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Modern Human Sacrifice: Environmental Injustice in Cancer Alley

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Abstract

This paper explores Cancer Alley, a large stretch of land along the Mississippi River in Louisiana, home to nearly half a million people. Unfortunately, this community must also share space with hundreds of chemical processing plants. Residents of Cancer Alley, most of whom cannot relocate or choose not to, face disproportionately higher risk of cancer and other diseases due to the damaging effects of these neighboring factories. Moreover, this population has been sacrificed by federal and state policies for the economic gain of said industries, from which the government benefits. This paper seeks to address this case of environmental injustice and highlight it as an example of modern-day human sacrifice. Chapter 1 describes the factual background of the issue including the geographical location, target group demographics, and quantitative medical data. Chapter 2 sets forth a historical perspective of environmental sacrifice that is augmented by particular instances of this phenomenon in the United States over the past few centuries. Chapter 3 entails a discussion of the economics behind the industries in question to explain their longstanding pervasiveness and control over the region. Chapter 4 exposes the politics behind the environmental racism in Cancer Alley, including the obstacles to progress for residents and the harmful governmental policies that allow this situation to continue. Chapter 5 outlines proposed federal and state regulatory policies to limit harmful industrial practices and provide protections for the people in Louisiana. It is imperative, in order to eradicate environmental sacrifice in the United States, to push for public policy that is created with social and environmental justice at grounding principles.

Keywords: environmental sacrifice, environmental injustice, public policy, environmental racism, social justice, environmental economics, environmental law

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Introduction: The Enemy Next Door

It was a beautiful and sunny day in Diamond, Louisiana when a massive explosion changed this small town forever. Diamond is a small, few block neighborhood in the heart of Cancer Alley. It was, and still is, sandwiched between a Shell chemical plant and a Motiva petroleum refinery (Lerner 2006, 29). Residents of Diamond are stuck in place; the companies next door won't pay them enough for their property so they cannot move. They are forced to stay fixated next to corporations that have dug in their roots and exploited the neighborhood.

In 1973, a nearby Shell-owned chemical pipeline began leaking flammable gas into the neighborhood. At the same time, 16-year-old Leroy Jones was helping his elderly neighbor, Helen Washington, by mowing her lawn. As Leroy began to turn on the lawn mower, the spark ignited a massive explosion. The fire was so large and deadly that it eventually killed both Jones and Washington. Jones' house also burned down in the process. In the aftermath, Shell skirted taking responsibility for the accident. They paid Washington's relatives $3,000 and Leroy's mother $500 (Lerner 2006, 31). Shell representatives now say they have no record of the incident or their efforts to make it right.

Leroy and Helen's death's touch on the harmful effects of living near these operations. Their innocent lives were taken due to errors and negligence within a company that is supposed to be abiding by the law. They are not the first to be killed by big industry in Louisiana and they certainly won't be the last. While accidents like this have become rarer due to technological advancement, the murder of residents has been replaced by rampant rates of cancer and disease. This paper seeks to address the harmful effects of petrochemical pollution on the residents of southeastern Louisiana. How much is one life worth? How many people must die before change is made? Why does this segment of the population suffer more than others? This paper seeks to

address these questions through the frame of environmental sacrifice while also offering hope for the people of Cancer Alley.

Chapter 1: An Introduction to Cancer Alley

Picture this: an 85 mile stretch of land along the winding and scenic Mississippi River (Layden, n.d.). Except, this land is littered with over 150 massive petrochemical production plants and refineries. Instead of seeing a beautiful stream and its encompassing nature, residents of Cancer Alley are constantly bombarded with plumes of smoke, flashing lights, and putrid odors. Some activists for the south declare that the term Cancer Alley should be broadened to include areas along the Mississippi River from Baton Rouge to the Gulf of Mexico (Verdin 2020). One might assume that this land is deserted by all inhabitants due to the dramatic presence of the petrochemical industry, but this is untrue. The number of residents in Cancer Alley is oftentimes disputed amongst researchers based on the loose geographic barriers of this corridor, but there are at least 50,000 people spending their lives in this area. Many people move away once they start to realize the dangers of their neighborhood, but most are rightfully hesitant to leave the only home they've ever known. The entire area is divided into parishes, or otherwise known as counties. There are numerous parishes within the region, the most notable being St. James, St. Gabriel, St. John the Baptist Parish, Iberville, Ascension, St. Charles, and St. Bernard (Verdin 2020). Within this population, forty percent of residents are African American, in comparison to the average of twelve percent for the United States as a whole (James et al. 2012, 4380). Almost all these residents belong to low-income communities and reside directly next to the refineries (Rosene, 2023). Common attributes of Cancer Alley include "high, transparent, industrial fences with ominous warning plaques" that draw a dividing line between an inhabitant's backyard and their community chemical plant (Allen 2003, 24). When residents leave their homes, they are confronted by "catalytic cracking towers, stacks topped by flares burning off excess gas, huge oil and gasoline storage tanks, giant processing units where oil and

its derivatives are turned into a wide variety of useful chemicals, and a Rube Goldberg maze of oversized pipes" (Lerner 2006, 9). As you can imagine, this is a place that no one should have to live in. Later, it will be discussed why Cancer Alley residents are subject to these conditions, and why they often refuse to leave. Further, this chapter will give in-depth background information on the issue presented with a discussion of petrochemical companies, cancer rates, and the importance of this land to interest groups.

Figure 1. Home and Grain Elevator, Destrehan, Louisiana by Richard Misrach, High Museum of Art.

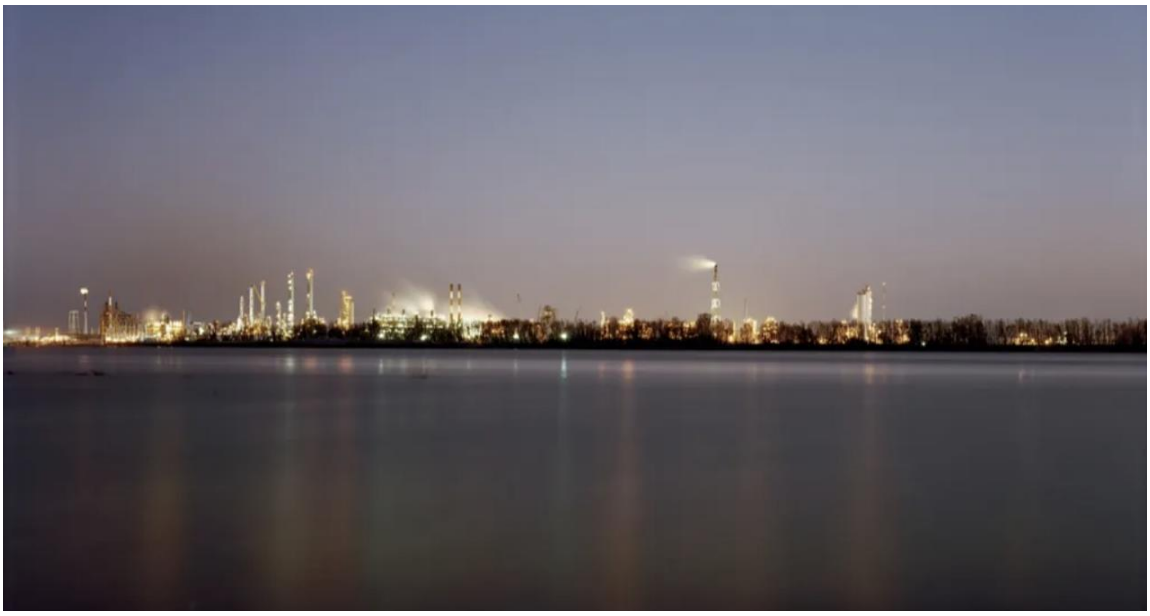

Figure 2. Dow Chemical Corporation (Union Carbide Complex) at Night, Across from Bonnet Carré Spillway, The New York Times.

