TRUE TRANSITION

IT'S TIME TO FINISH THE JOB: LOUISIANA'S FORGOTTEN FLEET

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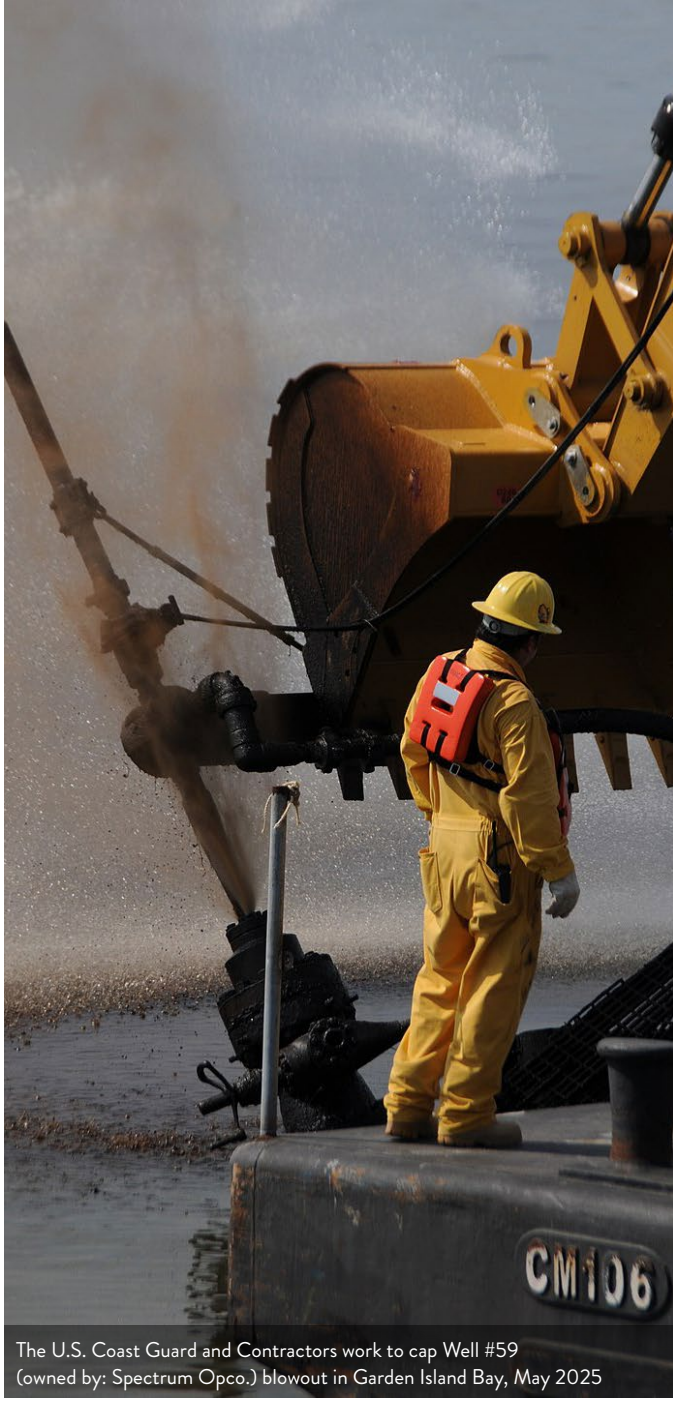


The U.S. Coast Guard and Contractors work to cap Well #59 (owned by: Spectrum Opco.) blowout in Garden Island Bay, May 2025

FORWARD

The following paper is an addendum to the report, "Addressing Methane Emissions in Louisiana: How Many Jobs Will it Take?"

One of the primary goals of this report was to survey the unplugged oil and gas wells and supporting infrastructure in Louisiana and estimate how many people would be required to properly decommission that infrastructure. The cost and number of people necessary to achieve this task varies considerably in Louisiana. Louisiana is made up of distinct habitat zones which can increase the number of workers and costs to decommission infrastructure that is located in more challenging geographic areas. It will simply require more people, more equipment, and more time to plug a well in a marsh or the Gulf of America accessible only by boat or helicopter than a well in the middle of a pasture accessible by a road.

Several months ago, the authors put in a request to Louisiana's Department of Energy and Natural Resources (DENR) for a current platform list. While transparent and helpful, DENR's response was not what we expected, "We do not specifically track offshore platforms. Our www.sonris.com online portal has data available on offshore wells. However, we do not track structures, only the wells…The Coast Guard may also have some information on structures and navigational hazards that could be helpful." So we contacted the U.S. Coast Guard, the U.S. Army Corps of Engineers, the National Oceanic and Atmospheric Administration and the Louisiana Oil Spill Coordinator's Office. Not one federal or state agency could provide us with a current list of structures in Louisiana state waters.

True Transition contacted SkyTruth to use the SONRIS well database and recent satellite data to generate an updated map and count of platforms in Louisiana's coastal zone. SkyTruth is a conservation technology nonprofit that utilizes satellite imagery, machine learning, and big data to make hidden environmental problems visible, measurable, and actionable. SkyTruth was able to leverage an existing collaboration with Global Fishing Watch to expand upon existing analysis on oil and gas infrastructure through satellite detections. We asked them to specifically look between the coast of Louisiana and three nautical miles out where Federal waters and jurisdiction begins.[1] The satellite detection time period begins in 2017 and extends to 2024. As a result, SkyTruth's count of Louisiana offshore platforms are "fresh." They were able to identify 1,113 structures from Louisiana's coast to the three nautical mile boundary (where the Federal Outer Continental Shelf begins). State data currently lists just 168 wells actively producing and 66 active injection wells in Louisiana state waters. Assuming that each of these wells is connected to a supporting facility, that leaves 879 platforms in Louisiana state waters that are serving no economic or productive use. These structures are rotting in place. And of course there are the wells and pipelines. The Louisiana Legislative Auditor found that 5,600 (25.6%) of Louisiana's inactive wells are in offshore or inland water locations.[2] Again, these wells are tapped out and serve no economic use or provide any public benefit.

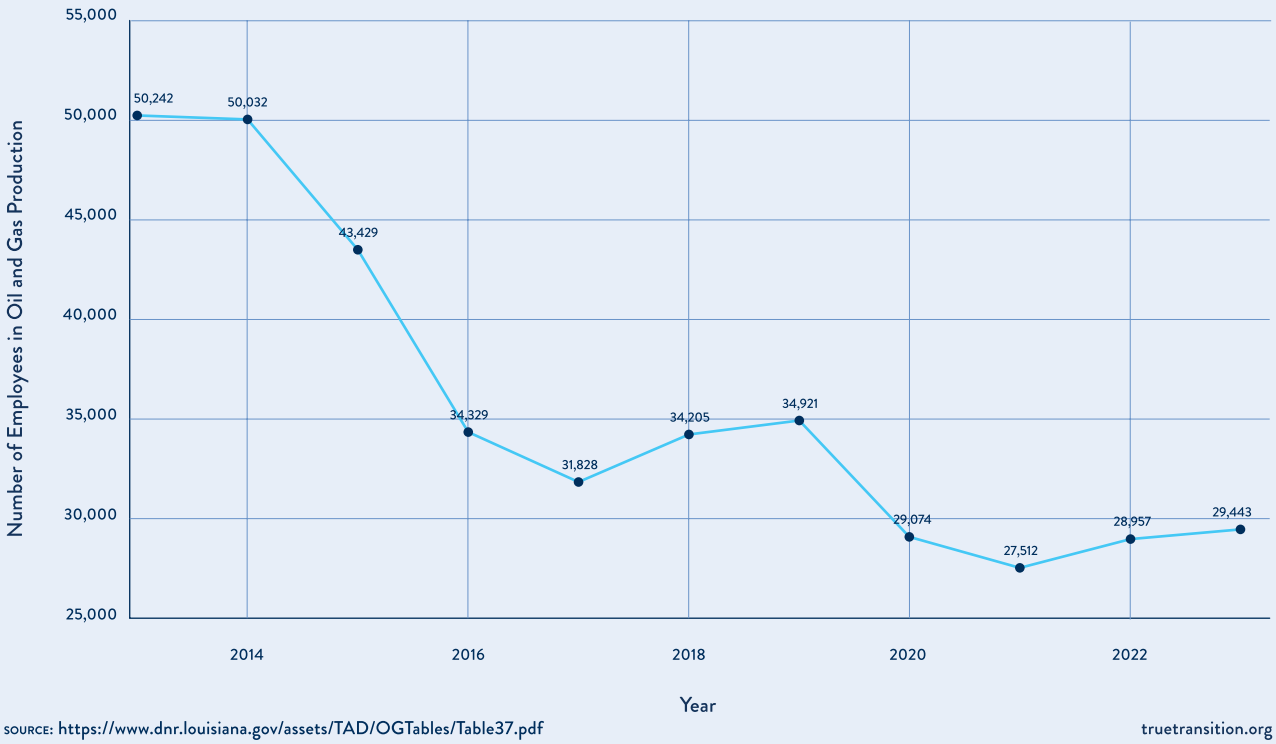
We are incorporating this new information into our previous analysis to provide new jobs needed projections for Louisiana. We are also proposing new legislation for the Louisiana Legislature to create a Louisiana "Finish the Job" Idle Iron program. In the last ten years, just over 20,000

Louisiana jobs in oil and gas production have vanished. Altogether, upstream oil and gas employment in Louisiana fell by 41 percent, from about 50,241 in 2013 to 29,443 in 2022, which is the lowest level on record.[3] At the same time, Louisiana's vibrant shipbuilding and offshore service industries have flatlined.[4] Oil and gas fields in the shallow waters of the Gulf of America are mature and depleting, and do not require as many vessels and workers, if at all. Louisiana's maritime business community has identified offshore wind both in the Gulf of America and on the Atlantic seaboard as a growth industry opportunity.[5] There are projects planned in both Federal waters[6] and State waters. Louisiana has already approved two wind lease agreements in state waters and is home to the shipyard and workers who built the first-ever American-made support vessel for offshore wind operations.[7]

Meanwhile, there are wells that need to be safely decommissioned, and pipelines and facilities that need to be removed and brought onto shore for industrial re-use today. These are turn-key projects and work that can begin immediately. There is an opportunity to put Louisiana's skilled workforce back to work and Louisiana vessels back into service. It took decades, and thousands of Louisianans to build the offshore oil and gas industry, but that work remains unfinished. It's time to finish the job.

FIGURE 1

Louisiana Oil and Gas Production Employment



SOURCE: https://www.dnr.louisiana.gov/assets/TAD/OGTables/Table37.pdf

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SECTION 1

1.1. A MYSTERY

In maritime law, *flotsam, jetsam, lagan*, and *derelict* are specific kinds of shipwreck with respective legal meanings and procedures. Flotsam refers to goods from a sunken vessel that have floated to the surface, while jetsam applies to cargo that is intentionally jettisoned from a ship to lighten the load. Lagan are goods cast overboard, but if marked by a buoy, convey legal ownership. A floating dibs. Derelict refers to goods that have sunk to the ocean floor, abandoned intentionally. Then there are historic shipwrecks, of which the Abandoned Shipwreck Act (ASA) provides protection from treasure hunters and unauthorized salvagers in American sovereign waters.

In the bays of Louisiana's collapsing coast, extending three nautical miles into the Gulf of America, a ghost fleet that is neither lagan nor derelict, but somewhere in between, rots. The law, or rather the application of the law, is more ambiguous for structures anchored to the seafloor.

According to the Louisiana Administrative Code, an offshore production platform or facility "shall be deemed abandoned if it has not been actually used for the bona fide movement, processing or production of hydrocarbons within the preceding six months." And if a structure is deemed abandoned, "the [Department of Energy and Natural Resources (DENR)] shall require all abandoned well and platform locations on state water bottoms in the Gulf of America and adjacent bays and inlets to be cleared of all related obstructions by the owner of such facilities and that such clearance be verified at the cost of such owner."[8] In other words, if a platform is not actively producing, the operators have a legal obligation to clean it up. Common sense stuff.

Scott Eustis and Justin Solet at one of many Louisiana's many offshore wells.

On a crisp spring day, Scott Eustis, (Community Science Director for Healthy Gulf[9]) peers out the window of a small airplane, documenting some of this forgotten flotilla at Louisiana's doorstep.[10] Eustis embarks upon these field trips throughout the state routinely, documenting oil sheens,[11] gas leaks [12], and hulking rigs rusted through.[13] He was also one of the lone crusaders that pushed Louisiana's largest and longest oil spills out of the shadows and onto the government's immediate to-do lists.[14] He and I have been working together on the "platforms in state waters" question. There's an unknown number of platforms, tank batteries, pipelines, and wellheads in Louisiana's marshes that serve no commercial purpose. They just rust and rot.

But this does beg the question if no one is tracking these platforms, then how can the State enforce the private operator's legal obligation to decommission them?

1.2 A HISTORY

The world's offshore oil and gas industry first cut its teeth in Louisiana's bayous and coastal waters. Indeed, the world's first over-water oil platform was completed in Caddo Lake in the north of the state in 1911. The waterlogged wetlands and coastal marshes in the South would provide the perfect real-world laboratory for producing oil and gas in challenging terrains. But venturing into open waters out of view from land and subject to hurricanes was a whole other ballgame.

In the 1930's, "the technology and know-how did not exist for building a platform, getting it into position, drilling into the ocean floor — or even for servicing the operation. Moreover, essential knowledge about such important matters as weather (including hurricanes), tides, and currents was either rudimentary or almost nonexistent."[15] The Creole platform completed the first successful well in the Gulf on March 18, 1938 off the coast of Cameron Parish.[16] In spite of logistical and technological setbacks, the well produced oil. In 1942, however, German U-Boats sank more than 100 ships off the Eastern Seaboard and in the Gulf - effectively halting production. The experiment would have to wait.

World War II Meteorology Training
Credit Line: University of Chicago Photographic Archive.
PHOTO SOURCE: Hanna Holborn Gray Special Collections Research Center

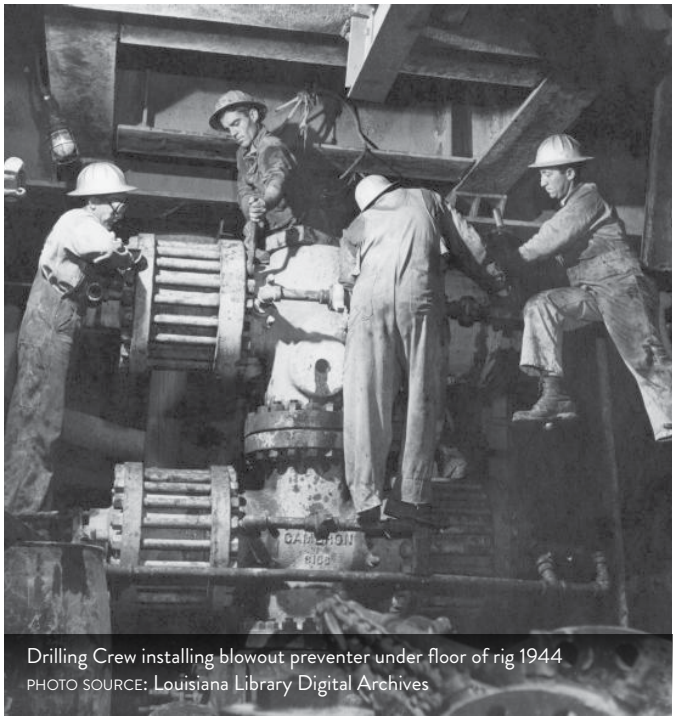
This interruption would prove serendipitous, as the war effort would provide key ingredients to the success of offshore production. First, the U.S. Army's oceanography and weather service created a corps of well-trained specialists who forecasted wind, wave, and soil conditions for use in the amphibious landings in the European, North African, and Pacific theaters. These same "weather officers" and techniques would be put to use in civilian life to collect and interpret better data on winds, waves, and soil in the Gulf of America.

