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DAC Hubs in Fossil Fuel Country: Recommendations From the Gulf Coast

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Background

Across the Gulf Coast, renewables [are taking off](#), bringing jobs and economic growth while advancing climate goals. As the United States transitions away from fossil fuels, multiple new industries could help meet the Gulf Coast region's workforce needs. A just transition — one that offers quality of life for displaced workers like those in the fossil fuel industry — will be especially important. Direct air capture (DAC) is one such industry that could aid in a just transition for fossil fuel communities and workers, drawing on many of the same skillsets used to take carbon out of the ground in the form of fossil fuels. Climate experts now say that carbon dioxide removal (CDR) technologies like DAC [will be necessary](#) to limit global warming to 1.5 degrees Celsius, and likely even to limit warming to 2 degrees Celsius. They also say [we're behind](#) on developing these technologies and practices. DAC [removes carbon dioxide](#) from the open air for permanent sequestration using large fans and [can complement land-based CDR](#) by providing [more climate-resilient removals](#). However, CDR and DAC technologies are [no substitute for decarbonization](#), and any deployment of CDR technologies must be accompanied by ambitious measures to slash emissions and [rapidly phase out fossil fuels](#).

In the United States, DAC is receiving significant support from the federal government. In November 2021, President Biden signed the [Infrastructure Investment and Jobs Act](#) (IIJA), which set aside [\\$3.5 billion](#) to create [four DAC hubs](#) across the country. DAC developers are showing [increased interest](#) in the Gulf Coast, given its abundant energy resources, existing industrial infrastructure, and potential for geologic sequestration of carbon dioxide removed from the air. The characteristics that make the Gulf Coast attractive to DAC developers, however, are also many of the characteristics that may make local communities averse to DAC development. As the U.S. Department of Energy (DOE) considers funding and deploying DAC hubs along the Gulf Coast, it must weigh the fossil fuel industry's legacy of harm within environmental justice communities. DAC [can be a means](#) of rectifying past carbon pollution, but only if it is deployed with the aim of addressing the Gulf Coast's legacy of [environmental racism](#) and [siting injustices](#).

Home to the headquarters of [many fossil fuel companies](#), the Gulf Coast is marked by its legacy of oil and gas development. The region produces [one-fifth](#) of the nation's crude oil and [more than 50 percent](#) of American natural gas. The region also houses [45 and 55 percent](#) of the U.S.'s capacity to refine and process petroleum and fracked gas, respectively. Outputs from these facilities can then be sent to market in the form of [fuel, chemicals, and more](#), or transported to one of the region's [55 major chemical facilities](#), where [feedstocks](#) are used to create [plastic, synthetic rubber tires](#), synthetic fibers and fabrics for [clothes](#), and [other everyday items](#).

The fossil fuel industry is in various stages of [decline](#), which will impact local workers and economies in a region long built around the industry. Increasingly, oil and gas companies [are turning to plastic production](#) to grow demand (while also working to further entrench the [use of](#) and [reliance on](#) plastic products) for the continued extraction of oil and fracked gas. As a result, the Gulf Coast is experiencing an ongoing [expansion of petrochemical infrastructure](#). Since the [lifting](#) of the oil export ban in 2015, as well as the [disruption of global oil markets](#) following Russia's invasion of Ukraine, oil and gas companies are increasingly exporting natural gas along the Gulf Coast to reach European and other new global markets. With the growth of natural gas exports, the oil and gas industry has built out liquified natural gas (LNG) terminals along the coasts of Texas and Louisiana at [a stunning rate](#). LNG terminals are massive — one facility in southwest Louisiana spans [over 700 football fields worth](#) of land — and release [toxic air pollution](#) when they flare or vent excess natural gas. These facilities come with a climate cost, too. One report suggests that LNG terminals across the U.S. will release [90 million tons](#) of greenhouse gases a year — the [equivalent emissions](#) of 18 million cars running over the course of a year — if all terminals currently slated for development are built.