Ecosystem Services in Southeast Louisiana. Arguably the largest implication of industrial occupation in Cancer Alley is the amount of pollution released into the nearby parishes. Each year, over 100,000 pounds of petrochemical waste is released into the Louisianan air, water, and soil. When thinking of this in a humane mindset, it is important to note that "for people to be healthy, they need healthy environments" (Lebel 2003, 6). Not only is this damaging for the local residents, but it is also extremely detrimental to the existing ecosystem. The ecosystem along the Mississippi River produces countless services to its inhabitants. Petrochemical companies' harmful practices threaten this vital yet fragile balance. Amongst these utilities, one of the most important aspects is the provisioning services that the area supplies; these are products obtained from the natural systems present (Millenium Ecosystem Assessment 2005). In the river basin, the

ecosystem provides food in the form of sugarcane and other crops, fiber from the long history of cotton farming, and freshwater from the great Mississippi River. Just by existing, the land offers invaluable resources to biotic communities. For human purposes, the Mississippi river acts as a method of travel for business and recreation purposes. Secondarily are the regulating services, meaning the advantages gained from the ecosystems balancing of the area (Millenium Ecosystem Assessment, 2005). This area is drastically influenced by climatic and extreme weather events due to the types of vegetation, low elevation, and proximity to the Gulf of Mexico. But the plant life in Cancer Alley helps to mitigate some of the air pollution emitted by the processing plants; sadly, many residents report difficulties in cultivating gardens and landscaping due to premature death of the vegetation (Allen 2003, 23). The chemicals and smoke released from neighboring petrochemical plants has a deleterious effect on plant life. This creates a drastic reduction in the regulating services of the region and makes it more vulnerable to extreme weather conditions. In contrast to this, the coastal wetlands help mitigate the extreme weather that the area faces and allows biodiversity to flourish for aquatic and non-aquatic species.

Cultural services are a critical component of this ecosystem because they involve the enjoyment that humans gain from it "through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experience" (Millenium Ecosystem Assessment 2005). Citizens of this chemical corridor have a strong connection to their community's history and heritage. Alongside this, the Mississippi River acts as a gathering place for residents who utilized the area to swim, fish, and bond with their communities. As mentioned before, this contributes to the difficulty some residents face when trying to move away from the area. There are rich connections between past and present in this land that are difficult to abandon. In a more technical sense, there are supporting services completed by the ecosystem that ensure the

performance of all other services; these are vital to an overall healthy ecosystem, regardless of biome type or location. For the Mississippi River Basin in particular, these services include water cycling carried out by the river and photosynthesis done by the plentiful plant life along the shoreline.

As vital as these systems are, they have been threatened and destroyed by the invasion of big industry in Louisiana. As mentioned, the wetlands of coastal Louisiana act as the state's first defense when experiencing harsh weather. Despite this, "Big Oil carved more than 8,000 miles of oil pipeline canals out of Louisiana's coastal wetlands" which "destroyed the marshes that provide invaluable protection" against hurricanes, flooding, and storm surges (Faber 2008, 46). The disappearance of these wetlands has occurred over centuries at an incremental and unalarming rate. Since petrochemical companies have entered the state, the wetlands have disappeared rapidly, with almost 2,000 square miles lost (Faber 2008, 46). To make matters worse, companies also built levees and docks along the Mississippi River to aid in the transportation and storage of their products. This ruins the river's ability to guard "against potential river flooding" and disrupts "the usual flow of vital nutrients and sediments into coastal wetlands" (Faber 2008, 56). Not only that, but it also prevents lifelong residents from accessing an amenity that they have a right to use.

Each of these ecosystem services, provisioning, regulating, cultural, and technical, serves a unique purpose within the community. Despite the function of these resources, the ecosystem in Cancer Alley is still struggling due to the presence of large industries. This is a sign that humans are suffering from the degrading operations of chemical companies. It is imperative that changes are made in the future to preserve this precious ecosystem and all its dwellers, plant, animal, and human.

Petrochemical Greed. In discussing the behaviors of infamous petrochemical groups, it is important to understand the specific processes and groups involved. Petrochemicals are chemicals made by processing petroleum such as crude oil and natural gas (Speight 2020, 435). Through experimentation, scientists discovered new creations by "splitting, cracking, distilling, and recombining petrochemical feedstocks into new products never before found on the face of the earth," making the industry highly lucrative (Cohen and O'Connor 1990, 15). They started "isolating hydrocarbon chains (the basis for many synthetic fibers) from petroleum refinery production" as opposed to other nonrenewable sources, creating the big break for petrochemical production (Markowitz and Rosner 2003, 235). While these petrochemical creations may seem daunting, we use them in everyday life. They are within our "medicines, cosmetics, furniture, appliances, electronics, solar power panels, and wind turbines" amongst many other things (Energy Education, n.d). Although these products are constantly surrounding us, they have names such as "epichlorohydrin methyl ethyl ketone, allyl chloride, specialty resins, hydrochloric acid, and secondary butyl alcohol" (Lerner 2006, 47). When phrased in this way, it becomes more apparent that these chemicals do not bode well for the health of those constantly exposed to them.

The industry first boomed during WWII when the demand for resources such as rubbers and plastics was large, but the US was not able to get these goods from foreign nations like Japan (Cohen and O'Connor 1990, 16). After the war, it became apparent that having production within the states was not only cheaper, but better for local and national economies. Some of the big-hitting companies today include Shell, Formosa, Dow Chemicals, Exxon, Shintech, and Borden Chemicals (Baurick et al. 2019). These companies have such a vast grip on the area, it's difficult to comprehend. While it is difficult to ascertain exactly how many plants are present,

they “export 4.5 billion chemical products annually” (Keehan 2018, 347). As a result, “this single industry accounted for one of three tax dollars collected by the state” (Bullard 1994, 113). In a later chapter, I will touch on the ramification of this statistic and expose how money talks in the Louisiana state government.

Aside from the benefits of petrochemicals to our manufacturing industries, the drawbacks are insurmountable. The increasing occupation of processing sites in Cancer Alley pushed out and destroyed the farming business for crops such as sugarcane, tobacco, and cotton. While the agriculture industry in Louisiana has ties to the Antebellum era, the sector was still profitable and generated jobs for many low-income residents with lack of education and opportunity (Cohen and O’Connor 1990, 16). As these agricultural jobs were wiped out, they were replaced by jobs at the petrochemical plants. Community members originally lacked opposition to these facilities because of their hope for an economic revival. For impoverished Louisianans, “the promise of jobs was the selling point for industries coming to towns along the Mississippi River” (Bullard 1994, 113). Except, these jobs were mostly offered to white people and those with a college education that could perform in more rigorous positions (Kierner, Mulcahy, and Skilton 2023, 185). When African American residents were able to gain employment, it was “usually the dirtiest jobs, at the lowest wages” (Bullard 1994, 113). Seeing as the bulk of residents in Cancer Alley are African American, low-income, and lacking a formal education, the petrochemical reformation did not bode well for them. Not only this, but the pollution and waste from the processes are almost incomprehensible. The most efficient cycles of production churn out two times the waste than the amount of usable product (Cohen and O’Connor 1990, 16). Most of the processes create much more harmful waste ratios than this. Based on 2019 results from the Environmental Protection Agency, “more pounds of industrial toxic air pollution are released

annually in Louisiana than in any other state" (Terrell and St. Julien 2022, 2). In terms of the pollution released into the air and water, these "communities have become 'sacrifice zones,' rained on by the pollutants emitted night and day by the plants" (Kierner, Mulcahy, and Skilton 2023, 186). What once was clean air, agriculture, and a prosperous ancestral region has now been turned into clouds of smoke, polluted water, and an overall feeling of gloom.