WPA War Services poster, 1942, by John McCrady HNOC, 1988.99.2

PHOTO SOURCE: Louisiana Library Digital Archives

Second, the earliest offshore infrastructure was made possible by the discards of the American "arsenal of democracy." Specifically, the Surplus Property Act of 1944, which made available to industry American military crafts and technologies as surplus war assets. Former Attack Crafts (ACs) shuttled crew and supplies, some larger boats were converted to support rigs, and others were sunk offshore to act as breakers to protect drilling operations from wave action. These vessels also boasted new technologies in detection (e.g. radar and sonar) and communications that aided the new offshore oilfield. Industry almost exclusively relied upon surplus vessels, and it was not until the 1960s that boats were specifically built, rather than converted, for offshore oil field work. Finally, wartime training and service directly prepared the future offshore oil and gas industry's workforce for the unique demands and dangers of offshore work.

These direct public investments lowered the cost and reduced the risk to industry as it ventured farther out in the Gulf well by well. Today, a dense concentration of platforms, wells, pipelines, and other associated infrastructure speak to this heritage.[17]



Drilling Crew installing blowout preventer under floor of rig 1944
PHOTO SOURCE: Louisiana Library Digital Archives

1.3 BOOM, FOLLOWED BY AN INEVITABLE BUST

Between 1937 and 1977, more than 6,300 exploratory wells and more than 21,000 development wells were drilled in Louisiana's eight[18] southernmost parishes.[19] According to Louisiana State data,[20] companies have drilled approximately 4,735 wells in the state boundary of the Gulf of America, defined as all tidal waters seaward three geographical miles from the coast line of each state as this boundary existed when the state became a member of the Union.[21] This boundary marks the beginning of the U.S. Outer Continental Shelf, an area owned, managed, and leased by the American Federal Government.

PAGE TWO—SECTION SEVEN THE TIMES-PICAYUNE, NEW ORLEANS, LA., SUNDAY MORNING, AUGUST 23, 1959

Petroleum Continues to Attract Many Adventurous People

Hall of Fame of Oildom's Pioneers Is Established

Many Schools Furnished with Oil Teaching Aids

Tennessee Gas to Acquire New Subsidiary

TODAY

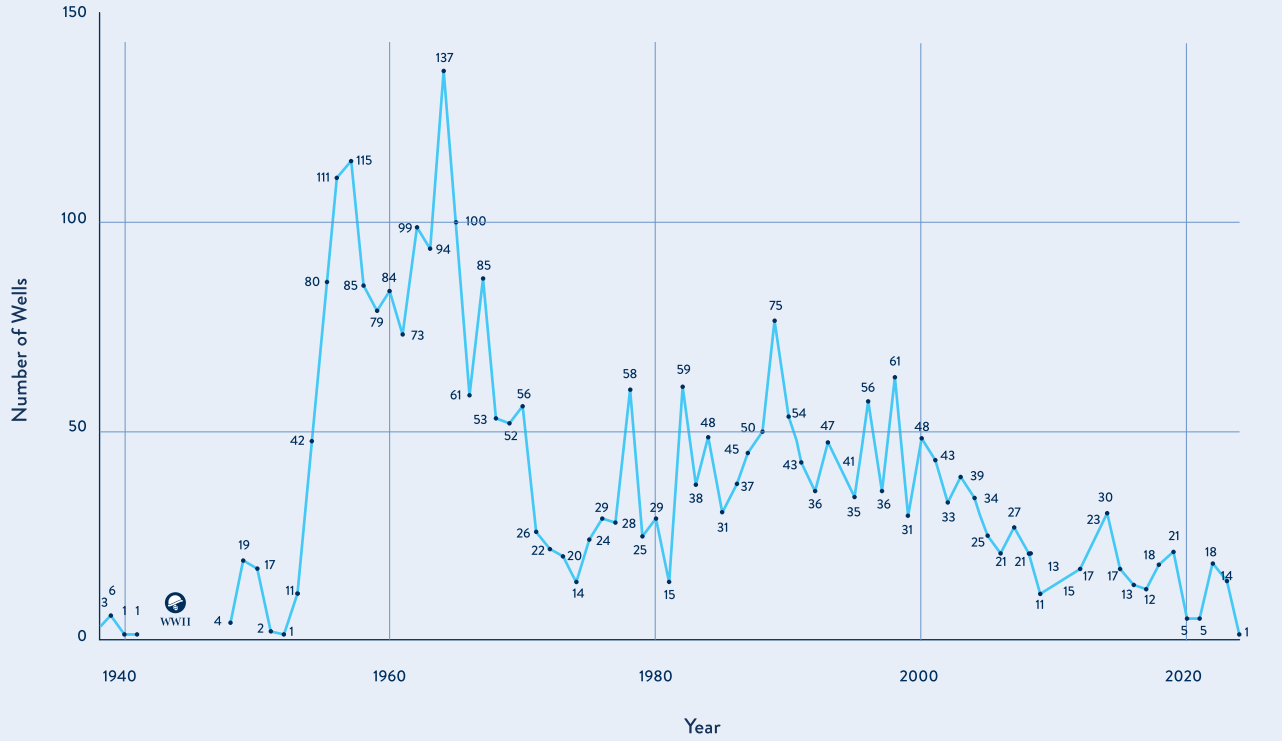
Telephone! Write! Wire!
PHONE 9031
BERWICK, LA.
COMPLETE

1959 front page of The Times Picayune showcasing the development of the offshore industry.

Humble Oil & Refining Company's Rig No. 28 Humble Oil bought surplus Landing Ship, Tanks (LSPs) and converted them for use as tenders. It developed a mooring system using chain two inches in diameter to hold these large vessels alongside small platforms.
PHOTO SOURCE: Louisiana Library Digital Archives

FIGURE 2

Louisiana Offshore Wells and Year Drilling Began



Louisiana's offshore production quickly became an integral part of the total state energy mix. State records show that companies drilled offshore wells at increasing rates in the 1950's (566 wells completed), and by 1956, 31 million barrels of crude oil were pumped out of state waters (11% of total state production).[22] Companies drilled the most offshore wells in the 1960's (838 wells completed) and production peaked in 1972 (65 million barrels) just before the nation faced critical fuel shortages. Louisiana crews secured a vital portion of American energy security.

But as is the way of oil and gas resources, decline was inevitable. Wells and fields deplete. Louisiana's shallow coastal waters were no different. As this decline was happening statewide, offshore production wound up constituting a larger share of total statewide production, in spite of its steady decline (just under 20% in 1992). As of 2023, however, wells in Louisiana state waters produced just 3.2 million barrels annually. For context, in 2023 the United States produced 12.9 million barrels of oil nationally per day. In other words, Louisiana's offshore wells produce less than a quarter of one day's national production over the course of one year. It's a field in its final days. To belabor the point, the results of the State's latest (March 2025) lease sale show no commercial interest in the 12 nominated offshore tracts for the 2024-2025 fiscal year.

The same trends can be seen for natural gas producing wells in state waters. Gas production peaked in 1970 and fell at the same rate as crude oil production. Today, gas production from Louisiana's offshore wells constitute .13% of the total state's gas production. Louisiana's offshore territory is a dying field, and the creaking platforms that remain are a floating necropolis.

FIGURE 3

Louisiana State Waters Crude Oil Production (Barrels)

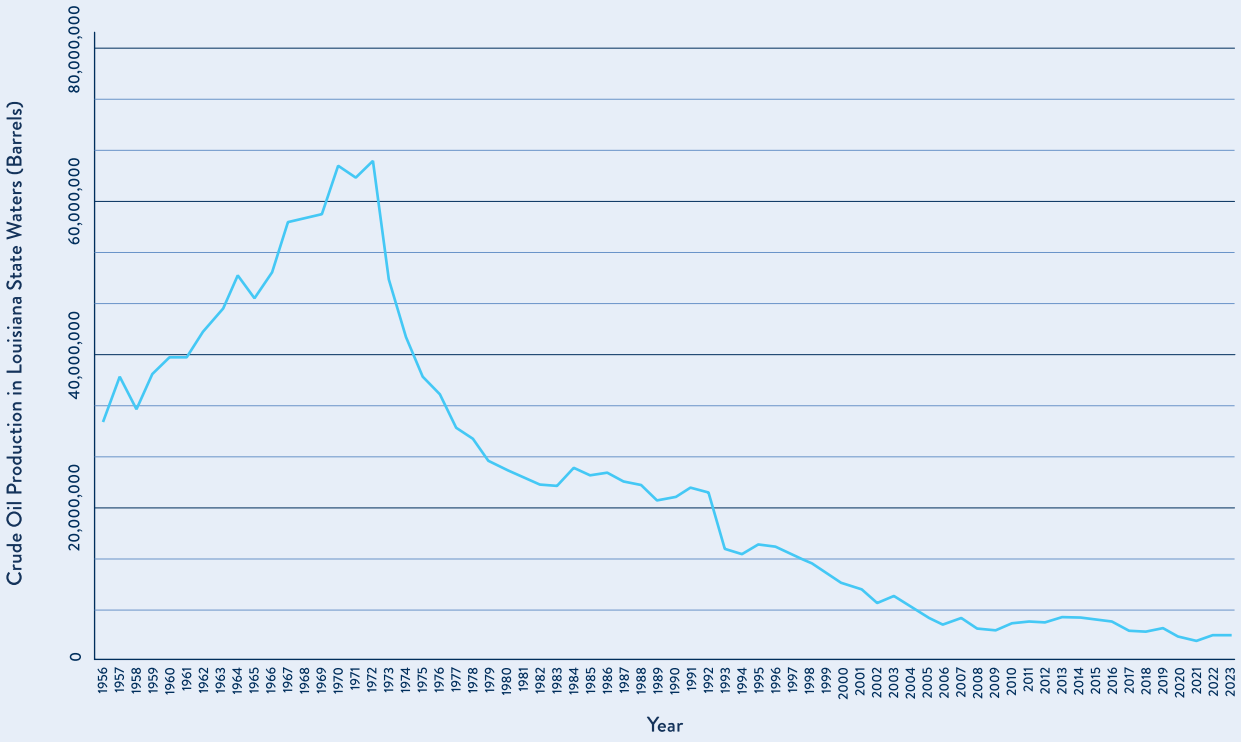


FIGURE 4

Results of Latest State Lease Sale

STATE LEASE SALE AND FISCAL YEAR TOTALS *March 12, 2025*

CLASSIFICATION	NOMINATED TRACT KINDS	NOMINATED ACREAGE	LEASES AWARDED	NO. OF ACRES	AMOUNT OF CASH PAYMENTS
LEASE SALE 3/12/2025					
State Offshore Leases					
State Onshore Leases (Inland)					
State Dedicated Leases					
State Agency Leases	3	126.387	3	126.387	$197,269.57
Total Sale	**3**	**126.387**	**3**	**126.387**	**$197,269.57**

NOTE: The totals for this sale do not reflect any options that may be exercised or revisions to acreage and cash amounts that may take place after this sale date which may cause these totals to change.

CLASSIFICATION	NOMINATED TRACT KINDS	NOMINATED ACREAGE	LEASES AWARDED	NO. OF ACRES	AMOUNT OF CASH PAYMENTS
2024-2025 FISCAL YEAR					
State Offshore Leases	12	19,993.180	0	0.000	$0.00
State Onshore Leases (Inland)	59	41,502.396	28	1,715.942	$1,041,768.25
State Dedicated Leases	3	6,117.450			
State Agency Leases	34	2,373.789	28	1,262.022	$4,370,412.11
Total Year to Date	**108**	**69,986.815**	**56**	**2,977.964**	**$5,412,180.36**

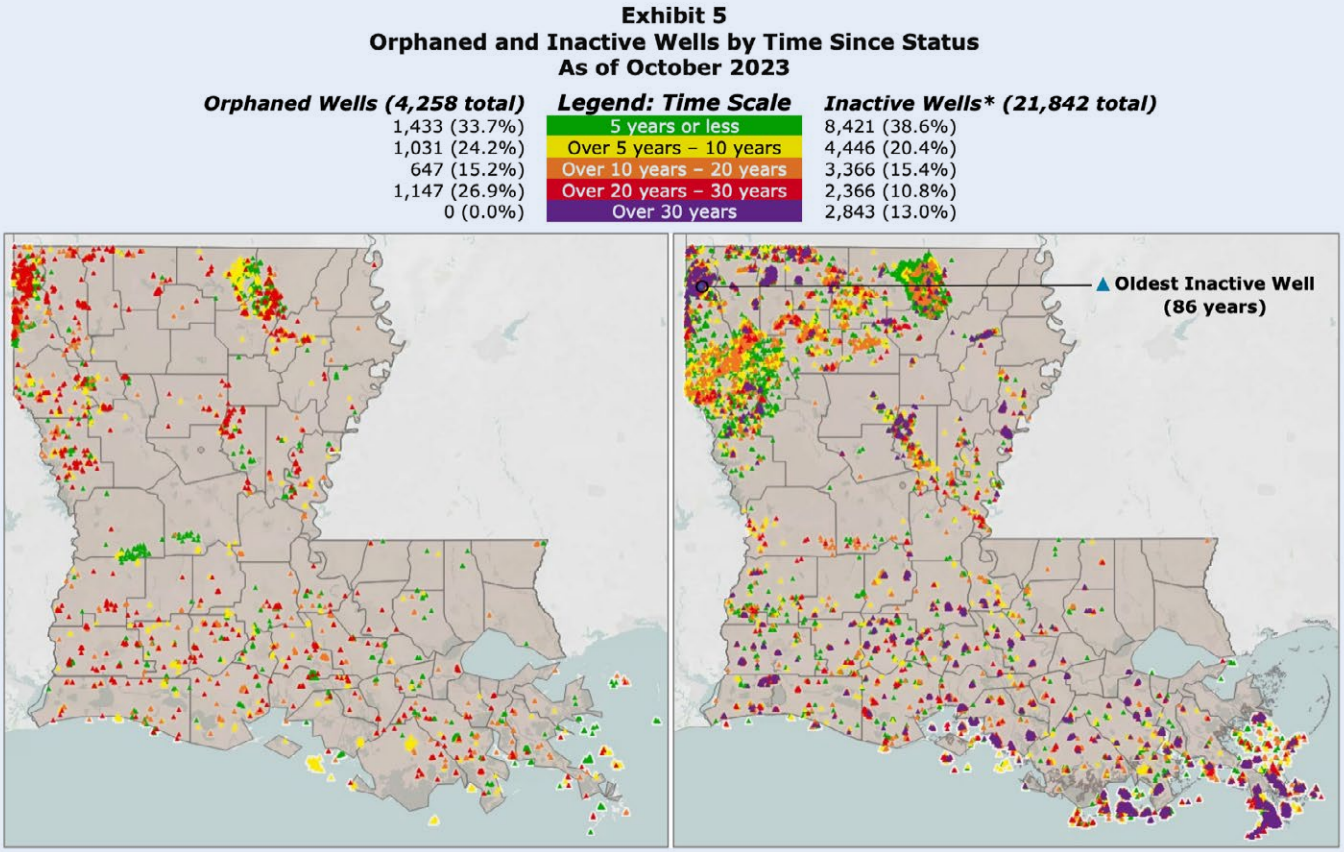
NOTE: The Fiscal Year totals include this sale totals and also options exercised and revisions to acreage and cash amounts that may have taken place from the date of the last sale to this state lease sale.

Today, there are just 168 wells actively producing and 66 active injection wells. This leaves somewhere between 1,856 and 2,769 total unplugged wells remaining in Louisiana state waters.[23] These wells do not serve any commercial or productive use.

