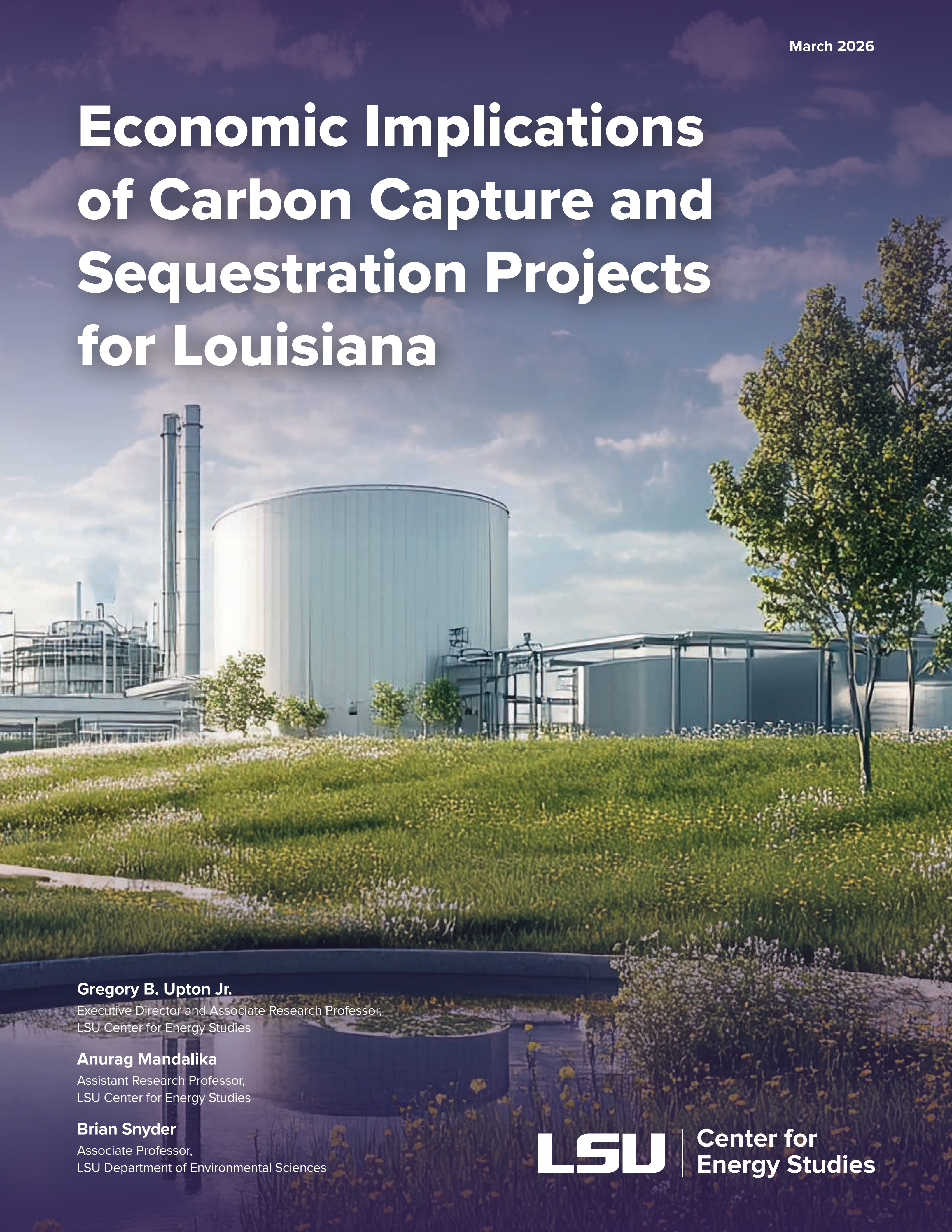

March 2026

Economic Implications of Carbon Capture and Sequestration Projects for Louisiana

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Acknowledgements

This report benefited from the time and expertise of a number of individuals who reviewed earlier drafts and offered constructive comments. Their feedback helped improve the clarity, organization, and presentation of the analysis. We thank the following individuals for their feedback:

- John Flake, Ph.D., Associate Vice President and Professor of Chemical Engineering, Louisiana State University
- Daniel Groft, Ph.D., Assistant Professor of Economics, McNeese State University
- Daniel McCarthy, Ph.D., Interim Dean of Research and Innovation and Professor, Southeastern Louisiana University
- Kyle Piller, Ph.D., Director of the Center for Environmental Research and Professor of Biological Sciences, Southeastern Louisiana University
- Daniel Shantz, Ph.D., Associate Dean for Research and PhD Programs and Professor of Chemical and Biomolecular Engineering, Tulane University
- Matthew Tarr, Ph.D., Professor of Analytical Chemistry, University of New Orleans
- Mark Zappi, Ph.D., P.E., Executive Director of the ULL Energy Institute of Louisiana and Professor of Chemical Engineering, University of Louisiana at Lafayette

About CES

The Louisiana State University Center for Energy Studies (LSU-CES) was created by the Louisiana Legislature in 1982 with the mission of conducting, encouraging, and facilitating research and analysis to address energy-related problems or issues affecting Louisiana's economy, environment, and citizenry. The Center's goal is to provide a balanced, objective, and timely treatment of issues with potentially important consequences for Louisiana.

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Funding for this report

ExxonMobil commissioned LSU-CES to quantify the potential economic implications of Carbon Capture and Sequestration (CCS) projects for the state of Louisiana. Information was collected about existing and proposed CCS related projects in Louisiana using public sources. ExxonMobil was given the opportunity to review and provide feedback on this report. The analysis and opinions expressed are those of the authors alone.

ExxonMobil

Economic Implications of Carbon Capture and Sequestration Projects for Louisiana

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Executive Summary

Carbon Capture and Sequestration (CCS) refers to the process of capturing carbon dioxide (CO_2) from industrial facilities, transporting it via pipeline, and permanently storing it deep underground in geologic formations. This report estimates the potential economic impacts of a CCS buildout in Louisiana. Estimated economic impacts are summarized as follows:

- There are currently 13 publicly announced industrial projects in Louisiana with an estimated $48 billion of capital expenditure that have a carbon capture component. If all of these facilities are completed, we estimate it could support approximately 39,900 jobs per year and contribute $26.8 billion to Gross State Product (GSP) and $15.3 billion to labor income over the approximately 7 years of construction in Louisiana. Once completed, we estimate these facilities would support approximately 3,500 jobs per year and contribute $423 million to GSP and $240 million to labor income annually.

- Additionally, we identified 33 existing facilities as practically feasible for CO_2 capture. These facilities currently employ an approximately 4,200 employees directly. Accounting for trade flows, these facilities are estimated to support a total of 19,600 jobs in Louisiana, generates $1.5 billion in labor income, and contributes approximately $3.2 billion to the state's gross product.

- To sequester emissions from both announced projects and current facilities identified, we estimate this would require approximately 35 Class VI sequestration wells at capacity sequestering in sum 46 million metric tons per annum of CO_2.

- To build out the necessary pipelines and sequestration sites to support this level of activity, we estimate that this will support approximately 2,000 jobs per year and contribute $1.8 billion to GSP and $1.0 billion to labor income annually in Louisiana over the approximately 7 year construction period.