Cancer: Its Name and Face. The name Cancer Alley isn't an exaggeration; there are countless studies and articles showing the disproportionate rate of cancer in this population. Generally, "African Americans suffer significantly higher rates of death from nearly every form of cancer than do Whites" but poverty has also been indicated as a better predictor of cancer than race (Chesworth 1996, 135). In regard to race, "individuals in Black-dominant communities are 16 percent more at risk for developing cancer than individuals in white-dominant communities" (Rosene 2023) This statistic holds true for the residents of Cancer Alley, where the rates of cancer are 16 percent more common than the national average (James et al. 2012). The petrochemical companies in the alley attempt to undermine these statistics with suggestions that personal lifestyle choices, such as smoking and eating unhealthy foods, are the real cause for higher cancer rates. What these corporations don't acknowledge are the socioeconomic factors leading to unhealthy lifestyles in Cancer Alley. To debunk this, it was proven that "only 14-21 percent of Cancer Alley residents smoke," a rate that is just above the national average and thus would not account for their disproportionate rates of cancer (Terrell and St. Julien 2022, 3). Moreover, residents of Louisiana are 10 percent below the national average in terms of adult obesity (Terrell and St. Julien 2022, 3). They also argue that cancer is unfortunately inevitable based on human genetics and historical data of the disease. While there is historical evidence of cancer rates, they have never been seen this high.

In addition to this, it is asserted that cancer "is not a constant of the human condition but a product of the substances to which we are exposed at home or at work" (Chesworth 1996, 135). Moreover, the connections between petrochemical production and cancer are too great to ignore. Angiosarcoma, for example, is an extremely rare form of liver cancer, caused by contact with vinyl chloride gas; this cancer is occurring in alarmingly high rates in Cancer Alley (Cohen and O'Connor 1990, 13). The petrochemical plants in the chemical corridor are well known for their use of vinyl chloride and polyvinyl chloride (Markowitz and Rosner 2003, 234). Inside these facilities are hundreds, if not thousands, of valves that constantly leak small amounts of chemicals and gases. It is entirely plausible for these leaks to be affecting both workers and nearby community members. In connection to the idea of this region being called "death alley," Cancer Alley had some of the highest rates of Covid-19 infection, complications, and mortality in the entire country (Kierner, Mulcahy, and Skilton 2023, 189). Chemicals such as vinyl chloride and others have been known to cause a plethora of other diseases "including decreased fertility in males; lung, liver, kidney, and nervous-system damage; lung cancer; irritation of nose and throat; coughing; shortness of breath; possible developmental malformations; dizziness" (Lerner 2006, 47). Cancer is used as the main focal point of this thesis, but it is imperative to note the other deleterious effects of residing near petrochemical plants. The health and wellbeing of residents has been neglected due to their socioeconomic status and race.

The statistic above stated that residents of Cancer Alley are 16 percent more likely to get cancer than the national average. There is a plethora of statistics out there that corroborate or enhance this one. For example, "a 2002 study found that Louisiana had the second-highest cancer death rate in the country" (Taylor 2014, 20). A more recent study that utilized the Louisiana Tumor Registry and National Air Toxics Assessment found that "nearly every census

tract between Baton Rouge and New Orleans ranks in the top 5% nationally for cancer risk from toxic air pollution and in the top 10% for respiratory hazards (Terrell and St. Julien 2022, 2). Figure 3 below displays the rates of cancer in the region in terms of the excess above the national average. It should be noticed that the darkest red areas are those with the highest rates of cancer within the entire state. It's no coincidence that these regions are in the exact delineated location of Cancer Alley. While this 2014 image is considered scientifically recent, it can be surmised that the cancer rates have only worsened since then.

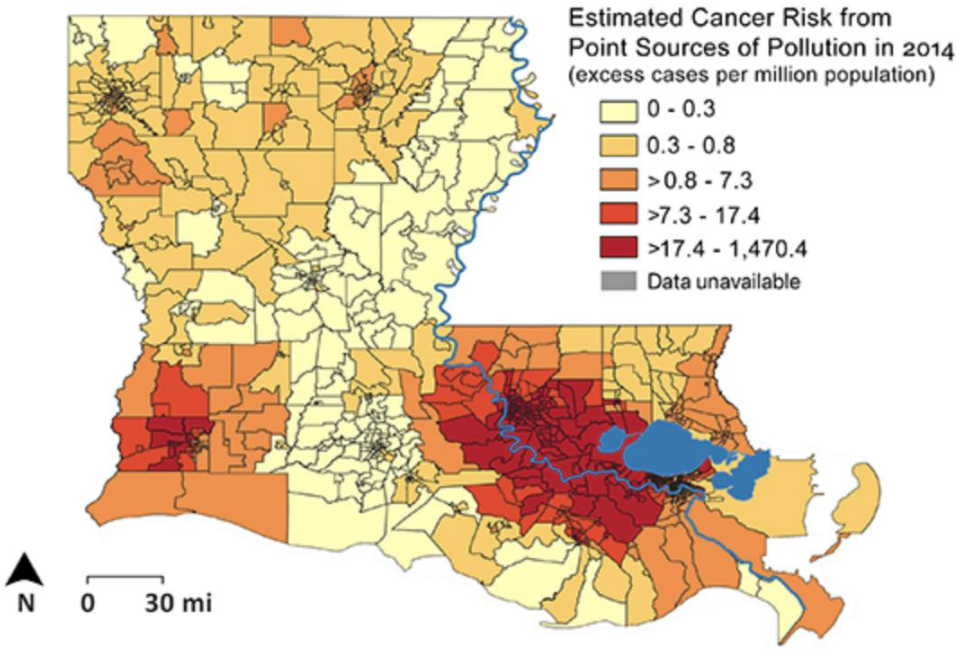

Figure 3. Estimated Cancer Risk from Point Sources of Pollution in 2014, from "Air Pollution is Linked to Higher Cancer Rates Among Black or Impoverished Communities in Louisiana" by Terrell and St. Julien.

The numerical evidence of illness in Cancer Alley cannot be denied and it surely warrants the nickname. What's happening in this corridor can be thought of as a snowball effect. As

petrochemical companies take hold of the area, their control over its constituents only grows. Without support and defense from the government, it presents a nearly impossible challenge for residents to gain any sort of progress or protection from environmental harms. “Pollution is the slow disaster of everyday life” for these disadvantaged groups (Kierner, Mulcahy, and Skilton 2023, 186). It has been over 100 years since the origin story of petrochemical refineries in Louisiana. The damage has been felt for decades and has been reported by activists, scientists, and government officials. Yet no progress has been made. In fact, the regulations for these corporations are arguably laxer than ever. This thesis seeks to expose the responsible parties through multiple disciplines and create realistic and effective solutions to better life for not only Cancer Alley residents, but other victims of environmental injustice across the country.

Figure 4. “Fossil Fuel and Petrochemical Plants Line the Area Known as 'Cancer Alley’” by Giles Clarke.

Chapter 2: A History of Environmental Sacrifice

In framing the story of Cancer Alley residents through an environmental sacrifice lens, it is imperative to understand the meaning behind the term. While explaining the idea of environmental sacrifice, the ethnology between human sacrifice, sacrifice zones, environmental racism, and environmental justice is brought to light. To fully elucidate these concepts, they must be defined through their relationships to one another. Environmental racism cannot be discussed without the inclusion of environmental justice, and vice versa. Despite environmental sacrifice being its own unique term, it is an intricate part in the web of environmentalism, injustice, and degradation in the United States. This chapter will employ a historical discipline to depict the age-old concept of human sacrifice and its parallels within environmental issues in the modern day.

The Story of Sacrifice. It's no secret that human sacrifice has historically been amongst cultural and religious traditions across the globe. From Ancient Greece, Rome, and Egypt to Mesopotamia, the Konds, and the Aztecs, human sacrifice in some form is an undeniable footprint of these groups. While all of these civilizations had different reasons and staging of sacrifice, it has been found that these offerings were "never perceived as purposeless by those performing it" whether you were a witness or a participant (Recht 2018, 1). A common denominator across every historical example of sacrifice is the fact that this was carried out for a reason; the agents involved were doing it for something they strongly believed in, whether that be a deity or other supernatural figure (Recht 2018, 3).

