

DECARBONIZING LOUISIANA'S INDUSTRIAL SECTOR: THE IMPORTANCE OF COMMUNITY-CENTRIC APPROACHES



by

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As a state that has long been a hub for difficult-to-decarbonize industries, Louisiana has a particularly challenging path to full decarbonization. At the same time, addressing climate change is an imperative in a state that is uniquely vulnerable to climate-fueled sea level rise and extreme weather. Both state leadership and the private sector have been investing heavily in industrial decarbonization recently, but significant challenges remain. A chief need to address is how those efforts involve and affect the communities that have long been impacted by high-emitting industrial activity in the state, as well as the people who have long been dependent on it.

This brief provides insights from a C2ES roundtable held in May 2022 that explored strategies to decarbonize Louisianian industry in a way that benefits not only the climate, but also the state's economic competitiveness and the health and prosperity of its residents. It highlights steps needed for Louisiana to decarbonize its industrial sector, the necessity of making communities and workers partners in decarbonization efforts, and processes that can ensure a just, inclusive, and equitable industrial transformation in the state.

INTRODUCTION

REGIONAL ROUNDTABLES

Achieving net-zero emissions will require large-scale changes across all sectors of the economy, and efforts to accelerate this transition are intensifying. To

chart a pathway to sustainable, long-term prosperity, communities must leverage their unique strengths and capitalize on emerging economic opportunities, while addressing barriers that are often poorly understood outside of their communities.

To that end, the Center for Climate and Energy Solutions (C2ES) is hosting a series of regional roundtables to bring together local, state, and federal policymakers; businesses of all sizes; community organizations and nonprofits; academics and issue experts; trade associations; investors; philanthropy; and others. These conversations are meant to elevate the perspectives of a diverse set of stakeholders who are deeply embedded in their communities and uniquely positioned to speak to the needs of their states and regions. They are also meant to create opportunities to integrate local perspectives into state and federal policy decisions and, importantly, identify concrete steps to better align the long-term vitality of these communities with the urgent task of facilitating economy-wide decarbonization.

About 70 participants from Louisiana gathered virtually in May 2022 for our second roundtable of the year. Roughly one-third were from companies, one-third from nonprofits and community organizations, and one-third from government, universities, economic development organizations, and trade groups. The event explored decarbonizing Louisiana’s large industrial sector in a way that maintains the state’s competitive advantage in global industry, while advancing local benefits and environmental justice. This brief summarizes key takeaways from the discussion

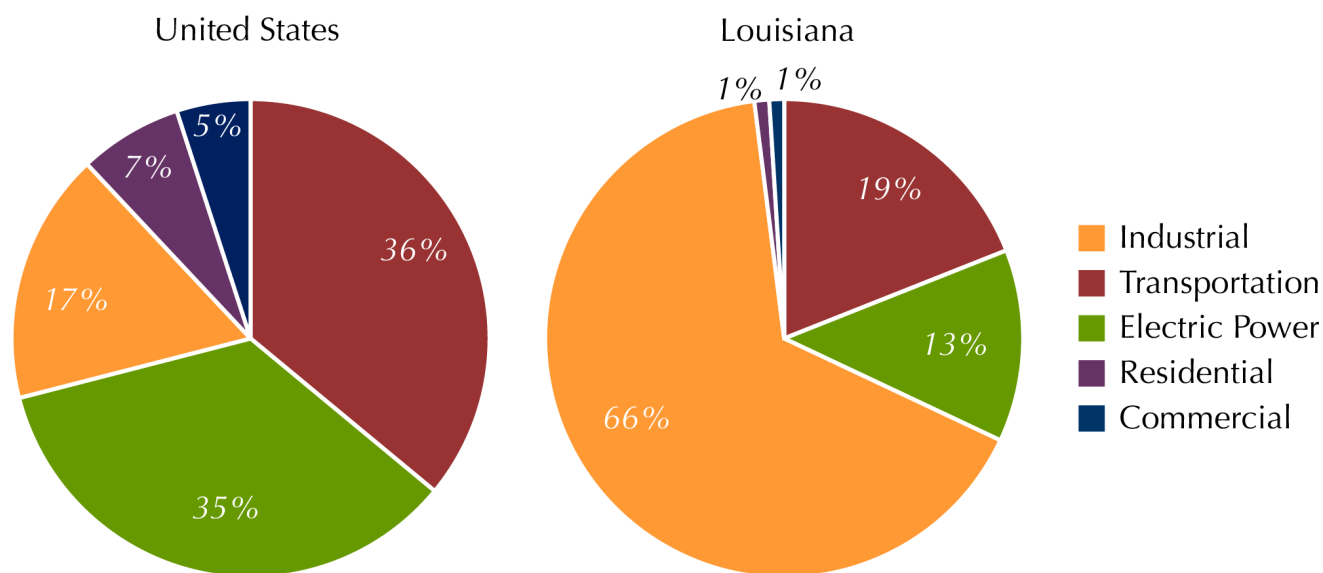
and—building on insights from the event and other conversations with local stakeholders—provides C2ES recommendations meant to align climate, economic, and equity objectives in Louisiana.

FRAMING LOUISIANA

Louisiana is unique from a climate perspective, with a particularly challenging path to decarbonization. Its industrial sector is the largest contributor to greenhouse gas emissions, responsible for approximately two-thirds of total emissions in the state as of 2018 (see **Figure 1**).¹ By contrast, industrial emissions accounted for only 17 percent of U.S. emissions in the same year, minimized by other sectors, including transportation and electric power.²

Industry is also Louisiana’s single largest energy consumer, comprising nearly two-thirds of all end uses (compared to the country as a whole, where industry comprises one-third of all end uses).³ While the U.S. power mix has steadily diversified, power generation in Louisiana is still heavily dependent on fossil fuels (see **Figure 2**). Renewables comprised only 1.8 percent of the state’s generation in 2019, compared to 15.3 percent nationally. While natural gas, coal, and petroleum amount to roughly 69 percent of the U.S. fuel mix, an overwhelming 86 percent of Louisiana’s generation comes from these three sources.⁴

FIGURE 1: Louisiana and U.S. Greenhouse Gas Emissions, by Source

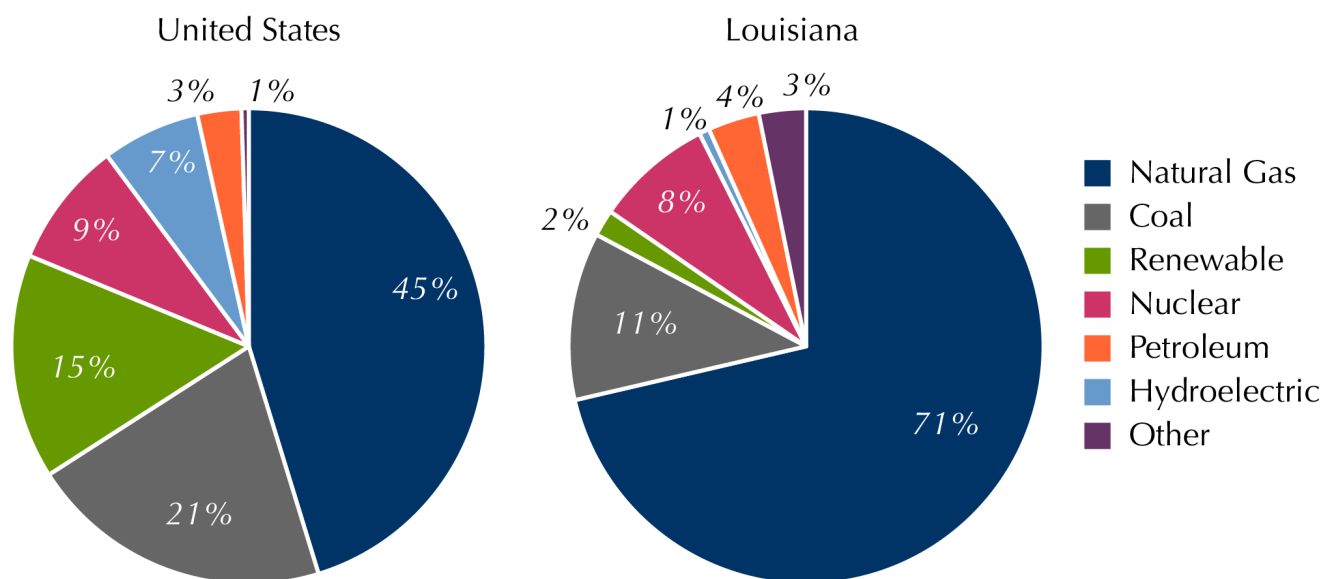


Most industrial emissions in Louisiana—94 percent—come from three sub-sectors: chemical manufacturing, petroleum & coal refining, and natural gas processing.⁵ Louisiana’s industrial emissions have been rising: Industrial greenhouse gas emissions jumped 8-12 percent (depending on the source) since 2012, while national industrial emissions dropped by more than 10 percent in the same period.⁶

