, with policies dictating coal ash disposal and air pollution that have increased the cost of maintaining coal plants. However, a recent Supreme Court ruling places new restrictions on the executive branch's ability to take regulatory action, and persistent gridlock and partisan divides make sweeping Congressional action unlikely, posing challenges to maximizing federal action to assist cities.

In this first section of this analysis, we summarize existing actions that the federal government and cities are taking to reduce the use of fossil fuels. We then examine the mechanisms through which the federal government can provide additional necessary support to cities. In the second section, we assess the actions needed to facilitate just transitions in cities.

#### **Cities in the United States (>100,000 people) with an operating coal or gas plant**

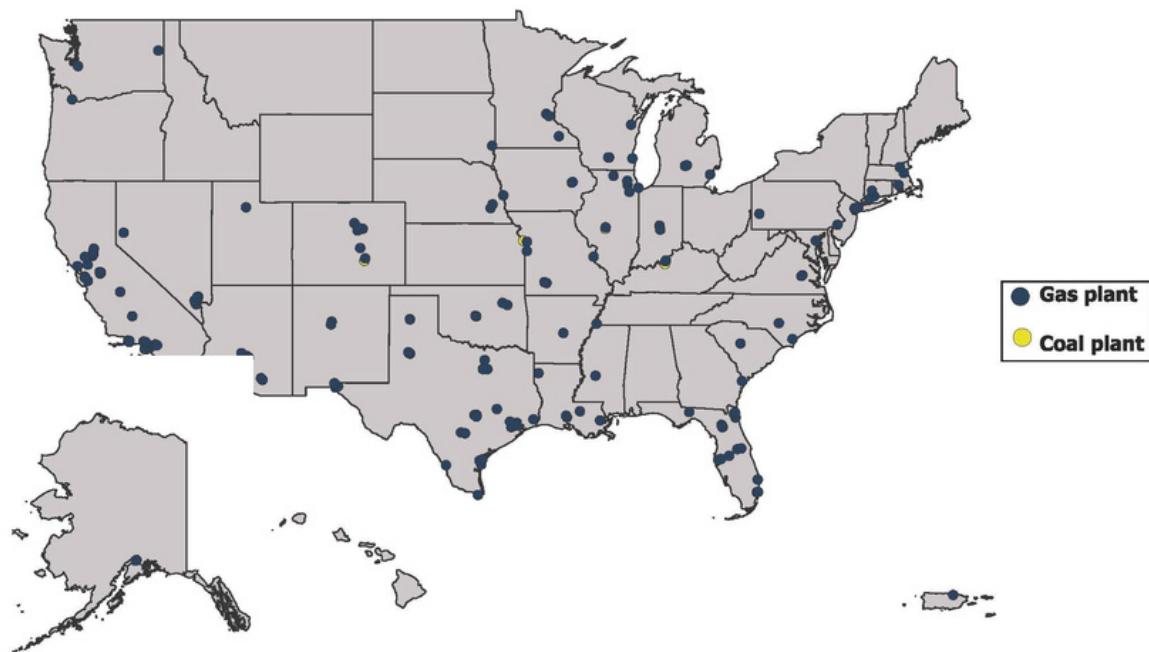


Figure 1: Cities in the United States with an operating coal or gas plant

## PART 1: OVERVIEW OF INVESTMENTS, REGULATIONS, & COORDINATION

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### Investments

Recent federal actions have expanded investments in clean energy and other necessary research and infrastructure. The Energy Act of 2020 has a budget of around \$35 billion, which it uses to fund energy innovation measures by investing in research, development, and demonstration (RD&D), especially for nuclear, renewables, and carbon capture technologies.<sup>11,12</sup> The IIJA invests \$65 billion toward improving the electric grid through investment in clean energy transmission construction, creation of a grid deployment authority, research into smart grid technologies, and RD&D for clean energy projects.<sup>13</sup> The Creating Helpful Incentives to Produce Semiconductors and Science (CHIPS) Act spends around \$67 billion on clean energy investments and research.<sup>14</sup>

As the most significant piece of U.S. climate legislation in history, the IRA will invest \$369 billion in climate and energy spending over the next decade.<sup>15</sup> The bill has allocated substantial funding toward tax credits that promote renewables deployment, with extended Clean Energy Production Tax Credits (PTC) and Clean Energy Investment Tax Credits (ITC). The PTC and ITC do not have a strict dollar or unit cap, meaning that the more cities do to accelerate clean energy deployment, the more their citizens will benefit from these tax credits. It is also worth noting the new mechanism of direct pay for local governments, local utilities, and other tax-exempt entities, which opens up the playing field by allowing these entities to redeem tax credits that were previously only available to tax-paying entities. Additionally, the bill includes \$30 billion in grants and loan programs to states and electric utilities to accelerate the transition to clean electricity, alongside \$27 billion under the Greenhouse Gas Reduction Fund for green banks to invest in clean energy technologies and infrastructure.<sup>16,17</sup>

In addition to tax incentives, the IRA includes funding for refinancing and securitization that can accelerate the early retirement of coal and natural gas plants. Much of these funds will be administered through a new loan program, known as the Energy Infrastructure Reinvestment program (EIR), which was given \$5 billion through the end of September 2026 and caps total loans at \$250 billion. This program helps to “guarantee loans to projects that retool, repower, repurpose, or replace energy infrastructure that has ceased operations, or enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gases.” These funds could potentially keep plants online longer through retrofitting, or replace the plants with cleaner energy sources and offset shutdown costs. The IRA also expands the Department of Energy’s (DOE) loan guarantee program to include ratepayer-backed bond securitization, which will lower costs for ratepayers.<sup>18</sup>