To define the term generally, human sacrifice is "a religious ritual where a living being is deliberately killed in the process for the purposes of the event" (Recht 2018, 3). In some cultures, sacrifice was done in an effort to change one's life in dramatic ways by pleading to a higher

power such as a spirit or voodoo figure (Shreeve 2015, 32). While it is difficult to get intense depictions of immemorial accounts due to lack of preservation, historians concur that the details of those sacrificed are the most important to recollect on (Recht 2018, 107). For example, it is of significance to recognize the method in which sacrificed bodies are buried, positioned, dressed, and respected. While it is harder to ascertain, the social, economic, and religious statuses of sacrificed humans are strongly relevant in terms of the purpose and gain sought from a ritual.

Studies of sacrifice in Ancient Greece provide an excellent example of these qualities mentioned above. During these times, sacrifice rituals were made to Greek gods and goddesses such as Dionysus, Artemis, and Apollo (Finsterbusch et al. 2018, 38). The Greeks revered these deities, believing that they were either the cause of crises such as war or famine while also being the solution. Humans would sacrifice one another hoping for an end to their peril. Dionysus, the god of fertility, was often the receiver of sacrifices due to his more rage-filled and vengeful associations. Greek citizens feared the angry side of his dual nature and thus pleaded to him for relief during times of catastrophe. Many Greeks voluntarily sacrificed themselves; warriors before battle would end their lives in hopes of a swift victory for their side (Finsterbusch et al. 2018, 42). There were also third parties involved in rituals of sacrifice: oracles and seers. These figureheads would interpret messages and signs from the gods and give recommendations to desperate Greeks. Unfortunately for many of these people, they were told that if they angered a god, the only recourse was to sacrifice a family member or friend (Finsterbusch et al. 2018, 45). Lastly, human sacrifice was sometimes introduced as an entry fee into cults and other secret groups throughout Greek culture at the time. Despite their apparent widespread use of human sacrifice, the Greek atmosphere toward ritual killing was respectful and conservative. People at this time did not perform sacrifices for merely any reason; they were used sparingly and only in

times of dire crisis. Unfortunately, those that did not consent to being sacrificed were subject to power imbalances that are still at play contemporarily.

There are substantial parallels between human sacrifice a millennium ago and modern times. Taking this into consideration, the differences amongst the two concepts aid in defining the biggest issues with human and environmental sacrifice currently. In the most panoramic sense, sacrifice can entail "destroying or throwing away something of great value, including human lives, for the sake of something else which is of less real value, such as immediate profit" (Padel 1995, 4). In historical examples, sacrifice was sacred and done for a compelling purpose. Today, human lives are sacrificed without reason or cause; this is "subtler and less visible, but more destructive to the essence of human life" (Padel 1995, 5). Human life is frequently taken on a sinister basis, yet it is not revered or found to have any meaning. The violence of human sacrifice is found currently through wars, terrorism, murder, oppression, and environmental degradation. There is a "higher being" that these lives are being stolen for, yet one that should not be justified and ignored in our society. Most commonly, human, animal, and planetary health is ignored for the sake of profit, consumption, greed, and power. To summarize, today's version of human sacrifice entails "sacrificing one thing for the sake of another, though usually without formalized ritual, and often without any idea of sacredness" (Padel 1995, 3). This can be attributed to the power hierarchies amongst disadvantaged groups and those that commit human sacrifice unto them unwillingly. These power imbalances exist all over the world and are caused by differences in race, wealth distribution, gender, or religion.

Cases in Environmental Sacrifice. Continuing on the idea of purposeless violence, environmental sacrifice embodies and displays the same notions. The term environmental sacrifice came from the idea of sacrifice zones. A sacrifice zone, coined in the 1970s, referred to

an area of land that had been destroyed and devalued due to animal agriculture practices (Juskus 2023). This was later developed, largely by the environmentalist Robert Bullard, who believed the term should be broadened to encompass other areas that have been sacrificed for industry. Bullard, along with vast help from the Black church, was able to define a term that thousands of people across the US were experiencing in real time. Not only did they provide a name for this circumstance, but they were able to use the momentum from Black Power movements and the Civil Rights Movement to bring environmental sacrifice into the mainstream (Juskus 2023). As it is defined today, environmental sacrifice is the deliberate practice of subjecting people to disproportionate amounts of pollution, chemical exposure, and other toxic substances. The actor doing the sacrificing is usually a large industry or corporation that simply does not care about the harm they are unfolding onto innocent people and their environment. In the case of Cancer Alley, I argue that the Louisiana state government, the petrochemical industry, and the federal government are all participating in the human sacrifice of Cancer Alley residents. Both the federal and state government has neglected to regulate big industry in Louisiana and refuses to enforce the menial sanctions that exist. Petrochemical companies abuse this lax regulation and use it as an excuse to pollute as they please. This has serious ramifications for those in Cancer Alley, while the ones doing harm only gain.

An environmental sacrifice zone, also referred to as a dumping ground, is used in contemporary environmental literature to emphasize “the fact that low-income and minority populations are required to make disproportionate health and economic sacrifices that more affluent people can avoid " (Juskus 2023). This narration of environmental sacrifice is used to notably accentuate a few factors. The first is that these communities, where industry resides, are not picked at random. They are hand plucked out of a pile of options because of the race and

socioeconomic status of residents. Companies assume that because inhabitants of sacrifice zones, like Cancer Alley, are poor and people of color, that they will not have the same means or motivation to fight back against racist and unfair placement of industry. In short, companies such as Formosa, Shell, and Exxon site their facilities in these areas because they anticipate the least amount of resistance. These factors combine to make a "lethal brand of racial and economic discrimination" that is inescapable and unavoidable for targeted minorities (Juskus 2023).

This racist and disproportionate siting occurs all over the United States, not just Cancer Alley. When trying to decide which case studies of environmental sacrifice zones to include as prevalent examples, it becomes a difficult task to weigh the injustice faced by varying communities. The town of Addyston, Ohio provides a fervent example due to its similarities with Cancer Alley. Addyston is known as "cancer valley" to its community members due to the high rates of cancer amongst the group and the town's placement in the heart of the Ohio River Valley (Lerner 2012, 119). In the heart of the town lies their enemy: a 130-acre plastics plant owned by Lanxess Corp. This plant, using compounds similar to those produced in Cancer Alley, is located just across the street from Meredith Hitchins Elementary School, which ended up closing down after high levels of toxic chemicals were detected in the air surrounding the school (Lerner 2012, 119). This closure displaced over 300 children and 10 teachers. Figure 5 below depicts the close proximity of the Lanxess plant to the elementary school and also helps to display the massive size of the factory. This area of the valley was chosen for the Lanxess site particularly because of the low-income and low-education population presiding there. Along with disproportionately high rates of lymphoma, residents report constantly smelling foul odors, having allergies, burning eyes, nose bleeds, headaches, and a thin layer of plastic residue canvassing the outdoor areas (Lerner 2012, 120). The narrative of Addyston exemplifies not only the sacrifice of those

currently residing there but it also shows “the sacrifice of future generations of human beings, which is at the heart of the industrial lifestyle” (Padel 1995, 5).

Figure 5.“Addyston, Ohio,” aerial view from Google Maps.

Despite the unjust situation in Addyston, it acts as an example of the hopeful possibilities when the proper governmental actors get involved. When townsfolk started to notice increasing negative impacts on their community, they began conducting “canvassing and walking-and-talking tours through Addyston” that allowed members of the community and outsiders to learn about the issues with the Lanxess plant (Lerner 2012, 135). As local citizens began to make more noise about their unjust reality, it garnered attention from local and state governments. This attention from high-up officials “played an important role in responding to illness and odor complaints from residents who lived near the Lanxess plant” (Lerner 2012, 135). When Ohio Enviromental Protection Agency (EPA) officials started to study the area, they found that

chemicals from the plant were released at “levels that made the risk of cancer 50 times higher than what the state considers acceptable" (Thomas 2009). Without their help, there may never have been improvements to management and production processes at the plastics plant. Moreover, the specific rate of chemical contamination may not have been discovered in such detail. Although residents have only gained small victories, this case provides an example of the good that government involvement and regulation can do for struggling communities. It also displays the importance of educating and informing communities within a movement. The circumstances in Cancer Alley are different due to the size of the geographic area and the scale of the issue. Fortunately for Addyston residents, the state government listened to them; this foreshadows the absolute importance of government support in issues of toxic poisoning. As will be discussed in chapters 4 and 5, Cancer Alley communities desperately need elected officials in state government to fight for them.