- Of the construction-phase jobs supported per year in Louisiana, approximately 21,100 are (direct) jobs associated with construction and drilling of new facilities, wells, and pipelines (the remainder reflects jobs supported by suppliers and in the broader economy). For comparison, average 2024 Louisiana employment was approximately 138,000 in nonresidential construction and approximately 27,000 in oil and gas drilling-related industries.

- Of the jobs supported per year in Louisiana once fully operational, approximately 1,400 are (direct) jobs associated with the new facilities and in ongoing pipeline and well operations (the remainder reflects jobs supported at suppliers and in the broader economy).

- Using a representative CO_2 injection fee of $5 per metric ton, the implied annual payment associated with injecting 46 million metric tons per annum is approximately $230 million per year. These are payments that would be made to the landowner of the sequestration site based on the tonnage of CO_2 injected, similar to royalties in the oil and gas industry. The actual injection fees will vary by contract.

- Modeled tax revenues associated with the CCS buildout are estimated at $650 million for the state and $1 billion for Parish governments during construction, and $16.9 million for the state and $17.9 million for the Parishes per year once facilities are fully operational.
- To put this into perspective, if Louisiana were to build out one-third of this CCS potential, over a 20-year horizon, the estimated net present value (NPV) of modeled labor earnings at a 4% discount rate to support a CCS buildout of this scale is $11.6 billion nationally and $5.1 billion in Louisiana. On average, this would support 35,000 jobs nationally, and 16,900 jobs in Louisiana.
- Beyond the estimated quantitative impacts of projects listed above, certain export-oriented industries are evaluating CCS as a pathway to reduce emissions in order to compete in export markets with emerging carbon standards. The availability of CCS infrastructure may therefore be a factor in future project siting decisions.

1. Introduction

Carbon Capture and Sequestration (CCS) refers to the process of capturing carbon dioxide (CO_2) from industrial facilities, transporting it via pipeline, and permanently storing it deep underground in suitable geologic formations (Seyyedattar et al., 2026). Although there are competing technologies where carbon-containing organic materials are sometimes injected into the subsurface for carbon sequestration, our focus on CCS in this report refers to pure streams of CO_2. The technology is designed to reduce emissions from energy-intensive industries while allowing continued production of fuels, chemicals, and other manufactured products. In practice, CCS involves three core components: capture equipment installed at industrial facilities, pipeline networks to move CO_2, and injection wells that place the CO_2 thousands of feet below the surface into underground formations, such as saline aquifers where it can remain securely stored.

In Louisiana, a growing number of proposed and existing industrial projects are planning to incorporate CCS as part of their operations. These include blue hydrogen and blue ammonia facilities, biofuel plants, and other energy-intensive manufacturing investments. Access to carbon sequestration infrastructure enables these projects to potentially achieve lower emissions intensities, which in turn supports eligibility for federal incentives and allows products that have historically been emissions-intensive to be marketed into global markets as low-carbon alternatives.

This investment behavior is consistent with historical experience for other pollutants, where pollution abatement policies were followed over time by increasingly stringent regulatory requirements.[1] Firms have stated publicly that they view a similar policy trajectory for CO_2 as a credible possibility and are incorporating carbon management strategies into project design and siting decisions accordingly.[2] As a result, the availability of CO_2 transportation and storage capacity is a factor influencing whether certain industrial facilities are ultimately developed in Louisiana.

Based on currently available information, total direct capital investment associated with this statewide development is estimated at approximately $51 billion. This estimate reflects the full development costs of the announced projects, including construction of proposed production facilities intended to capture CO_2 as part of their process, CO_2 pipelines, and dedicated sequestration wells. In other words, it captures the integrated system required to produce lower-emissions industrial output in Louisiana.

Large-scale investments of this magnitude extend beyond the individual facilities being constructed. During the construction phase, projects generate demand for engineering services, materials, skilled trades, transportation, and a range of supporting industries. Once operational, facilities require permanent workers and ongoing purchases of goods and services. These effects ripple through the broader economy, generating model-based estimates of employment, household income, and economic output for Louisiana and for the United States as a whole.

This report estimates those economic effects. Using the Louisiana Economic Impact Model (LEIM), developed by the LSU Center for Energy Studies (CES), we quantify projected impacts during both construction and ongoing operations. The analysis reports expected effects on employment, labor income, and contributions to Gross State Product (GSP) and Gross Domestic Product (GDP).

1 Examples include the criteria air pollutants regulated under the Clean Air Act's National Ambient Air Quality Standards program: ozone (O_3), particulate matter ($PM_{2.5}$ and PM_{10}), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). (Lattanzio, 2023; LaCount, 2021)

2 For example, ExxonMobil's Low Carbon Solutions business has described milestones in its carbon capture and storage portfolio and emphasized ongoing participation in permitting and regulatory processes, and Chevron has highlighted carbon capture as part of its strategy to grow lower-carbon businesses. (Genetti, 2026; Chevron Corporation, 2024)

This analysis builds on prior CES research that provides context for the current study. The Gulf Coast Energy Outlook (2025) outlines broader regional energy trends and infrastructure developments affecting Louisiana and the Gulf Coast region (Dismukes et al., 2024). A 2022 CES report examined the economic implications of carbon capture and sequestration activity in the state (Upton et al., 2022), and a 2023 CES primer provided an overview of carbon capture, utilization, and storage technologies (Upton et al., June 2023). The present report extends that work by incorporating newly announced projects and updated investment information to evaluate the economic implications of the current CCS-enabled industrial development.

The remainder of the report is organized as follows: Section 2 gives an overview of CCS and related industries, Section 3 outlines the methodologies used to estimate economic impacts, and the results of the analysis are presented in Section 4.

2. Carbon Capture and Sequestration

CCS is designed to keep industrial CO_2 emissions out of the atmosphere. After CO_2 is captured and dehydrated, it is compressed and moved—almost always by pipeline—at pressures and temperatures that maintain a supercritical state, a dense, liquid-like form ideal for efficient transportation. CO_2 sequestration means injecting captured CO_2 thousands of feet underground into deep, salty rock formations where multiple geologic mechanisms keep it in place over time (Upton et al., June 2023). High injection pressures are used to ensure the critical pressure of CO_2 at 1,070 pounds per square inch (psi), at a temperature of 31.1° C, is exceeded, at which point the gas enters a supercritical fluid state allowing it to be pumped as a liquid; depending on the depth of the formations, this injection pressure can reach between 2,000 and 3,000 psi.

Once at the injection site, CO_2 is delivered down specially engineered wells into deep saline reservoirs located several thousand feet below the surface. These formations, either saline aquifers or past oil and gas formations, have porous lower rock layers containing sandstone or limestone. These are geological layers filled with brine far too salty to serve as drinking water.[3] They are geologically isolated from shallow freshwater zones by hundreds to thousands of feet of impermeable rock (cap rock) that acts as a natural seal. For more information on geologic CO_2 storage options, see Jones and Lawson (2021).