<b>Major provisions in the Inflation Reduction Act that promote clean energy</b>	
Tax credits	Grants and loans
Clean Energy Production Tax Credits (PTC) for renewables (uncapped)	\$30 billion in grants and loan programs to states and electric utilities to accelerate the transition to clean electricity.
Clean Energy Investment Tax Credits (ITC) for renewables (uncapped)	\$27 billion under the Greenhouse Gas Reduction Fund for green banks to invest in clean energy technologies and infrastructure.
Direct payment option for non-tax-paying entities, which could help decarbonize non-competitive electricity markets.	Up to \$250 billion in total loans under the Energy Infrastructure Reinvestment program (EIR) to projects that retool, repower, repurpose, or replace energy infrastructure, or enable operating energy infrastructure.

## City role

The main role of cities will be to effectively implement the federal investments that they are eligible for, such as the Clean Electricity Investment Tax Credits and the Greenhouse Gas Reduction Fund (\$27 billion), to incentivize the production and use of renewables on public and private property.<sup>19</sup> Cities can increase their clean energy production by using municipal assets like public schools, housing, and lands as sites to produce clean energy. Further, with the falling cost of renewables, cities can take action as electricity consumers. For example, they could work with other localities to broker better deals when faced with noncompetitive utilities and long-term coal plant agreements.<sup>20</sup> Cities can also support their consumers' switch to renewable energy at competitive rates through community choice aggregation programs.<sup>21</sup>

Under the EIR program, cities can engage with utilities and plant owners to advocate against keeping plants online longer, opting for replacement with clean energy. As federal investments continue to drive down coal production, localities may be further empowered to block and ban the storage of coal without major social or political drawbacks. Similarly, blocking the siting of new gas pipelines or banning new gas hookups could be used to prevent the expansion of natural gas, while current natural gas infrastructure could be hindered by blocking siting of storage tanks or limiting new storage.<sup>22,23,24</sup> Cities also play a role in engaging with and educating their citizens, community organizations, and states to ensure that federal funding is applied for and implemented to maximize impact.

## Further federal action to support cities

To support city ambition, the federal government should continue to increase its investment efforts and aid in the implementation of existing investments. First, the federal government should go further in incentivizing early retirement of coal and natural gas plants. Financial instruments like refinancing or carbon avoidance bonuses, which incentivize utilities or plant owners to retire early by providing lower-interest loans or credits based on units of emissions avoided, could help close the gap.<sup>25</sup> EIR is an example of such an instrument, though its loan authority will expire in 2026, which gives the DOE a relatively small window of time through which to disburse up to \$250 billion in financing. To maximize impact, Congress should extend the EIR provision to allow for the transition of infrastructure projects away from fossil fuels.

Through further investments, the federal government could also finance comprehensive programs aimed at scaling up renewable energy deployment in targeted regions, similar to the Tennessee Valley Authority, which brought greater electricity access to southern states during the Great Depression.<sup>26</sup> Key regions may include the Midwest, within the Chicago airshed, where there is a high concentration of low-hanging fruit (LHF) coal plants (see Figure 2), which provides immediate opportunities for plant closure to maximize other societal goals.<sup>27</sup> Other key regions include St. Louis, southern and central California, or the Tri-State area, which are nonattainment areas for criteria pollutants.<sup>28</sup> The federal government should also repeal or reduce its subsidies for fossil fuel production. For example, new drilling wells still receive tax credits of \$3 per barrel for the production of crude oil and 50 cents per 1,000 cubic feet for the production of natural gas under the marginal well tax credit, and up to 15% reduction in costs related to oil recovery under the enhanced oil recovery credit.<sup>29,30</sup>

Federal actors should also help cities implement federal legislation to maximize the benefits localities receive. The early retirement of coal and natural gas plants should remain the priority when disbursing funds and prioritizing projects. As an example, the federal government should encourage using the EIR to retire coal and gas plants, rather than retrofits or fuel switching to natural gas. Although not directly related to the power sector, federal investments toward energy efficiency and electrification also present an opportunity for the federal government to aid cities. The IRA set aside \$1 billion in grants with no cost-sharing requirement for states or local governments to adopt and implement stricter building codes or zero energy building codes in new or renovated buildings alongside active enforcement and measurement plans to ensure compliance.<sup>31</sup> With this grant and others, the federal government has the ability to shape where the available funding is sent and should require the adoption of stringent building codes as a condition for receiving the investments. This could build upon similar incentives used in the American Recovery and Reinvestment Act (ARRA) by requiring that states and local governments not only commit to investing in efficient buildings but requiring that they update their building code for all projects to receive funds.<sup>32</sup>