In spite of [eye-popping profits](#) reaped by oil and gas companies and executives, much of the Gulf Coast has not shared in the economic benefits of the industry. And even for those who have, the benefits have come with steep [environmental and health costs](#). The buildout of the fossil fuel industry has seriously damaged [human health](#), the [environment](#) and [climate](#), and [political agency](#) in the region, where [heavily industrialized](#) areas along the Texas coastline and the Mississippi River in Louisiana are often respectively dubbed the "[Cancer Belt](#)" and "[Cancer Alley](#)."

Despite the environmental and human health harms from industrial facilities along the Gulf Coast, [federal](#), [state](#), and [local](#) governments are doing little to hold industry accountable and protect the public. State and local governments along the Gulf Coast have neglected residents, leaving civilians to bear the manifold costs of fossil fuel corporations, raising serious questions over whether an emerging DAC industry can avoid capture by the fossil fuel industry in a region long ensnared by it.

Sites and Local Findings

Building on [four community workshops](#) held across the country, Data for Progress facilitated community workshops along the Gulf Coast in Port Arthur, Texas; Lake Charles, Louisiana; and Alexandria, Louisiana, in March 2023. Our goal was to observe and understand community needs, concerns, and residents' support for (or opposition to) a potential DAC facility in their community, and then to amplify these findings in decision-making processes. After being provided an overview of DAC, including potential opportunities and risks, participants broke up into small groups to discuss preferences (or the lack thereof) for different features of a potential

DAC facility in their community and assess how they think their community would respond to the concept.

Port Arthur, Lake Charles, and Alexandria each fit the site [criteria](#) set forth by Congress for DOE's selection of DAC hub applications: access to geological storage reservoirs for CO₂, ongoing economic reliance on the fossil fuel industry, proximity to low-carbon electricity sources, and location within economic opportunity zones. However, given the histories of these three communities, the factors that may make Port Arthur, Lake Charles, and Alexandria attractive sites for DAC are the same ones that may mean DAC is captured by entrenched, polluting industries like the fossil fuel industry — to the detriment of communities and the climate. Each community has experienced the downside of extractive industries, such as unfulfilled promises of jobs and community benefits, as well as the accompanying detrimental environmental impacts. Beyond these similarities, however, each workshop offers new insights on how — and whether — communities may prefer to implement DAC.

Each workshop was attended by approximately 15 community members, recruited to be demographically representative of the community. The small sample size allowed ample time to assess participants' perceptions of their communities, local industries, and the potential for local DAC development. For more details on methodology, please see our report on our first [four community workshops](#).

While participants had varying perceptions of the existing industrial landscape on the Gulf Coast, most emphasized the overwhelming political and economic power held by large companies in the region, in particular the fossil fuel and petrochemical industries. Participants in Port Arthur, which lies in the heart of Texas's [Cancer Belt](#), painted a grim picture. The fossil fuel industry has so thoroughly embedded itself into the area's politics that, absent an overhaul of local and state governance, there was little trust that DAC would meaningfully change community members' lived experiences: chronic health problems like asthma and cancer, dangerous working conditions for those lucky enough to break into oil and gas jobs, and few if any community resources.

"You know what I have noticed in this area, from being in all parts of the United States and coming back here, I've noticed there's a lot of sick people around here."

– Port Arthur participant on the Cancer Belt



"[M]oney corrupts. I don't care who you are, money corrupts, and if you don't have the right leadership involved, let's say our mayors and our congressmen and our district people or whatever, whoever makes these laws, judges, whatever, if you don't have the right people in place, then this place is ...still going to be a crap hole. Because this is nothing."
– Port Arthur participant on community distrust.