In addition to having a distinctive climate footprint, Louisiana is also uniquely vulnerable to climate change. Between 1932 and 2016, Louisiana lost a quarter of its wetlands, totaling 2,000 square miles, an area just greater than the size of Delaware.⁷ This loss has stemmed from multiple factors, including dredging for canals, offshore oil and gas development, and agriculture. Climate change will further magnify this challenge. The western Gulf coast, including Louisiana and Texas, is projected to see roughly two feet of sea level rise by 2050, the highest rise in the country.⁸ The loss of coastal wetlands also makes Louisiana more vulnerable to increasingly frequent, climate-intensified hurricanes and floods.⁹ These climate impacts will not be equally felt; Communities of color and low-income communities often bear the brunt of natural disasters, leaving many in a near-constant state of recovery that exacerbates years of marginalization.¹⁰

Inequities are present not only in how climate change will affect Louisianans, but also in how pollution is distributed across the state. The chemical manufacturing, refining, and natural gas processing facilities that produce most of Louisiana’s carbon pollution are geographically concentrated in an industrial corridor between New Orleans and Baton Rouge. Many environmentalists and community advocates refer to this region as “Cancer Alley” because of the health impacts of other pollutants released at these facilities. A range of organizations, including advocates in Louisiana and elsewhere, the U.S. Environmental Protection Agency, and the United Nations have voiced concerns about environmental racism against the mostly Black communities where much industry is located.¹¹ Multiple studies have shown racial disparities in the distribution of pollution and associated health risk in Louisiana. A 2022 Tulane Environmental Law Clinic study, for instance, found that census tracts containing industrial facilities with high percentages of Black residents had 7 to 21 times more toxic air emissions (depending on the pollutant) than similar areas with higher percentages of white residents.¹² These discrepancies have contributed to significant community mistrust of both state government and industry that was reflected during the roundtable discussion.

FIGURE 2: Louisiana and U.S. Power Generation Fuel Mix



Recognizing both the threat that climate change poses to Louisiana and the need to remain competitive in industrial markets increasingly guided by sustainability, both the private and public sectors in Louisiana are taking steps toward decarbonization. Major industrial companies have set goals for emissions reductions, driven by pressure from investors, customers, the public, and policymakers. They are also investing in projects to meet those goals in Louisiana. Since 2020, the state estimates more than \$21 billion has been invested in new and expanded in industrial projects that advance decarbonization.¹³ In February 2022, Louisiana was the first Gulf South state to release a Climate Action Plan (CAP). The plan sets a goal to reduce emissions 40-50 percent from 2005 levels by 2030 and to reach net-zero emissions by 2050. While it outlines 84 actions in total to reach those goals, it recognizes three essential pillars, all of which will heavily impact the industrial sector: renewable electricity generation, industrial electrification, and industrial fuel switching to low- and no-carbon hydrogen.¹⁴

With progress toward decarbonization already underway in Louisiana, the challenge will be transforming Louisiana's industrial sector in a way that not only reduces emissions but also strengthens state and local economies and genuinely benefits communities and workers.

KEY RECOMMENDATIONS

Bolstering offshore wind

- The state legislature, Public Service Commission, or governor's office should commission research to explore the technical and economic potential for offshore wind development in Louisiana and to identify and address challenges to the industry's growth.
- The governor's office should create a statewide strategy for the offshore wind industry that includes a plan to grow the offshore wind supply chain in Louisiana and connect to the grid in a way that can boost the use of renewable electricity by industrial users.

Engaging communities on carbon capture, utilization, and storage

- Conduct community outreach on carbon capture, utilization, and storage to understand communities' concerns and questions about CCUS, then socialize the results of this outreach, including to companies.

Expanding industrial electrification and energy efficiency

- Pass supportive policies and incentives at the state level to promote clean electricity production, the adoption of end-use electrification technologies, and industrial efficiency measures.

Developing the workforce

- Equip Louisiana's technical colleges, universities, and governmental workforce development programs to deliver trainings relevant for new low-carbon job opportunities, in conjunction with industry partners.
- Create educational and career preparation programs at the K-12 level that can raise awareness about low-carbon industries and equip students with required skills, with a focus on reaching marginalized individuals.

Investing in frontline and environmental justice communities

- Form a state environmental justice advisory committee to conduct outreach to environmental justice communities and integrate environmental justice considerations into state planning, policies, and implementation.
- Create a state-level climate justice initiative to ensure that the benefits and investments created through the Climate Action Plan are equitably distributed to underserved and marginalized communities.

Strengthening project planning, permitting, and monitoring

- Review and revise state project planning, permitting, and siting processes to strengthen community consultation in every step.
- Bolster air and water quality monitoring across Louisiana, particularly along the industrial corridor, and make the results of this monitoring public.

Creating community benefits

- Pass a state law to require industrial facilities deliver minimum standard community benefits as a requisite to receiving significant state tax incentives.

Measuring outcomes and impacts

- Integrate consideration of cumulative air pollution impacts into project siting and permitting, with a particular focus on environmental justice impacts.

BOX 1: A note on verbiage

This brief uses terms including “net-zero” and “low-carbon.” Net-zero refers to a state where greenhouse gas emissions released into the atmosphere equal those removed from the atmosphere, while low-carbon refers to processes, products, and industries with the fewest emissions possible. Not all participants at the roundtable embraced these terms, and some noted that their use may detract from efforts to reach a true zero or no-carbon society by rationalizing the continuation of some emissions far into the future. Readers should note these nuances when such terms arise in this report.

KEY TAKEAWAYS FROM THE DISCUSSION

A central recognition in the roundtable was the close linkage between Louisiana’s climate future and Louisiana’s economic future. The vast majority of roundtable participants—roughly 80 percent—reported they felt either optimistic or very optimistic about the economic opportunity that a low-carbon future could bring to the state. But participants’ views varied drastically on how to define that economic opportunity. Some envisioned an expanding role for industries such as liquefied natural gas (LNG) and carbon capture, utilization, and storage, while others urged a turn away from those industries and toward renewable energy generation. While it is clear there is opportunity for Louisiana in the low-carbon transition, how to define that opportunity—and seize it—are still unresolved.

This section will outline the major themes raised during the roundtable, organized as follows: a decarbonized economy, key stakeholders, and equitable and inclusive processes.

A DECARBONIZED ECONOMY

Offshore wind

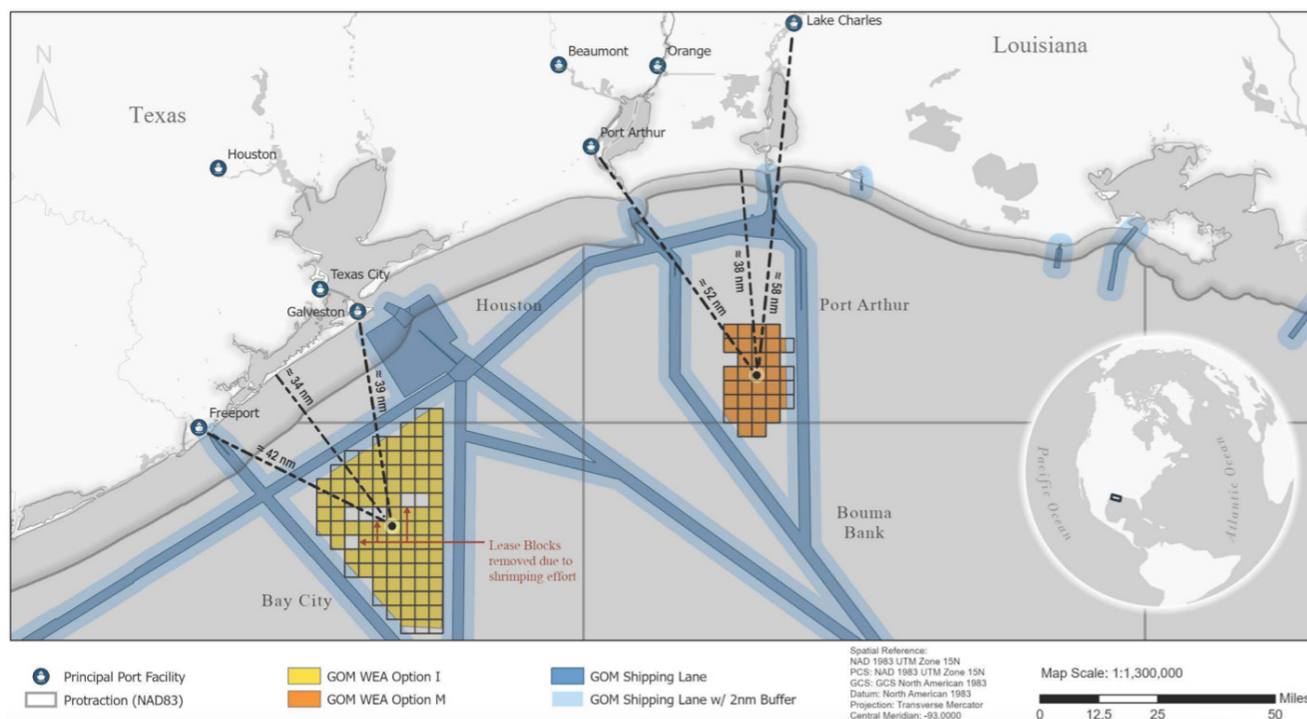
Offshore wind was potentially the largest area of agreement and excitement at the roundtable, with numerous participants highlighting the economic potential for Louisiana in the emerging industry. Since the industrial sector is Louisiana’s largest power user, expanding access to renewable electricity through offshore wind development can be a critical enabler for industrial decarbonization.