Low-Hanging Fruit Coal Plants in the United States

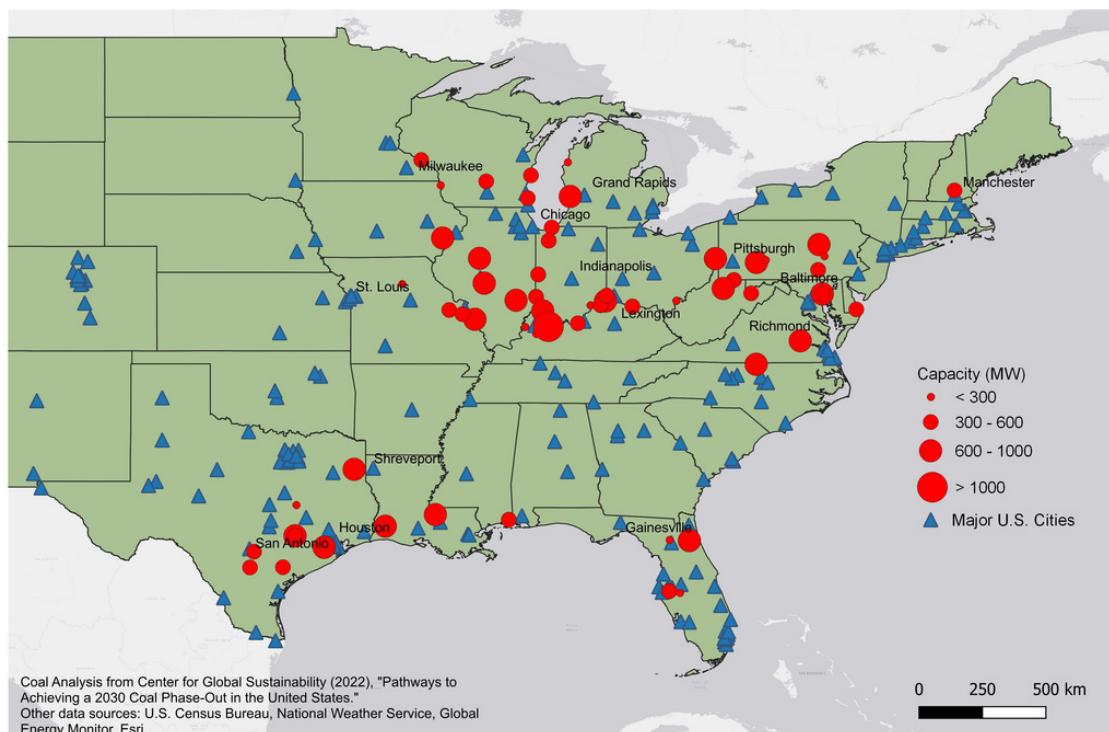


Figure 2: Coal plants in the United States identified as low-hanging fruit for retirement due to poor technical, environmental, and poor economic performance

<b>Mapping federal investments that can aid cities in accelerating the transition away from fossil fuels</b>		
<b>Goal</b>	<b>City policies</b>	<b>Federal investments</b>
Increase availability and use of clean energy	<ul style="list-style-type: none"> <li>• Use municipal assets for clean energy projects</li> <li>• Aggregate energy demands to broker better deals</li> <li>• Organize community choice aggregation programs where possible</li> <li>• Engage with local organizations, utilities, and states to ensure that federal funding is applied for and maximized</li> </ul>	<ul style="list-style-type: none"> <li>• Investment tax credits and production tax credits for clean energy</li> <li>• Investment in the grid and transmission to bring clean energy to users</li> </ul>
Reduce use of fossil fuels	<ul style="list-style-type: none"> <li>• Work with utilities and plant owners to use the DOE loan guarantee program for ratepayer-backed bond securitization</li> <li>• Block and ban storage of coal and natural gas</li> <li>• Divest public funds and pensions from fossil fuels</li> <li>• Reduce energy demand through investment in building efficiency and electrification</li> </ul>	<ul style="list-style-type: none"> <li>• Extend financing timeline for early coal plant closures</li> <li>• End fossil fuel subsidies</li> <li>• Divest public funds and pensions from fossil fuels</li> </ul>

### **Key recommendations for federal actions:**

- Congress should extend the EIR provision to allow for the transition of infrastructure projects away from fossil fuels.
- Congress should repeal or reduce current fossil fuel subsidies.
- DOE should prioritize coal and natural gas plant closures when implementing current investment initiatives, instead of encouraging retrofitting or fuel-switching to natural gas.
- HUD and DOE should make their investments for building electrification and efficiency directly available to local governments, given that states may pose a challenge to utilizing these funds.

### **Regulation and coordination**

Though federal regulation and coordination continue to play an important role in fossil fuel phaseout, after recent rulings and legal doctrines, states and cities may need to fill in for the federal government rather than build on federal actions. In *West Virginia v. EPA* earlier this year, the Supreme Court curtailed Environmental Protection Agency (EPA) power, ruling that the executive branch cannot unilaterally transition to renewables and away from coal and natural gas. However, the executive branch still has the ability to reduce emissions from and increase the cost of fossil fuel power plants through the EPA and other agencies.

The EPA's rule on Effluent Limitation Guidelines (ELG), which regulates coal ash and toxic metals in water, goes into effect in 2028 and would require many coal plants to make expensive technical upgrades. Additionally, proposed rules that address smog-related emissions that cross state lines,<sup>34</sup> set emissions standards for toxic air pollutants including mercury,<sup>35</sup> and tighten standards for particulate matter National Ambient Air Quality Standards (NAAQS)<sup>36</sup> may also result in coal power becoming economically inviable as important health safeguards become factored into the cost. An Obama-era rule that requires that coal-fired power plants use at least partial carbon capture and storage (CCS) to reduce emissions further increases the cost of coal, though the rule only requires new natural gas plants to meet a weak

business-as-usual emissions standard.<sup>37</sup> Methane emissions regulations increase compliance costs for oil and natural gas companies. The EPA is finalizing a proposed rule that would regulate methane emissions at new and existing oil and natural gas sources. Importantly, the proposed rule requires routine monitoring at all well sites and compressor stations, not just the largest ones, and establishes the “Super-Emitter Response Program,” which requires operators to respond to third-party reports of high-volume leaks.<sup>38</sup> IRA’s methane fee of \$1,500 per ton of methane is also expected to reduce methane emissions significantly.<sup>39</sup>