Inside these formations, the CO_2 is immobilized through multiple natural trapping mechanisms (Zhang and Song, 2014):

- Structural and stratigraphic trapping occurs when overlying rock layers physically seal the reservoir, the same way oil and gas have remained contained for millions of years.
- Residual trapping happens as CO_2 droplets become locked in rock pores over a span of years to decades.
- Solubility trapping takes effect as CO_2 slowly dissolves into the brine.

Over much longer periods (thousands of years), mineral trapping can convert dissolved CO_2 into stable calcium carbonate minerals (e.g., chalk). Together, these processes are expected to ensure that the injected CO_2 remains trapped underground, providing verifiable emissions abatement. For an overview on subsurface CO_2 storage and related industrial experience, see Upton et al. (June 2023).

Louisiana regulates geologic CO_2 storage through the Class VI Underground Injection Control (UIC) program administered by the Louisiana Department of Conservation and Energy (C&E), Office of Conservation,[4] with authority granted by the EPA.[5] Class VI permitting is designed to ensure that injected CO_2 remains contained in the intended geologic storage complex and that underground sources of drinking water are protected over the life of the project.

Class VI applications typically require detailed site characterization and modeling of the proposed storage complex, including subsurface geology, reservoir capacity and injectivity, confining zone integrity, and the presence of faults or other potential leakage pathways. Applicants must delineate an Area of Review (AoR) based on plume and pressure front modeling, identify and address potential conduits (e.g., legacy wells) through corrective action planning, and demonstrate appropriate well design and construction standards.

[3] CO_2 can also be stored in other formations (e.g., unminable coal).
[4] La. Admin. Code tit. 43, pt. XVII, subpt 6 (Statewide Order No. 29-N-6).
[5] See 88 Fed. Reg. 57,535 (Aug. 23, 2023) (federal approval of Class VI primacy for Louisiana).

See the C&E public website[6] or EPA Class VI program guidance[7] for more information on the Class VI permitting process.

Permits also require monitoring, reporting or measurement, and verification (MRV/MMV) plans to track injection performance and subsurface behavior (e.g., pressure monitoring and plume tracking), periodic testing to demonstrate mechanical integrity, and plans for postinjection site care and long-term monitoring. Financial assurance provisions are generally required to ensure that operators can fund corrective action, closure, and post-closure monitoring obligations.

Several categories of industrial development in Louisiana have the potential to incorporate CO_2 capture and sequestration as part of their operations. These include blue hydrogen and blue ammonia production, biofuel facilities with CCS components, chemical manufacturing seeking to lower emissions intensity, and low-carbon steelmaking. The subsections that follow provide an overview of each technology and its relevance for CO_2 sequestration potential in the state.

2.1 Blue Hydrogen and Ammonia

Manufacturing of ammonia (NH_3) is dependent on the combination of hydrogen (H_2) and nitrogen (N_2) using the Haber-Bosch process (Shriver and Atkins, 1999). The source of hydrogen is the primary factor in determining the carbon intensity associated with the ammonia production process. The United States produces approximately 10 million metric tons of hydrogen each year for industrial uses, and over 95% is sourced from natural gas (containing primarily methane, CH_4), using the steam methane reforming (SMR) process. This hydrogen is referred to as *grey hydrogen*, which results in CO_2 emissions as shown in the following equation, which is a combination of the SMR and water gas shift (WGS) reactions:[8]

$$CH_4 + 2\ H_2O \rightleftharpoons CO_2 + 4\ H_2$$

When the CO_2 from the grey hydrogen process is captured and sequestered instead, the hydrogen produced is referred to as *blue hydrogen*. While the hydrogen molecules from both processes are the same, the colors ascribed to these indicate the carbon intensity associated with these processes. Naturally, the addition of CCS leads to additional energy requirements for the overall process, and therefore, capital and operating costs.

Blue hydrogen plants typically operate based on the process of partial oxidation (also referred to as natural gas gasification), followed by the WGS reaction to produce H_2 and CO_2:

$$CH_4 + \tfrac{1}{2}O_2 \longrightarrow CO + 2H_2$$

By limiting the amount of oxygen, products from the oxidation reaction include carbon monoxide (CO) and H_2 instead of CO_2 and H_2O. CO is further reacted with H_2O to produce CO_2 and additional H_2 using the WGS reaction:

$$CO + H_2O \rightleftharpoons CO_2 + H_2$$

Pure oxygen for the process is sourced from an air separation unit (ASU). The ASU also separates N_2 from air, which is combined with H_2 in the ammonia plant to produce NH_3. Excess H_2 is injected into the

[6] Louisiana Department of Conservation and Energy (2026).
[7] U.S. Environmental Protection Agency (2018).
[8] For more information on hydrogen production industry in Louisiana, see Mandalika et al. (2025).

hydrogen pipeline for use by other industrial consumers. CO_2 generated from the gasification of natural gas is captured and permanently sequestered in geological formations.

2.2 Biofuels

Production of liquid biofuels such as renewable diesel, sustainable aviation fuel (SAF), and liquid methanol is based on the conversion of biogenic carbon feedstocks into hydrocarbon or alcohol fuels through thermochemical or biochemical processes, respectively. While some biofuel pathways can achieve low lifecycle emissions without carbon capture, this analysis is restricted to biofuels projects that incorporate CCS. These projects are characterized by production pathways that generate concentrated process-related CO_2, which must be captured and permanently sequestered to achieve low-carbon or net-negative emissions outcomes. Biomass can also be combusted directly and the emissions captured following combustion, which is referred to as bioenergy with carbon capture and sequestration (BECCS).

Most projects considered for deployment in Louisiana rely on wood waste and forestry residues as feedstocks, with a smaller number utilizing agricultural residues such as sugarcane bagasse. In thermochemical pathways, biomass is converted via gasification or reforming to produce synthesis gas containing CO, CO_2 and hydrogen, H_2. The syngas is typically processed through the WGS reaction to increase hydrogen yield while producing carbon dioxide:

$$CO + H_2O \rightleftharpoons CO_2 + H_2$$

The hydrogen-rich gas stream is then upgraded and synthesized into renewable diesel, SAF, or liquid methanol. In biochemical pathways, fermentation of biomass-derived carbohydrates (simple sugars) produces ethanol (and other alcohols) with CO_2 generated as a byproduct. This CO_2 is of high-purity and produced at low temperatures, which makes it more economical for capture. For the project types examined, CO_2 generated during conversion is captured, compressed, and transported for utilization or permanent geologic sequestration.

2.3 Existing Facilities with Abatement Potential

For existing facilities, we focus on industrial source categories that often produce relatively concentrated, pre-combustion emissions or those generated as CO_2 streams, which may be more capture-ready than diffuse post-combustion emissions. Ammonia manufacturing generates CO_2 as an inherent byproduct of producing hydrogen feedstock for the Haber-Bosch process. Hydrogen production similarly produces CO_2 in reforming and WGS reactions, often yielding a relatively concentrated stream. Petroleum and natural gas systems may produce separable CO_2 streams during gas treatment and processing, particularly where CO_2 is removed to meet product specifications. LNG plants may be part of this gas-processing value chain and may therefore be associated with CO_2 removal upstream of liquefaction. In another example, ethylene oxide production typically generates a relatively pure CO_2 stream as a byproduct of the partial oxidation reaction. While these characteristics may make capture more plausible, project-specific feasibility still depends on site conditions, operating configurations, and permitting.