Louisiana’s CAP established an offshore wind development target of five gigawatts (GW) by 2035, and progress is already being made toward that goal.¹⁵ Entergy Louisiana, Entergy New Orleans, and Diamond Offshore Wind launched a collaboration in September 2022 to study the potential for offshore wind development in the Gulf of Mexico (GOM).¹⁶ The U.S. Department of Interior’s Bureau of Ocean Energy Management (BOEM) in October 2022 finalized a wind energy area totaling roughly 174,000 acres off the coast of Lake Charles with the potential to power more than 740,000 homes (see **Figure 3**).¹⁷ A proposed sale notice for a portion of this area was announced in February 2023, and BOEM is currently accepting public comment on this notice.¹⁸

Politically, offshore wind has offered an opportunity for bipartisan collaboration on climate at the state level. Louisiana’s state legislature in June 2022 overwhelmingly passed a bill, now signed into law, that opens Louisiana state waters for offshore wind leasing, requires decommissioning plans for facilities, and allows the state to collect royalties for offshore wind leases, as determined by its Department of Natural Resources (DNR). While this provision is similar to ones that exist for oil and gas development in Louisiana waters, it is uncommon in the more nascent offshore wind industry.¹⁹ DNR is also updating its regulations to allow for offshore wind leasing and operations in state waters.²⁰

Roundtable participants emphasized several competitive advantages for Louisiana in the offshore wind industry. First, several Louisiana companies that have conventionally served offshore oil and gas have

FIGURE 3: Gulf of Mexico Wind Energy Area Blocks (as of October 2022)



Source: Bureau of Ocean Energy Management, <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/GOM-Final-WEAs-I-M-Blocks.pdf>.

already begun applying their expertise to offshore wind development. These companies include Keystone Engineering, Gulf Island Fabrication, Otto Candies, Edison Chouest Offshore, MiNO Marine, Aries Marine Corporation, and others, all of which have been involved in building the nation’s offshore wind industry in some capacity, including at the Block Island project in Rhode Island.²¹ Infrastructure that had supported offshore oil and gas is also well suited to bolster offshore wind. The former Avondale Shipyard, closed in 2014, is now being redeveloped into an industrial park, the Avondale Global Gateway. Its first major tenant, Gulf Wind Technology, specializes in the design and manufacture of wind turbine rotors.²²

Still, challenges remain for the industry in Louisiana. Multiple roundtable participants raised questions both before and during the conversation about the GOM’s suitability for offshore wind given the Gulf’s physical characteristics, such as strong hurricane seasons, softer soils offshore, and lower average wind speeds relative to other locations on the east coast of the United States. The National Renewable Energy Laboratory (NREL)

has studied these challenges in the GOM and concluded it is feasible to develop offshore wind given these characteristics, but site-specific design strategies—which could result in increased project cost—will be needed to mitigate their risks.²³ Additional research is needed to explore these challenges and better quantify the technical feasibility and cost of offshore wind in the Gulf, and off the coast of Louisiana specifically.

To maximize the economic benefits of the offshore wind industry in Louisiana, multiple participants emphasized the importance of building out local supply chains. A robust domestic supply chain for offshore wind can reduce reliance on foreign-made components for projects, and Louisiana companies operating in ports, vessels, and manufacturing can play a unique role in growing the industry across the country. Importantly, while offshore wind power does offer greenhouse gas and pollution reduction benefits to the state, it is important to recognize that power requires industrial components, like steel, that may be particularly challenging to decarbonize. Efforts will be needed to ensure that any industrial activity

that occurs in the offshore wind supply chain in Louisiana is itself decarbonized and does not exacerbate local pollution issues in the industrial corridor.

RECOMMENDATIONS:

- **The state legislature, Public Service Commission, or governor’s office should commission research to explore the technical and economic potential for offshore wind development in Louisiana and to identify and address challenges to the industry’s growth.** While NREL has conducted research on offshore wind development in the Gulf, little to no research exists on the industry’s economic and technical potential in Louisiana specifically. Research into these questions is especially important given recent federal and state actions that are opening up Louisiana waters for wind projects. This research should include not only technical considerations (such as how to design for storm conditions), but also other factors—including workforce readiness and skills needs or potential community opposition—that could hamper the industry’s growth.
- **The governor’s office should create a statewide strategy for the offshore wind industry that includes a plan to grow the offshore wind supply chain in Louisiana and connect to the grid in a way that can boost the use of renewable electricity by industrial users.** Achieving the five GW by 2035 goal established in its CAP would meaningfully bolster offshore wind in Louisiana, and intentional strategies are now needed to meet that goal. This strategy should focus not only on power generation, but also on developing the supply chains necessary to support a robust statewide industry. Industrial energy users should be engaged in this strategic planning to support grid planning and design in ways that allow them to take advantage of clean energy generated from offshore wind projects.

Carbon capture, utilization, and storage

In contrast to offshore wind, carbon capture, utilization, and storage (CCUS) was a highly contentious topic at the roundtable. Participants held varying opinions on the degree to which CCUS should be used—if at all—to decarbonize industry and other sectors in Louisiana.

Several industrial companies raised CCUS as necessary to achieve their climate goals, given that many industrial processes have high heat needs that may not be met by other decarbonization solutions such as electrification. Some industrial processes, such as petrochemical production, also release carbon dioxide as a byproduct, and strategies such as hydrogen fuel switching or industrial electrification will not be able to address these inherent emissions.²⁴ Given that carbon dioxide is also used as a feedstock for industrial processes (e.g., fertilizer production), CCUS proponents recommended more emphasis on utilizing captured carbon, in addition to geologic sequestration, which can reduce the need for fossil fuels as a raw material in petrochemical and other processes.²⁵ Lastly, proponents pointed to Louisiana’s existing infrastructure and geography as resources which could position Louisiana to capitalize on CCUS. Several participants raised Louisiana’s extensive network of natural gas, oil, and carbon dioxide pipelines and underground salt caverns as potential competitive advantages for the transport, utilization, and storage, of carbon dioxide in Louisiana. These characteristics have also been highlighted in research by the Great Plains Institute as ones that make Louisiana suited to grow the carbon capture industry.²⁶

Participants from community and environmental organizations pushed back on this characterization, noting that the abundance of existing fossil infrastructure in Louisiana creates burdens on communities and should not be used as a justification to bring additional infrastructure to the state that might add to that burden. While building carbon pipelines along rights of way for existing infrastructure might be less environmentally impactful and more administratively streamlined than placing them along corridors with no industrial development, they noted it can still exacerbate localized pollution challenges and storm impacts by making the landscape less resilient. Repurposing existing pipelines (such as natural gas lines) was presented as a possibility to reduce new infrastructure buildout. One environmental organization noted logistical challenges with this idea, though, given the differing properties of carbon dioxide and natural gas. Indeed, transporting carbon dioxide will likely require unique pipe linings, diameters, and pressure ratings compared to natural gas to ensure its safe transport, meaning existing infrastructure would require significant retrofits.²⁷