Other federal agencies have also taken regulatory actions that will aid fossil phaseout. The DOE’s Building a Better Grid initiative seeks to accelerate transmission buildout by unlocking funding, establishing corridors, identifying areas of greatest need, and streamlining interagency permitting.<sup>40</sup> The Biden administration has expanded the National Environmental Policy Act (NEPA) to consider both direct and indirect environmental impacts of federal projects.<sup>41</sup> The Federal Energy Regulatory Commission (FERC) is similarly expanding its project review process to consider the impacts of new natural gas infrastructure and may make authorization of projects conditional on mitigation of impacts.<sup>42</sup> The Department of Transportation’s Pipeline and Hazardous Materials Safety Administration has also finalized rules to reduce methane leaks downstream in the natural gas pipeline system.<sup>43</sup>

The Bureau of Land Management (BLM) and the Bureau of Ocean Energy Management (BOEM), both under the Department of the Interior, issue leases and permits for the development of wind, oil, and natural gas on federal lands and waters (shown in Figure 3), and can determine the type and extent of energy production on public lands. However, while BLM and BOEM have the ability to shape the availability of energy through leasing, their current policies and legal constraints limit decarbonization impacts. Last year, the Biden administration directed the Secretary of the Interior to pause new oil and gas leases on federal lands, but the agency was ultimately ordered by a federal court to renew the leases, and in response to inflationary energy prices, has increased the number of approved permits.<sup>44,45</sup> The IRA’s impact on oil and gas leasing is currently unclear. While it has a provision requiring sufficient leasing on federal lands and waters for oil and gas before leasing wind, which could further drive up fossil fuel production, it also raises the minimum bid and rental prices on federal lands, which may limit the availability of land for drilling.<sup>46,47,48</sup>

### U.S. Federal Lands and Waters

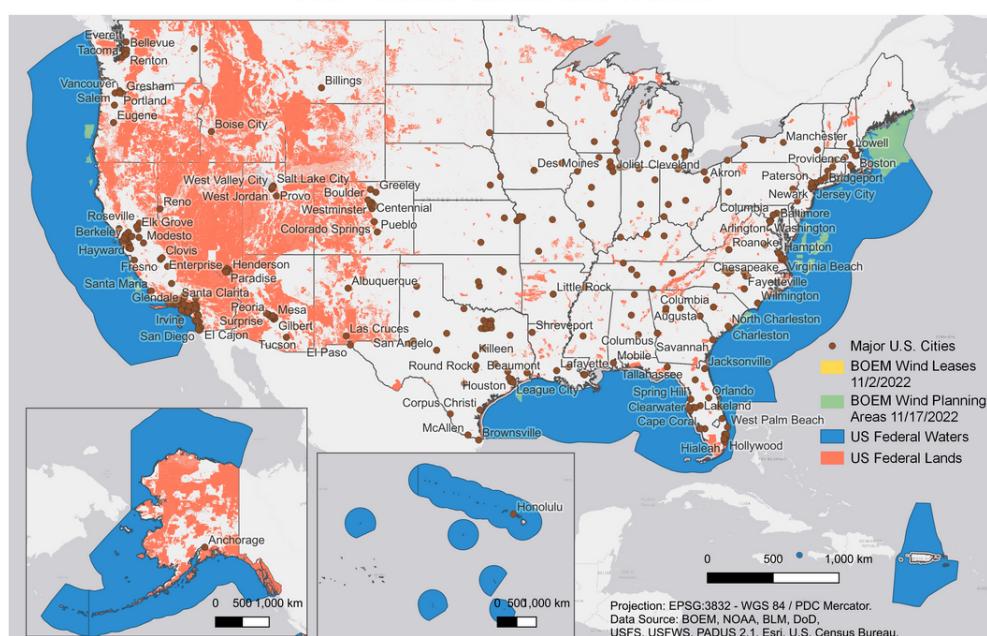


Figure 3: City proximity to federal lands and waters

## City role

City-level regulatory and coordination actions include a range of strategies, such as mandates and targets, bans on fossil fuels, engagement with utilities, and information-sharing. To move away from fossil fuels, cities can set clean energy targets or exert economic pressure on companies by divesting city assets and pensions from fossil fuels.<sup>49</sup> Cities also have the capacity to take legal action against companies or make their continued operations more difficult, through tactics such as banning the storage or movement of coal through ports, as seen in the California cities of Oakland and Richmond.<sup>50</sup> Some cities have the power to establish building codes that mandate energy efficiency standards in new or old buildings, set rooftop solar/solar-ready requirements, establish electrification goals, and ban natural gas hookups for space heating, water heating, or cooking.<sup>51</sup> Local governments have standing to engage in Public Utility Commission (PUC) proceedings, at which electricity and natural gas regulations for investor-owned utilities are formulated. Cities that build their case to make themselves a party to proceedings, which may require aid from energy law experts, can then work to influence regulatory actions within PUCs, impacting rates, utility investment applications, and energy market rulemaking.<sup>52</sup> Additionally, public purchasing policies for city projects requiring low-carbon concrete or other sustainable materials can leverage their power as large buyers to discourage fossil fuel use in these products.<sup>53</sup> Further, by sharing information with other cities on their efforts and best practices realized, cities can magnify the impact of the climate policies they enact.