For Port Arthur, the threat of expanded oil and gas infrastructure associated with carbon management is already looming. Earlier this year, Chevron [announced](#) that it would be expanding its offshore Bayou Bend CO₂ storage project, in close proximity to Port Arthur. While the project has so far been dedicated to carbon capture and storage (CCS) projects, which capture CO₂ from emissions point-sources like smokestacks or carbon-intensive industrial processes like cement production rather than from ambient air¹, the storage project is already courting DAC companies. Engineered CDR like DAC is increasingly important for meeting ambitious global climate targets — but only if paired with rapid phase-out of fossil fuels. But that's not how fossil fuel giants view the technology. Instead, companies like Occidental Petroleum, which has plans for [several DAC facilities](#) along the Gulf Coast, are [presenting DAC](#) as an excuse to expand oil and gas production and combustion. In fact, Vicki Hollub, CEO of Occidental Petroleum, [described](#) DAC as a lifeline for the future of oil and gas development, saying, "We believe that our direct capture technology is going to be the technology that helps to preserve our industry over time. This gives our industry a license to continue to operate for the 60, 70, 80 years that I think it's going to be very much needed."

¹ For a more in-depth explanation of the differences between CDR and CCS, check out our [Progressive Platform for Carbon Removal](#), [Guiding Principles](#) explainer, and [DAC Hubs](#) report.

Occidental's [plan](#) to use carbon dioxide removed from the atmosphere for enhanced oil recovery is not the only example of fossil fuel greenwashing. ExxonMobil CEO Darren Woods has heralded DAC as "[the holy grail](#)" for achieving net-zero emissions without cutting the company's production of oil and gas. But developing DAC while propping up dirty energy is not climate action; it is a dangerous form of greenwashing. It could also exacerbate environmental racism in regions like the Gulf Coast that are increasingly vulnerable to climate disasters and where fossil fuel companies are rarely held to account for pollution and environmental harms. Participants in Lake Charles, which lies on the edge of the infamous Cancer Alley, expressed unease about projects associated with the oil and gas and petrochemical industries. They also emphasized the increasing frequency and severity of hurricanes, worrying how projects — even if planned with extreme weather in mind — might fare under the storms' battering.

But there's hope for DAC, which could yet play a critical role in climate action. In Alexandria, a more inland community where the fossil fuel industry had less of a grip on local government (at least in the eyes of the participants), community members were more readily able to envision what equitable DAC deployment might look like — built upon direct community co-creation and ownership. Participants in Alexandria emphasized that new industries like DAC could help boost local economies, but added that community members and organizations should be able to help determine where the infrastructure was sited, what safety provisions and contingency plans might entail, and if the profits could be reaped by the community directly once the project had been built, while maintaining the DAC developer on contract for maintenance. With these conditions in place, participants saw a path for DAC deployment.

Implications for the DAC Hubs Program

As DOE prepares to make announcements on the world's first-of-a-kind billion-dollar investment in DAC, the Gulf Coast offers valuable lessons on where and with whom the government should proceed. A majority of voters (57%) already believe that oil and gas companies [have too much power](#) — and with good reason. A [2023 Grist investigation](#) found that the state of Texas only levied penalties against 1% of all illegal — or "excessive" — emissions events at industrial facilities across the state. Their findings mirror [years of reports](#) from environmental groups, charting excess, unchecked emissions of harmful air pollutants across the state. The Texas Railroad Commission (RRC) — the state agency charged with regulating fossil fuel extraction and pipelines, and likely carbon dioxide removal injection wells, too — [is accused](#) by watchdog groups of being a captured agency. [A 2021 report](#) by Texans for Public Justice and Commission Shift revealed clear conflicts of interest, as all three RRC commissioners make significant money from the oil and gas industry, which they are tasked with regulating. Any DAC Hub award to a fossil fuel company, by definition, continues to grow the industry's power, which has serious implications for communities like those along the Gulf Coast. **If DOE is committed to climate action and the administration's Justice40 initiative, the agency must not perpetuate the public**

harms of the fossil fuel industry by continuing to prop it up. That means rescinding proposed funding for fossil fuel companies and their subsidiaries.