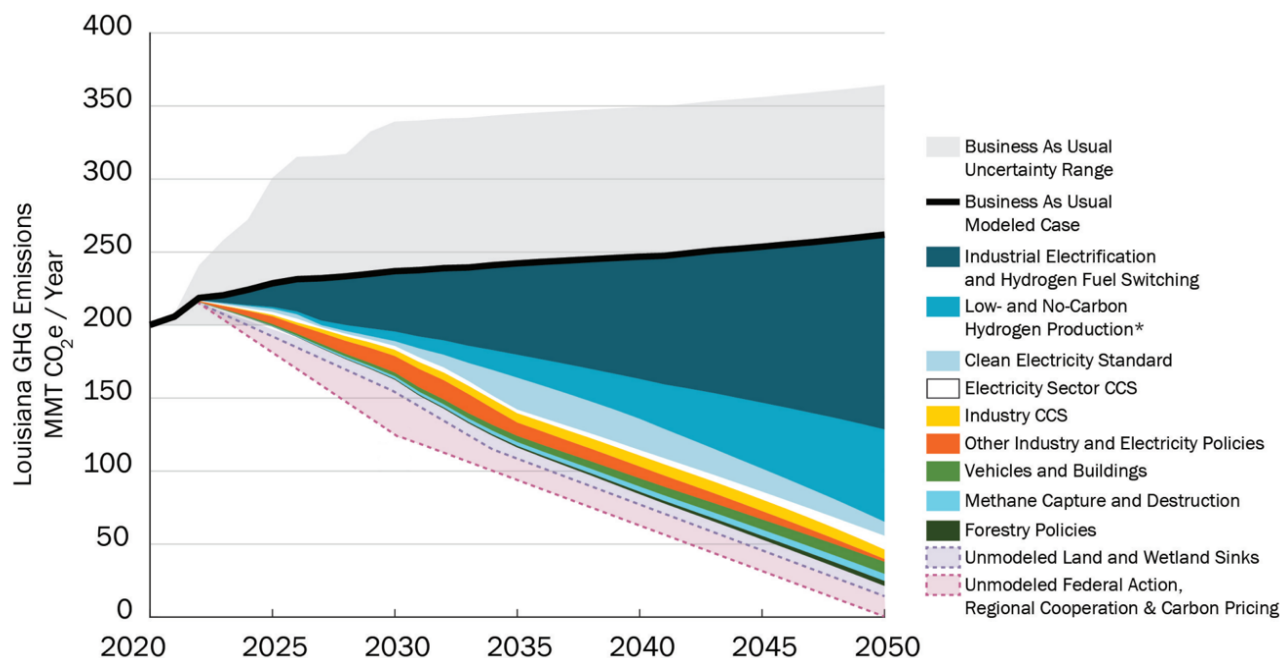
Additional community and environmental perspectives around CCUS included concern with safety and technological readiness; lack of confidence in state environmental monitoring to ensure the integrity of carbon transport and storage; and the potential to financially benefit the fossil fuel industry by subsidizing CCUS projects.

Other opposition to CCUS was more context specific. A few participants critiqued the relative emphasis on CCUS compared to other decarbonization solutions in Louisiana and worried the state government may be relying on CCUS as a “magic solution” rather than as one among numerous decarbonization strategies being pursued in earnest. If the state government and industry were moving rapidly toward other decarbonization solutions in addition to CCUS (e.g., industrial electrification), some in the roundtable expressed that they would have fewer reservations than if CCUS is treated as a first line of defense. One environmental organization pointed to modeling of Louisiana’s CAP that suggests a small role for both electricity sector and industrial sector CCS, compared to strategies such as industrial electrification and a clean energy standard, as evidence that more attention should go to other

strategies with greater emissions benefits than CCS (Figure 4).²⁸ (Still, CCUS is factored into modeling of other CAP strategies as seen below. For hydrogen fuel switching and low- and no-carbon hydrogen production, the model assumes hydrogen production via steam methane reforming with CCS in the near-term, with a switch to electrolysis (no CCS) by 2050. It should also be noted that, while this model is the only one created for Louisiana’s final Climate Action Plan, other possible pathways to net zero exist that could rely more, or less, heavily on CCUS-related strategies.)

Lastly, participants from multiple stakeholder groups raised questions in preparation for and during the roundtable about CCUS’s impacts on air quality. Those familiar with the carbon capture process suggested that the need to isolate carbon dioxide in the emissions stream results in other pollutants also being filtered out, thus enhancing local air quality, but data on this point is extremely limited. Data from a Canadian coal plant equipped with CCS suggest large potential reductions in pollutants such as particulate matter, sulfur dioxide, and nitrous oxides compared to pre-CCS operations, although these figures are based on the facility’s design specifications rather than actual

FIGURE 4: Louisiana’s Modeled Pathway to Net Zero by 2050



Source: Louisiana Climate Action Plan

performance.²⁹ A separate study from the European Environment Agency from 2011 notes that while the carbon capture process itself does capture pollutants, the fuel required to operate the technology can result in its own pollutant emissions, absent additional control measures.³⁰ Louisiana's CAP includes an action (Action 26.2) to study the potential impacts of CCUS technology and infrastructure, including its air quality impacts on communities. This research is pivotal to understanding how CCUS affects communities' local pollution burdens and to better characterizing CCUS's costs and potential benefits in Louisiana.

Already, these and other concerns about CCUS projects are having a real influence on the industry's progression in Louisiana and elsewhere. Community opposition to a blue hydrogen project that relied on CCS, for instance, led to a local moratorium on certain activities that has stalled the project.³¹ At the national level, a Government Accountability Office (GAO) report on CCUS from September 2022 found that a lack of early community engagement and integration of community considerations in some CCUS projects has resulted in multiple projects being cancelled.³² The GAO study's conclusion was also emphasized at the roundtable: If CCUS projects are to move forward in Louisiana and elsewhere, early community engagement and acceptance are prerequisites to deployment.

Still, it should not be assumed that the community engagement process will ultimately result in community acceptance of CCUS. Regardless of how well projects are designed, some will still oppose CCUS on ideological and other grounds. Community engagement on CCUS projects therefore should not be undertaken with the goal of convincing communities to get onboard, but rather with respect for their agency and a commitment to understand and address (if possible) their concerns. Engaging early on, before a project is formally approved, makes it clearer to communities that a decision has not been already made for them and gives them a genuine chance to influence the outcome of the decision-making process.

RECOMMENDATION:

- **Conduct community outreach on carbon capture, utilization, and storage to understand communities' concerns and questions about CCUS, then socialize the results of this outreach, including to companies.** In planning for the roundtable, we heard from multiple industry

participants that they were not well informed of the nuances of communities' opposition to CCUS. The roundtable also revealed that concern with CCUS took many forms, from hard objection to context-specific concerns that might be addressed by more effective project design and community involvement in CCUS decisions. State agencies should conduct outreach (via community roundtables, surveys, and other means) to better understand the diversity of opinions on CCUS in the state, with a particular emphasis on environmental justice communities, then synthesize and socialize its findings. Results should feed into the state's commitment under its Climate Action Plan (Action 26.3) to develop statewide siting plans for new technologies (such as CCUS) that consider both environmental justice dynamics and nearby communities' preferences. Understanding those preferences could allow the state to avoid impacts on communities with serious CCUS concerns while searching for sites with greater local acceptance, if any are identified. For this outreach to be a good faith effort, it should not assume that additional CCUS development in the state is a foregone conclusion or be undertaken with the goal of trying to change communities' minds. Given that multiple project proposals have already been approved at the state level, though, the results of this outreach could potentially inform already existing projects.

Industrial electrification and energy efficiency

Industrial electrification and energy efficiency measures were raised by multiple roundtable participants as strategies to effectively reduce industrial emissions in Louisiana while creating important co-benefits for communities. Electrifying industrial processes is one of the three pillars of Louisiana's CAP and, along with fuel switching to low- and no-carbon hydrogen for high-heat processes, is anticipated to contribute the bulk of Louisiana's emissions reductions to 2050 (see Figure 4).³³ For industrial electrification to result in meaningful emissions reductions, industrial users at the roundtable stressed that it is critical for that electricity to come from renewable or clean sources, thus necessitating a massive clean-up of Louisiana's fossil-heavy grid. The interest in renewable and clean power in Louisiana was also echoed by community and environmental advocates at the roundtable. In addition to needing cleaner power, industrial companies also anticipated their demand for

electricity will increase significantly due to the energy required to electrify industrial processes, meaning the state must plan its power infrastructure accordingly. Cleaning up the grid, expanding power infrastructure to support increased demand, and hardening that infrastructure to withstand climate impacts were all raised as essential prerequisites to achieving renewable industrial electrification.