3. Methodology

3.1 Economic Impacts

The purpose of this report is to estimate the economic impacts of the construction and yearly operations and maintenance (O&M) of the projects.

To estimate the economic impacts of the construction and yearly O&M of the project, we use the LEIM developed by the LSU-CES.[9] LEIM models economic impacts by tracing the flow of goods throughout the economy.

Importantly, commodity flows are area specific, allowing modelers to consider the impact of specific investments in specific locations. LEIM utilizes government data on commodity flows, as well as data from government agencies such as the United States Census Bureau and the United States Bureau of Labor Statistics.

Both “Type I” and “Type II” multipliers are provided by LEIM. Type II multipliers account for both the inter-industry and household spending of a final demand-change. Type I multipliers account for only the inter-industry effect. Thus, Type II multipliers, by definition, are larger than Type I multipliers. Utilizing these multipliers, the authors further dissect economic impacts into “Direct”, “Indirect”, “Induced”, and “Total” impacts, where total impacts are identical to the Type II multipliers, and Direct + Indirect impacts are identical to the Type I multipliers.

We estimate impacts on employment, earnings, and value added. Employment includes counts of workers at establishments that employ workers in relevant sectors. Earnings (synonymous with “labor income”) includes wages and salaries, proprietors’ income, and employer contributions to insurance, pensions, and social insurance. Value added represents the contribution to GDP, and earnings are a major component of value added. Horowitz and Planting (2009) provides more detailed information on the data used by LEIM, as well as interpretation of the multipliers. We utilize the study area of Louisiana as well as the United States in total. This application of LEIM to CCS-related investment and operations builds on LSU-CES’s prior CCS economic impact analysis (Upton et al., 2022).

3.2 Data

Proposed Projects To identify proposed industrial projects incorporating CCS, we began by reviewing publicly available applications filed through Louisiana Economic Development’s (LED) FASTLANE system under the Industrial Tax Exemption Program (ITEP). The ITEP program provides property tax incentives for qualifying capital-intensive manufacturing investments and therefore serves as a systematic and publicly accessible source for identifying largescale industrial developments in the state.

Because ITEP applications are often filed prior to Final Investment Decision, they provide visibility into projects at various stages of development. However, not all projects necessarily appear in FASTLANE. Accordingly, we also reviewed Louisiana Economic Development reports, press releases, company announcements, and publicly available news articles to identify additional projects incorporating CCS that may not have filed ITEP applications.

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[9] LLEIM calculations utilize the Regional Input-Output Modeling System (RIMS II). RIMS II was created and is maintained by the Bureau of Economic Analysis (BEA), part of the U.S. Department of Commerce. RIMS II is an input-output (I-O) model that is based on a detailed set of industry accounts that measure the goods and services produced by each industry. Large underlying datasets trace the flow of goods and services throughout the economy to final users. RIMS II is considered a backward linkages model, in that an increase in demand for an output results in an increase in demand for the inputs needed to create that output.

Projects identified through FASTLANE and supplemental sources were cross-checked using company websites, investor materials, and public disclosures to confirm project scope, capital expenditures, and development plans. Reported capital investment estimates were generally consistent across sources, though projected start and completion dates varied across announcements. Where discrepancies existed, preference was given to the most recent company disclosures. All investment figures reflect publicly reported capital expenditure estimates.

Using this approach, six blue hydrogen and blue ammonia projects were identified. In addition, four biofuel projects incorporating a CCS component were identified. Collectively, these 13 proposed projects represent approximately $48 billion in reported capital expenditures.

Existing Projects In addition to newly announced projects, we identified existing Louisiana industrial facilities with potential for CCS based on reported CO_2 emissions. The objective of this exercise was to identify facilities with relatively high-volume and concentrated CO_2 emissions that may be representative candidates for future abatement activity.

Facilities were identified using the U.S. Environmental Protection Agency's Facility Level Information on Greenhouse Gases Tool (FLIGHT) database. We focused on emissions reported under subparts associated with industrial processes that typically generate concentrated CO_2 streams, including Ammonia Manufacturing (subpart G), Hydrogen Production (subpart P), Petroleum and Natural Gas Systems (subpart W), and Titanium Dioxide Production (subpart EE).

Facilities reporting more than 50,000 metric tons of CO_2 emissions annually under these subparts were flagged as having potential for abatement. This threshold was used as a screening criterion to identify large emitters with emissions volumes that could plausibly support CCS infrastructure. The approach used to identify facilities with the potential for abatement in this analysis was based on the approach used previously in Upton et al. (2022).

Using this approach, 33 facilities were identified that meet the screening criteria. Collectively, these facilities account for more than 18 million metric tons per annum of CO_2. Although this figure represents approximately 13% of total emissions from industrial facilities in Louisiana as analyzed from FLIGHT, it represents some of the lowest cost emissions that are considered practically feasible in this study. For purposes of this analysis, these emissions sources are categorized as having relatively lower-cost abatement potential due to the expected presence of concentrated process-related CO_2 streams. Estimates of costs for CCS are significantly lower than those associated with direct air capture (DAC, which refers to capturing CO_2 from the atmosphere). So, while DAC might occur in the future, this analysis focuses on capture of industrial emissions.

This classification is intended solely as a screening mechanism based on publicly reported emissions data. While other industrial facilities may also be capable of capturing CO_2, the processes identified above are generally associated with more concentrated emissions streams and therefore are typically considered among the more economically favorable candidates for CCS deployment. The analysis does not imply that all identified facilities are technically or economically viable candidates, nor does it constitute an assessment of project-specific feasibility.

Economic Impact Analysis

Economic impact modeling is based on input-output analysis originally developed by Wassily Leontief, who was awarded the Nobel Memorial Prize in Economic Sciences in 1973 for his work on interindustry relationships within an economy. The purpose of this report is to estimate the local, state, and national economic activity associated with CCS projects in Louisiana. These projects involve the construction and operation of capture facilities, pipelines, and storage infrastructure, which require labor, materials, and services from a wide range of industries. The resulting economic activity generates direct, indirect, and induced economic impacts, reflecting the initial project expenditures, the supply chain activity needed to support those expenditures, and the household spending generated by workers whose earnings are supported by the projects.

Direct — Direct effects refer to the initial change in economic activity of interest.

Indirect — Indirect effects describe the subsequent rounds of inputs purchased by supporting industries located in the study area.

Induced — Induced effects then consider the spending of workers whose earnings are affected by the economic activity. This is sometimes referred to as the household spending effect.

Total — The sum of the direct, indirect, and induced effects.

Direct

Construction workers build the plants and supporting infracstructure.

Indirect

Supporting equipment manufactured.

Induced

Construction workers and manufacturing workers buy groceries at local supermarket and send children to local schools.

CO_2 Sequestration Wells Locations of proposed CO_2 sequestration projects were identified using the C&E's publicly available list of Class VI well permit applications. The analysis focuses on project-level sequestration sites rather than individual injection wells.