Sacrifice in Louisiana. The environmental sacrifice in Louisiana began long before the invasion of the petrochemical industry. Louisiana became the heart of the slave trade in the early 1800s because of its hub in the Gulf of Mexico and access to waterways. In 1811, the “largest uprising of enslaved people in the history of the United States began on plantains in St. John the Baptist Parish” that lies in the heart of Cancer Alley (Kierner, Mulcahy, and Skilton 2023, 177). Unfortunately, this rebellion was squashed, leaving dozens of dead, enslaved people in its wake. In the aftermath of the uprising, the spirit of slavery lived on until the Emancipation Proclamation; shortly after this, Jim Crow took its place. The end of slavery did not mean the freedom of African Americans. Economic and social customs held these marginal groups in place; recently freed slaves or their descendants were fixed in place due to debt, lack of representation, Jim Crow laws, and the “fear of racial terrorism” (Kierner, Mulcahy, and Skilton

2023, 185). At a time when there was no safe haven for Black Americans, they felt most empowered in continuing their connection to familial land. Moving in the 20th century presented too many threats such as lynching, persecution, homelessness, and more. Black Louisianans understandably felt safest in staying with their lifelong communities. Although racism lived on in Louisiana, so did the spirit of hope, community, and resistance to oppression. The rebellion of 1811 is just one example of this region's resilience and refusal to accept discrimination.

Once the plantation system dissolved in the 19th century "the region's wealth disappeared– poverty spanned the south from Virginia to the Gulf in areas whose economies were tied to the plantation industry" (Keehan 2018, 345). In result, Louisiana was opened up to companies seeking extremely low property values and rich natural resources. As the 20th century came about, so did the start of oil drilling in Louisiana, which happens to be sitting upon some of the most lucrative reserves in the United States. Not only this, but the Mississippi River lands were plentiful in brine, sulfur, fresh water, and salt domes that provided cheap storage and dumping grounds for oil and gas companies to use (Markowitz and Rosner 2003, 234). Similar to New Jersey's chemical corridor, the close proximity to waterways and ports made south Louisiana a prime target for a petrochemical invasion. Plantation farms were replaced by petrochemical plants that emit "toxins on the homes, schools, and bodies of the predominantly African American residents who live there" (Kierner, Mulcahy, and Skilton 2023, 179-80). Enslavement was over, but it was replaced by a different type of hierarchical oppression characterized by issues of public health and environmental racism. A slow violence has cursed this state for over 200 years with a disastrous historical continuity that seems never-ending for Louisianans (Kierner, Mulcahy, and Skilton 2023, 180). Cancer Alley residents and their ancestors have been unable to escape cycles of oppression and injustice for centuries.

Despite there being a few opportunities for Black Louisianans to leave, many people of color stayed in place because of community and social ties to the land (Markowitz and Rosner 2003, 238). This furnished discounted and easily accessible labor for the companies that were eager to set up shop on the oil reserves. The government was even more antsy for the fuel industry to move in as they gained a wealth of taxes in turn for careless environmental regulations (Markowitz and Rosner 2003, 234). Due to the government's laissez-faire approach to regulating these companies, they were able to take advantage of the neighboring communities who had essentially no way to fight back. Coming off of decades of enslavement and the Jim Crow era, African Americans were powerless against multinational corporations looking to profit off their poverty (Markowitz and Rosner 2003, 239). The legacy of abuse lives on in Cancer Alley, as seen through the unlimited destruction of innocent communities. This is further evidenced by the idea that "the greater a state's reliance on a single mineral resource, the greater the chances that a state is undemocratic, corruption riddled, and governed without transparency or accountability" (Nixon 2011, 69). This rings true for not only the Louisiana state government, but the federal government as well. The Louisiana government relies on this single industry for hundreds of millions in tax benefits. The government is profiting vastly off the exploitation of the land by petrochemical companies, thus their refusal to take a stand. This notion of political buyouts and corruptness will be discussed more in chapter 4.

Cancer Alley serves as an example of environmental sacrifice, similar to Addyston, for a few reasons. It's no coincidence that petrochemical facilities chose this area. For decades, the normal practice of big industries was to choose the "'path of least resistance' in addressing externalities such as pollution discharges, waste disposal, and nonresidential activities that may pose a health threat to nearby communities" (Bullard 200, 7). In other words, companies targeted

areas that they assumed would give them no hassle, especially when the side effects of neighboring one of these plants started to manifest. During the Jim Crow era especially, companies depended “on the fact that Louisiana remained a segregated state, populated in part by poor blacks so desperate for work and feeling so powerless that they could be counted on not to cause the kind of labor unrest” that companies had experienced in areas of Texas (Markowitz and Rosner 2003, 240). While some attention has been brought to these racist and classist strategies, they are legal and still in full effect. As a result of this targeting, “Blacks and other economically disadvantaged groups are often concentrated in areas that expose them to high levels of toxic pollution” (Bullard 2000, 6). In the case of Cancer Alley, residents either lack the means or the willingness to move, forcing them to live side by side with their slow killer.

As this thesis consistently refers to the region of land along the Mississippi River between Baton Rouge and New Orleans as Cancer Alley, it is helpful to introduce the terminological background. The term “Cancer Alley” was originally coined in the 1980s when inhabitants of St. Gabriel, Louisiana noticed the terrifying number of neighbors that had been diagnosed with cancer (Addish 2021). These community members all lived on Jacobs Drive, a street that they then nicknamed Cancer Alley (Addish 2021). As the health problems in the area became more widespread and acknowledged, the name Cancer Alley has now been applied to the notorious 85 mile stretch of terrain. This area was priorly known as “Plantation Country” due to the dark history of slavery in the state (Addish 2021). Some residents state that this term isn’t accurate because it doesn’t fully embody the various health issues associated with living there, such as miscarriages and respiratory diseases. These residents prefer to call it “Death Alley,” named for the high rate of premature and unnaturally caused death amongst citizens (Allen 2003, 28).

Uncovering the history of oppression in Louisiana helps to provide necessary context and explanation of Cancer Alley's role as an environmental sacrifice zone. Thousands of years ago, people were sacrificed in ritual killing in service of a deity. During antebellum times in Louisiana, enslaved people were unwillingly sacrificed physically and emotionally for the benefit of their slave masters. Today, Death Alley habitants are involuntarily sacrificed so that petrochemical companies and the state government can gain a profit. After all, a third of all Louisiana tax dollars comes from these plants (Bullard 1994, 113). As mentioned before, uncovering the identity behind who is sacrificed in these processes is invaluable in exposing "forms of power that have developed over hundreds of years, whose trend is to dehumanize" (Padel 1995, 5). This area was chosen because of its demographic; corporations want to monopolize on the lack of wealth and political representation of non-white people along the Mississippi. The power hierarchies that originated centuries ago are regrettably flourishing in Cancer Alley as petrochemical companies are sacrificing residents through disease and premature death. The petroleum industry is playing God over innocent people because governmental and economic industries fail to push for any progress. Chapter 3 will discuss the economic motives behind the evil practices perpetuated by the industry. In tandem, I will discuss how the economic conditions in Louisiana, as it's developed over time, has made the state vulnerable to takeovers by big industry. Chapter 4 includes expository analysis of failed promises by governmental agencies involved in the crisis in Cancer Alley. Moreover, productive regulatory bodies and political actors from different regions will be highlighted to show that there is potential for progress in Louisiana.