Cities seeking to implement climate mitigation measures may be hindered not only by local political will but also by state-level opposition. Some states are unsupportive of regulatory action taken by cities - in some cases, states have passed laws limiting cities' ability to enact climate policies. Preemptive laws preventing city-level natural gas hookup bans exist in 21 states and have been introduced in four. Similar laws have been passed to prevent local fracking bans in five states. Cities can<sup>55</sup> respond to preemption policies by adopting a policy and being prepared to defend against a preemption challenge in state court, filing legal action in state court, advocating for legislative reform, and seeking state executive branch support. Cities can also<sup>56</sup> overcome this barrier by offering incentive-based policies over regulatory policies. For example, in Austin, Texas, where state preemption prevents a natural gas hookup ban, tax benefits are offered for electric installations. Even so,<sup>57</sup> state-level obstacles pose serious challenges, further highlighting the role of the federal government in helping cities achieve decarbonization.<sup>54</sup>

## Further federal action to support cities

The federal government should go further in regulation and coordination, through both unilateral actions and measures that encourage states and local governments to further reduce emissions. Taking actions within the executive branch that do not require congressional authorization is the most feasible. When evaluating proposed regulations, agencies should more fully consider environmental externalities in cost-benefit analysis through the use of a social cost of carbon that takes into account the range of damages caused by climate change. While the Biden administration reinstated the federal government's cost of carbon, raising it from \$1 to \$51 per metric ton,<sup>58</sup> they could increase it much further. One study, which focuses on the mortality impacts of climate change,<sup>59</sup> estimates that the social cost of carbon is \$258 per metric ton. The Biden administration is also reinstating NEPA regulations to "require federal agencies to consider indirect and cumulative environmental impacts of their actions, including those related to climate change," allowing agencies to prioritize environmental justice factors in decision-making.<sup>60</sup>

<sup>61,62</sup>

Federal agencies should also leverage their powers and assets to aid cities. The EPA has the ability to mandate retrofits on power plants, and expanding CCS requirements to new natural gas plants would

increase the cost of new gas plants as well as reduce emissions from fossil fuels. Additionally, FERC can support the coordination of electric grids to increase clean power deployment in multiple ways. FERC can “improve the interregional siting process by establishing a cost allocation methodology that better reflects the benefits of transmission solutions,”<sup>63</sup> as well as include more consideration of externalities and more coordinated regional planning.<sup>64</sup> Congress will likely need to take action to improve FERC’s planning, such as by giving “FERC a clearer mandate to enforce and expand Order 1000 (FERC’s regional transmission planning order), by requiring timely plans, accounting for public policy in planning, and allocating regional costs to beneficiaries where regions fall short.”<sup>65</sup>

Opportunities to leverage power and assets also exist within agencies that don’t directly regulate the power sector. The Department of Housing and Urban Development (HUD) has a portfolio of over 4.5 million housing units,<sup>66</sup> through which they can implement building decarbonization efforts like energy efficiency retrofits, electrification mandates, and appliance standards, saving money on utility costs subsidized for residents. A considerable number of HUD units exist in states that preempt local authority to adopt natural gas bans, an opportunity for HUD to mandate electrification and efficiency retrofits in their units.<sup>67</sup> HUD can further improve its climate ambition by requiring Public Housing Authorities to create 20-year Green Physical Needs Assessments (PNAs), standardize the energy audit process, phase out fossil fuels in heating, cooking, and appliances, and extend financing for capital expenditures to 30 years to fund climate initiatives.<sup>68</sup> The federal government also shapes private housing policy through the federally backed companies Fannie Mae and Freddie Mac, which are regulated by the Federal Housing Finance Authority (FHFA). Both companies have green housing programs in place to finance efficiency programs through mechanisms like green bonds, and the FHFA could use its regulatory power to further mandate these initiatives, but the focus appears to be on adaptation to climate disaster risk over mitigation, reflecting the FHFA’s present interpretation of its mission to assess the financial safety and soundness of these companies.<sup>69,70</sup> Other federal players, such as the Department of Defense (DoD), have considerable assets (the DoD owns over 160,000 structures),<sup>71</sup> the electrification of which could have a massive impact on state grids.

Other regulatory actions require congressional authorization and are therefore less politically feasible. First, Congress could pass legislation requiring the direct phase-out of fossil fuels, or mandating that renewables make up a certain percentage of utility portfolios. The Supreme Court’s ruling in *West Virginia v. EPA* indicates that only Congress has the power to directly require utilities to switch out a particular energy source with a cleaner option. Such an<sup>72</sup> approach may be the most robust way to phase out coal and natural gas, but Congress appears highly unlikely to take such action in the near future. Additionally, to aid in the expansion of renewable energy while preventing curtailment of output, Congress should give a federal agency the authority to site interstate transmission lines, which would address existing bottlenecks in transmission deployment caused by opposition to siting among companies, localities, and individuals. Enactment of a nationwide<sup>73</sup> carbon price, another Congressional tool, could build upon existing carbon valuation networks at the state level and reduce leakage from them. Carbon pricing has been shown to reduce natural gas and especially coal use in the power sector. For example, one estimate finds that a carbon price of \$28 per metric ton would reduce coal use 89% and natural gas use 16% by 2035, in comparison to a baseline scenario. Given the current makeup of Congress, such action may be more feasible at the city or state level - existing state markets, such as the Regional Greenhouse Gas Initiative, could be modeled among cities, though local-level pricing initiatives risk carbon leakage.