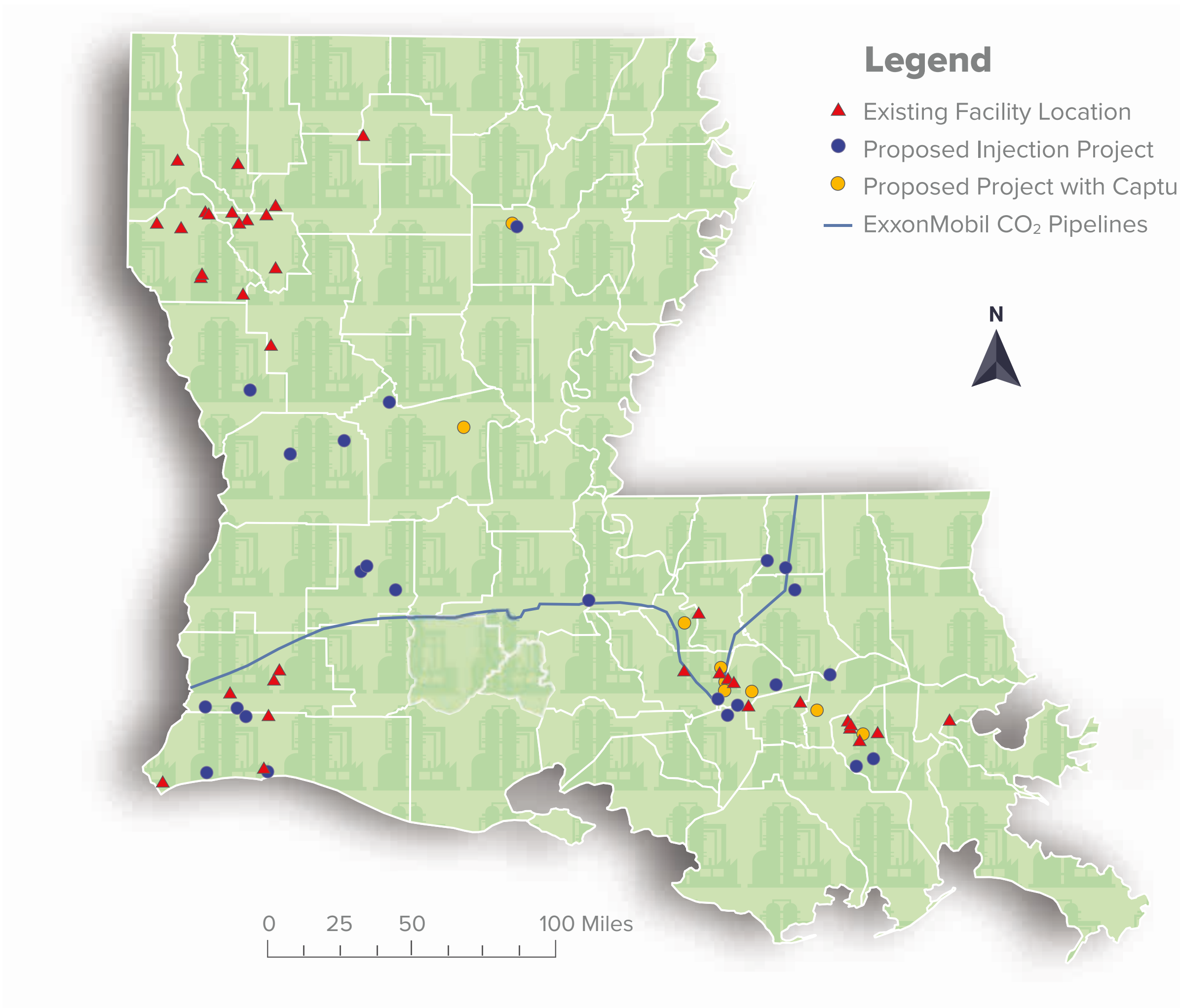
For projects with Class VI permit applications that were already entered into the Strategic Online Natural Resources Information System (SONRIS) database, project locations were determined directly from the reported well coordinates. However, only a limited number of proposed projects had Class VI well locations publicly available at the time of analysis.

For other projects listed by C&E, we identified likely sequestration project locations based on associated Class V stratigraphic test well filings. Class V wells are commonly drilled to evaluate subsurface geology and storage suitability prior to submission or approval of a Class VI permit. Where such stratigraphic test wells were present, their locations were used to approximate the anticipated sequestration project area.

The mapped locations therefore represent proposed sequestration project areas based on publicly available regulatory filings and testing activity. These locations should not be interpreted as final permitted injection sites but rather as the current geographic footprint of announced and developing sequestration projects. Related Gulf Coast infrastructure and project development trends are discussed in CES's regional energy outlook work (Dismukes et al., 2024).

Figure 1 presents the geographic distribution of identified sequestration project areas, existing industrial facilities with abatement potential, proposed CCS-enabled industrial projects, and the current ExxonMobil CO_2 pipeline network in Louisiana.

Figure 1: Carbon Capture New and Existing Facilities and Sequestration Site Map



Expenses In order to conduct an economic impact analysis, we first estimate construction and operating expenses by sector. We also estimate the total volume of CO_2 captured and injected, as this determines the scale of required sequestration infrastructure.

Reported construction expenses and projected CO_2 volumes for proposed projects were compiled from publicly available sources, including FASTLANE ITEP filings, company websites, investor materials, LED announcements, and relevant news coverage. Where multiple figures were available, preference was given to the most recent company disclosures. These values reflect publicly reported estimates and may evolve as projects advance.

Construction and operating expenses were allocated across relevant industrial sectors based on project-specific cost breakdowns and internal industry data available to the LSU-CES. This sectoral disaggregation captures the diverse inputs associated with construction, equipment manufacturing, and ongoing operations. For the proposed biofuels projects, allocations were based on National Lab of the Rockies' (NLR) JEDI models default expenses by type of biofuel project (National Renewable Energy Laboratory, 2009).

Operating expenses for proposed facilities were not consistently available in public filings. Accordingly, these estimates were derived using industry-level cost structures based on proprietary and industry data available to the LSU-CES. These estimates reflect typical operating profiles for comparable facilities and were used to approximate annual operations and maintenance spending for impact modeling purposes.

For sequestration infrastructure, modeling assumptions were required to estimate the number of wells and the extent of pipeline infrastructure needed to accommodate the identified CO_2 volumes. Each Class VI sequestration well was assumed to inject approximately 1.5 million metric tons of CO_2 per year. The number of wells modeled in the economic impacts reflects the minimum required to inject the combined CO_2 volumes from proposed projects and identified existing facilities with abatable emissions.

For sequestration infrastructure, modeling assumptions were required to estimate the number of wells and the extent of pipeline infrastructure needed to accommodate the identified CO_2 volumes. Each Class VI sequestration well was assumed to inject approximately 1.5 million metric tons of CO_2 per year. To account for operational constraints, wells are assumed to operate at 90 percent of nameplate injection capacity when determining the number of wells required. Applying these parameters to the combined CO_2 volumes from proposed projects and identified existing facilities with abatable emissions results in an estimated requirement of 35 wells.

Pipeline requirements were estimated by calculating the approximate mileage necessary to connect emitting facilities to identified sequestration project areas and to the existing ExxonMobil CO_2 pipeline network. Pipeline capital costs were assumed to average $3.5 million per mile. These assumptions provide a consistent and transparent framework for estimating the infrastructure investment associated with CCS deployment.