Chapter 3: The Economy of Injustice

The environmental sacrifices conducted in Louisiana as a whole are motivated, in a broad sense, by the economy of the state and federal government. The petrochemical plants causing abnormal rates of cancer are in search of continuous profit and unobstructed growth– two tenets of capitalism in the United States. While virtually the entire planet falls under a capitalistic method of economic conduct, the true colors of this practice are displayed particularly well in the US. Thanks to the increasingly lax environmental regulations placed on companies at the state and federal level, growth and profit are endless. But as companies all over the country continue with business as usual, people in the surrounding communities are suffering. Weak or nonexistent environmental regulations leave corporations, like those in Cancer Alley, to do almost anything they'd like, without consideration for those that it affects. This chapter addresses the economy of the petrochemical industry at a national, state, and local level by exposing the motivations and rationale behind business as usual. The chapter foreshadows policy struggles that will be the focus of Chapter 4, through the connection between economic and political forces in the corrupt Louisiana state government.

Corporate Protection at the National Level. During World War II, the government got a taste of what industry could do for the nation. At the time, these conglomerates seemed like an effective way to create jobs, boost the economy, and make the US a powerhouse manufacturer. While the latter goal is still at the forefront of the most prominent political minds, governments across the country have failed to follow through with the intended results. This nation still claims, and attempts, to be a leading force in the field of manufacturing; this prospect is unlikely to ever change. But big industries, like the petrochemical plants stationed on the Mississippi, are no longer creating jobs and boosting local economies. Due to the technological advancements of

petroleum companies, most day-to-day production is done with little to no human capital. Under a capitalist regime, companies continue to seek methods of decreasing production costs as a means of boosting profit. Getting rid of paid employees does just that; petrol plants are producing at some of the lowest costs ever, further boosting the disparity between those lining their pockets and the disadvantaged surrounding communities.

Governmental endorsement of private entities is wildly apparent at the national level through the existence of "tax cuts that have redistributed billions to the rich and corporate America, and a willingness to serve the interests of Big Oil and the polluter-industrial complex at the expense of the environment" (Faber 2008, 46). The US economy and federal government are closely intertwined because "the political processes that result in policy formation" and "the working of the legal system are so fundamental to the economic outcomes" of industries like petroleum (Keeler 1996, 7). The legislation that Congress and lobbyists make is a direct reflection on their relationship with private interests. On top of this, protection of business in the United States is ingrained in the oldest laws and amendments of the nation. For example, the Commerce Clause within the Constitution allows for the government to restrict, or loosen restrictions on, the movement of sale between goods. Moreover, this section prevents states from interfering with commerce that the federal government allows. Even if the Louisiana government wanted to restrict petrochemical companies, they are limited in what they can do based on the rules that the national government has already established. While there is some hope for the eventual phase-out of nonrenewable industries like petroleum, progress is extremely slow. Even with the current Biden administration that has focused on a transition to renewable energy industries, the petrochemical sector is as strong as ever.

Perhaps the largest contributor to the covert relationship between corporations and the government is subsidization. In sum, the government is providing tax cuts and financial support to petrochemical companies to help keep them producing and functioning. It's unclear how much money is put into fossil fuels, and its associated industries, but the number is in the billions. In a report from the Environmental Integrity Project (EIP), "64% of plastics manufacturing plants built or expanded since 2012 received subsidies totaling $9 billion" and "84% violated air pollution limits" ("Pollution" 2024). The subsidies are an example of capitalist institutions reaping a benefit created by the government. When this occurs, companies like Shell and Exxon are more likely to pursue further benefits (Holcombe 2013, 541). These businesses enter the political process, seeking out favors from elected officials that hold power over their industry. These exchanges should not necessarily be called favors because they are transactional: corporate entities give support and money to politicians who cut regulations and rules in return. These transactions continue in a cyclical fashion because "people with political power must provide benefits to those who support them" (Holcombe 2013, 543). Typically, members of Congress will vote on bills in the industry's favor; as a reward, they receive sizable campaign contributions. Once these subtle relationships occur, they are difficult to end. Elected officials, in friendship with industry heavy hitters, conduct themselves in a way that is likely to procure their re-election, which often conflicts with what is best for their electorate. Generally, these agreements result in lax federal regulation on companies and large subsidies, like those in the petrochemical industry, that allows them to proceed in a manner that is harmful to many. This example is shown staunchly in the experience of Cancer Alley residents.

On top of the relationship between private interests and the state government, loose federal regulations contribute to horrible living and working conditions for many other groups,

not just those in Cancer Alley. Unfortunately, nationally established regulatory bodies often miss the mark in terms of protecting citizens from the harms of big industry. While these regulation enforcers often start out with a strong purpose and large goals, they are diminished over time by the combative interests of massive companies. To these private interests, "the role of government regulator has come to be viewed as an impediment to economic progress, an intrusion into a free-market society and quest for the American dream" (Jurkiewicz 2010, 38). In another sense, large industries "increasingly consider the quest for justice outside their competence," meaning that they do not think or wish to conduct themselves more sustainably (Byrne 2017, 23). Even political actors that seek to make progress for disadvantaged communities are obligated to fall in line with the demands of private entities that seek endless economic growth. If they don't, they are subject to intense scrutiny, political failure, and possible lawsuits. For-profit organizations dislike regulation because its parameters restrict the methods of production to those that are more sustainable for the planet, making the costs of operation increase. This desire for outcomes such as "efficiency, profit-seeking, minimizing costs" are the main driver of pollution and unequal living conditions for communities that share residency with industry (Keeler 1996, 5). Companies such as Dow, Exxon, and Formosa "want to produce more things, more cheaply, for higher profits and incomes" on top of the massive subsidies they already receive (Keeler 1996, 5). When industries conduct themselves in this way, it clashes with "existing desires and preferences about environmental outcomes" that disparately affect poor and non-white communities over any others (Keeler 1996, 5). What politicians and government officials must recognize is the dire need for such sustainable practices, especially in areas like Cancer Alley, where petrochemical plants are poisoning bystanders with their lazy manufacturing and waste disposal processes.

Large private corporations, like those stationed along the Mississippi, have skirted federally imposed regulations and sanctions to the point that they are allowed to act freely. This is largely due to the friendship between private and public agents, developed through a mutualistic relationship that allows both parties to gain while innocent people lose. At the crux of this entire issue is the fact that "even if companies are forced to abate or make more efficient processes, they are still growing, as capitalism requires, and are outperforming their solutions" (Howes 61, 2005). No matter what new technologies the government requires polluting industries to use, they will not last. Growth and expansion is inherent in capitalism, meaning that the poisoning will continue until these industries are relinquished by the federal government.

Louisiana: The Perfect Storm. While the federal government and Louisiana state executives claim that these industries are helping to "boost" the economy, this so-called benefit is never reaped by those of Cancer Alley. The Louisiana government is collecting millions upon millions of tax dollars from petrochemical plants annually. They claim that this money trickles down into poor communities and is manifested through better funding of public services. This is obviously false considering that the communities in Cancer Alley are some of the poorest and polluted in the country. The state has made no effort to invest in their health and wellbeing or prevent petrochemical companies from continuing on with business-as-usual. The lack of state investment in these impoverished communities, coupled with the absence of regulations on petrochemical companies creates a perfectly awful storm for Louisiana residents. They sometimes don't even realize the harm living next door and are not granted much recourse for making their situation better. The people in Cancer Alley are left powerless against massive corporations because the only way to make change is through financial means, such as moving, lobbying, or taking legal action.

Traditional environmentalism has been focused on global or widespread climate issues such as conservation, wildlife preservation, or population control (Bullard 2000, 1). This method of environmentalism was most popular among white and wealthier groups that had the time, energy, and resources to devote towards pervasive problems. It was not so popular among people of color and impoverished communities because they simply didn't have the resources and were focused on the specific issues they were experiencing within their communities. With the rise of environmental justice over the last few decades, people of color and poor communities were given an avenue to express the discrimination they were, and still are, facing. Environmental justice differs from mainstream environmentalism in the way that it highlights pressing and real life problems for groups that normally don't have an outlet for these concerns or a way to vocalize them. For the residents of Cancer Alley, they were abandoned by mainstream environmentalists and thus left to fend for themselves without the resources of large, traditional environmental groups. The atrocities in Cancer Alley are strong examples of environmental justice issues that should be the focus of all types of environmentalists, but it's unfortunately not the case.