To successfully meet industry's demand for clean electricity, multiple participants said Louisiana needs a more supportive policy environment for renewables and other forms of clean energy. A state-level clean energy standard, or similar mechanism, was pointed to as one option that could help industrial customers reduce their scope 2 emissions from purchased power, while creating a market signal that can bring clean energy investments to Louisiana. Louisiana's CAP already suggests creating a Renewable and Clean Portfolio Standard that would aim to make 80 percent of total generation renewable by 2050.³⁴ The Louisiana Public Service Commission, utilities, and nonprofit and industry partners should work to begin studying and designing such a mechanism immediately. Complementary incentives, such as stronger federal tax credits for industrial companies who electrify their operations, should also be pursued.

Several roundtable participants encouraged industrial energy efficiency measures to be taken in tandem with electrification. Upgrading industrial equipment to be more efficient is an important first step to reduce plants' emissions and energy demand in a way that also reduces stress on the state's power grid. Energy efficiency can be simultaneously promoted alongside industrial electrification in Louisiana policy and incentives—a clean energy standard can, for instance, be designed to allow efficiency improvements and efficient processes (like combined heat and power) to count toward the standard. The state government could also create industrial energy efficiency standards that escalate, to boost facilities' performance over time. The state has already proposed these and complementary efforts through its CAP, although progress on these proposals is unclear.

Lastly, despite the popularity of renewable electricity to roundtable participants, several cautioned of local opposition to solar energy in the state, particularly in rural areas, because of its land requirements and potential pressures on farmland and rural communities. Rural government leaders have also worried about using prime industrial land for an investment that generates

few jobs compared to more labor-intensive industries.³⁵ Already local opposition to solar has delayed or halted multiple planned projects in Louisiana: St. James Parish, for instance, has even placed a moratorium on new solar development until it studies solar's costs and benefits.³⁶ This local pushback points to the need for effective community engagement and community-aware project design when pursuing this, and other, industrial decarbonization strategies. Ongoing efforts by the Center for Planning Excellence (CPEX) to support parishes in creating local solar ordinances could be one solution to this challenge. CPEX is working with DNR and other stakeholders to design model solar ordinances for use by local governments. These ordinances can be an effective way to address local concern with solar (for instance, by setting rules around project decommissioning and buffer zones), establish a reliable policy environment for developers, and allow projects to move forward responsibly.³⁷

RECOMMENDATION:

- **Pass supportive policies and incentives at the state level to promote clean electricity production, the adoption of end-use electrification technologies, and industrial efficiency measures.** Louisiana's Public Service Commission should begin to study and design an ambitious clean energy standard that also takes into consideration strategies such as combined heat and power and energy efficiency measures. State agencies should also explore incentives, such as tax credits, for industrial facilities that electrify or implement efficiency measures. Federal action will likely be needed to supplement such incentives, though, and implementation of recent federal legislation offers a promising vehicle. In implementing the federal Section 48C tax credit for advanced manufacturing provided through the Inflation Reduction Act, the Department of Energy should design selection criteria and greenhouse gas accounting methodologies that ensure funding goes to the electrification of industrial processes and other innovative renewable thermal technologies at existing industrial facilities.³⁸ In the past, this program has only applied to production of clean energy technologies, meaning new selection criteria are needed to fully support both manufacturing of these technologies and high-impact retrofits within the broader industrial sector.

Shifting industries

Market forces pushing for decarbonization are likely to influence not only how companies do business in Louisiana, but also what industries are present. The roundtable explored both likely new industries (such as offshore wind) as well as likely reduction in demand for other industries, such as oil refining. Louisiana has undergone similar shifts in the past: oil production and oil refining in the state both peaked in the 1980s and have declined precipitously since then, most recently with a steady decline from 2014 to present.³⁹ As a result, energy extraction, processing, and transportation have become less important to the state's economy, as reflected by their diminishing share of the state's gross domestic product.⁴⁰ These market changes led some in the roundtable to express a need for the state to proactively plan to responsibly retire legacy facilities in the oil, gas, and industrial sectors. While Louisiana's CAP does call for utilities and the Public Service Commission to plan for retirement of fossil energy generation facilities, this recommendation is not extended to industrial facilities that may also be forced to retire because of market forces. Extending this approach to industry would allow the state to better anticipate and adapt to economic shifts in the industrial sector, which serves as an important foundation for the state's economy.

While these trends suggest a smaller role for oil and gas in Louisiana's economic future, the outlook for other industries is less clear. Depending on whom you ask, the petrochemical industry, for instance, may take on a greater or lesser role in a carbon-constrained future. Petrochemical company representatives present saw their products, particularly plastics, as a necessary component of decarbonization strategies and daily life. In contrast, multiple environmental and community organizations saw petrochemicals' health and climate impacts along with growing global pressure to end plastic pollution as a reason to cut demand for and find alternatives to plastics products, particularly single-use products.

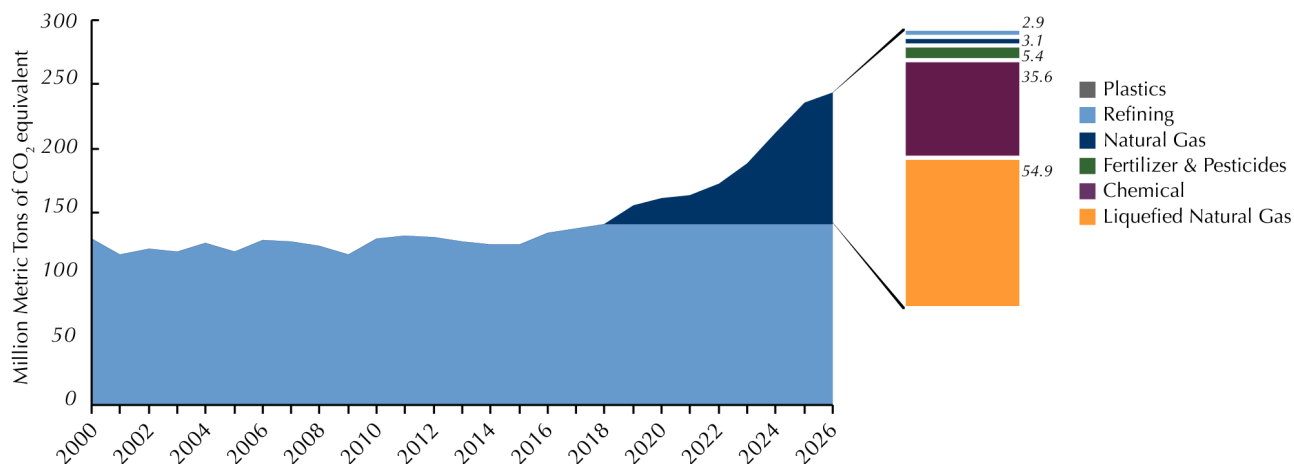
While there has been a strong push by oil and gas companies to grow their petrochemical businesses—the International Energy Agency reports U.S. oil companies are becoming increasingly involved in petrochemicals and projects nearly half of oil demand by 2050 will come from that industry—the petrochemical industry also faces significant headwinds globally and in Louisiana.⁴¹

Two proposed petrochemical facilities in St. James Parish were halted in September 2022 due in part to intense community opposition to the projects.⁴² Internationally, negotiations are ongoing on a Global Plastics Treaty through the United Nations Environment Programme that would include both voluntary and legally binding elements designed to stop plastic pollution, with some pushing for that treaty to include goals for reducing plastic production.⁴³ Whether such efforts result in a decreasing presence for petrochemicals in Louisiana remains to be seen.

In addition, multiple roundtable participants noted dissonance between industrial expansion in Louisiana and the state's climate goals, urging the state to consider new facilities' climate impacts in permitting decisions. Louisiana's industrial emissions could increase as a result of already proposed projects in high-emitting sectors. Louisiana State University anticipates that, by 2026, emissions could rise from roughly 140 megatons (Mt) of carbon dioxide equivalent from 2018 to roughly 240 Mt if proposed facilities with approved or pending air permits are completed.⁴⁴ That amounts to a more than 70 percent increase (see **Figure 5**) in greenhouse gas emissions (assuming business-as-usual operations at existing facilities), over half of which is attributed to LNG expansion, with roughly one-third attributed to the chemical sector.⁴⁵ Taking a local view of this expansion raises clear concerns, given that it would increase Louisiana's state-level emissions, and local pollution, compared to a baseline. A global view, however, raises other complexities, including whether that expansion might occur in a region with lower environmental standards than Louisiana if the projects were not located in the state (i.e., leakage). In this situation, Louisiana's emissions would be lower, but global emissions could be unchanged or potentially higher. Still, assessing the likelihood of this leakage for any given project is highly challenging.