In October 2024, the Louisiana Legislative Auditor published its latest audit of the State's Oilfield Site Restoration Program. The report singled out Louisiana's inactive wells: wells that are no longer producing hydrocarbons, but remain unplugged. Louisiana defines inactive wells as those having no reported production or other permitted activity for six months. The authors found that 5,600 (25.6%) of Louisiana's inactive wells are in offshore or inland water locations. By contrast, there were only 1,175 (4.0%) active wells in offshore or inland water locations as of October 2023.[24] The authors noted that, "operators may have greater incentive to allow wells in these locations to remain inactive because they typically cost more to plug than land wells."[25] As of November 2023, over 12,000 of Louisiana's inactive wells have not produced any oil or gas in over ten years. The report audit highlighted that a percentage of offshore wells have not produced in over 30 years, coinciding with the decline in production.[26]

FIGURE 5

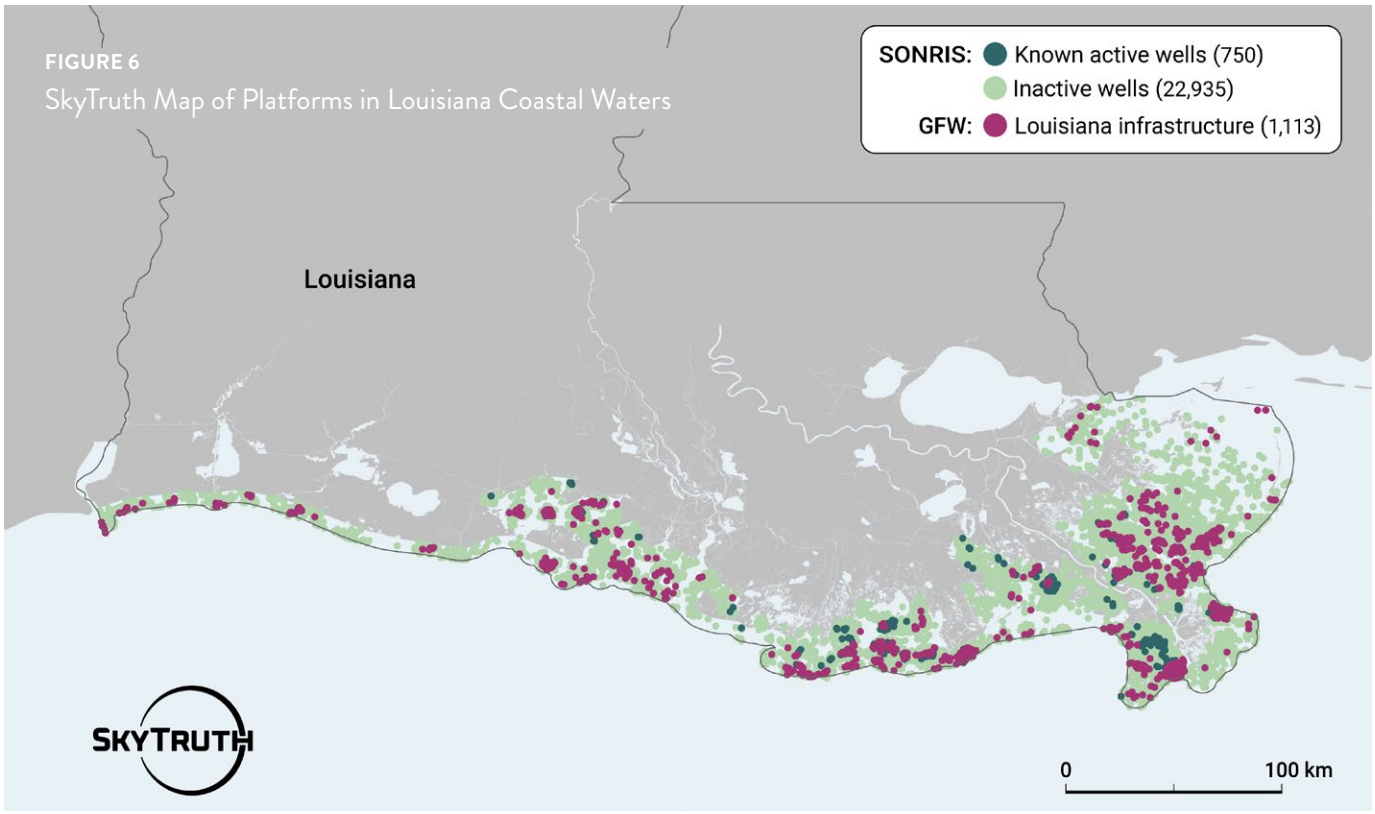
Map of Orphaned and Inactive Wells by Time Since Status from Louisiana Legislative Auditor



* Percentages do not add up to 100% because 400 (1.8%) inactive wells did not have latitude and longitude data available.
Source: Prepared by legislative auditor's staff using SONRIS data provided by OC.

FIGURE 6

SkyTruth Map of Platforms in Louisiana Coastal Waters



While the Louisiana Department of Energy and Natural Resources (DENR) monitors and tracks the status of wells, our inquiries revealed that not one federal or state agency tracked and monitored oil and gas platforms and facilities in Louisiana state waters. A 2005 Department of Energy report stated that 2,000 or more production platform structures remained in Louisiana state waters at the time.[27] But that was over 20 years ago. DENR could not provide an updated count of platforms.

As described in the introduction of this report, we contacted SkyTruth to help solve this mystery. SkyTruth has identified everything from illegal fishing in the South China Sea to oil slicks in the Gulf of America. True Transition worked with SkyTruth to analyze the SONRIS well database and recent satellite data in order to generate an updated map and count of platforms in Louisiana's coastal zone. SkyTruth was able to leverage an existing collaboration with Global Fishing Watch to expand upon analysis on oil and gas infrastructure through satellite detections. The satellite detection time period begins in 2017 and extends to 2024. As a result, SkyTruth's count of Louisiana offshore platforms are "fresh." They were able to identify 1,113 structures within the three nautical mile boundary.[28]

The Department of Energy and Natural Resources currently lists 168 producing wells and 66 active injection wells in Louisiana state waters. SkyTruth was able to combine SONRIS well data with its own dataset of likely facilities and determine which wells were most likely connected to satellite detectable structures. Using this subset of data, we were able to identify 48 producing wells and 12 active injection wells that were within 50 meters of an infrastructure data point. But generously assuming that each of Louisiana's 234 producing and injection wells is connected to a structure, that still leaves an impressive 879 structures in Louisiana state waters that are serving no economic or productive use. These facilities are rotting in place.

A Coastal Caveat

In Louisiana, "offshore," has a rapidly changing meaning. Louisiana has lost nearly 2,000 square miles of land since the 1930s.[29] Wells that may have been originally drilled on land, may now be in open water. Indeed, out in the field, we found wells that were originally plugged and abandoned above the waterline on land, but are now in open water. Components that were designed and rated for a dry environment, are now in open salt water. It's important to keep this in mind when considering the decommissioning job that lays ahead.

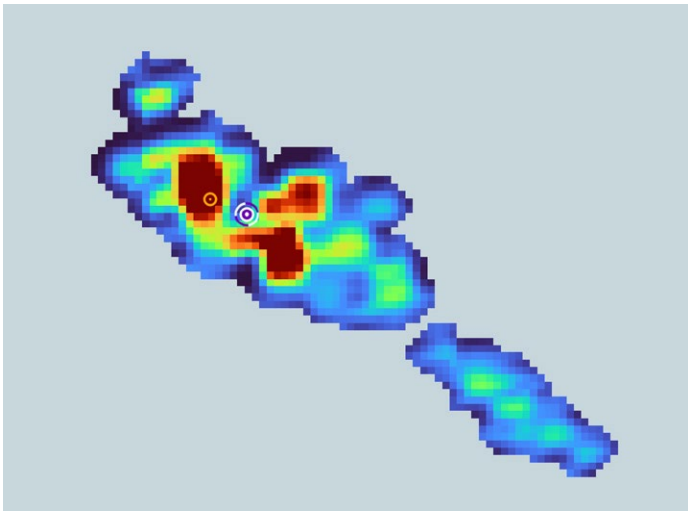
A Flock of Double-Crested Cormorants rests on a rusty Wellhead owned by EQT Corporation

SECTION 2

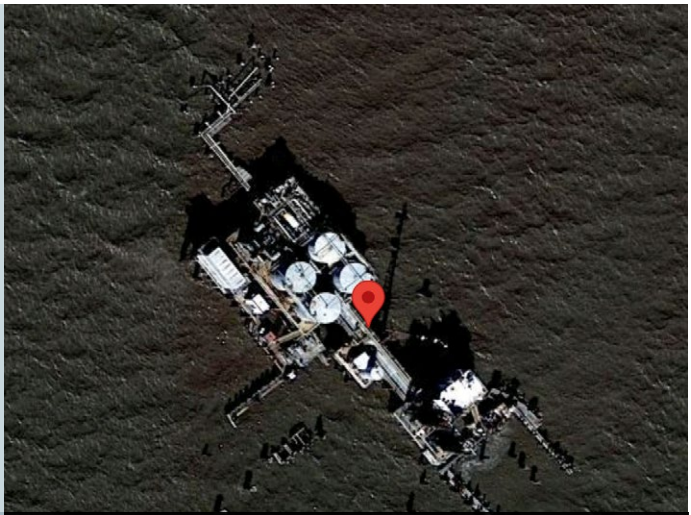
2.1 THE PUBLIC COSTS OF PRIVATE MESSES

In 2021, the Global Airborne Observatory platform, which is an aircraft equipped with a visible shortwave infrared imaging spectrometer, surveyed over 151 offshore platforms and surrounding infrastructure (tanks, satellite wells, pipelines, and vents) in US federal and Louisiana state waters in the Gulf of America, which represents 8% of active shallow water infrastructure..[30] The researchers found that 62 pieces of infrastructure had an observable methane plume, and through repeat observations found that emissions were constant 63% of the time. These platforms were not emitting on occasion, but were constantly leaking. Indeed, emissions were over twice as high as onshore oil and gas production. The researchers found that older platforms in state waters were responsible for the highest emissions, and that these leaks accounted for 1.3 billion pounds (.6 teragrams) per year. This wasted natural gas is like putting an additional 4 million cars on the road for a year, or filling up four and a half mega LNG carriers.[31] Louisiana's Office of Conservation is charged with conserving and regulating oil and gas. The prevention of oil and gas waste is one of the agency's primary missions, and reigning in this waste is an easy way to do that.

In our previous report, we outlined the various health and economic impacts of onshore methane emissions.[32] Methane is a greenhouse gas that contributes to the pollution and warming of our planet's atmosphere,[33] increases ground-level ozone formation[34], leading to higher rates of death[35], more childhood asthma[36] (and emergency hospital admissions for Louisiana children), and reduced crop yields. Since this paper focuses exclusively on offshore facilities and wells, we will highlight the unique risks those emissions and neglected infrastructure can pose.



Example of a methane plume from structure East of Cocodrie in Terrebonne
SOURCE: https://data.carbonmapper.org/



Bing Map image of the emitting facility.

2.2 IMPACTS ON ACTIVE PRODUCTION

For years, federal agencies have known that relatively low levels of methane gas in the air can cause engine failure in most helicopters operating offshore.[37] Methane gas can be sucked into the engines of helicopters landing on and departing from onshore platforms causing engines to fail and the helicopters to fall out of the sky.[38] A review of incidents found that helicopters had likely plunged into the Gulf every 1.5 years between 1992 and 2014 because of intentional, operational off-gas.[39] We do not know whether unintentional, fugitive methane plumes could be contributing to unsafe flight conditions. Neither Louisiana nor the American Federal Government currently have off gassing or emission rules as it relates to offshore helicopter operations.[40]

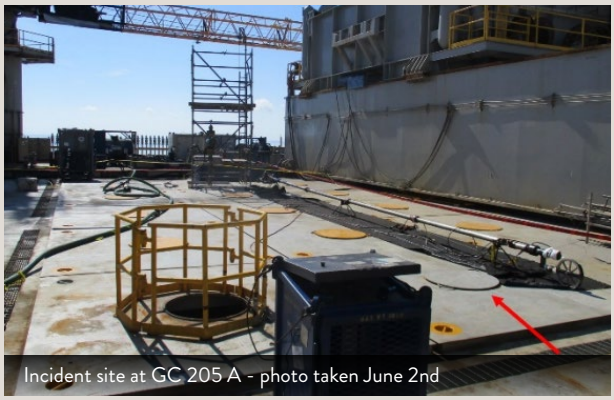
In 2023, Louisiana's Legislature passed "Jacob's Law" which requires that offshore workers wear life vests with locator beacons capable of sending distress signals while traveling in helicopters to and from Louisiana heliports.[41] This is a necessary law that True Transition has previously testified to Congress to make standard for all transportation to and from facilities on the Federal Outer Continental Shelf.[42] But we also want to prevent helicopter crashes in the first place, and reducing the number of methane plumes is a low hanging, achievable goal to do just that.

Then there's the issue of **deferred maintenance** and the risk it imposes upon active operations. A study analyzing incidents between 1996 and 2010 found that accident incident rates, including spills, increased significantly with the age of infrastructure.[43] Since there is limited state data on platforms in state waters, we will have to use Federal statistics as a proxy. (Later in our report we will discuss state regulation and monitoring protocols.) In the Bureau of Ocean Energy Management's (BOEM) latest Environmental Impact Statement, it highlighted the safety risks of deteriorated facilities to both offshore workers and even federal inspectors:

> "Deteriorated facilities increase safety risks to industry personnel and even BSEE inspectors to degraded boat landings, gratings, ladder wells, and handrails needed to access and traverse platforms. Firefighting and other safety equipment on idle facilities may not function when needed, and the risk of vessel collisions may also increase if lighting and other navigational aids are not maintained on idle platforms. Similarly, deteriorated tanks, piping, storage units, and other equipment may lead to a loss of integrity and leaking of hydrocarbons and other contaminants into coastal and marine waters, which may lead to acute and chronic impacts to seabirds, fish, and other marine protected species in the vicinity of the structure."[44]

Offshore Employees Fall Through Grating and Open Hole

Incident site at El 331 B - photo taken May 291h



Incident site at GC 205 A - photo taken June 2nd

BSEE Safety Alert No. 353, 4 June 2019

BSEE has issued several safety alerts where the lack of basic maintenance was a routine contributor to accidents and injuries:

- Missing floor grates has proven a persistent[45] and deadly[46] issue on offshore facilities.
- "The lack of proper maintenance and safety precautions could potentially have led to severe injuries or fatalities had personnel been present at the time the debris fell."[47]
- "High chlorine concentrations are known to dramatically accelerate the corrosion rates of carbon steels. Although the flange had been painted for corrosion protection, the coating was not properly maintained, allowing corrosion to develop over time."[48]
- "The failure of the nitrogen cylinder, which is attributed to corrosive wall loss exacerbated by environmental factors and structural conditions, highlights critical vulnerabilities in the storage and maintenance of nitrogen cylinders, particularly in marine environments. The presence of crevices at the base of the cylinders, combined with moisture accumulation, significantly accelerated the corrosion process, leading to the hazardous failure. Heavy deterioration of the galvanic coating on the storage rack further compounded the failure, indicating systemic neglect of maintenance protocols that could prevent such incidents."[49]

In 2023, an operator that owns leases both in OCS federal waters and State waters notified BSEE of a loss of well control event.[50] BSEE Inspectors and Investigators singled out the condition of the platform and inadequate preventative maintenance as the probable cause of the loss of well control:

> "The investigation revealed that SP 28 #13 (V) jacket, as well as other structures in the field, are located in an extremely harsh, shallow saltwater environment, and are being adversely affected by sea and weather conditions. Heavy weather, extreme corrosion, aging infrastructure, etc. have battered this field in recent years. There is no heliport on location and platform visits are only allowed by boat as sea and weather conditions permit."

There is perhaps some comfort in the fact that there are only 168 producing wells and 66 active injection wells in Louisiana state waters. In **Section 4** of this report, we will discuss opportunities to improve oversight and transparency to reduce risks to American mariners and offshore workers.

2.3 OTHER IMPACTS: BLOWOUTS, SPILLS, AND IMPERILLED NAVIGATION

Assuming that each of Louisiana's 234 producing and injection wells is connected to a structure (and that is a generous assumption), that still leaves an impressive 879 platforms in Louisiana state waters that are serving no economic or productive use. These facilities are rotting in place. Why does a bit of blight in the ocean matter?