Even companies without direct ties to the fossil fuel industry risk being captured by or becoming complicit in its interests. In regions like the Gulf Coast, the industry has waged a decades-long crusade against local democratic institutions, quietly centralizing power by [buying elections](#). Fossil fuel machinations have [so thoroughly eroded regulatory oversight](#) in states like Texas and Louisiana that even government involvement in DAC hubs would not suffice to protect communities. Advocacy groups have raised concerns about the Texas RRC receiving the authority from EPA to regulate wells used to inject carbon dioxide underground, called Class VI wells. In 2022, [more than 30 groups and individuals](#) sent a [letter](#) to the EPA opposing the RRC's request to the EPA for primacy over — or the main responsibility to regulate — Class VI wells. In Louisiana, advocates are also [expressing concerns](#) over the state's request for Class VI well primacy, citing the Louisiana Department of Natural Resources' inability to keep up with its ballooning orphan well problem, as well as the agency's [poor track record](#) on environmental justice issues and permitting. **Given these serious concerns, any DAC hubs sited in underserved communities in regions captured by fossil fuel interests like the Gulf Coast must be co-developed with communities through meaningful partnerships, honoring their right to refuse projects.**

Transparency from DOE will also be critical to the successful deployment of DAC. In keeping with the administration's Justice40 initiative, applicants to the DAC Hubs Program (except those only conducting desktop/lab-bench research) were required to submit community benefits plans (CBPs) detailing how they would engage with and ultimately provide benefits to host communities. However, no CBPs have been made public. Even worse, many of the leading community groups weren't consulted or allowed meaningful input in the crafting of these CBPs; rather, organizations were often cherry-picked so that applicants could check the community engagement box. We recognize that the tight application window meant that many applicants did not feel they had sufficient time to rigorously engage with community members and organizations. **However, mandating good-faith community partnership moving forward must be a top priority for DOE.**

Conclusion

The recommendations outlined in this policy white paper underscore the crucial need for careful consideration, community engagement, and transparent decision-making as the United States pursues the establishment of DAC hubs. As the Gulf Coast grapples with the legacy of fossil fuel development, environmental injustices, and the urgent imperative of addressing climate change, the deployment of DAC technology must be approached with a nuanced understanding of the historical context and a commitment to rectifying past harms. While DAC holds promise as a carbon removal solution, it must not become a mere greenwashing tool for fossil fuel companies seeking to perpetuate their interests and evade necessary emissions reductions.

The experiences and insights gathered from community workshops in Port Arthur, Lake Charles, and Alexandria provide valuable guidance for the DAC Hubs Program. The disparities in community perceptions and expectations regarding DAC reflect the diverse contexts in which these potential hubs could be located. It is evident that genuine community co-creation and ownership are key factors for successful DAC deployment. The Gulf Coast's history of environmental harm and power imbalances necessitates community-led decision-making, with meaningful engagement and equitable distribution of benefits. Additionally, the cautionary tales of fossil fuel companies exploiting DAC for their own ends emphasize the need for stringent oversight, transparency, and a rejection of fossil fuel industry capture.

As DOE moves forward with award negotiations for the DAC Hubs Program, it must prioritize environmental justice, community empowerment, and climate action. This entails rescinding proposed funding for fossil fuel companies and collaborating with impacted communities to ensure DAC projects align with local needs and aspirations. Meaningful community partnership, comprehensive monitoring, and transparent disclosure of community benefits plans are essential pillars of a just transition away from fossil fuels. By heeding the lessons from the Gulf Coast, DOE can set a precedent for responsible DAC deployment that respects communities, mitigates climate change, and truly advances environmental justice. With well-defined guardrails and equitable governance structures rooted in community needs, the DAC Hubs Program can be a model for technological innovation in service of collective good while avoiding pitfalls of the past.