Based on the data gathered as discussed above, total construction expenses are estimated at approximately $51 billion. About 47% is attributable to blue hydrogen and blue ammonia projects, 28% to biofuels projects, 19% to pipeline buildout and the 35 required wells, and 6% to other projects with a carbon capture component.

Scope and Limitations This report focuses on model-based estimates of economic impacts associated with construction and operations spending for CCS-enabled facilities and supporting sequestration infrastructure. The analysis does not quantify certain payments and transfers that may occur alongside project development, including payments to landowners for CO_2 pipeline rights-of-way and easements. It also does not quantify potential knowledge spillovers and intellectual property generated through a CCS buildout in Louisiana, including expertise that could be exported to other regions as they invest in CCS infrastructure.

4. Results

This section reports estimated economic impacts associated with CCS-related activity for Louisiana and the United States during the construction phase and once operations are underway. Tables 1 and 2 summarize annual construction and O&M impacts, respectively, with Louisiana results shown on the left and U.S. results shown on the right; results are decomposed into direct, indirect, and induced effects. Table 4 reports the net present value (NPV) of labor earnings under a scenario in which one-third of the modeled buildout is completed, and Table 5 reports estimated annual impacts associated with ongoing activity at existing facilities with carbon capture potential. Figure 2 summarizes reported CO_2 capture by category and estimated injection capacity in the event of a full buildout of Class VI well applications.

Construction Impacts Table 1 summarizes modeled annual economic impacts during the construction phase for Louisiana (left) and the United States (right). Panels A–C report impacts associated with (A) blue hydrogen and ammonia facilities, (B) biofuels projects with a CCS component, and (C) other proposed projects. Panel D reports the subtotal across proposed projects (Panels A–C). Panel E reports impacts associated with supporting sequestration infrastructure (CCS wells and CO_2 pipelines). Panel F reports the combined total impacts across proposed projects and supporting infrastructure. Within each panel, results are decomposed into direct, indirect, and induced effects, and the “Total” row reflects the combined (Type II) impact for that category.

Total construction impacts associated with the CCS buildout (Panel F) are estimated to support approximately 41,900 jobs per year in Louisiana and to be associated with $16.3 billion in labor income and $28.6 billion in Gross State Product over the construction period. Nationwide, total construction activity is estimated to support approximately 93,500 jobs per year over the construction period and to be associated with $37.6 billion in labor income and $66.2 billion in U.S. Gross Domestic Product over the construction period.

The full CCS construction buildout in Panel F is estimated to support 21,100 direct jobs per year in Louisiana. This includes the employment directly associated with construction of carbon capture enabled facilities and drilling of carbon sequestration wells. For comparison, average 2024 Louisiana employment in nonresidential construction was 138,000,[10] while average 2024 Louisiana employment in oil and gas drilling-related industries was 21,000.[11]

Ongoing Impacts Table 2 summarizes modeled annual economic impacts once operations are fully underway, with Louisiana results shown on the left and U.S. results shown on the right. Panels A–C report impacts associated with (A) blue hydrogen and ammonia facilities, (B) biofuels projects with a CCS component, and (C) other proposed projects. Panel D reports the subtotal across proposed projects (Panels A–C). Panel E reports impacts associated with supporting sequestration infrastructure (CCS wells and CO_2 pipelines). Panel F reports the combined total impacts across proposed projects and supporting infrastructure. Within each panel, results are decomposed into direct, indirect, and induced effects, and the “Total” row reflects the combined (Type II) impact for that category.

Total annual ongoing impacts associated with the CCS buildout (Panel F) are estimated to support approximately 4,000 jobs per year in Louisiana and to be associated with $266 million in earnings and

[10] Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW): NAICS 23 (Construction) minus NAICS 2361 (Residential Building Construction).
[11] Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW): NAICS 213 (Support Activities for Mining).

$468 million in Gross State Product annually. Nationwide, total ongoing activity is estimated to support approximately 5,700 jobs per year and to be associated with $380 million in earnings and $684 million in U.S. Gross Domestic Product annually.

Table 1 : Estimated Economic Impacts during Construction

	Louisiana			United States		
	(1) Employment (jobs)	(2) Earnings (millions)	(3) Value Added (millions)	(1) Employment (jobs)	(2) Earnings (millions)	(3) Value Added (millions)
Panel A: Blue Hydrogen and Ammonia						
Direct	10,300	$4,200	$7,000	17,900	$7,200	$11,700
Indirect	3,400	$1,500	$2,600	9,800	$4,700	$7,200
Induced	5,800	$1,900	$3,500	18,600	$6,900	$13,500
Total	19,500	$7,600	$13,100	46,300	$18,800	$32,400
Panel B: Biofuels with CCS Component						
Direct	6,600	$2,600	$4,900	9,800	$4,000	$6,700
Indirect	2,600	$1,100	$1,500	5,500	$2,400	$3,900
Induced	4,500	$1,200	$2,300	11,800	$3,700	$7,300
Total	13,700	$4,900	$8,700	27,100	$10,100	$17,900
Panel C: Other Projects						
Direct	3,200	$1,500	$2,900	5,300	$2,400	$4,200
Indirect	1,300	$600	$800	3,300	$1,600	$2,400
Induced	2,200	$700	$1,300	6,300	$2,300	$4,600
Total	6,700	$2,800	$5,000	14,900	$6,300	$11,200
Panel D: Subtotal - Proposed Projects						
Direct	20,100	$8,300	$14,800	33,000	$13,600	$22,600
Indirect	7,300	$3,200	$4,900	18,600	$8,700	$13,500
Induced	12,500	$3,800	$7,100	36,700	$12,900	$25,400
Total	39,900	$15,300	$26,800	88,300	$35,200	$61,500
Panel E: CCS Wells & Pipelines						
Direct	1,000	$500	$1,100	2,000	$1,100	$2,100
Indirect	300	$200	$300	800	$400	$800
Induced	700	$300	$400	2,400	$900	$1,800
Total	2,000	$1,000	$1,800	5,200	$2,400	$4,700
Panel F: Total						
Direct	21,100	$8,800	$15,900	35,000	$14,700	$24,700
Indirect	7,600	$3,400	$5,200	19,400	$9,100	$14,300
Induced	13,200	$4,100	$7,500	39,100	$13,800	$27,200
Total	41,900	$16,300	$28,600	93,500	$37,600	$66,200

LEIM and authors' calculations. Dollar values estimated in millions of 2026 dollars. Discrepancies in totals may arise due to rounding.