- **IT'S THE LAW.** First, it's in violation of Louisiana law: Louisiana law requires that "all abandoned well and platform locations on state water bottoms in the Gulf of America and adjacent bays and inlets to be cleared of all related obstructions by the owner of such facilities and that such clearance be verified at the cost of such owner."[51] Firms agreed to this obligation when they signed lease agreements with the State of Louisiana. The ability to extract the resources from Louisiana's seabed is not a right, but a privilege that comes with reasonable conditions. If private firms can simply renege on contracts with the State Government, this creates a precedent that anyone can simply disrespect "the boot."[52]

- **DECAYING OIL AND GAS INFRASTRUCTURE CREATES PHYSICAL RISKS.** Second, as one might expect, deteriorating and unmonitored offshore oil and gas wells and platforms pose physical risks. Since inactive wells are not in operation, any deterioration and resulting environmental harm can remain unobserved for months or years. For example, in Louisiana, inactive wells are only inspected by LDENR once every five years. At least 14 states require

EQT Well in Lake Cataouatche. PHOTO SOURCE: Healthy Gulf.

mechanical integrity tests (MITs) for inactive wells, but not Louisiana. A MIT makes sure a well's seals are in good working order and not in danger of over pressurization and blowout. In 2023, Louisiana State University (LSU) researchers were on a fieldtrip in Barataria Bay when they called one of the authors to ask which agency they should call to report a well blowout.[53] It is often only after something breaks that the State intervenes.

- **OIL SPILLS.** Infrastructure age also increases the risk of oil spills. Studies have shown that 30 percent of offshore oil wells in the Gulf experienced well-casing damage in the first five years after drilling, and damage increased over time to 50 percent after 20 years.[54] Almost 90 percent of Louisiana's offshore wells are over 20 years old.[55] The Louisiana Office of Spill Prevention and Response (LOSCO) reports oil spills and hazardous substance releases to the federal government's National Response Center (NRC). We reviewed public data, posted on the Louisiana Oil Spill Management System, and found Louisiana State Water offshore operators were some of the biggest offenders.[56] The Texas Petroleum Investment Company, for instance, currently owns 2,572 oil and gas wells across Louisiana and a likely 175 offshore facilities. Most of TPIC's wells are close to 50 years old (drilled in 1977) and only 30 percent of the company's well inventory produced any commercial product in 2023 (783 wells).[57] TPIC's spill incidents were relatively flat from 2001 to 2018 when the number of incidents and volume of oil spilled increased. The biggest spill sources include offshore storage tanks, flowlines, and pipelines.

- **OIL SPILLS NEAR LAND CAUSE MORE IMPACTS.** But there's evidence to suggest that oil spills nearer shore are especially bad. Previous research has concluded that given similar volumes, initial toxicities, and probabilities of oil spills at nearshore versus far offshore sites, the cumulative impacts of spills closer to land will be larger.[58] This makes intuitive sense, as the

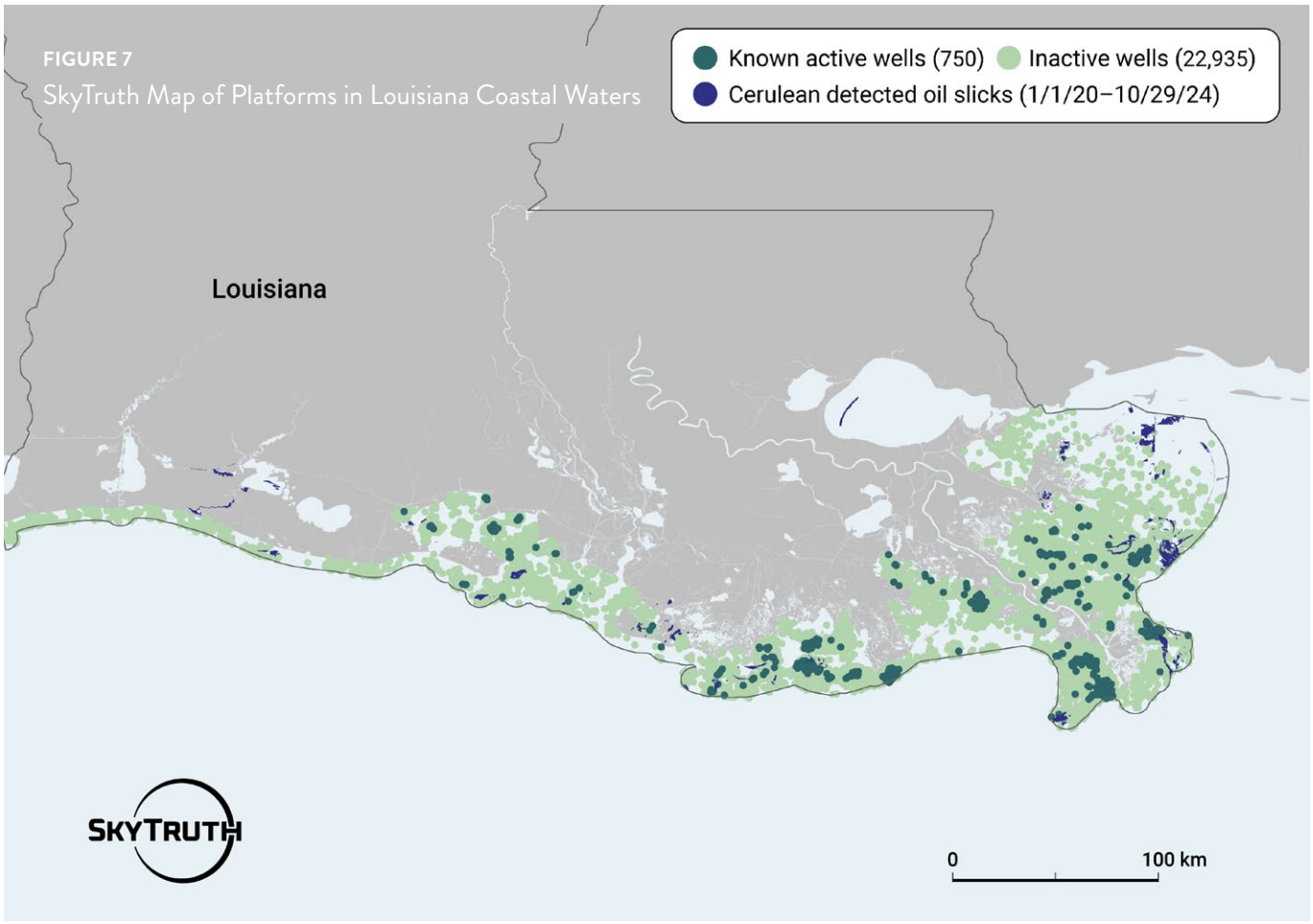


FIGURE 7
SkyTruth Map of Platforms in Louisiana Coastal Waters

more toxic Louisiana Light Crude has a much shorter distance to travel to spoil Louisiana wetlands and salt marshes and less time to evaporate or degrade. After the Deepwater Horizon tragedy, the potential social[59], subsistence[60], and economic impacts to Louisiana's seafood,[61] tourism[62] industries are beyond dispute. We could devote a great more space in this paper to these impacts, but assume them as a given.

SkyTruth recently launched Cerulean, a global system for tracking ocean oil pollution. Using satellite imagery and machine learning, it detects oil slicks and identifies nearby vessels and offshore infrastructure that may be responsible. As can be seen in **Figure 7**, satellite observable oil slicks were a frequent occurrence near state offshore wells over the last five years.

RISKS TO NAVIGATION. Then there are risks to navigation and other commercial activities like fishing.[63] If facilities are not crewed or inspected, no one is changing the lightbulbs, and a dark wellhead or platform is an accident waiting to happen. It also violates the U.S. Coast Guard requirements to maintain lighting on fixed structures.[64] Although, on one well our team visited, an enterprising fisherman had clearly taken off the reflective light from a road cone and affixed it to one of the remaining stumps poking from the water to reduce the risks of the obvious navigation hazard **(Figures 8 & 9)**.

We do know that unplugged and orphaned wells in Louisiana waters do cause navigation risks. As an example, in 2020, a barge collided with a submerged, unmarked orphaned well causing an oil spill in the Barataria Bay **(Figure 10).**[65] The well spewed a 100-foot-high geyser of natural gas and light crude oil for weeks. OSR reported that because of the accident, "the program would [only] plug and abandon urgent and high priority scored orphan wells in marine environments that are potential hazards to navigation instead of plugging urgent, high, moderate and low priority orphan wells statewide."[66] The program office acknowledged that the program realignment would result in a significant decrease of total number of orphaned wells plugged and abandoned by the program per fiscal year due to the increased costs associated with this work (from $26,000 to $163,000 per well average).

In 2018, the crew boat Jessica Eliszabeth owned by B.J. Martin hit an unmarked wellhead in state waters **(Figures 11 & 12)**.[67] On January 05, 2018, an Agent of the Office of Conservation inspected the production facility which is operated in conjunction with the above referenced well(s). The Agents determined that the company Cantium was in violation of Statewide order No. 29-B because the wellhead was not being maintained in an acceptable working order which resulted in the possibility of the loss of well control or the unauthorized discharge of exploration and production waste.[68] The Office of Conservation sent an email on January 26, 2018 with a deadline of March 26, 2018 to repair the wellhead and provide proof to the Office of Conservation or face daily fines of $5,000. On May 9, 2018, DENR inspectors confirmed that the well had been plugged and abandoned.[69]

The State's Underwater Obstruction Program maintains a $200,000 a year fund. Underwater Obstruction is defined by the program as any obstacle, whether natural or manmade, which impedes normal navigation and commercial fishing on the navigable waters of the state. True Transition's recommendation for this program is to add other Underwater Obstruction criteria to their definition like coastal restoration, borrow area, and the installation of a new energy facility. The Office of the Secretary is authorized to expend a sum, not to exceed $200,000 per annum, for the department's administration of this mission. True Transition recommends that the State's Underwater Obstruction Program and the Office of the Secretary increase the Underwater Obstruction Removal Fund. They should do the work now and charge the companies responsible for the obstructions later. They can bundle contract this work.

FIGURE 8/9

Local fisherman creatively re-purposes DODT highway lighting for safe navigation

PHOTO SOURCE: Healthy Gulf

FIGURE 10

Blowout in Barataria Bay in 2020

FIGURE 11 & 12

Lease Facility Inspection Report showing crooked wellhead after collision with vessel

- **FACILITIES BATTERED BY STORMS CREATE NEW RISKS.** As aging and corroded platforms are damaged by storms, they can topple and create dangerous obstacles for ships.[70] It is estimated that 3,050 of the Federal OCS's 4,000 platforms (or 76 percent of platforms at the time) were in the direct path of either Hurricane Katrina or Hurricane Rita. Hurricane Katrina destroyed 46 platforms and damaged 20 platforms and 9 rigs. Hurricane Rita destroyed 69 platforms and damaged 32 others. Nineteen rigs were set adrift.[71] Almost 80 percent of the destroyed platforms were older "end of life" platforms not built to MMS 1988 design standards.[72] As Louisiana's platforms are some of the first installed, it is safe to assume these structures share characteristics with their counterparts in federal waters. Looking at available data on wells drilled in Louisiana waters, 2,019 wells were drilled before 1988, or 65% of Louisiana's total offshore wells.We do not know how many of those structures were idled at the time of the storm. Louisiana reported that 1,401 wells were shut-in because of the storm including those that were offshore and onshore.[73]

FIGURE 13

Oil Slick from Louisiana Complex

PHOTO SOURCE: Healthy Gulf

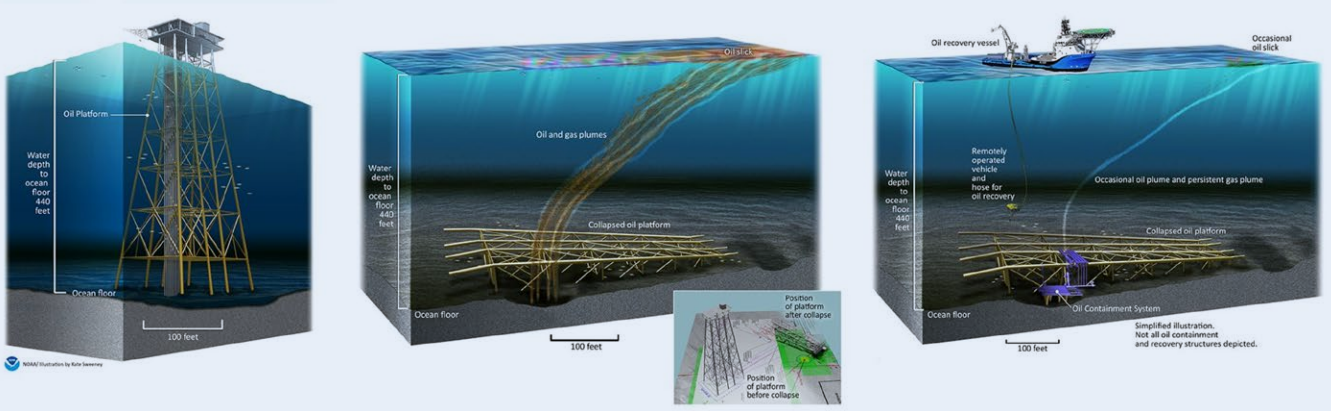
Storms can inflict significant damage on pipelines as well. Since we do not have data for pipelines in Louisiana state waters, we will once again look at the Federal OCS. Hurricane Katrina damaged 100 pipelines causing 211 minor pollution incidents on the OCS, and Hurricane Rita damaged 83 pipelines causing 207 minor pollution incidents on the OCS. We also know that some pipeline segments were moved miles away from their installed locations.[74] The Coast Guard assessed 1,539 reports of pollution following Hurricane Ida[75], including oil slicks in Louisiana state waters.[76] After Hurricane Ida caused additional pipeline spills, including one that was over 10 miles long, the Governmental Accountability Office (GAO) recommended additional Federal oversight.[77]

Because both state and federal regulators have allowed companies to "decommission pipelines in place" at the end of their commercial life, many segments remain on the seafloor. Even routine wave action can move pipelines considerable distances over time creating navigational and trawling hazards.[78] Louisiana's Fisherman's Gear Compensation Fund Program (FGCF) was created to provide compensation for financial losses caused by underwater obstructions to fishermen in Louisiana's waters, but the program was created to deal with active infrastructure. The program levies $400 per year to pipeline owners and right-of-ways to fund the program.[79] The Louisiana Underwater Obstruction Removal Program was created in 1997 to remove underwater obstructions and draws its annual budget of $250,000 directly from the Fishermen Gear Compensation Fund.[80] As we will demonstrate later, the annual budget may be appropriate for removing just one obstruction a year.

- **RISKS TO WORKERS.** Aging, deteriorating platforms also pose safety risks to workers. In 2022, BSEE issued a Notice to Lessees documenting idled facilities in various states of decay, noting that multiple crane components were in poor condition and that crane components necessary for safe use were missing.[81] There was no information on whether these facilities were on the OCS or in Louisiana state waters, nor if these facilities were on the Federal Idle Iron list due for decommissioning or temporarily shut-in. The longer companies let their platforms idle before decommissioning, the more corrosion and structural integrity issues the facility will accumulate. This can make the decommissioning work more dangerous for workers, causing injuries, falling and loose equipment, and other risks.[82]

- **THE RISK OF DINE AND DASH INCREASES.** The longer an unused facility remains and a well is unplugged, the more likely the company will skip out on the tab and orphan said liabilities. A 2022 analysis of Texas unplugged wells determined that approximately 12,000 Texas inactive wells are nearly statistically indistinguishable from more than 6,000 already on the state's orphan well rolls.[83] They predicted that those wells would be orphaned in the next four years. They found that the best metrics to predict whether an operator would orphan a well were time since last production and regulatory compliance. We do not have statistical regulatory compliance data, but the Louisiana Legislative Auditor found that 5,600 (25.6%) of Louisiana's inactive wells are in offshore or inland water locations.[84] Half (1,577) of Louisiana's total offshore wells (3,107) are over 50 years old.