The invasion of petrochemical plants into the Mississippi River territory has occurred because of social and racial issues highlighted in the environmental justice movement. In the words of Robert Bullard, "toxic dumping and the location of locally unwanted land uses (LULUs) have followed the 'path of least resistance,' meaning black and poor communities have been disproportionately burdened with these types of externalities" (Bullard 2000, 3). Instead of LULUs being placed in wealthy neighborhoods, they are placed in the backyards of non-white communities, simply because they do not have the same access to fighting back. In areas such as Cancer Alley, "environmental racism combines with public policies and industry practices to

provide benefits for whites while shifting costs to people of color" (Morrone and Buckley 2013, 5). The lack of economic and representative opportunities in Cancer Alley makes the area a prime candidate for companies looking to take over. Poor and otherwise disadvantaged communities do not have the same resources to fight against LULUs.

Once these petrochemical plants take hold of an area, such as Cancer Alley, the economic prospects worsen for inhabitants, while the companies themselves start to make a fortune. As harmful plants put down their roots, the value of nearby properties decrease as well. For residents attempting to relocate for their health and safety, they are not able to get back the investment they put into their property. On top of this, there are little job opportunities within these plants for low-income community members; the job sites are highly technical due to advances in the production methods, meaning that most people living nearby cannot qualify for a position. The petroleum plants also drive out or overtake other businesses in the area, further depleting the limited employment resources for residents. Without job opportunities or enough money to move, Cancer Alley's population becomes fixed in place and unable to escape the harrowing pollution and waste coming from the refineries.

When residents work together to create opposition to the conduct of a petroleum plant, they are met with attempts to block them. For example, they are often offered "compensation, economic incentives, and monetary inducements" in return for their relocation off highly sought after land, or simply for their silence (Bullard 2000, 84). In some cases, "city leaders may endorse trade-offs" in which they gain some form of compensation, in return for land grants along the Mississippi (Bullard 2000, 85). This occurs even when residents are in direct opposition to the siting. One example of such monetary incentives is buyouts. Companies in this area are notorious for attempting to buy residents' homes at terrible rates so that they can make

room for expansion. Residents are usually offered extremely low valuations on their homes that do not provide them with enough liquidity to move and purchase another property. In a more sinister approach, “many of the community buyout settlements are sealed” in order to “limit public scrutiny, community comparisons, and disclosure of harm or potential harm” (Westra and Lawson 2001, 22). Many residents that accepted a settlement offer from their neighboring plants were required “to sign waivers that preclude them from bringing any further lawsuits against the polluting industry” (Westra and Lawson 2001, 22). This is yet another tactic employed by petrochemical companies to minimize community lash back, silence their pleas for justice, and evade any responsibility for their actions. When residents have brought lawsuits against petrochemical companies, their compensation is unfair and disproportionately low because of their race and socioeconomic status. During the 1980s, Cancer Alley residents “filed a $3 billion class-action lawsuit against Rollins and in 1987 reached a settlement with the company” for merely a fraction of what they were rightly owed (Taylor 2014, 25). The Rollins plant had been leaching toxic gases and chemicals into the town of Alsen, causing residents to be afflicted with a slew of diseases. The plaintiffs “received between $500 and $3,000 and for that they gave up their rights to bring any further litigation against the company” (Taylor 2014, 25). This meant that the residents lost any future power to seek compensation or punitive damages from the company. Many community members were grateful to receive any sort of payment after years of painfully slow litigation. Just years later, “a wealthy White property owner who lived adjacent to Rollins sued the company for the death of his cattle " after some waste products had been leached onto his property (Taylor 2014, 25). For the death of his cows, “he received $500,000” (Taylor 2014, 25). Alsen residents that developed cancer or respiratory illnesses as a result of the Rollins plant received not even one percent of the compensation that the cattle farmer was given. In this

ruling, the court and Rollins plastics plant set a precedent that white lives and animals' lives mattered more than those of the Black community.

The positioning of the petroleum industry within capitalism, the market, and the economy has allowed companies such as Formosa, Dow, and Exxon to conduct business in almost any manner they choose. The federal government has backed this behavior with their use of subsidies and tax cuts to make the industry even more profitable. The relationships between politicians in Congress and the petroleum industry continue to prosper, resulting in long lasting favoritism of big industry in government. On top of the subsidies, the federal government is lacking all regulation that would force these companies to take responsibility for the conditions they inflict upon neighboring communities. Regulation would force companies to limit their waste products, enact more sustainable measures, and pay for the damages done to areas like Cancer Alley. Without any of these resources, Louisianans are struggling to fight back against big industry. But there is hope that the growing environmental justice movement can empower communities within the region to finally gain the reparations and equity they deserve.

Economic Modes of Regulation. The federal system has stood idly by for decades, hoping that technological advancements or growing ethical mindsets will lead to better practices from harmful industries, without incentivization. As we can see, this is highly unlikely in the face of capitalism and external motivators. For any progress to be made, policy, produced by the legislative branch and enforced by the judicial branch, must "limit the industry itself" (Ashford and Caldart 2008, 22). These limits must regulate the reckless practice of petrochemical plants, with close attention to their methods for waste disposal. The rest of this chapter will discuss attempts at regulating the petrochemical industry and other large sectors, as well as a discussion of more opportune methods of regulation.

One of the most promising yet failed regulations in the nation is the Clean Air Act, passed in 1990. The act was created to give the Environmental Protection Agency (EPA) more power when it comes to creating better quality of air in the United States. The goal of the Clean Air Act was to research and effectively ban the use of harmful chemicals that factories release into the air, regardless of the specific industry (U.S. Environmental Protection Agency 2023). Banning certain chemicals from entering the air would put a financial strain on companies and force them to comply. But the bans against toxic air pollution are useless if the EPA doesn't know what to ban. The shortcomings of the Clean Air Act have occurred because the legislation has not been updated to include many of the toxic chemicals that are released not only in Cancer Alley, but all over the country. In addition to this, the EPA has never been granted the funding it would need to carry out research at this scale. What was once a hopeful fresh start for pollution regulation in the US, has turned into a futile piece of legislation.

Despite the upsetting blunder of the Clean Air Act, this type of nation-wide legislation can be useful in forcing companies to change their methods so that they are not constantly spewing toxic pollutants into innocent people's air. As proven through case studies in other countries, "unintended pollution releases – all else remaining the same – reduced" once rigid liability was placed on companies (Elgar 2001, 112). Forcing companies to be liable for the damage they create is powerful enough to create strong movement from within the market as a whole. For example, if every petrochemical company had to pay for the medical bills, funerals, and financial compensations of the residents in Cancer Alley, they would choose to change their methods of waste disposal. Because "firms have developed behavioral responses to avoid liability when they are strictly liable for releases of hazardous chemicals into the environment,"

making them take ownership is threatening enough to generate more sustainable industry practices (Elgar 2001, 112).

Regulation at the parish and state level in Louisiana has failed largely because of the state's support of the industry, but there are other factors at stake as well. When it comes to pushing for any type of economic sanctions at the state level, firms and those that are knowledgeable about the industry are better equipped to push their agenda than the general public (Holcombe 2013, 545). These firms have intense resources, knowledge, and experience, thus giving them the upper hand in ensuring regulations are loose. Residents in these states struggle to unite with a common goal and formally push for economic changes due to similar constraints. When pushing for more regulatory controls, regulators and the general population must gain vast amounts of information to accurately accomplish their goals. Oftentimes, this knowledge, such as the types or amounts of chemicals being leached into the environment, is unknown to everyone but the company (Holcombe 2013, 545). As a consequence, it is nearly impossible for residents or the state to control something they have no knowledge of. It is difficult to control the number of pollutants emitted due to the complexity of the systems and lack of information.