Tension emerged at the roundtable about the growth of LNG in particular. LNG's climate costs and benefits are complex and both global and local in nature. Some participants pointed to increasing demand for LNG exports in the context of the Russian war in Ukraine (and otherwise) as a compelling reason to expand the industry in Louisiana. Some proponents also see a role for LNG to displace coal-fired electricity (i.e., curb its current expansion and accelerate its ultimate retirement) worldwide, especially in countries such as China and

FIGURE 5: Projected Growth in Industrial Greenhouse Gas Emissions in Louisiana with Proposed Projects



Source: LSU GHG inventory, 2021.

India, which have growing coal demand.⁴⁶ LNG exports can create climate benefits if they displace dirtier fuels; however, they can also elongate dependency on natural gas in a way that complicates achieving climate goals in the future.⁴⁷

In contrast to this global view of the industry, community and environmental advocates urged consideration of the long-term local impact of LNG facilities, noting they will be in place for decades and potentially compromise Louisiana’s own ability to meet its decarbonization goals. Multiple community advocates pointed to dissonance between conversations about reaching net-zero emissions by 2050 and the near-term growth of high-emitting industries in Louisiana, such as LNG. For some, that dissonance undermines the credibility of both policymakers and companies in decarbonization efforts. Given these dynamics, it will become increasingly difficult for Louisiana to pursue its climate plans without grappling with the question of how the industries present in the state—both currently and in the future—either advance or inhibit its climate progress. At least one action in the state’s CAP may indicate progress on this point: the CAP recommends (in Action 26.4) an executive order by the governor that would align all project permitting and siting decisions with the state’s net-zero by 2050 goal and consider opportunities to practicably avoid or minimize greenhouse gas emissions.⁴⁸ To date, though, it appears no action has been taken on this recommendation.

KEY STAKEHOLDERS

Workforce

Louisiana has a highly skilled workforce with expertise in the industrial and oil and gas sectors, but as reliance on high-carbon industries wanes and new low-carbon industries grow, investments will be needed to help these workers leverage their skills in new ways. Offshore wind, CCUS, and hydrogen were raised at the roundtable as emerging industries particularly suited to oil and gas workers’ skills. Already, the education system in Louisiana is responding to these new opportunities: The Louisiana Community & Technical College System (LCTCS) is leading workforce training efforts for a regional project that would create an offshore wind-powered hydrogen production industry in Louisiana, with a focus on reaching displaced oil and gas workers, rural residents, and minority groups.⁴⁹ The University of New Orleans has also begun to offer certificates related to offshore wind as part of its Professional and Continuing Education program, through the university’s new Wind Energy Hub.⁵⁰

Roundtable participants raised multiple ideas that should be considered to both prepare Louisiana’s existing workforce for industrial decarbonization efforts, while also making the workforce stronger and more inclusive. These include ensuring that workforce-related efforts are:

- **Locally rooted:** Some community advocates shared a perception that workers for projects that impact Louisianans frequently come from out of state, which contributes to the sense that communities impacted by industrial facilities do not always benefit economically from them. To share the economic benefits of industrial decarbonization efforts locally, attendees called for an emphasis on local hiring commitments so available jobs go to Louisianans to the greatest extent possible.
- **Good quality:** To successfully compete for talent with legacy industries such as oil and gas (in which jobs are often high-paying), roundtable participants expressed that new industries will need to provide jobs that offer family-sustaining wages that also protect workers' health and safety.
- **Accessible:** Workforce opportunities in the industrial transition need to be accessible to all, including workers affected by that transition (such as oil and gas workers), traditionally marginalized groups, and those often shut out of the labor market, such as formerly incarcerated individuals reentering society. Partnerships with community and technical colleges, historically Black colleges and universities, and community-based organizations can help expand the reach of workforce development efforts in the state and ensure low-carbon job opportunities are available to those who need them most.
- **Growth-oriented:** Workforce development efforts will not fully succeed if they focus solely on transitioning those already in the labor market. To create talent for the future, participants called for increased outreach to youth at the K-12 level to raise awareness about career opportunities and skill needs in a decarbonized economy and set them on a path to reliable employment.

Throughout the discussion about workforce development, roundtable participants stressed that partnerships with industry are imperative to ensure there are jobs available to trainees and that training programs meet a demonstrated industry demand. As one roundtable participant put it, it isn't an equitable transition to train workers for jobs that don't exist.

RECOMMENDATIONS:

- **Equip Louisiana's technical colleges, universities, and governmental workforce development programs to deliver training relevant for new low-carbon job opportunities, in conjunction with industry partners.** While efforts are already underway to expand workforce development related to offshore wind, green hydrogen, and other new industries, Louisiana's workforce system will need to evolve to equip both current and future workers with the skills needed for a decarbonizing economy. LCTCS, the Louisiana Workforce Commission, and others should coordinate to create additional training programs for low-carbon growth industries and modernize existing curriculum designed around high-emitting industries. For instance, the widely popular process technology programs (which equip graduates to control and monitor industrial plant systems) should be assessed and revised as appropriate to equip graduates with knowledge and skills to manage emerging low-carbon processes in industrial plants. Ensuring that these trainings reach both legacy fossil and industrial workers, as well as marginalized individuals who have traditionally been shut out of the labor market (e.g., formerly incarcerated individuals) will make these efforts more inclusive and create a stronger workforce. In creating such programs, partnership with the private sector will be essential to ensure trainings match employer needs and available job opportunities.
- **Create educational and career preparation programs at the K-12 level that can raise awareness about low-carbon industries and equip students with required skills, with a focus on reaching marginalized individuals.** A critical component of Louisiana's industrial transformation will be recruiting new talent to the workforce. Fortunately, Louisiana already offers multiple educational and career preparation programs, such as through the Department of Education's Jump Start program, that can be leveraged to get Louisiana youth interested in and equipped for low-carbon industries. Career pipelines created through partnerships between schools, universities, and employers are another popular model already

being used in Louisiana (e.g., in the oil and gas, legal and education sectors) that can be replicated for emerging sectors (e.g., offshore wind).⁵¹ Creating job shadowing, internship, and apprenticeship opportunities for students in new industries can also give students the opportunity to cultivate skills before graduation. The Louisiana Department of Education, Louisiana Workforce Commission and LCTCS could play a coordinating role in growing such pipeline partnerships for low-carbon industries.

Fenceline and environmental justice communities

As mentioned earlier, significant environmental justice concerns and a history of mistrust between communities and industry in Louisiana make it imperative to design and implement decarbonization efforts so they engage and benefit communities, particularly communities that have been historically burdened by industry and pollution (here referred to as fenceline and environmental justice communities). Without meaningfully involving and supporting the agency of these communities in decarbonization efforts, they will continue to be left behind in the state’s industrial transition, and Louisiana will risk falling short in its climate goals.

Community advocates at the roundtable expressed that, while industry in Louisiana has made the state globally competitive and valued, it has not always translated into benefits for communities impacted by industrial activity. Participants highlighted impacts such as air pollution (which raises significant health concerns in nearby communities) and water pollution (which regularly results in fish consumption advisories and limits people’s ability to enjoy the state’s natural beauty).⁵² Given these challenges—coupled with the fact that many communities in Louisiana are in a near perpetual state of recovery from storms, increasingly exacerbated by climate change—some participants expressed that it can be difficult for communities to get excited about the opportunity of new technologies (e.g., blue hydrogen) when existing industrial activity has failed to meet their basic needs.

Participants also expressed that for Louisiana—as a state—to succeed in the industrial transition, that *Louisianians*—as a people—must be prioritized. This means not only reducing greenhouse gas emissions,

but also strengthening equal access to education and economic opportunities to ensure the state and communities can capitalize on, and share the benefits of, the transition. A successful transition must invariably also clean up air and drinking water to secure communities’ health. For Louisiana to accomplish its economic and climate goals, it must work to maximize these benefits intentionally and equitably, while also reducing emissions.