- **COST INCREASES.** And to add insult to injury, the longer these facilities sit on our coast, the cost to deal with the mess increases. Storm damaged or age-toppled structures require difficult and time-consuming salvage work.[85] Decommissioning a storm-damaged structure may cost 15 times or more the cost of decommissioning an undamaged structure.[86] **The more they rot, the more they cost.**



NOAA Infographic showing how the mudslide collapsed the MC20 Platform

2.4 MUDSLIDES AND COLLAPSING PLATFORMS

In 2004, Hurricane Ivan caused underwater landslides that capsized the Taylor Energy Platform MC20 and moved the fixed, eight-pile structure over 560 feet from its original anchorage. The rig was buried in 150 feet of mud and its 28 leaking well heads were buried 475 feet beneath the seafloor's surface. The wells leaked for 18 years and cost $432 million to stop the spill.[87] A 2007 study[88] evaluated mudslide risk to oil platforms in the Northern Gulf of Mexico, however, this analysis did not evaluate operations closer to the coast, where operations are at greater risk of damage because the Mississippi River also serves as a source of sediment for turbidity currents.[89]

There are 28 platforms within Louisiana's Birdfoot Delta in the so-called "mud-lobe zone" where there is a risk of mudslide and immediate collapse of structures.[90] There is one platform in Louisiana State Waters that is within the mudslide zone and is in deplorable condition. A 2024 Louisiana Department of Energy and Natural Resources Lease Inspection Report noted that the facility was too derelict and unsafe to board for an inspection:

> "Unable to see wellhead due to unsafe structure, facility is no longer used. Operator has stated that well is plugged but unable to find information on SONRIS. See photos and previous inspection."

FIGURE 14

DENR Lease Facility Inspection Report showing unsafe boarding conditions

FIGURE 15
Bing Map showing the current state of the platform

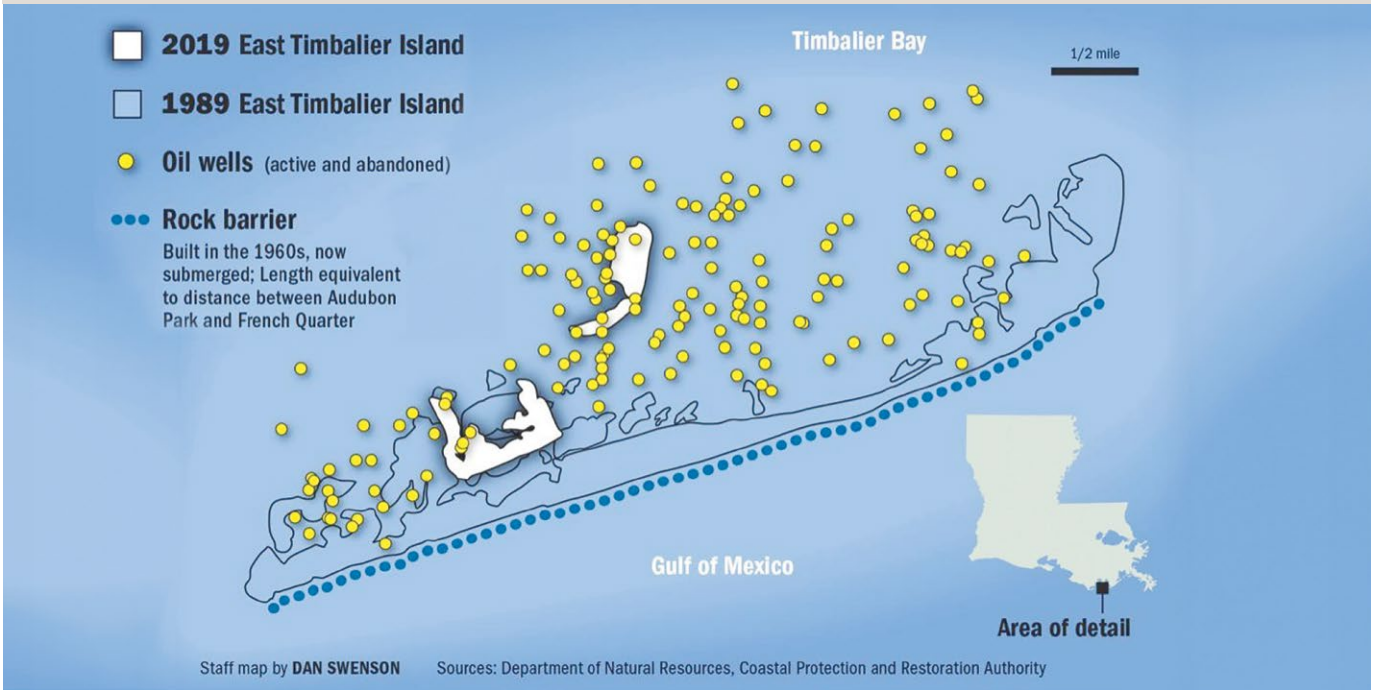
2.5 THE PUBLIC BENEFITS OF REMOVAL

As there are public costs to letting these facilities fester, so too, are public benefits to their responsible removal.

- **STEEL.** The United States is highly reliant upon recycled steel[91] and one of the largest global importers of steel, with imports making up a quarter of all steel.[92] Louisiana's own shipbuilding and fabrication yards could be a major player in scrapping and breaking former facilities.[93] South Korean automaker Hyundai plans to build a $5.8 billion steel mill in Louisiana to manufacture metal alloys for the company's vehicle plants in Alabama and Georgia.[94] While the steel rusting on the seafloor is not going to meet the nation's total demand, it is clear that it is in the national interest to bring it back to land and repurpose those industrial materials. Indeed, in the North Sea, Shell recently decommissioned its Brent Delta platform and was able to capture and repurpose 97% of the facility.[95] Norwegian Equinor makes it a standard to clear the Norwegian seaflor and recycle its no longer in use structures.[96] Australia's Offshore Resources Decommissioning Roadmap establishes a materials management plan to repurpose the 5,695 kilotons of offshore infrastructure which is mostly steel and concrete.[97] At the time of writing the scrap value of steel had jumped from $325 per metric ton past $500 per metric ton.[98] Offshore facilities are likely made using S355 and S420 steel grades, both considered high-strength low-alloy structural steels, and have even higher per ton scrap values. The American steel recycling industry is a multi-billion dollar industry and Louisiana companies are already part of this supply chain.[99] There is an industrial second act just waiting on the seafloor.

FIGURE 16

Times Picayune infographic showing Timbalier Bay restoration project and oil wells



- **LOUISIANA'S COASTAL MASTER PLAN.** Following Hurricanes Katrina and Rita, the Louisiana Legislature created the Louisiana Coastal Protection and Restoration Authority (CPRA) to administer a statewide $50 billion Coastal Master Plan to restore Louisiana's eroding coast. Oil and gas facilities that are no longer in use are in the way of coastal restoration projects and obstruct access to sand "borrow" critical for coastal restoration projects. For instance, Louisiana's CPRA spent more than $20 million attempting to restore and save East Timbalier Island which protected more than 700-plus oil wells in Terrebonne and Timbalier bays from waves and storms.[100] In 2020, the state agency's attempts were foiled by a nest of pipelines and oil and gas wells. As a consequence, the state agency cut its losses and abandoned the restoration project. Addressing this infrastructure will improve the quality of restoration projects. Imagine instead that the East Timbalier project began with removing the "dead iron" first or a more inland project begins with removal of iron, plugging of wells, and the backfilling of navigation canals, then the coastal restoration project can proceed with a better guarantee of success.

- **SAND.** Louisiana also needs land, more specifically, it needs high quality sediment for beach and dune barrier habitat projects. A 2020 Department of Interior study evaluated the suitability of sediment resources in the Gulf and found that the farther away from shore, the less likely dredging would interact with dynamic coastal systems. Dredging nearshore within Louisiana's marshes is like "robbing Peter to pay Paul" or digging a hole here to fill in a hole there. Dredging sand farther from the shore on the other hand does not impose these costs, and the quality and size of sand grains are more suitable for coastal and barrier island projects. Beach nourishment projects that utilize this sand will last longer and save the State over the long run.[101] But rusting platforms, unplugged wells, and pipelines are in the way and add to the costs of these projects. In a 2021 news report, Jessica Mallindine, a marine biologist

for BOEM's Marine Minerals Program explained that, "Every time a dredge turns, it costs money, or more money than to go in a straight line. By reducing the efficiency of the design, you're increasing project costs." Not enforcing decommissioning obligations might be saving a few company's those costs every year, but it's costing Louisiana.

- **IT'S A WORKING COAST, NOT THE ONCE WE WORKED COAST.** Then there's other commercial and productive uses. BOEM has established setback perimeters around certain kinds of oil and gas infrastructure which includes 200 feet for pipelines, 500 feet for platforms, and 500 for artificial reefs (sunk platforms) when designating other areas such as the newly established Wind Energy Areas.[102] It is likely that Louisiana will establish its own safety perimeters, which will limit the amount of space available for offshore wind development. Louisiana's DENR has granted Danish firm Vestas nearly 60,000 acres off Cameron Parish and Mitsubishi-owned Diamond Offshore Wind 6,162-acre area off Terrebonne and Lafourche parishes. These are positive developments to Louisiana's nascent offshore wind industry, but no longer in use oil and gas facilities are obstructing a larger buildout.

- **WELLS TO GIGAWATTS.** And Louisiana could make use of those wind resources. Louisiana leads the nation in energy use, with industrial demand (primarily from the petroleum refining and chemical manufacturing industries) driving much of that consumption.[103] Louisiana boasts 90 electric power generating plants with 2 nuclear power plants and 55 natural gas plants providing the bulk.[104] But that demand is only growing. From the aforementioned steel mill, to the 20 plus petrochemical plants[105] and 12 LNG export facilities in various stages of development[106] to electricity hungry data centers,[107] Louisiana's demand for power is steadily increasing. Inconsistent with these plans, is a *de facto* policy to allow these no longer on-line oil and gas wells and platforms to languish. Louisiana could undermine its homegrown efforts if it doesn't address the no longer in use oil and gas infrastructure. It would be like allowing a blighted house with no occupants to take precedence over new construction that will provide much needed housing.

- **SHIPBUILDING.** Louisiana boasts a proud maritime heritage that has identified offshore wind as a natural customer. Indeed, a New Orleans-designed, Houma-built liftboat has already performed maintenance work on Germany's first offshore wind farm, and several Louisiana companies played a key role in the development and construction of the Block Island Wind Farm, the first commercial offshore wind farm in the United States, including Gulf Island Fabrication, Montco Inc., and LM Wind Power.[108] A network of 450 Louisiana companies and Louisiana's maritime workforce are poised to play a critical role in the nation's burgeoning offshore wind industry on all seaboards.[109] There is a great deal of public debate appropriately centered upon the decline of American shipbuilding.[110] The policies to resurrect this nationally strategic industry are beyond the scope of this paper.[111] That said, shipbuilding requires a civilian function to stay relevant and technologically competitive.[112] These same firms and workforces are the very ones that installed and powered Louisiana's and Federal OCS offshore oil fields. But between the decline in production and the rise of advanced drilling technology, utilization of this fleet has plummeted in the last decade. Vessels are dry docked in Larose and crews are finding work elsewhere and outside of the industry. But there's work on Louisiana's coast right now. The job isn't finished, and Louisiana's leaders have an opportunity and obligation to see that it's done.

- **JOBS.** It took decades and thousands of workers to install this iron, and it will require nothing less for its removal. While active oil and gas production is a declining source of employment in Louisiana, responsible decommissioning and cleanup most certainly can be. Below is an analysis of the cost to decommission these structures and plug wells as well as an analysis of the number of jobs required to do that important work.

SECTION 3

3.1 OFFSHORE DECOMMISSIONING COSTS

The time and cost to plug wells and restore well sites (decommissioning) varies enormously across Louisiana depending on several factors.[113] In general, the deeper the well or the older the well the more it costs to plug. The location, geology, and terrain of the well site, along with the amount of remediation and reclamation needed, can also impact costs. The price of materials (cement), equipment (vessels), and number of available, trained, and qualified workers also plays a role. The contract size of well plugging packages can also impact cost, with larger contract sizes usually lowering per well decommissioning costs.

Wells located in the coastal zone or offshore in open Gulf waters will increase the costs of plugging and abandoning a well.[114] These oilfield sites are only accessible via workboats with day rates that are in the tens to hundreds of thousands of dollars. Common elements for decommissioning of offshore platforms include: engineering and planning, inspections and permits, well P&A, platform preparation, pipeline and subsea umbilical removal, conductor removal, topsides removal and transportation to shore disposal and recycling, substructure removal and disposal, and site clearance and remediation.[115] Successful plugging often requires multiple attempts. A recent study of cementing operations on five deepwater rigs showed a plug failure rate of 30% which bumps up the cost of materials, equipment, and staff.[116] The additional cost for an extra attempt to set a cement plug can surpass $100,000 on an offshore rig.[117]

Dead iron in the mist. This debris is refuse associated with a platform in western Quarantine Bay, site of a barge collision in 2016 (NRC 1158939).
SOURCE: Healthy Gulf

We reviewed a variety of publicly available resources for offshore decommissioning costs in our previous paper and will revisit them here. Louisiana's Oilfield Site Restoration program is a state managed orphan well program. When private companies go bust or just simply fail to clean up after themselves, the state steps in, and oversees decommissioning. The OSR well program comprises only a subset of the total wells in the state, but can provide a baseline understanding of the time and resources necessary to address each well. For instance, in conversation with LDENR staff we learned that wells in Northern Louisiana typically require 1-2 days +/-24 hours of work, while Southern Louisiana/Offshore/Deep/ Complex wells can take anywhere from 2-4 days to a month (depending on downhole issues).[118] Since 1999, the state of Louisiana has spent just under $146 million[119] to plug 1,758 orphaned wells ($83,021/well). Only a subset of these wells were offshore. Described as "urgent and high priority orphaned well sites," because these wells obstructed navigation, they were moved up the list and could quickly eat up the OSR program's budget. The average cost to plug these wells was $161,030 per well.[120]

LOUISIANA'S RIGS-TO-REEF[121] program encourages platforms to be toppled and left in place or placed in one of the state's rigs-to-reefs areas, as an alternative option to the requirement of removal. Naturally this option has become attractive to oil and gas operators because it is less expensive to "reef" a structure compared to full removal. Today there are more than 515 "reefed" rigs on the seafloor in Federal waters. Louisiana's Rigs-to-Reef program has designated nine offshore artificial reef planning areas where approved reef materials can be towed and added to a larger reef complex. These areas encompass over 19,000 acres across Louisiana's coast and include: West Cameron, East Cameron, South Marsh Island 76, South Marsh Island 146, Eugene Island, South Timbalier, West Delta, Main Pass, and Ship Shoal The Louisiana Artificial Reef Program has most recently expanded to developing deepwater artificial reefs, offshore reefs in waters more than 400 feet deep, allowing companies to "reef" 400 deepwater structures, 8 rig legs, 1 jack-up barge, 1 tugboat, and 400 military armored personnel carriers and the USS Oriskany (known as the Great Carrier Reef.)

Because rigged reefs require a setback of 500 feet which will preclude other commercial uses like dredging for sand, and it will allow steel to just rust on the seafloor instead of being put back into industrial use, we do not endorse any additional reefing.