Federal and city-level opportunities			
Policy	Examples	City-level feasibility	Federal-level feasibility
Clean energy mandates	<ul style="list-style-type: none"> <li>Require that a certain % of electricity come from renewables</li> <li>Require that commercial buildings install rooftop solar</li> </ul>	<b>High. Many cities have clean energy mandates.</b> However, many city-level mandates allow for the use of renewable energy certificates, and as a result, do not necessarily drive local clean energy growth <sup>75</sup> and generation.	Low. The <i>West Virginia</i> ruling prevents agencies from prescribing energy sources to be used for electricity, and Congress is unlikely to pass a national portfolio standard. However, President Biden has mandated 100% carbon-free electricity by 2030 for federally-owned facilities through an Executive Order. <sup>76</sup>
Block and ban coal and gas	<ul style="list-style-type: none"> <li>Mandate coal/natural gas power phaseout</li> <li>Ban or pause new fossil leases offshore and on public lands</li> </ul>	Medium. Limited use of coal within city limits, but high reliance upon natural gas remains.	Low. The <i>West Virginia</i> ruling and the IRA requirement that fossil fuel leases be offered on federal lands make fossil fuel bans less feasible. The federal government could take further actions to make oil and gas an unattractive investment, such as extending CCS requirements to new gas plants.
Improve energy efficiency in buildings	<ul style="list-style-type: none"> <li>Appliance standards and building codes</li> <li>Banning natural gas hookups</li> <li>Building performance standards</li> </ul>	Medium. Some cities have set building codes and passed natural gas bans, but in some cities, preemptive bans at the state level prevent initiatives like electrification requirements.	<b>High. Past rulemaking has set efficiency standards, a considerable amount of housing stock is owned federally through HUD, and IRA funds for these measures are readily available.</b>
Improve grid connectivity	<ul style="list-style-type: none"> <li>Reform FERC planning processes</li> <li>Give transmission siting authority to FERC</li> </ul>	N/A	<b>High. Reforms within FERC aimed at adjusting the planning process are feasible.</b> Medium. Recent legislative attempts to give FERC interstate transmission siting authority have been blocked. <sup>77</sup>

Use assets for clean energy projects	<ul style="list-style-type: none"> <li>Streamline the process of identifying and approving leasing areas for renewables on public land</li> <li>Installing PV on public schools or government buildings</li> </ul>	<p><b>High. The assets are under city/local jurisdiction, and cities can streamline permitting of distributed energy resources such as rooftop solar and geothermal.</b> Cost is the main barrier to using them for renewable production.</p>	<p><b>High. The assets are under federal jurisdiction, and the process of identifying Designated Leasing Areas could be streamlined.</b></p>
Regulate and price emissions and pollution	<ul style="list-style-type: none"> <li>Carbon pricing/cap-and-trade legislation</li> <li>Emissions reductions mandate for power sector</li> </ul>	Medium. Subnational carbon markets have been developed in the U.S., and city-level markets exist internationally, <sup>78</sup> but are often politically unpopular and have leakage at the subnational scale.	Low. History of difficulty passing carbon pricing legislation through Congress and <i>West Virginia</i> ruling make these options unlikely to pass.

#### Key recommendations for federal actions:

- All federal agencies should use a robust social cost of carbon, NEPA reinstatements, and spending to exert influence directly and indirectly related to climate change.
- EPA should expand CCS retrofit requirements to include new natural gas plants.
- Beyond the EPA, other agencies should leverage regulatory, coordinative, and purchasing power.
- Congress should expand FERC's transmission siting powers to match their authority on pipelines and gas terminals, allowing for transmission buildout to meet electricity needs and improve grid connectivity.

## PART 2: ENSURING A JUST AND EQUITABLE TRANSITION

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While a clean energy transition could bring large societal benefits, certain groups and communities, for example, fossil fuel workers and fossil-dependent local economies, will likely suffer disproportionately if policymakers do not proactively ensure a just transition.<sup>79</sup> Policymakers have a responsibility to ensure that the transition to clean energy benefits fossil fuel workers and historically disadvantaged communities through new job opportunities and investments, community renewal and resilience, eradication of social injustices and poverty, and health benefits.<sup>80</sup>

### **Shutting down coal plants**

Retiring coal and natural gas plants, an integral part of the fossil fuel transition, remains a challenging process with considerable equity implications. When production is halted at a coal plant, options moving forward include mothballing (stopping production but not officially shutting down), decommissioning (shutting down a plant and removing equipment), remediation (cleaning up contamination), and redevelopment (repurposing the site). The latter options tend to be more expensive because they require that plant owners comply with regulations on pollution clean-up to ensure health and safety standards are met. As a result, the vast majority of coal plants that no longer produce power—up to 95%—are not officially decommissioned or redeveloped.<sup>81</sup> Plants that are not repurposed continue to pollute and blight communities, combining a symbolic communal loss with the loss of jobs and potential decrease in property values, without the benefits of a new project that takes its place.<sup>82</sup>