Lastly, community advocates at the roundtable raised concern with how their needs and views are considered and addressed in industrial decisions. Particularly when it comes to industries such as CCUS and LNG, some feel fenceline communities are the “sacrificial lambs” being asked to bear the impacts of these industries’ expansions, and that their concerns about these industries are not meaningfully integrated into state and company plans. Multiple advocates expressed a desire for more frontline and community voices in decision-making processes to ensure that their perspectives are fairly represented and that decarbonization plans are designed and implemented in a way that benefits them.

RECOMMENDATIONS:

- **Form a state environmental justice advisory committee to conduct outreach to environmental justice communities and integrate environmental justice considerations into state planning, policies, and implementation.** Despite significant environmental justice tensions in the state and a stated commitment to advance environmental justice and equity through its CAP, Louisiana has no coordinating body to guide the state’s approach to environmental justice. Numerous other states, including Illinois, Michigan, Pennsylvania, South Carolina, and Virginia, have established such bodies in various forms.⁵³ The governor’s office or state legislature should establish such a body to advise the state government on environmental justice issues, including ensuring robust community engagement in government policies and projects and implementing state efforts in a way that minimizes harms and maximizes benefits for environmental justice groups. This body should represent a diversity of community interests, including multiple tribal representatives, community advocates from across the state, and others.

- **Create a state-level climate justice initiative to ensure that the benefits and investments created through the Climate Action Plan are equitably distributed to underserved and marginalized communities.** The Justice40 initiative at the federal level, created by Executive Order 14008, requires that at least 40 percent of the benefits of climate and related investments flow to disadvantaged communities (where statutory authority allows), helping to rectify decades of disinvestment.⁵⁴ Multiple states have their own version of Justice40: California, New York, and Washington state all require at least 35 percent of various climate-related investments flow to certain disadvantaged communities, with Washington state requiring an additional 10 percent to tribal nations.⁵⁵ Other states take a more flexible approach: Maryland prioritizes disadvantaged communities in distributing clean energy-related funds, while Illinois law creates carve-outs for solar and wind projects in low-income communities.⁵⁶ In implementing its Climate Action Plan, Louisiana should ensure equitable distribution of benefits to low-income communities, communities of color, and other underserved populations by implementing a statewide initiative that either directs a portion of climate investments to them or prioritizes these communities for receiving funding. Such a commitment would help all Louisianans share in the benefits that the low-carbon transition can create.

EQUITABLE AND INCLUSIVE PROCESSES

Project planning, permitting, and monitoring

A central takeaway from the roundtable was that community engagement in all phases of development and operation is a prerequisite to gaining the buy-in necessary to advance low- and zero carbon projects. Participants from a range of stakeholder groups noted (both during and prior to the event) that it is not in industry's interest to have projects fail because communities oppose them, and that communities often oppose projects when there is active harm created, a lack of benefits for them, or lackluster community engagement. As mentioned earlier, lack of community buy-in has already resulted in multiple proposals being stalled or abandoned outright. These include

decarbonization projects such as solar farms and a blue hydrogen project, as well as new industrial facilities such as the Formosa Plastics complex.⁵⁷ While early and ongoing community engagement can be a time-consuming and challenging undertaking, it can also result in significant cost savings, by reducing the time and resources often spent by developers dealing with permitting and other project delays and legal battles. Decarbonization projects that are intentionally designed to incorporate and address community and worker needs from the start, and that put in the effort to engage those constituencies in planning and implementation, are often best positioned to succeed in Louisiana. Importantly, community engagement does not end when a project is approved or constructed, and engagement processes must be carried out across the full lifetime of a project to maintain trust.

Other points raised in relation to the state's approach to project planning, permitting, and monitoring include:

- **A lack of confidence in the rigor of permitting:** A few participants expressed their view both before and during the roundtable that state permitting processes lack rigor, conveying skepticism about the relative quantity of permits that are approved to those denied.⁵⁸ A lack of confidence in these processes was one factor contributing to some participants' concern about technologies such as CCUS, which require rigorous planning and monitoring to prevent leakage and ensure safety.
- **Tension between immediate permitting decisions and long-term climate goals:** As mentioned earlier, this tension pertained most centrally to the proposed buildout of new high-emitting facilities (LNG terminals) in Louisiana. Action 26.4 in the CAP (which recommends an executive order mandating aligning the state's project permitting and facility siting decisions with the state's net-zero by 2050 goal) could help address this tension, but to date no executive action has been taken to advance this recommendation.
- **The desire for more community involvement in project monitoring:** Roundtable participants expressed that community involvement in project monitoring could support localized employment, strengthen understanding of the health and environmental impacts of industry, and promote project accountability. A robust site monitoring workforce is needed and could be engaged both

in operational projects (for instance, checking facilities and surrounding areas for air and water quality impacts) as well as decommissioned facilities (such as capped oil and gas wells which must be continuously monitored to track potential leakage). In planning for the roundtable, multiple advocates expressed the need for more air quality monitors along the industrial corridor, which a community monitoring workforce could help fill.

RECOMMENDATIONS:

- **Review and revise state project planning, permitting, and siting processes to strengthen community consultation in every step.** Louisiana's CAP includes an action to consider climate justice and environmental justice in project siting (Action 26.3), as well as a broader strategy to improve engagement with disadvantaged communities and indigenous peoples (Strategy 25). Key to achieving both goals will be strengthening the state's engagement with communities—particularly disadvantaged communities—in state project planning, permitting, and siting decisions. Doing so can build trust between government, industry, and communities and give communities more agency in project decisions that impact them. Similar actions are being taken at the federal level: the Council on Environmental Quality (CEQ) is working on changes to its National Environmental Policy Act regulations that would ensure fair public involvement in the environmental review process.⁵⁹ As CEQ updates these rules, Louisiana should assess its own regulations and look for opportunities to bolster community involvement across a project's lifespan, with specific considerations for engagement with tribal and environmental justice communities.
- **Bolster air and water quality monitoring across Louisiana, particularly along the industrial corridor, and make the results of this monitoring public.** While monitoring does already occur along the industrial corridor and elsewhere through governmental and non-governmental programs, roundtable participants emphasized a need for hyperlocal, real-time monitoring focused on communities near industrial sites. The state government should increase funding for LDEQ's Air Planning and Assessment, Water Planning and Assessment, and Surveillance divisions to ensure

these offices have the staff capacity and equipment to conduct monitoring and surveillance activities in areas where data is particularly lacking. The private sector can also support more rigorous monitoring across Louisiana. An industry-funded initiative in Harris County, Texas, channeled a \$1 million grant toward the county government and a research center to support air monitoring equipment purchases.⁶⁰ State government and industry should also partner to increase community involvement in project monitoring, including by equipping local governments and community organizations with the technical expertise and resources required to track and interpret air quality data collected through these efforts.

Creating community benefits

Community advocates expressed at the roundtable that industrial activity in Louisiana has created wealth for the state, but not led to significant, localized benefits. While the state ranks middle-of-the-pack in terms of economic activity (26th in gross domestic product in 2023), Louisiana ranks close to last in nearly every major prosperity indicator tracked by the U.S. News & World Report: 46th in healthcare, 47th in economy and infrastructure, and 48th in education and opportunity as of 2021.⁶¹ At the same time, the U.S. Census Bureau reports it nearly leads the country for the percentage of its population living in poverty (ranking 2nd, only behind Mississippi, as of 2019).⁶² While tracking gross domestic product is an admittedly incomplete way to measure economic success, the disparity in the state's rankings is still notable.

Decarbonization can be an effective mechanism to create community benefits, such as localized economic development, job creation, or improved air and water quality. However, it shouldn't be assumed that decarbonizing industry automatically results in such benefits. Deliberate efforts are needed in both designing and implementing decarbonization strategies to ensure that communities are positively impacted by efforts to reduce industrial emissions.

Community benefit agreements (CBAs) were raised as a central way to ensure these benefits. CBAs have been used successfully across the United States and in Canada for years but have enjoyed increased attention as federal agencies have begun requiring CBAs and similar agreements when dispersing funding from the

Infrastructure Investment and Jobs Act (IIJA). DOE now requires some form of community benefit plan (which could include a CBA, good neighbor agreement, project labor agreement, etc.) in IIJA-funded programs, with the strength of those plans evaluated as part of DOE's application scoring.⁶³ CBAs are voluntary, but legally binding, agreements between project developers and coalitions of community-based organizations meant to meaningfully integrate community groups in project planning and share the economic and other benefits of projects with them (Figure 6). In the Louisiana context, CBAs or similar agreements can be used to create trust between project developers and communities and ensure that industrial decarbonization projects are designed to incorporate and address community needs. Informed by the community, CBAs could include commitments to create high-quality jobs, target hiring toward impacted individuals who may face barriers to employment, address environmental and environmental justice issues through pollution control measures, invest in community beautification efforts, and other initiatives.