The Department of the Interior's Bureau of Safety and Environmental Enforcement's (BSEE)'s "Decommissioning Cost Rule," requires that lease holders in federal waters report expenditures for plugging wells, removing platforms and other facilities, and clearing obstructions from sites in Federal waters.[122] The rule authorizes BSEE to require additional supporting information regarding specific decommissioning costs on a case-by-case basis. BOEM uses this data[123] to establish financial assurance requirements for OCS lessees.[124] It also provides a benchmark for states that do not require the disclosure of this data. Researchers affiliated with the Coastal Marine Institute at Louisiana State University[125] most recently conducted analysis of BSEE's cost data to provide decommissioning cost estimates to Interior for a variety of categories. Kaiser (2023) found that platform removals are expected to cost on average $1,050,000 in water depths less than 30 meters and up to $3.8 million in water depths from 61 to 122 meters.[126] Kaiser (2023) estimates that pipeline removal in water depths less than 30 meters will cost $321,000 per segment (about a mile) or $29/foot to $68/ foot.[127] The Center on Global Energy Policy at Columbia University also extrapolated federal shallow water oil and gas well plugging and abandonment (P&A) costs into state waters to create its own estimates for wells in Louisiana, Texas, Mississippi, and Alabama state waters.[128]

The Bureau of Safety Environmental Enforcement is using funds from the Bipartisan Infrastructure Law to plug and abandon 9 wells and remove associated platforms and pipelines in the Matagorda Lease Area 12 miles off of the Texas coast.[129] Public records show that BSEE has chosen three firms (Nash Holdings Inc., Chet Morrison Contractors, and Promethean Operating LLC) to perform decommissioning and well plugging services.[130] Those same records show that $20,529,987 has been obligated to those contractors which works out to roughly $2.28 million per well.

TABLE 1

Offshore Cost Estimates and Categories

CATEGORY OF COST	2025 DOLLARS	SOURCE
Plugging of High Priority Wells that obstruct navigation in Louisiana	$161,030 / per well	Louisiana Department of Energy and Natural Resources Oilfield Site Restoration Program
Plugging of Offshore Inactive Wells	$328,394 / per well	Mark Agerton et. al. BSEE Cost Data
Plugging of Offshore Temporary Plugged and Abandoned Wells	$341,845 / per well	Mark Agerton et. al. BSEE Cost Data
Plugging of recently active wells	$325,065 / per well	Mark Agerton et. al. BSEE Cost Data
Removal of Fixed Platforms in Louisiana state waters less than 30 meters	$1,050,000 / per platform	Mark Kaiser LSU Center for Energy Studies BSEE Cost Data
Removal of Fixed Platforms in Louisiana state waters more than 30 meters	$3,800,000 / per platform	Mark Kaiser LSU Center for Energy Studies BSEE Cost Data
Pipeline Removal in water depths less than 30 meters	$337,633 per segment (about a mile) or $30/ft to $71/ft	Mark Kaiser LSU Center for Energy Studies BSEE Cost Data
Plugging of 9 wells, removal of pipelines, and unknown number of platforms	$2,281,109	Bureau of Safety and Environmental Enforcement USASpending.gov

3.2 ESTIMATING THE NUMBER OF WORKERS

Thanks to the U.S. Department of the Interior's Bureau of Safety and Environmental Enforcement's (BSEE) "Decommissioning Cost Rule" the general public has a good idea on the costs of these Herculean endeavors. Lesser known however, is the time and manpower required to undertake these feats. Historically, information on the number of workers required to "get the job done" has been hidden behind a veil of corporate bureaucracy. Companies may not want to reveal this information for competitive or even labor relation related reasons, and regulators have been reluctant to require its disclosure. It is also a fact that plugging and abandonment does not generate profit for operators. While we may now know that for previous projects smaller crew may have been all that was "necessary," we can't know whether this was an artificial constraint because of costs, and whether safer and better quality plugging and abandonment projects could be achieved with more trained staff on the job.

As a consequence, researchers and policymakers are left with tools of estimation to anticipate the job creation impacts of a given activity and to appropriately prepare that there will be enough trained people to do the work. There are two central approaches for estimating the number of jobs or job-years from decommissioning orphaned and abandoned wells. The first includes using data from contracts on the number of hours it takes to decommission a well. It's pretty straight forward - look at the actual number of people required to physically plug and abandon a well and multiply by the number of wells. This approach is limited by the data available, which is why the second approach is a much more common choice. The spending method uses input-out modeling (IMPLAN) software to calculate direct, indirect, and induced impacts arising from spending levels that result in economic activity from decommissioning a well. The spending method just uses a level of spending to determine the number of jobs created. To calculate the number of workers needed to perform well plugging and remediation, each worker is

Coffee made with steam at Humble oil rig at Bayou Sales Louisiana in 1944
PHOTO SOURCE: Louisiana Historic Photo Collection

assumed to have a 40 hour work week, with ten holidays, two weeks of vacation, and one week of sick leave, providing 1,880 annual work hours.[131]

3.2A METHOD ONE: JOB-YEARS PER DECOMMISSIONED WELL AND PLATFORMS

The per job year method provides a reasonable strategy to estimate the total trained workers that will be needed, if existing data is available. As many Louisiana based community colleges and apprenticeship programs see well plugging and abandonment and facility removal as burgeoning fields, **we recommend that the state add the number of direct workers and hours to its Plug & Abandonment Report[132] and Site Clearance Form,[133] and require its disclosure.**

A 2021 National Ocean Industry Association (NOIA) study estimated over 200 job categories to carry out the decommissioning phase of an offshore structure and associated wells. A 2004 Marine Minerals Management[134] study estimating the socioeconomic impacts of nonexplosive methods for offshore structure removal provided various ranges for personnel needs. A small decommissioning project on a single platform in shallow water may require 14-20 personnel and 3-7 days to operate the marine equipment spread. A moderately sized project with multiple platforms in shallow to medium water depth may require 50 to 100 personnel spread out over 30 to 45 days. A deepwater decommissioning project with large equipment may require in excess of 100 to 200 personnel over a number of months.[135]

TABLE 2

Labor Hour Ranges for Decommissioning Platforms in the Louisiana State Waters

CREW AND DAY ESTIMATES	LABOR HOURS PER PLATFORM DECOMMISSIONING ESTIMATES	JOB-YEARS PER PLATFORM	TOTAL JOB YEARS FOR DECOMMISSIONING REMAINING 1,113 LOUISIANA PLATFORMS
14 crew and 3 days	336	0.17	194
20 crew and 7 days	1,120	0.58	646
50 crew and 30 days	12,000	6.22	6,920
100 crew and 45 days	36,000	18.65	20,761

True Transition's Organizing Fellow, Justin Solet, has direct experience as a snubbing hand on decommissioning projects in Louisiana state waters. He also interviewed several workers currently engaged in decommissioning work and explained that it was fairly common for a mix of firms comprising 50 + workers to tackle a shallow water P&A (not including platform removal) over the course of 5 days in 12 hour shifts. This would equate to a total of 14,400 labor hours or 7.4 job years per shallow well.

Some wells may require the removal of supporting pipelines and topside platforms. We do not know the exact mileage of no longer in use pipelines and cannot project the number of job years necessary to address those pipeline segments. We chose the 6.22 multiplier from 2004 MMS study as our upper bound estimate and our estimate for platform removals.

For offshore wells, we used a lower bound of 2.4 direct job-years for each well plugged and abandoned in Louisiana state waters.[136] This amounts to a total of 6,645 job years to only plug and abandon Louisiana's 2,769 wells located in state waters. Absent payroll data, we are left with approximations based on available data. In total, it will require between 6,645 and 20,490 job years to plug and abandon Louisiana's offshore wells.

TABLE 3

Louisiana's Offshore Wells Projected Costs and Job-Years per Decommissioned Well Method

WELL TYPE	ESTIMATED PER WELL DECOMMISSIONING COST 2025 DOLLARS	ESTIMATED NUMBER OF WELLS	TOTAL ESTIMATED DECOMMISSIONING COST 2025 DOLLARS	JOB-YEARS PER DECOMMISSIONED WELL METHOD (2.4 MULTIPLIER)	JOB-YEARS PER DECOMMISSIONED WELL METHOD (6.2 MULTIPLIER)
Offshore Water Inactive wells	$328,394	2,198	$721,810,012	5,275	16,265
Offshore Water Temporary P&A	$341,065	166	$56,616,790	398	1,228
Offshore Water Active/recently active	$325,065	405	$131,651,325	972	2,997
TOTAL		**2,769**	**$802,000,000**	**6,645**	**20,490**

ASSOCIATED INFRASTRUCTURE	ESTIMATED PER PLATFORM DECOMMISSIONING COST	ESTIMATED NUMBER OF PLATFORMS	TOTAL ESTIMATED PLATFORM DECOMMISSIONING COST	JOB-YEARS PER REMOVED PLATFORM (6.22 MULTIPLIER)	
Fixed Platforms in Louisiana state waters less than 30 meters	$1,050,000	1,113	$1,168,650,000	**6,923**	
Pipeline Removal in water depths less than 30 meters	$321,000 per segment (about a mile) or $29/ft to $68/ft	50,000 miles of pipeline throughout the state. Miles of pipelines in State Waters unknown	$16,250,000,000		
TOTAL				**13,568**	**27,413**

Workers being lifted onto rig in the 1950s Louisiana Historic Photo Collection

3.2B METHOD TWO: JOB YEARS CREATED BY SPENDING ON DECOMMISSIONING AND PLATFORMS

Two recent studies estimate the number of jobs needed to decommission wells in shallow waters based on the spending method. First, the Center on Global Energy Policy at Columbia University SIPA using BSEE decommissioning cost data and Regional InputOutput Modeling System (RIMS II) estimated the annual economy activity associated with $830 million of annual P&A work in inland and state waters (Alabama, California, Louisiana, Mississippi, and Texas) amounted to a total of 10,500 jobs per year.[137] This included 5,265 direct jobs, and 5,235 secondary or indirect or induced jobs supported. Using just the direct jobs figure, this equates to roughly one supported job per $157,644 in expenditures, or 6 direct jobs per $1 million spent. Using this figure as our benchmark, decommissioning Louisiana's offshore well inventory (2,769) would require 5,614 direct job-years.

A 2021 National Ocean Industry Association (NOIA) study estimates the various jobs created and job categories required throughout an assumed 30-year life cycle of a shallow oil and gas project. The industry trade group estimates that in the final year of a shallow water oil and gas project, employment peaks to its highest at 1,670 jobs during the decommissioning and abandonment phase (at a cost of $370 million).[138] This equates to roughly one job per $221,556 spent, or 4.5 direct jobs per $1 million spent. This estimate assumes full well plugging, subsea equipment removal, pipelines and facilities dismantling and transportation to shore for disposal and recycling. With these two estimates as our bounds, it will require between 3,609 and 4,812 job years to plug Louisiana's 2,769 offshore wells and will require between 16,536 and 14,756 job years to remove supporting infrastructure. In total, the spending method provides a reasonable bound to estimate the total trained workers that will be needed to address this inventory of unplugged oil and gas wells especially for offshore wells where data is less available.

TABLE 4

Louisiana's Offshore Wells Projected Costs and Job-Years Based on Spending

WELL TYPE	ESTIMATED PER WELL DECOMMISSIONING COST (2025 $)	ESTIMATED NUMBER OF WELLS	TOTAL ESTIMATED DECOMMISSIONING COST	JOB-YEARS PER BASED ON SPENDING (6 JOBS PER $1 MILLION)	JOB-YEARS PER BASED ON SPENDING (4.5 JOBS PER $1 MILLION)
Offshore Water Inactive wells	$289,353	2,198	$635,997,894	3,816	2,862
Offshore Water Temporary P&A	$341,064	166	$56,616,790	340	255
Offshore Water Active/recently active	$325,065	405	$131,651,325	790	592
TOTAL		**2,769**	**$188,989,925**	**4,946**	**3,709**
ASSOCIATED INFRASTRUCTURE	**ESTIMATED PER PLATFORM DECOMMISSIONING COST**	**ESTIMATED NUMBER OF PLATFORMS**	**TOTAL ESTIMATED PLATFORM DECOMMISSIONING COST**	**JOB-YEARS PER BASED ON SPENDING (6 JOBS PER $1 MILLION)**	**JOB-YEARS PER BASED ON SPENDING (4.5 JOBS PER $1 MILLION)**
Fixed Platforms in Louisiana state waters less than 30 meters	$1,050,000	1,113	$1,168,650,000	7,012	5,259
Pipeline Removal in water depths less than 30 meters	$321,000 per segment (about a mile) or $29/ft to $68/ft	50,000 miles of pipeline throughout the state State Waters unknown			
TOTAL				**11,957**	**8,968**

SECTION 4

4.1 FEDERAL IRON

The Bureau of Safety and Environmental Enforcement's Idle Iron is a policy established in Notice to Lessees (NTL) No. 2010-G05[139] and updated with NTL No. 2018-G03[140] to address timelines associated with the completion of platform removal requirements and well plugging and abandonment on the Federal Outer Continental Shelf. BSEE introduced Idle Iron to prevent "inactive facilities and structures from littering the Gulf of Mexico by requiring companies to dismantle and responsibly dispose of infrastructure after they plug non-producing wells." Companies operating on the Federal OCS are called lessees, and lessees are required to decommission and remove facilities one year after production officially ends. Failure to do so within this 1-year period, absent BSEE's approval, will typically result in the issuance of an Incident of Noncompliance (INC). Once a lease is past this due date, it officially goes on the 'Idle Iron' list and is now on a five-year countdown for removal (although BSEE retains discretion to modify timelines with consideration for compliance on other leases.) BSEE provides lessees with a list of idle wells and platforms annually to help expedite the process. If lessees fail to comply with timelines, BSEE can employ a suite of escalatory enforcement tools to compel compliance, including administrative tools, civil penalties, suspension of operations, and disqualification from the OCS. BSEE can also issue decommissioning orders compelling lessees to begin decommissioning operations. Lessees may appeal with the Interior Board of Land Appeals (IBLA), but recent cases have affirmed BSEE's decommissioning and pipeline removal orders[141]

While these rules and authorities are good on paper, BSEE has had mixed results in implementation. A 2024 GAO report found that BSEE staff were reluctant to flex their regulatory muscles out of fear of harming already financially distressed companies.[142] If forced to shoulder the financial burdens of decommissioning when they did not have sufficient funds, the regulator risks forcing a company into bankruptcy and orphaning the wells and platforms. Far better to not push the issue on Idle Iron, and let companies make money on other producing wells.

But this is kind of like a gambling bookie lending more money with the hope that the gambler will strike it big on the next bet to pay back previous debts. This sounds silly, but make no mistake, this is exactly what is happening. The oil and gas deposits beneath the seabed are a finite depleting natural resource that developed over millions of years. Companies have not "produced oil and gas," but rather, have extracted it. It's house money. The submerged lands of the American Continental Shelf belong to Americans in common. By not enforcing decommissioning today (essentially ignoring prior debts), while allowing lessees to continue to extract public resources, they are essentially loaning out more "house money." The house, e.g. the American public, doesn't win in this scenario.

The Federal Idle Iron program encapsulates the paradox of modern American oil and gas regulation. Regulators are charged with responsible production of energy resources to ensure affordable and abundant energy to Americans. But as these assets tip into liabilities, there is an additional mandate to enforce legal decommissioning timelines. Somehow a myth has taken hold that would have us believe that cleanup somehow interferes and undermines energy security. But enforcing decommissioning obligations will not impede new oil and gas extraction in Louisiana state waters, because there's nothing to extract (or no appetite

to extract what remains). It's a claim that does not apply to Louisiana's current circumstance.

Second, the oil and gas industry is a global industry. Companies that extract oil and gas from the American Continental Shelf, do so on the continental shelves of 53 other countries.[143] How a company behaves is more dependent upon the laws, regulations, and norms of a country than any other variable.[144] If a firm can fully remove platforms and plug wells on the Norwegian or Australian Continental Shelf, so too can it do so on the American Continental Shelf. Afterall, it's the law, and companies agreed to these contracts. But the strengths and weaknesses of the Federal Idle Iron program can impart many lessons to Louisiana.

4.2 FINISH THE JOB: LOUISIANA'S IDLE IRON PROGRAM

Where does this all leave Louisiana? Let's review:

- **LOUISIANA'S OFFSHORE FIELDS ARE IN TERMINAL DECLINE.** Wells in Louisiana state waters produced just 3.2 million barrels annually, less than a quarter of one day's national production over the course of one year. The State's latest (March 2025) lease sale showed no commercial interest in the 12 nominated offshore tracts for the 2024-2025 fiscal year.