The full CCS ongoing buildout in Panel F is estimated to support 1,400 direct jobs per year in Louisiana. This includes the employment directly associated with ongoing operations at carbon capture enabled facilities and supporting sequestration infrastructure. For comparison, average 2024 Louisiana employment in the

Table 2: Estimated Annual Economic Impacts Once Operational

	Louisiana			United States		
	(1) Employment (jobs)	(2) Earnings (millions)	(3) Value Added (millions)	(1) Employment (jobs)	(2) Earnings (millions)	(3) Value Added (millions)
Panel A: Blue Hydrogen and Ammonia						
Direct	300	$46	$84	400	$46	$84
Indirect	400	$35	$66	600	$51	$94
Induced	600	$26	$50	1,100	$57	$112
Total	1,300	$107	$200	2,100	$154	$290
Panel B: Biofuels with CCS Component						
Direct	200	$18	$55	200	$19	$55
Indirect	400	$27	$30	500	$35	$46
Induced	300	$15	$28	600	$32	$62
Total	900	$60	$113	1,300	$86	$163
Panel C: Other Projects						
Direct	680	$42	$51	680	$44	$51
Indirect	200	$13	$25	280	$20	$39
Induced	390	$18	$34	700	$37	$73
Total	1,270	$73	$110	1,660	$101	$163
Panel D: Subtotal - Proposed Projects						
Direct	1,200	$106	$190	1,300	$109	$190
Indirect	1,000	$75	$121	1,400	$106	$179
Induced	1,300	$59	$112	2,400	$126	$247
Total	3,500	$240	$423	5,100	$341	$616
Panel E: CCS Wells & Pipelines						
Direct	210	$15	$26	210	$16	$26
Indirect	80	$5	$7	130	$9	$14
Induced	150	$6	$12	270	$14	$28
Total	440	$26	$45	610	$39	$68
Panel F: Total						
Direct	1,400	$121	$216	1,500	$125	$216
Indirect	1,100	$80	$128	1,500	$115	$193
Induced	1,500	$65	$124	2,700	$140	$275
Total	4,000	$266	$468	5,700	$380	$684

LEIM and authors' calculations. Dollar values estimated in millions of 2026 dollars. Discrepancies in totals may arise due to rounding.

petrochemicals sector was 44,000.[12] Note that these direct jobs also average approximately $86 thousand in annual earnings, which is more than the mean of earnings for all Louisiana jobs in 2024 of $62 thousand.[13]

Tax Impacts Table 3 reports estimated state and local tax impacts associated with construction and ongoing operations of CCS-enabled facilities and supporting sequestration infrastructure. The table reports estimated state and local tax revenues (in 2026 dollars) for the construction phase (column 1) and for ongoing operations and maintenance (O&M) once facilities are fully operational (column 2). State revenues include sales, income, corporate, and other taxes, while local revenues include sales, property,[14] and other taxes. Local revenue estimates are for all parishes combined. Note that these estimates are from the LEIM model and do not represent tax estimates made on a by project basis.

During construction, modeled activity is estimated to generate $2 billion in combined state and local tax revenues (in millions of 2026 dollars), including $650 million in state revenues and $1 billion in local revenues. Once facilities are fully operational, modeled tax revenues are estimated at $34.8 million per year, including $16.9 million in state revenues and $17.9 million in local revenues.

Table 3: Estimated Tax Impacts

	(1) **Construction** (millions)	(2) **Yearly O&M** (millions)
State Revenues		
Sales	$260	$5
Income	$160	$4
Corporate	$30	$2
Other	$200	$7
Total State Revenues	$650	$17
Local Revenues		
Sales	$540	$9
Property	$310	$6
Other	$170	$3
Total Local Revenues	$1,000	$18
Total	$1,650	$35

Local revenue estimates are for all parishes combined. Dollar values listed in millions of 2026 dollars. Discrepancies in totals might arise due to rounding.

Labor Earnings To provide a single summary measure of the modeled labor-income effects, Table 4 reports the estimated NPV of labor earnings associated with CCS-related economic activity under a scenario in which one-third of the modeled buildout is completed. The NPV aggregates the modeled earnings impacts over a 20-year horizon and reports values (in billions of dollars) under alternative discount rates. Discounting provides a standard way to express future earnings in present-value terms, and higher discount rates yield lower NPV estimates. Results are reported for Louisiana and for the United States to show both in-state effects and broader national supply-chain and induced-spending channels.

[12] Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW): NAICS 324, 325, and 326.

[13] Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW): All Industries.

[14] Only indirect and induced property taxes are reported in this report. Direct property taxes from the facilities may be partially exempted through an ITEP (Industrial Tax Exemption Program) exemption or PILOT (Payment in Lieu of Taxes), and are thus omitted. These exemptions are negotiated on a by project basis.

Table 4: Estimated NPV of Labor Earnings for 1/3rd of Buildout

	(1) **LA Earnings** (billions)	(2) **U.S. Earnings** (billions)
No Discounting	$6.7	$14.4
2% Discount Rate	$6.1	$12.9
4% Discount Rate	$5.1	$11.6
6% Discount Rate	$4.7	$10.6
8% Discount Rate	$2.9	$9.6

Includes the net present value over 20 years in billions of dollars.

Existing Facilities with Carbon Capture Potential Table 5 reports estimated annual economic impacts associated with ongoing activity at existing facilities that have relatively concentrated CO_2 emissions streams and therefore potential for carbon capture. These estimates are presented separately from the proposed CCS-enabled industrial buildout described above and should be interpreted as an illustrative extension of the analysis rather than a forecast that capture will occur at all identified facilities. Results are shown for Louisiana and for the United States and are decomposed into direct, indirect, and induced effects to reflect both on-site activity and broader supply-chain and household-spending channels.

Table 5: Estimated Annual Economic Impacts Once Operational for Existing Facilities with Carbon Capture Potential

	(1) Employment (jobs)	(2) Earnings (millions)	(3) Value Added (millions)
Panel A: Louisiana			
Direct	4,200	$560	$1,941
Indirect	7,000	$597	$563
Induced	8,400	$380	$716
Total	19,600	$1,537	$3,220
Panel B: United States			
Direct	4,700	$570	$1,941
Indirect	8,900	$780	$907
Induced	14,800	$788	$1,542
Total	28,400	$2,138	$4,390

LEIM and authors' calculations. Discrepancies in totals may arise due to rounding. Dollar values estimated in millions of 2026 dollars.

CCS Capture and Injection Capacity Figure 2 summarizes potential end-state CO_2 capture and injection capacity by category. Based on the framework described above, the buildout implies a CO_2 injection requirement of approximately 46 million metric tons per annum, comprised of approximately 28 million metric tons per annum from proposed projects and approximately 18 million metric tons per annum from existing facilities with abatement potential. For comparison, emissions from the transportation sector in Louisiana in 2023 were estimated at 47 million metric tons per of CO_2 emissions from energy consumption.[15] This implied requirement can be compared to an estimated injection capacity of 155 million metric tons per annum if all proposed wells are constructed. To put this figure in context, total industrial sector emissions in Louisiana in 2023 were estimated at approximately 114 million metric tons CO_2.[16]