Even without formal community benefit agreements, there are other ways to integrate community considerations into project decisions. Approaches such as multi-factor auctions evaluate bids based on both monetary and non-monetary factors, such as a company's commitment to developing and hiring a local workforce. This process has already been followed by BOEM for multiple decarbonization projects in other states. In a North Carolina offshore wind auction, for instance, BOEM offered a credit for 20 percent of a bid to bidders who make qualified monetary contributions to workforce training and/or supply chain development initiatives.⁶⁴ It also required bidders to submit progress reports that identify and outline engagement with affected people and to make every reasonable effort to enter a project labor agreement during the project construction stage.⁶⁵ BOEM's proposed lease notice for offshore wind development off the coast of Lake Charles suggests the agency will take a similar approach in Louisiana.⁶⁶ Louisiana state government could replicate this approach for any projects undergoing a bidding process.

FIGURE 6: Best practices for strong community benefit agreements



Source: <https://citizensplanninginstitute.org/wp-content/uploads/2022/06/Effective-CBAs.pdf>

For projects not subject to bidding, state agencies should integrate consideration of community and workforce benefits into project planning processes by assessing projects' commitments to invest in local communities and workforces before projects are permitted and tax incentives are decided.

Other strategies discussed for bolstering community benefits through industrial decarbonization projects included:

- Supporting grassroots and community-based organizations through company philanthropy;
- Instituting state or local policies requiring fair compensation and relocation support, where appropriate, for individuals affected by industrial projects;
- Involving local businesses in decarbonization projects as suppliers, including by setting up local supplier commitments and resourcing local businesses (e.g., through technical assistance, trainings) to compete for contracts.

RECOMMENDATION:

- **Pass a state law to require industrial facilities deliver minimum standard community benefits as a requisite to receiving significant state tax incentives.** To contribute meaningfully to local community and economic development, Louisiana can better align its business incentives with community needs by retooling incentive programs to require minimum, concrete community benefits. Some Louisiana tax programs (such as the Industrial Tax Exemption Program) already follow a similar approach by offering property tax exemptions to manufacturers who make a commitment to jobs and payroll in the state.⁶⁷ This intent could be strengthened and made standard across other state incentives by integrating a requirement that industrial facilities receiving state tax incentives above a certain threshold deliver on pre-defined community benefits options. A similar program exists at the national level for tax-exempt nonprofit hospitals that is often built upon by additional state-specific regulations. For these facilities to receive tax-exempt status, they must deliver certain community benefits, including activities that improve community health or provide financial assistance to the uninsured.⁶⁸ While nonprofit hospitals are significantly distinct

from for-profit industrial facilities, Louisiana could follow a similar model by defining types of community benefits that meet the program's minimum requirements, then allowing industry to choose from among a slate of options. Such options could include creating local hiring agreements or workforce training programs; contributing in-kind goods or services; investing in pollution-reducing equipment; and other categories. This law should be created in close consultation with communities, nonprofits, and industry to base it on exhibited community needs while ensuring it can be practically implemented.

Measuring outcomes and impacts

While Louisiana's CAP is at its core about reducing greenhouse gas emissions, it includes numerous 'fundamental objectives' it aims to achieve through its climate strategies. Among these are creating a more equitable society, strengthening the economy and workforce, and improving residents' and communities' health and quality of life.⁶⁹ To track progress toward achieving these objectives, participants pointed to the need for a variety of metrics of success beyond simple emissions reductions, such as local economic impacts, health impacts, and equity outcomes. Having these indicators would enable Louisiana to compare various decarbonization strategies not only for their climate impacts, but also for relevant co-benefits and for their impacts on communities. Some climate strategies may prove beneficial from a climate or economic perspective, but have negative health or equity impacts that go unseen without intentional tracking (or vice versa).

Efforts are ongoing to create equity metrics for Louisiana's CAP, led by a nonprofit, The Data Center. Those metrics will center on the CAP's three equity sub-objectives: 1) reduce socioeconomic, demographic, and geographic disparities in future opportunities and outcomes; 2) maximize reduction and mitigation of historical and structural inequities; and 3) maximize engagement with and participation of communities in decision-making and implementation. The Data Center has drafted recommended indicators to track progress in those objectives with a final report anticipated for release in the near future.⁷⁰ Potential indicators include those related to health, economic prosperity, and other topics. Once metrics are decided, reporting on these metrics should be done regularly and transparently.

In addition to tracking more holistic outcomes of Louisiana’s climate efforts, several community advocates pointed to the need to measure the impacts of industry in Louisiana cumulatively, given the concentration of facilities in the state, and specifically along the industrial corridor. Current assessments that evaluate a set of chemicals or pollutants involved in a single project may not capture the full view of how those emissions interact with others from nearby facilities, some participants noted. The lack of a cumulative air quality assessment was one factor that led to a judge in Louisiana’s 19th Judicial District Court vacating an LDEQ air permit for Formosa Plastics in September 2022.⁷¹ Louisiana—like other states—considers cumulative air pollution only indirectly in its air permitting, and even the Environmental Protection Agency does not offer robust guidance for states to consider the cumulative impact of multiple pollutants.⁷² A challenge to doing so is a lack of high-resolution spatial and temporal data on air quality, alongside other uncertainties that must be addressed by research and more robust local air monitoring.⁷³ To fully achieve its objective of improving health and quality of life for Louisianans as set forth in the CAP, the state should develop and incorporate cumulative impact analysis into certain permits (e.g. high emitting projects or projects located in areas with heavy existing industrial activity) to better characterize the interplay between communities and the numerous industrial facilities in the state.

RECOMMENDATIONS:

- **Integrate consideration of cumulative air pollution impacts into project siting and permitting, with a particular focus on environmental justice impacts.** The heavy concentration of industry in certain communities in Louisiana necessitates a more robust and holistic approach to analyzing the cumulative environmental and health impacts of potential future projects. The Louisiana state legislature should pass a law directing LDEQ to undertake cumulative impact assessments for certain project types when making air permitting decisions, for example, projects above a particular emissions threshold or projects located in areas that already bear a high pollution burden. Massachusetts, Minnesota, New Jersey, and New York all have similar laws, requiring cumulative analyses for facilities located in certain areas (e.g., certain demographic tracts or areas in proximity to environmental justice populations).⁷⁴ Minnesota’s is the most location-specific, requiring such analysis only in certain areas of Minneapolis, while the other three states require cumulative impacts analysis across the state where disadvantaged or otherwise vulnerable communities are impacted (each state defines such communities differently). Additional data will likely be needed to support any cumulative analysis in Louisiana, requiring research or in-field data collection as requisites to implementation.

CONCLUSION

While Louisiana has made great strides toward decarbonization recently—through the release of the first Climate Action Plan in the Gulf South and supportive state policies for new industries like offshore wind—it still faces a long road ahead, particularly when it comes to decarbonizing its industrial sector. The heavy concentration of industrial activity in the state, coupled with the disproportionate impacts that activity has on communities of color and low-income communities, necessitate justice-centric approaches to industrial decarbonization. Meaningfully involving communities in the state’s decarbonization journey, and designing decarbonization strategies in ways that minimize harms and intentionally deliver benefits to them, can help the state meet its climate goals while maintaining its competitiveness, strengthening its workforce, and creating a healthier population that can participate fully in a more just and resilient economy.

Other C2ES Resources:

Getting to Zero: A U.S. Climate Agenda

<https://www.c2es.org/document/getting-to-zero-a-u-s-climate-agenda/>

Reaching for 2030: Climate and Energy Policy Priorities

<https://www.c2es.org/document/reaching-for-2030-climate-and-energy-policy-priorities/>

Regional Roundtables

<https://www.c2es.org/content/regional-roundtables/>

Clean Industrial Heat: A Technology Inclusive Framework

<https://www.c2es.org/document/clean-industrial-heat-a-technology-inclusive-framework/>

Clean Heat Pathways for Industrial Decarbonization

<https://www.c2es.org/document/clean-heat-pathways-for-industrial-decarbonization/>

Spinning the Mid-Atlantic Offshore Wind Industry into Economic Opportunity

<https://www.c2es.org/document/spinning-the-mid-atlantic-offshore-wind-industry-into-economic-opportunity/>

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