- **MOST OF LOUISIANA'S OFFSHORE WELLS, PLATFORMS AND OTHER OIL AND GAS FACILITIES ARE ROTTING IN PLACE AND SERVE NO PRODUCTIVE USE.** The Department of Energy and Natural Resources currently lists 168 producing wells and 66 active injection wells in Louisiana state waters. Assuming that each of Louisiana's 234 producing and injection wells is connected to a structure, that still leaves an impressive 879 structures in Louisiana state waters that are serving no economic or productive use.

- **LOUISIANA HAS LOST 20,000 OIL AND GAS JOBS BUT COULD RECOUP THOSE JOBS THROUGH DECOMMISSIONING.** With these two estimates as our bounds, it will require between 3,609 and 20,490 job years to plug Louisiana's 2,769 offshore wells and will require between 16,536 and 14,756 job years to remove supporting infrastructure. There's work to be done, and we can pay Louisianans to do it.

In **Appendix 2**, we reviewed available data and resources to describe Louisiana's oversight of offshore production. In our previous report, we describe the Oilfield Site Restoration Program.[145] We believe that the Louisiana Department of Energy and Natural Resources is overmissioned and understaffed. What is required is a separate dedicated program with a clear mission and a sunset once the mission is accomplished. The Louisiana Legislature will need to draft and pass a new statute that creates the new office and program, determine the necessary number of staff, and appropriate funding for staff and equipment. There are several options available for the design of the Louisiana Idle Iron Program which we will discuss.

4.3 IDLE IRON PAPER AUDIT

The first order of business is a review of all records for offshore operations in Louisiana state waters and inland waters. We were able to use publicly available information and SkyTruth's maps to develop our own counts, but these are just estimates. As we clarified in the introduction, we did not include platforms and structures in inland bays, lakes, and wetlands. We reasonably believe that the Office of Conservation's own in-house databases could make quick work of this data. We recommend that the Legislative Auditor review and characterize available data. We recommend organizing the platforms by status (active, temporarily abandoned, idle) and create a preliminary decommissioning prioritization list. If possible, Louisiana could coordinate with the Departments of Transportation and Interior to identify no longer in use pipelines.

Prioritization should be based on the level of risks (age of facility, proximity to likely mudslide zones, number of violations) and other uses (sediment borrow, proximity to wetland restoration projects). This audit should also clarify ownership and working interest ownership of wells and facilities as well as predecessor owners. Once this task is complete, field staff can get to work on a Physical Audit, physically characterizing the status and condition of these facilities. For those wells and facilities that pose immediate risk to the environment and life, we recommend that DENR create a list of approved, qualified contractors capable of working in the marine environment. Alternatively, the State could acquire its own equipment and retain emergency personnel to complete the work directly in these scenarios.

4.4 IDLE IRON OFFICE PERSONNEL & EQUIPMENT

We recommend that Louisiana Idle Iron staff its office as a ratio of inspectors (Conservation Enforcement Specialists) to facilities. Once again, we look to the Federal OCS program as an appropriate benchmark. BSEE conducts its inspections of drilling rigs and production platforms using multi-person, multi-discipline inspection teams. These teams usually consist of two to four inspectors. In 2020, each BSEE inspector carried out an average of 89.8 inspections. The number of inspectors has increased from 55 in April 2010 to 122 in 2024.[146] With 1,412 active platforms and 68 drilling rigs, this works out to a ratio of 1 inspector to 12 platforms/drilling rigs.[147] Using this same ratio, DENR would need to staff up and bring on an additional **92 Full Time Equivalent (FTE) staff** to oversee the remaining **1,113** platforms in Louisiana State Waters. This number would likely need to be larger as we did not include nearshore platforms and wells. For small government boosters in the audience, the beauty of this program is that it has a clear mission and end date. Once the mission is accomplished Idle Iron Office can be dissolved. It also allows the Lafayette District, with its 15 Conservation Enforcement Specialists, to focus on the other 92,030 wells under its jurisdiction.

DENR should also modify its Lease Facility Inspection Reports to make reports searchable by common categories like risk level and types of infraction. The Reports should also be updated to reflect the new Idle Iron mission goals. Additionally, the Idle Iron Office will need its own line item for boat service rental for offshore inspections or DENR may consider investing in its own vessels. All CES inspectors should have personal H2S detectors, and offshore CES inspectors should be provided Personal Locator Beacons (PLBs). Additionally, we highly recommend the acquisition of FLIR cameras to improve the objectivity of the inspection program. We also recommend that the Idle Iron Office create a forensic accounting and title unit charged with locating current and predecessor owners.

4.5 COUNTDOWN TO CLEANUP

In 2024, Louisiana passed a Future Utility Rule, which creates tighter deadlines for plugging and abandonment. Previously, an owner could vaguely claim "future utility" to avoid plugging and abandonment[148], but the new rule imposes a five year deadline on plugging. If operators choose to not plug those wells because of future beneficial use, the Office of Conservation will impose escalating annual fines ranging between $125 to $750 depending upon length of inactivity and depth of the well.[149] Louisiana's DENR currently lists over 25,000 nonproducing, unplugged wells. As of November 2023, over 12,000 of Louisiana's inactive wells have not produced any oil or gas in over ten years. DENR currently lists 168 producing wells and 66 active injection wells in Louisiana state waters.[150] This leaves somewhere between 1,856 and 2,769 total unplugged wells remaining in Louisiana state waters. Under the new legislation, operators can negotiate reduced Idle Fees if they make progress on plugging other wells.

The Versabar VB 10,000 topples the Mississippi Canyon 63 B Jacket in Federal Waters
PHOTO SOURCE: Bureau of Ocean Energy Management and Louisiana Department of Wildlife and Fisheries

The issue is that to plug one inactive well and remove one fixed platform in shallow waters costs $1,378,394. **A company could pay the top end fine just under 2,000 years before it would hit that figure. A company can claim the ambiguous future utility and kick the can for another two millenia.** While these new fees might be appropriate for onshore wells, they create a perverse incentive to delay indefinitely offshore.

Thankfully the new law grants DENR discretion to declare that "all such wells classified on the inactive well report by either the operator, the Engineering Enforcement Section Manager or the district manager as having no future utility shall be plugged within 90 days from the date of such classification." This is a massively important reform that could be paired with an explicit Idle Iron program. But again, operators can negotiate reduced Idle Fees if they make progress on plugging other wells. Two steps forward, one step back.

Louisiana's Legislature should establish an annual Idle Iron mission goal. If we wanted to clean the coastal zone of these rotting relics in let's say 15 years, then we could establish a goal of removing 73 platforms per year and plugging 184 wells per year. The should include full removal of equipment and transport of materials to appropriate facilities onshore, environmental sampling, and cleanup of any environmental problem, and certification thereof. If no longer in service pipelines are connected to the facility, then they too should be removed as part of the whole project scope. And finally, because Louisiana is facing a coastal land loss crisis, if the facility footprint is connected to a dredged navigation canal, then the canal should be backfilled.

Imagine a scenario where this program aggressively removes idled iron, plugged wells, and backfilled canals in a specific geographic area prior to a Louisiana Coastal Protection and Restoration Authority project. Good governance demands we start planning and implementing these projects soon and in the proper order.

4.6 WHEN THE BILL COMES DUE

First an order of clarification. We, the Louisiana public, are already paying. Whether it's through increased seafood prices because of diminished habitat, more expensive coastal restoration projects (which lead to increased home insurance premiums), more imported steel, or the

sustained crisis that is under and unemployment in South Louisiana, we are paying. But we can pay for other things that actually benefit our great state and people.

In an ideal world, companies who profited from Louisiana resources will pay to clean up after themselves. But decades of kicking the can have created a different world and we must craft policies for that world. True Transition, Healthy Gulf, and SkyTruth prioritize safe and proper plugging of these wells and removal of these facilities above all else. Our intent is not to inflict pain upon the oil and gas industry nor have the State rush through this work in a way that is sub-par. We acknowledge that at this point, public expense may be unavoidable, but we offer up a suite of options below to Louisiana legislators to make those who profited from Louisiana's resources, pay a bit more of their share.

Current Louisiana law requires that operators maintain financial assurance and/or site-specific trust accounts to pay to clean up wells and supporting facilities:

> **A.** After due notice and hearing and upon certification from the assistant secretary that a responsible party has failed to undertake site restoration of an unusable oilfield site, the secretary or assistant secretary is authorized to disburse such funds as are necessary for site restoration from the site-specific trust account.

> **(2)** If the funds in the site-specific trust account are depleted prior to the payment of all site restoration costs, the department is authorized to collect the remainder of site restoration costs from the responsible party or ensure that the responsible party completes the site restoration to the satisfaction of the assistant secretary.

The Department's ability to locate the responsible party and collect on those restoration costs are highly dependent upon the number of staff and the tools they employ. Private industry and public tax authorities provide a possible new tool to add to DENR's toolbox.

4.7 REPAYMENT PLANS AND MINERAL LIENS

Debts and failure to service contracts is a baked in feature of commerce.[151] Sometimes businesses fall behind on payments. Private creditors often find themselves in the same shoes as public regulators, wanting to collect on owned debts, but not wanting to push the debtor company into bankruptcy and collect nothing. A standard way to deal with this type of debt scenario is to negotiate a payment plan. The two companies determine a reasonable monthly installment payment to service the debt and a time duration over which to pay it. Under an Idle Iron program, the Louisiana Department of Energy and Natural Resources can proceed with the safe and orderly cleanup of Idle Iron, but negotiate monthly repayment plans over an agreed period of time. Funds can be deposited in the existing Oilfield Site Restoration Fund (but amend RS 30:86 to allow funds to be dispersed and not impact the standard collection of monies for orphaned sites).

If a debtor company is less than agreeable to such an agreement, DENR can utilize liens. A lien is a legal claim to secure a debt and may encumber real or personal property. The Louisiana Department of Revenue already issues state tax liens to recoup owed taxes. It is unknown whether the State Government has used liens to service oilfield cleanup debts. The Federal Government has used Superfund Liens since the 1980s. There are a variety of oilfield specific liens already in use by creditors (let's say an oilfield company is never paid by the exploration and production company) and banks. These include:

- **MINERAL LIENS:** also known as an oil and gas lien, is a legal claim that secures payment for services or supplies provided in connection with oil and gas activities. Imagine a company with unplugged wells and deteriorating platforms in Louisiana, but producing wells in Texas. Louisiana can work with the State of Texas to directly garnish the returns on those wells to furnish the Louisiana debts.

- **TANKER LIEN ON CRUDE OIL** refers to a legal claim or encumbrance placed on the cargo (crude oil) on board a tanker, typically by a creditor or party with a legitimate financial interest in the cargo. A carrier lien on LNG could also be placed to secure a debt.
- **MARITIME LIENS:** secured creditors can pursue the sale of a creditors' vessel to satisfy a debt. These do not include floating production platforms, but could include a FPSO or supply vessels.

Many of the firms with rotting infrastructure on Louisiana's coast have active and producing wells elsewhere. These same companies who create limited liability companies to take on these junk wells and declare bankruptcy in Louisiana, might own producing wells in the Texas Permian, and dispensing dividends to shareholders globally. It is possible for Louisiana's Attorney General to work with other State A.G.'s to place a Mineral Lien on that active production to satisfy the debt in Louisiana. It is also possible to work with foreign governments to do the same. Louisiana could place a Carrier Lien on the liquid natural gas or the crude oil in vessels docked at its ports if an associated financial interest owns those commodities. Industry routinely uses liens in the oil and gas industry to collect on debts, and Louisiana too should explore this common tool.

4.8 PREDECESSOR LIABILITY

The Secretary of the Department of Energy and Natural Resources is empowered by law to recover all costs incurred by the program resulting from orphaned site restoration operations. For a site without a site specific trust account, the Secretary is authorized to collect from the responsible party (i.e., the last operator of record and his working interest owners). In cases where the DENR spends public funds on site restoration and those costs exceed $250,000, DENR can recoup those costs of all former operators and working interest owners in inverse chronological order. As Louisiana's offshore wells and facilities will easily meet this threshold **(see Table 1: Offshore Cost Estimates and Categories)**, this is an obvious and appropriate tool. However, we believe the Louisiana Legislature should consider removing this trigger and applying predecessor liability for all wells and discarded infrastructure. Every former operator, partner, and working interest owner of a deserted well should be actively pursued and held responsible. While the Federal Government treats all former operators as "joint and severally liable" meaning equally liable, for ease of implementation, Louisiana could employ a proportional liability tool based on production. The State has collected production data for every single well for the purposes of severance tax collection, and it could use that data and year of ownership to allocate proportional liability back up the ownership chain.

Most of these wells and platforms were formerly operated by some of the largest companies on the planet. Indeed, you can still see their logos on many of Louisiana's offshore platforms and wells. It is standard oil and gas industry practice to sell these wells "down the food chain" to less capitalized companies when daily production declines. Company A makes gangbusters then sells to Company B who extracts what is left and goes bankrupt when it's time to clean-up. There are opportunities to ensure that DENR has the appropriate authorities, processes and tools, and staff to fulfill this mandate. We recommend that the Louisiana Legislative Auditor interview staff and assess current processes to determine whether DENR needs more resources to credibly enforce this law.

4.9 THE LOUISIANA LAGNIAPPE WELL CORPORATION

What about those cases where marginal well owners do not have enough capital to fund the decommissioning of those wells and platforms, but still have remaining production? Louisiana wants to avoid stranding recoverable oil and gas, but allowing a company to continue to extract and then declare bankruptcy looks a lot like looting.

The 1990s Savings and Loans Crisis may provide a model. When financial institutions began falling like a house of cards for reasons like interest rates, change in energy prices, and in some cases control fraud, then President Ronald Regan's Administration stepped in. The Federal Government created the Resolution Trust Corporation (RTC) to oversee over hundreds of insolvent Savings and Loans. In its role as conservator, the RTC took control of the operations of hundreds of insolvent S&Ls. These institutions remained open, but their operation and their employees came under control of the RTC until the best method for resolution could be determined and implemented.

If garnishment or liens would indeed push a company into insolvency, then Louisiana could take over the wells and use remaining production to fund cleanup. The Louisiana Lagniappe Well Corporation (get it? Because there's a little extra left in the well?) would be a 501(c)(1) organization set up to take over marginal oil and gas wells owned by insolvent firms and operate until all economically recoverable assets have been recovered. Instead of a portion of production proceeds and an eventual orphaned well, Louisiana could get the whole bag. Louisiana could sell on the open market or to the U.S. Strategic Petroleum Reserve, but above all else, it could remove thousands of wells out of production limbo.

CONCLUSION: LOUISIANA'S NEXT INDUSTRIAL ACT

Every single offshore well, platform, offshore wind farm, and deepsea mining project on this planet can find its origins on Louisiana's shores. In October 1946, on a clear Sunday morning, early pioneers struck oil ten and a half miles off the Louisiana coast. This moment of discovery, and the sacrifices made by our people and our environment in the following decades, brought energy and technological breakthroughs to all of humankind. It's a legacy we as a State should be immensely proud of, but our coast and our Gulf are not museums, nor are they mausoleums.

Louisiana's people and Louisiana's oil made the oil and gas industry and its companies some of the richest, private entities in human history. In order for Louisiana to make way for our future, Louisiana's leaders need to make these companies clean up their past, or the State can do the job itself and send those responsible the bill. This necessary mission will put Louisiana's skilled workforce back to work and put Louisiana vessels back onto our waters. The Gulf of America is not a graveyard. It's a working coast, and it's time to get to work.