Even when projects are decommissioned, local residents can face new financial burdens. In regulated markets, ratepayers effectively pay for decommissioning through higher energy bills. In contrast, in unregulated competitive markets, plants have less ability to recoup losses and usually include their losses as part of the company's financial obligation. To minimize the impact on ratepayers, particularly in regulated markets, states can intervene to “regulate the types of decommissioning costs that utilities may (or may not) recoup through rates” and use the ability to determine that amount as leverage against the coal power plant, requiring clean-up to recoup all decommissioning costs. The federal government can also provide grants and technical assistance through the EPA's Brownfields and Land Revitalization program, which was valued at \$59 million in 2017.<sup>84</sup> The IRA provides bonus tax incentives for projects located in “energy communities,” which include brownfield sites, coal communities, and communities where unemployment is higher than the national average, or low-income communities.<sup>85</sup> Brownfield sites, in particular, could most directly be used in transforming fossil fuel plants into renewable projects, financing environmental remediation of sites and reducing local health impacts. While this new generation is usually not placed at the same site as the retired coal plant, investment in new energy generation allows utilities to repurpose transmission infrastructure and rights.

### **Employment and investment**

Just transition policies also focus on ensuring that former fossil fuel workers are not left behind by the energy transition. The spatial distribution of fossil fuel jobs has resulted in the formation of communities built around the line of work, so losing these jobs has impacts that transcend individual economic harm, causing community-wide cultural, social, and economic impacts.<sup>86</sup> Clean energy's employment potential varies by region, though potential sites frequently overlap with areas of fossil fuel energy production.<sup>87</sup> Still, the spatial distribution is not identical, and the comparative economic benefits of switching to clean energy jobs vary based on the metric used.

For former fossil fuel workers, the transition to clean energy work would yield mostly positive economic outcomes. Clean energy jobs pay a similar wage within certain job types (construction jobs in coal and wind pay a comparable wage, for example), with higher levels of job security than fossil jobs, which are prone to cycles of boom and bust.<sup>88</sup> The clean energy industry often offers above-average job salaries for workers with low educational attainment,<sup>89</sup> but pays less on average<sup>90</sup> and is less likely to be unionized<sup>91</sup> compared to the fossil fuel industry. Unionization could rise over time as workers in these relatively new industries establish their collective voice, but growth potential is hindered by structural obstacles including the increasing difficulty of unionization and the spatial distribution of renewable jobs, which are less concentrated than fossil jobs and consequently harder to organize.<sup>92</sup>

Additionally, renewable energy sites require fewer long-term operations and management workers than coal and natural gas plants.<sup>93</sup> As such, just transition policies cannot be solely reliant upon shuffling workers from one energy job to another in that sector, rather, policies should provide broader support for communities reliant on fossil fuel jobs through comprehensive community development, job training, and education.<sup>94</sup> Promising job areas to focus on include methane mitigation, which would create localized energy jobs,<sup>95</sup> environmental restoration and resiliency to remediate coal and natural gas sites, and energy efficiency retrofits, infrastructure, and entrepreneurship for community development.<sup>96</sup> These jobs could further the goals of a just transition by reducing exposure to toxicants through environmental remediation and expanding energy access while lowering costs for consumers.

<b>Percentage of laborers in a union or project labor agreement by type of electric power or fuels job</b>			
<b>Type of electricity power generation job</b>	<b>% in Union</b>	<b>Type of fuels job</b>	<b>% in Union</b>
Whole sector	12%	Whole sector	7%
Nuclear	20%	Coal	12%
Coal	17%	Nuclear	8%
Natural gas	17%	Natural gas	7%
CHP	12%	Biofuels	5-10%
Hydro	12%		
Bioenergy	11%	Transmission, distribution, and storage	18%
Wind	11%	Energy efficiency	11%
Solar	10%		
Oil	9%		

Recent federal actions have provided funding for local just transition programs, many focused on employment and education. The Partnerships for Opportunity Workforce and Economic Revitalization (POWER) grant program and Economic Development Administration's Assistance to Coal Communities (ACC) program both aim to support former coal workers, including miners, power plant workers, and those in supply chain operations, especially in Appalachia. ACC, for example, funds "programs that support job creation, capital investment, economic diversification, workforce development, and

reemployment opportunities.”<sup>98</sup> The Bipartisan Infrastructure Law provides \$21 billion for environmental restoration, including capping old oil and natural gas wells, remediating former mining sites, and cleaning Superfund sites, helping to reduce the health impacts experienced by transitioning energy communities.<sup>99</sup>

Additional federal spending on climate justice and workers was unlocked through the IRA, which includes provisions that promote targeted actions, such as air quality monitoring in low-income communities, as well as funds for states, cities, and local organizations to use with discretion.<sup>100</sup> The bill removes the expiration from the black lung disability trust fund, ensuring the future of payouts, aiding coal miners suffering from the disease, and maintaining a small tax on coal mining.<sup>101</sup> The IRA also awards bonus clean energy tax credits for projects that meet wage and apprenticeship requirements and for projects serving low-income and energy communities.<sup>102</sup>

### **City role**

Cities can provide policy solutions more precisely tailored to their constituents’ needs, and implement federal and local programs aimed at ameliorating environmental injustices. Importantly, cities have the ability to shut down coal plants under their ownership or put pressure on other owners to shut down. For example, the Centralia Coal Plant in a rural Washington locality will fully close in 2025, through an agreement formed between lawmakers, local leaders, and the power plant’s owner. To ease the transition for the workers laid off and the town dependent upon the plant’s contributions to the tax base, the plant’s owner TransAlta is required to give \$55 million in grants, administered through a board of a company and local leaders, to provide support for former workers and the town of Centralia’s economic development.<sup>103</sup>