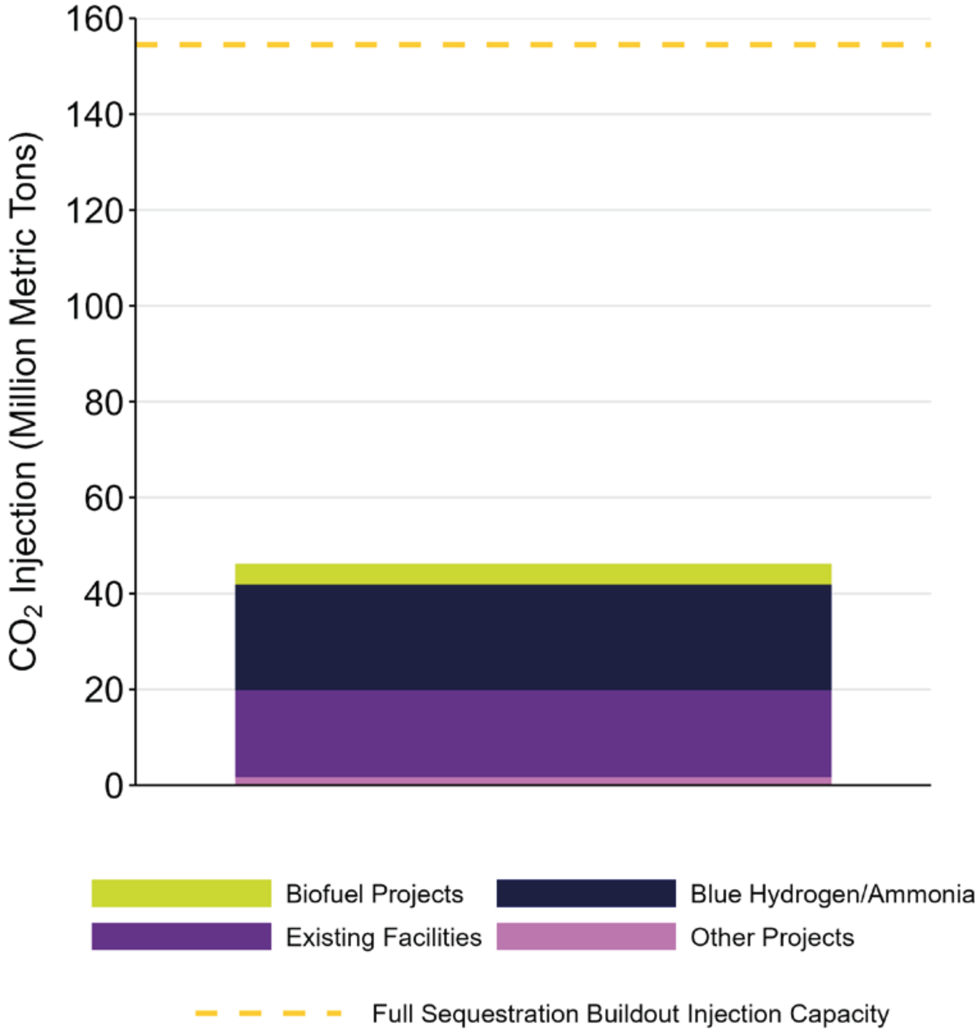
Using a representative CO_2 injection fee of $5 per metric ton [17] based on public-land injection contracts (i.e., payments to the landowner for use of subsurface pore space, including the government on public lands), the implied annual payment associated with injecting 46 million metric tons per annum is approximately $230 million per year. In the case where public land is leased, the payments go to the state and 30% of the revenue is shared with the parish(es) where the lease is located. In the case of private land, payments would go directly to landowners. Note that the injection fees will vary by contract and are likely to evolve over time as the market for CO_2 sequestration develops. The fee used here is intended to provide a representative figure for illustrative purposes.

[15] U.S. Energy Information Administration (2026)

[16] U.S. Environmental Protection Agency (2026)

[17] The average injection fees of state land leases is approximately $5.80. Contracts with private landowners are not available, thus injection fee agreements on private land is currently unknown.

Figure 2: Total CO_2 Capture and Injection Capacities



5. Conclusions

This report evaluates the potential economic implications of CCS-related industrial investments and supporting sequestration infrastructure in Louisiana using the Louisiana Economic Impact Model (LEIM). Based on publicly available announcements and filings, the total direct capital investment associated with the projects and supporting infrastructure described in this report is estimated at approximately $51 billion. This includes $48 billion from 13 announced projects with a carbon capture component, and $3 billion from the well and pipeline buildout to sequester an estimated 46 million metric tons per annum.

For the proposed projects described in this report, construction activity is estimated to support approximately 39,900 jobs per year in Louisiana and 88,300 jobs per year in the United States over the construction period, with output impacts of $26.8 billion in Louisiana (GSP) and $61.5 billion in the United States (GDP). Labor income over the construction period associated with proposed-project construction is estimated at $15.3 billion in Louisiana and $35.2 billion in the United States. Once operations are fully underway, ongoing activity associated with the proposed projects is estimated to support approximately 3,500 jobs per year in Louisiana and 5,100 jobs per year in the United States, with annual output impacts of $423 million in Louisiana (GSP) and $616 million in the United States (GDP) and annual labor income of $240 million in Louisiana and $341 million in the United States.

Existing facilities that are identified as having carbon capture potential are estimated to support approximately 19,600 jobs in Louisiana and 28,400 jobs in the United States, with labor income of $1.5 billion in Louisiana and $2.1 billion in the United States and output impacts of $3.2 billion in Louisiana (GSP) and $4.4 billion in the United States (GDP).

For supporting sequestration infrastructure (CCS wells and CO_2 pipelines), construction activity is estimated to support approximately 2,000 jobs per year in Louisiana and 5,200 jobs per year in the United States over the construction period, with output impacts of $1.8 billion in Louisiana (GSP) and $4.7 billion in the United States (GDP). Labor income over the construction period associated with wells and pipelines is estimated at $1.0 billion in Louisiana and $2.4 billion in the United States. Once operations are fully underway, ongoing activity associated with wells and pipelines is estimated to support approximately 440 jobs per year in Louisiana and 610 jobs per year in the United States, with annual output impacts of $45 million in Louisiana (GSP) and $68 million in the United States (GDP) and annual labor income of $26 million in Louisiana and $39 million in the United States.

The buildout described in this report implies a CO_2 injection requirement of approximately 46 million metric tons per annum (approximately 28 million metric tons per annum from proposed projects plus approximately 18 million metric tons per annum from existing facilities with abatement potential), relative to an estimated injection capacity of 155 million metric tons per annum if all proposed wells are constructed. For context, under a scenario in which one-third of the modeled buildout is completed, the estimated net present value (NPV) of modeled labor earnings over a 20-year horizon at a 4% discount rate is $5.1 billion in Louisiana and $11.6 billion in the United States; on average, this corresponds to approximately 16,900 jobs in Louisiana and 35,000 jobs in the United States.

Using a representative CO_2 injection fee of $5 per metric ton, the implied annual payment associated with injecting 46 million metric tons per annum is approximately $230 million per year. These payments reflect compensation to the landowner for use of subsurface pore space (including the government where injection occurs on public lands) and are conceptually similar to royalties in the oil and gas industry; for public lands, payments accrue to the state and a portion may be shared with the parish where the lease is located.

These results should be interpreted as estimates based on publicly available information described in this report. Project scope and operating profiles may change as projects advance through permitting, financing, and Final Investment Decision, and the analysis does not constitute a forecast that all identified projects will be constructed or that capture will occur at all screened existing facilities. In addition, the pace and scale of sequestration activity will depend on regulatory approvals, including Class VI permitting and associated requirements.

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