An oil and gas graveyard in Quarantine Bay PHOTO SOURCE: Healthy Gulf

APPENDIX 1: TERMS

LOUISIANA DEPARTMENT OF ENERGY & NATURAL RESOURCES TERMS	LOUISIANA DEPARTMENT OF ENERGY & NATURAL RESOURCES DEFINITIONS
OFFSHORE	The area off the coast of Louisiana lying south and/or Seaward of the Chapman Line (Shoreline) to the Supreme Court Decree Line of June 16, 1975. Offshore Wells By Parish
THREE-MILE BOUNDARY	The three-mile limit of the Louisiana coastline offshore waters under the jurisdiction of the State of Louisiana, as established by the 1975 decree of the United State Supreme Court.
PRODUCTION FACILITY  PHOTO SOURCE: Healthy Gulf	A tank or a battery of tanks in which liquid production from oil or gas wells is stored. A production facility can be a lease, unit, well, common battery, or commingling facility.
PPRODUCTION PLATFORM  PHOTO SOURCE: Healthy Gulf	A term used to indicate a permanent offshore structure equipped to control the flow of oil or gas. It does not include entirely submarine structures.
CHRISTMAS TREE  PHOTO SOURCE: Healthy Gulf	The system of pipes, valves, gauges and related equipment that is located on the well at ground level and that controls the flow of gas and other petroleum products produced from the well.
COMMON BATTERY  PHOTO SOURCE: Healthy Gulf	A production storage facility into which combined production from lease wells and/or unit wells is stored, and all lease wells and/or unit wells contain the same division of ownership.

APPENDIX 2: STATE OVERSIGHT OF OFFSHORE PRODUCTION

Louisiana's Department of Energy and Natural Resources Oil and Gas Regulatory program's mission is "To protect the correlative rights of all parties involved in the exploration and production of non-renewable oil, gas, and other natural resources, while preventing the waste of these resources; and thereby protecting the public and the environment." The two goals undergirding this mission are:

1. Manage the conservation and development of the non-renewable natural resources in the state, while minimizing the negative environmental impact of the development;
2. Ensure protection of public health and the environment from hazards associated with the transportation of hazardous liquids and with the exploration, production, transportation, distribution, and disposition of oil, gas, lignite and associated wastes, and conservation of groundwater resources.

The Engineering Division is responsible for ensuring that wells are located, constructed, operated and abandoned in a manner which prevents waste of resources and injury to neighboring leases, property or the environment.[152] As a result, the Division collects and maintains official records for each well including current and historical information on the well configuration, status and operator. The Division also conducts periodic inspections of, among other sites, active wells and associated facilities in an effort to ensure regulatory compliance. Enforcement actions are initiated when necessary to address regulatory deficiencies. These actions include issuing Orders and Civil Penalties, suspending permits or declaring wells orphaned. This division issues drilling permits, oversees on-site disposal of Exploration and Production Waste, performs production audits, reviews various administrative applications, and manages the Commissioner's dockets concerning unitization, applications for exceptional well locations, and various disputes regarding well and unit operations. Physical inspectors are called Conservation Enforcement Specialists (CESs). These CES's work out of three district offices (Monroe, Shreveport, Lafayette), and conduct routine inspections of oil and gas wells to ensure they are operating in compliance with regulations outlined in Title 43 Section 29B of the Louisiana Administrative Code.[153] The Lafayette District is responsible for the entire bottom half of the state including offshore production. Routine inspections also help OC identify inactive (non-producing) and abandoned wells. The Injection and Mining Division (IMD) employs seven (7) Conservation Enforcement Specialists (CES) to administer the inspection and enforcement activities for injection wells across the entire state.[154] The Lafayette District oversees offshore inspections and charters boat service to take CES to sites for platform inspections. Currently the Lafayette District employs fifteen (15) Conservation Enforcement Specialists.[155]

The Office of Conservation's inspection goal is to inspect all the state's thirty thousand active wells at least once every three years. Assuming that these wells were distributed equally across districts, that would leave 310 wells per inspector per year (if on the three year timeline). Of course these same inspectors must also respond to possible accidents, failures, and issues associated with the 26,746 inactive wells and 4,605 orphan wells. And even some of Louisiana's 164,000 plugged and abandoned wells fail and require inspection and enforcement.

Offshore well and lease facility inspections add additional time and resources. A Lease Facility Inspection includes the transportation time to the facility, an inspection of the well itself, the tank battery (identification, containment, bleeders, pipeline sales valves, BS&W valves, mechanical arrangement, structural integrity of storage tanks, and venting of storage tanks), fire hazards, discharge of E&P (exploration and production wastes), disposition of E&P existent pits.[156] The 2014 Legislative Audit noted that the Office of Conservation "cannot readily identify the actual number or type of violations cited on inspections because it does not capture the information in a format that can be easily quantified." Instead of characterizing violations by categories, Conservation Enforcement Specialists write "narrative reports" within Lease Facility Inspection Reports.

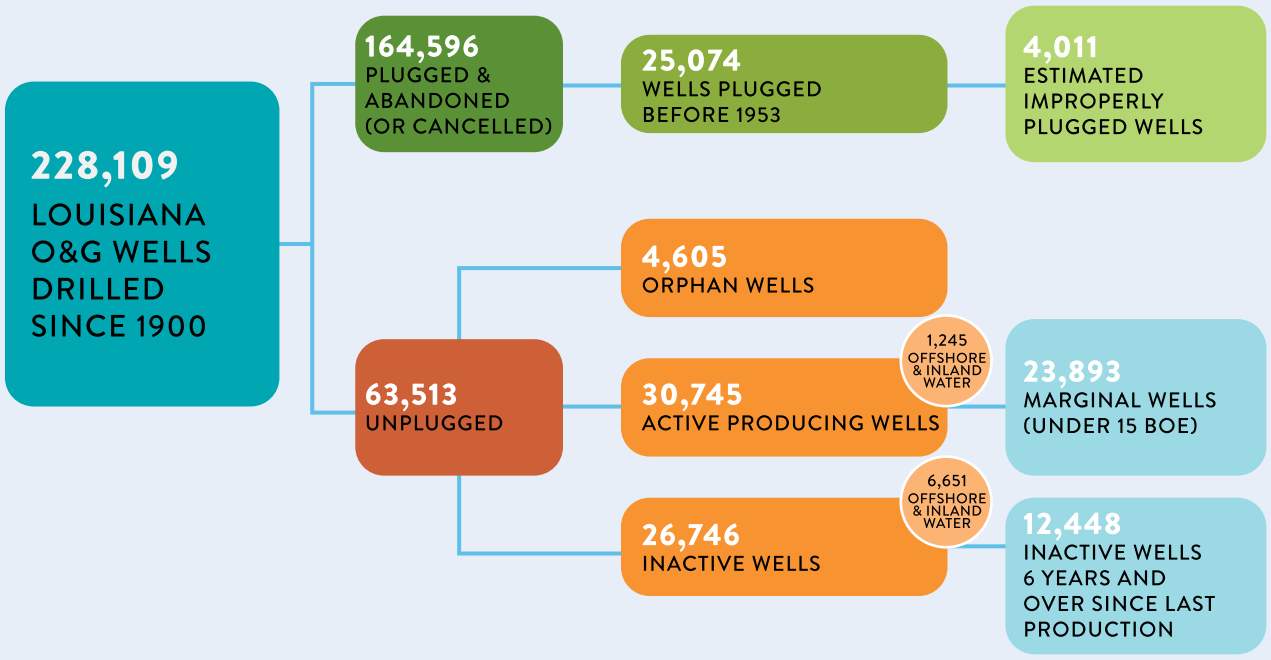
TABLE 5

Louisiana's Offshore Wells Projected Costs and Job-Years Based on Spending

DISTRICT	CONSERVATION ENFORCEMENT SPECIALISTS	TOTAL NUMBER OF WELLS
Lafayette	15	92,030
Monroe	7	45,903
Shreveport	11	83,088
TOTAL	**33**	**221,021**
RATIO	**1**	**6,697**

FIGURE 17

Louisiana Oil & Gas Well Inventory



Author's analysis of data from TCF Upstream database, Louisiana's Department of Energy & Natural Resources SONRIS, & Agerton et. Al.
From True Transition's 2024 report: Addressing Methane Emissions in Louisiana: How Many Jobs Will it Take?

In 2014, the Louisiana Legislative Auditor carried out a Performance Audit of the Office of Conservation's regulation and management of oil and gas wells in Louisiana.[157] The Auditor found that the Office of Conservation did not conduct routine well inspections in accordance with the Offices' own goals of once every three years. The Auditor noted several structural reasons impeding mission success:

- No formal inspection procedures to ensure inspections are conducted consistently and scheduled appropriately.
- OC cannot readily identify the actual number or type of violations cited on inspections because it does not capture the information in a format that can be easily quantified.

OC cannot readily identify the actual number or type of violations cited on inspections because it does not capture the information in a format that can be easily quantified. During a routine inspection, district CESs complete Lease Facility Inspection Reports and upload these reports into SONRIS. When a CES identifies a violation or violations, he/she enters narrative comments on the nature of the violation on the form. If violations are cited, SONRIS will show the inspection "failed" when the form is uploaded. However, there is no way to categorize or quantify the types of violations cited on these failed inspections other than by reading through these narrative comments. Without easily quantifiable information, OC cannot easily determine how many and what types of violations are cited across the state and cannot identify repeat violations. Capturing violation information could also help OC develop a risk-based inspection process. As mentioned earlier, OC was not able to meet its inspection goal of inspecting wells every three years. Therefore, implementing a risk-based inspection process that considers compliance history as one factor in how often a well should be inspected would help OC devote its resources to those wells most at risk of noncompliance.

LDENR currently lists 168 producing wells and 66 active injection wells in Louisiana state waters. SkyTruth was able to combine SONRIS well data with its own dataset of likely facilities and determine which wells were most likely connected to satellite detectable structures. There are 48 producing wells and 12 active injection wells that were within 50 meters of an infrastructure data point. Those facilities and wells are currently operated by a handful of firms.

FIGURE 18

Louisiana Department of Energy and Natural Resources Enforcement Process.

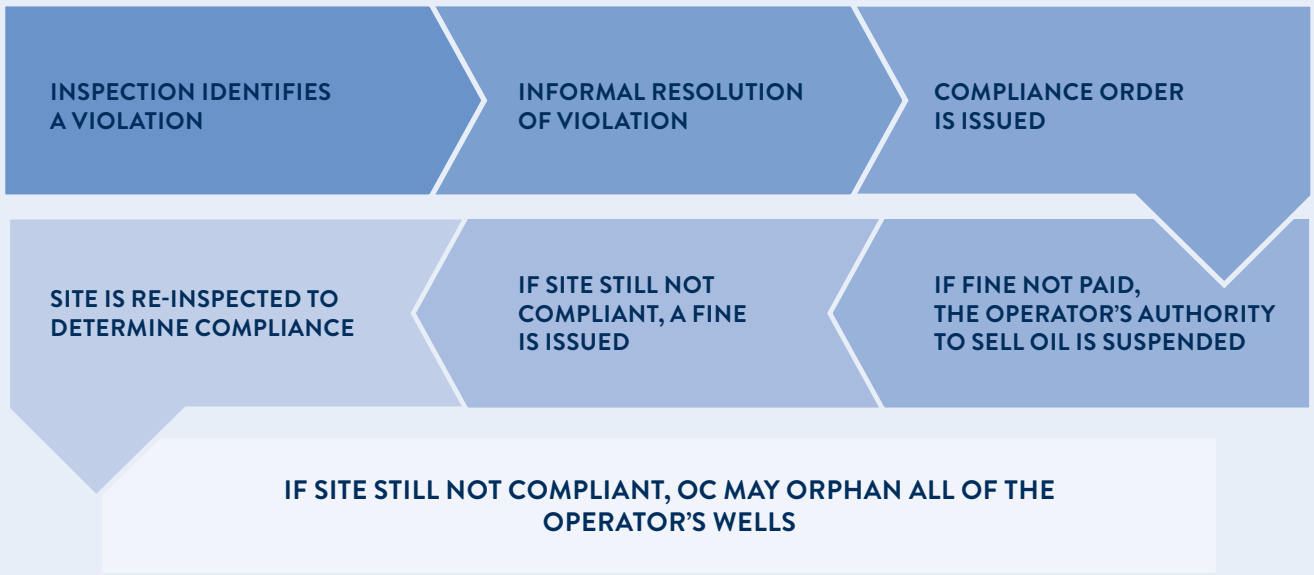
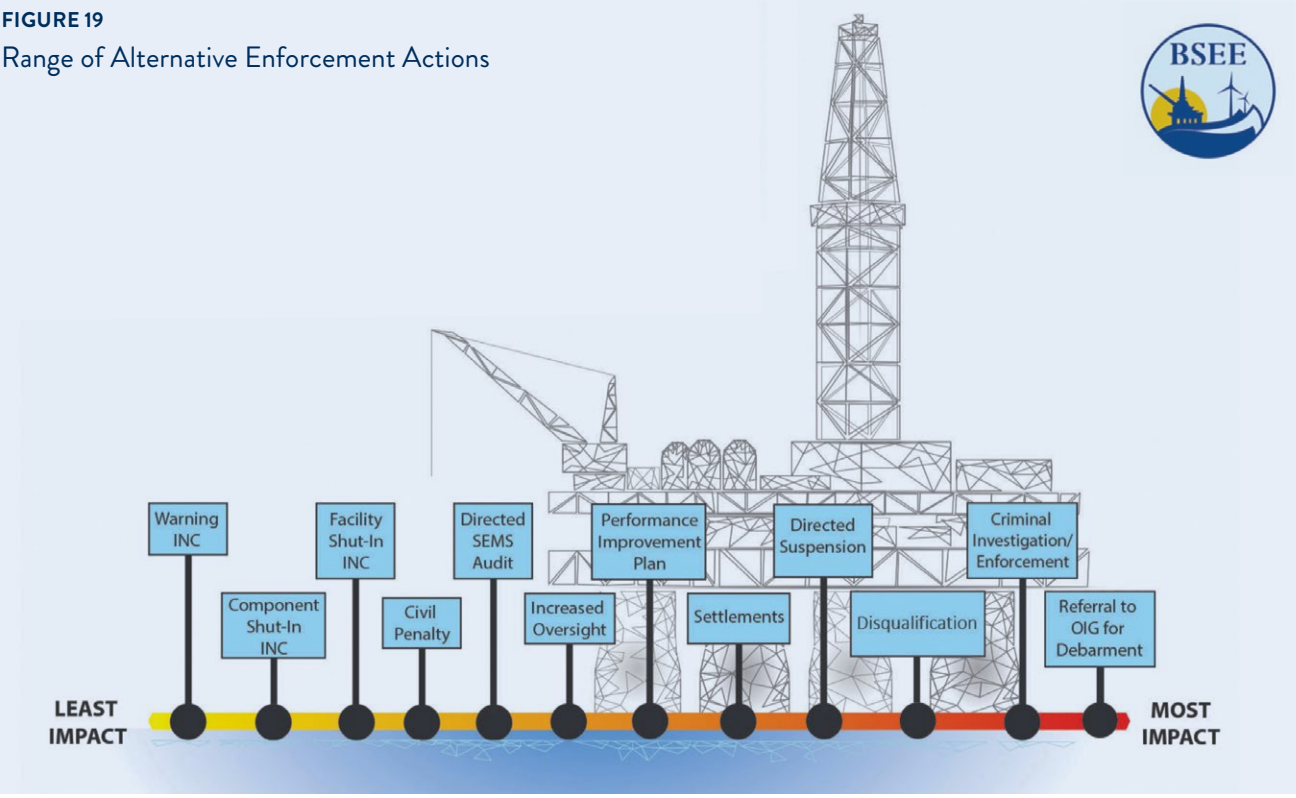


FIGURE 19

Range of Alternative Enforcement Actions



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1 It should be noted that there are "offshore" facilities inland. Louisiana is a delta with oil and gas activity within various wetland habitats, which includes offshore platforms. Agerton et al. (2023) have previously explained that their "definition of inland waters includes areas in open water but also includes areas such as wetlands." They go on to clarify that, "there is little practical difference in P&Aing wells on the margins of inland waters and in state inshore waters, so we group these two categories together for purposes of cost modeling." We did not include inland platforms within this analysis explicitly, but our recommendations would certainly apply to this subset of wells, pipelines, and platforms.

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