Furthermore, cities can take advantage of federal and local funding to engage in retraining and compensation initiatives for former fossil fuel workers, initiatives to alleviate energy poverty, and renewable infrastructure projects. The Clean Energy Community Benefits Fund in Portland, Oregon, for example, invests in frontline communities, clean energy projects, regenerative agriculture, and workforce development using a long-term fund that voters established in 2018.<sup>104</sup> Cities can also coordinate with state governments and community organizations to leverage the IRA’s nearly \$3 billion in climate justice block grants for air quality monitoring and improvement, investment in low emissions energy infrastructure, or appropriations for climate adaptation measures like reducing the heat island effect. The needs of impacted communities vary nationally, so engaging with local stakeholders is necessary to understand the challenges and potential solutions unique to each city. As an example, the Green New Deal Oversight Board in Seattle, Washington is composed of community leaders, labor union representatives, environmental justice leaders, and an individual skilled in workforce training, and provides city leaders with policy and program proposals and modifications to existing policies.<sup>105</sup>

### **Further federal action to support cities**

A just transition is estimated to cost anywhere from \$600 million to \$23 billion per year.<sup>106</sup> Accordingly, the federal government plays an important role in funding just transitions and should increase investments in these efforts. In particular, the early retirement of coal and natural plants can be expensive and risks harming low-income consumers. Through IRA’s EIR program, utilities have the option to use low-interest loans to pay off coal plants.<sup>107</sup> The federal government could also create a permanent Just Transition Bureau for coordination across jurisdictions and agencies, which may standardize and improve data collection to better understand disparities between communities and more efficiently allocate resources.<sup>108</sup> The Biden Administration’s Justice40 Initiative, which requires that 40 percent of federal investment benefits go to marginalized communities, is contingent upon community involvement in the development process.<sup>109</sup> This initiative could further require proof of consultation, and data on not

just benefits, but also the costs of projects in these communities. With IRA investments in building electrification and efficiency, the implementing agencies should use directed incentives that encourage localized development to ensure that low-income homes and communities receive the benefits, including improved indoor air quality and lower energy bills.<sup>110</sup>

While federal investment will make fossil fuel retirement feasible, state-level policies are crucial in encouraging the use of IRA funds at the city level. In New York, where 70% of electricity in the state must come from renewable sources by 2030, state regulators have given preference to offshore wind development plans that use existing peaker plant infrastructure for transmission interconnection. Converting existing fossil infrastructure not only encourages early retirement of fossil fuel plants but also ensures that the infrastructure is put into use and not burdening the community.<sup>111</sup> New York City could use the funds from the EIR program to refinance the peaker plants and connect them to offshore wind.

Cities are also able to access certain funds without the intermediation of states. For example, local governments are eligible for the Neighborhood Access and Equity Program (\$3 billion) and the GHG Air Pollution Plans and Implementation Grants (\$5 billion), and can use the funds to improve transportation and air pollution policies, with a focus on low-income communities.<sup>112</sup>

Mapping federal policies that can aid cities in achieving their just transition goals		
Goal	Potential city policies	Federal policies
Retire and remediate fossil fuel plants	<ul style="list-style-type: none"> <li>• Craft securitization and refinancing plans for shutting down plants</li> <li>• Work with states to use old infrastructure for clean energy</li> </ul>	<ul style="list-style-type: none"> <li>• Extend DOE loan authority beyond 2026 expiration</li> <li>• Expand financing options to incentivize early retirement</li> </ul>
Just energy transition for workers	<ul style="list-style-type: none"> <li>• Invest in retraining and compensation packages for fossil fuel workers</li> <li>• Diversify local industry</li> </ul>	<ul style="list-style-type: none"> <li>• Funding relocation, retraining, and early retirement</li> <li>• Investment in technologies used in hard-to-decarbonize sectors</li> </ul>
Ensure benefits of decarbonization accrue in marginalized communities	<ul style="list-style-type: none"> <li>• Push for remediation and repurposing fossil fuel plants when they are shut down</li> <li>• Engage with the Justice40 Initiative to develop community-centered programs</li> </ul>	<ul style="list-style-type: none"> <li>• Create a permanent Just Transition bureau</li> </ul>

#### Key recommendations for federal actions:

- Congress should increase funding for just transition initiatives, particularly related to the early retirement of coal and natural gas plants.
- Congress should create a permanent Just Transition Bureau for coordination across jurisdictions and agencies, and provide it with funding to continue investing in initiatives.
- The Treasury and DOE should ensure that low-income communities receive clean energy benefits from IRA funds through directed incentives that encourage localized development.

## CONCLUSION

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In recent years, cities across the United States have increased their climate ambition, creating innovative new policy solutions to phase out fossil fuels in the power sector. Moreover, historically significant federal climate policies passed in 2021 and 2022 provide the opportunity to support these efforts while also enabling further action, although obstacles persist, including new court rulings that limit federal regulatory opportunities, the lack of a national carbon pricing mechanism, and preemptive policies at the state level that stifle city efforts. Despite these challenges, there is still room for the federal government to dial up its own efforts while continuing to engage with cities. We recommend that the federal government increase clean energy and just transition investments and give cities more direct access and power to implement these funds while strengthening regulatory and coordinative efforts through agencies beyond just the EPA. With these additional federal actions, cities can play a key role in transitioning the power sector away from fossil fuels and achieving U.S. climate goals.

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