As mentioned before, methods of regulation can be one of the most effective ways to limit the petrochemical industry. Despite this, there has not been much success in implementing any constraints on the industry. Some of the flaws with trying to control the number of toxic harms released externally include "end-of-pipe focus, cross-media waste shifting, environmental transport of pollutants and wastes, sanctioned release, failure to regulate many toxic materials, and economic inefficiency" (Cohen and O'Connor 1990, 270). End-of-pipe focus refers to the way in which pollutants are only dealt with once they are imminently going to be released into

the environment. Cross-media waste shifting is a result of certain types of regulation; with this, the deduction of pollution through one type of medium such as air, can result in the increased pollution of soil and water resources. The remaining issues could be classified as logistical concerns presented when considering alternative approaches to pollution remediation. I now offer a few possible regulation styles that could be more feasible and productive when thinking about the benefits reaped by Cancer Alley citizens. One such idea is that the tax placed upon petrochemical companies be "based upon the quantity of oil and gas removed from the ground rather than on the market value of the resource when it was extracted" (Markowitz and Rosner 2003, 235). As discussed in chapter 1, many of these petrochemical plants are refineries in which crude oil is delivered and purified so it can be used to manufacture other products. Companies are currently paying for the price of the oil as is set within the market. This proposal aims to charge based upon the volume of oil that is pumped from the ground. Moreover, this type of regulation seeks to charge with the context that oil is a nonrenewable resource and thus should actually be priced much higher than it is.

Another method of regulating the petrol industry in Louisiana is to place fines on companies that violate the amount of permitted pollution. In this sector, companies are typically allotted a certain number of permits. These permits are essentially get-out-of-jail-free cards that allow companies to pollute up to a certain amount in a calendar year. When companies go in excess of their permits, they are fined as a way to try and keep them in check. There are surely a few drawbacks to this method. The first is that "if companies are not severely fined, such that they lose any economic benefit they might have gained from not instituting proper pollution measures, there will be a strong incentive to pollute" (Allen 2003, 62). The EPA has long since stressed the importance of keeping fines high in order to make the permit system function. The

Louisiana Department of Environmental Quality is in charge of placing fines on companies within the state that violate their pollution limits, which are already extremely low. About 20 years ago, the average fine placed on a violating company "was $7,283 compared to Texas's average fine of $59,671" (Allen 2003, 63). Texas, a state that is politically and industrially aligned with Louisiana, was implementing fines over $50,000 more. Texas also relies heavily on petrol products in their state economy, but they still placed an emphasis on responsibility and fined their companies accordingly. Another issue with the permit system is that it's extremely difficult to measure the emissions of plants and refineries in order to hold them accountable.

Some scholars argue that the most salient solutions are those that involve innovation as a key to fixing pollution and emissions. Ashford and Caldart argue in their 2008 book *Environmental Law, Policy, and Economics* that successes in regulation "occur only when the relevant technologies of production are changed to eliminate the pollutant" (22). Unfortunately for the situation in Cancer Alley, there is not a way to refine petroleum and manufacture its resulting products without serious emissions of toxic chemicals into the air, land, and water. It seems nearly impossible for refineries to conduct their processes without emitting some sort of byproduct. In addition, even if petrochemical plants can prevent emitting into their surrounding environments, there is almost certainly a guarantee that they will still generate waste products. These waste products must be put somewhere. In Louisiana, they are often dumped into large pits in the ground, the coastal wetlands, or even the Mississippi River. From this perspective, it does not seem plausible that petroleum companies could or would ever choose to innovate their way out of emitting harmful toxins.

Stricter sanctions upon the industry in Louisiana can have a fruitful result in terms of reducing pollution and its associated side effects. The chemical plants in Cancer Alley "release

nearly 10 times as much pollution per worker as such plants in New Jersey and California, where law enforcement and industry spending for pollution control and abatement are greater" (Faber 2008, 52). New Jersey used to be referred to as Cancer Alley, until the state government was made aware of the injurious health effects. Since then, New Jersey has taken great lengths to reduce the pollution of nearby industry, and as a result has almost entirely pushed out these companies. In other words, because Louisiana has some of the worst environmental protections in the country, it also has one of the most polluted environments (Faber 2008, 53). The causal relationship between lax regulation, widespread toxic pollution, and resulting adverse health effects can no longer be ignored. Applying regulations on industry can have positive outcomes for more than just human and environmental health. For example, "it could help revitalize the US economy by stimulating technological innovation, by creating long-term business investment patterns, by renovating and changing production processes, by introducing new and environmentally benign products and services to the market, by demonstrating a new commitment to developing the skills of American workers, and by making a major national commitment to tailoring US technologies and products to the environmental situation of the twenty-first century" (Cohen and O'Connor 1990, 270). While technological advancements are not the cure for Cancer Alley residents, innovation can be a beneficial outcome of imposing stricter regulations on industry in Louisiana.

The economic situation in terms of environmental racism in Cancer Alley is a complex one. There are macro and micro aspects to be considered, along with the persistent involvement of government at all levels. There are protections for these companies, because of their mutualistic relationships, created by the same representatives who are supposed to be pushing for better environmental policies. This advantage, along with the monetary and power imbalances

between Cancer Alley residents and their oppressors, further creates a dire economic situation in southeast Louisiana. In most areas of the alley, residents don't even know the chemicals they are trying to fight back against because this information is never released to the public. The lesson to be learned from this chapter is that "the divergence between private and social costs is the fundamental cause of pollution of all types" (Ashford and Caldart 2008, 30). When companies stop caring about the externalities of their production processes, communities begin feeling the damaging effects.

Chapter 4: Political Neglect and Corruption

As partly discussed in the previous chapter, the catastrophe in Cancer Alley is made up of environmental, economic, and political intricacies that overlap and complicate one another. Money, or economics more generally, is an underlying theme between both the issues and the solutions for Louisiana residents. Politics, in the context of this case study, provides an explanation of the lacking progress on the environmental front. To take it one step further, policy and its surrounding actors can be one of the best avenues for taking big steps in the right direction. Unfortunately for alley inhabitants, neither the state nor federal governments are truly on their side. While there have been some federal attempts to alleviate toxic pollution consequences such as this one, the final verdict stands that the government has not done enough over the last 50 years. The state, Louisiana in particular, is even worse; the government is in bed with petrochemical companies and has been for over 100 years. The loyalty between these two groups runs deep. To make things worse, the Louisiana government attempts to bolster their environmentally friendly image to residents but the dark truth is that Louisianans are being sacrificed by their own elected officials because of greed. This chapter will discuss the

corruption of government at state and national levels as a precursor to highlighting the neglect that ensues. Lastly, some examples of opposition to these injustices will be highlighted as a foreshadowing to the proposed solutions that will be discussed in Chapter 5.

At the Federal Level. The federal government and environmentalism finally collided in the middle of the 20th century when concerns about social and racial justice included the areas in which people live, work, and play. With this intersection came government intervention that hadn't been executed or practiced before, causing rocky results; this description may still be applicable today. One of the largest initiatives taken was the creation of the Environmental Protection Agency (EPA) during the Nixon administration in 1970. The EPA was established through the National Environmental Policy Act and kicked off what historians nicknamed the 70s: the environmental decade. Such a nickname breeds high hopes for a decade that did not ultimately live up to expectations. When the EPA was created, it involved the movement of other government sectors into its jurisdiction, such as those that concerned agriculture, water quality, and air pollution. With such a large federal jump, political actors on both sides of the aisle became concerned. This manifested in backlash at President Nixon and his administration. As a way of clinging onto his electorate's support, President Nixon imposed a reputation of limiting the EPA's potential. Regrettably, this kickstarted a tradition in which "subsequent presidents have made sure that several other agencies, committees and offices kept the power of the U.S. EPA in check" (Howes 2006, 53). During its inception, the EPA had the ability to make serious and lasting changes for the United States, but budget cuts and lack of political prowess have diminished its role in fighting environmental plights. In its peak form, the EPA has the legal jurisdiction to enforce compliance with industries, research cases of environmental wrongdoing, and create solutions for affected communities ("Basic Information"). More specifically, the EPA

can place fines on companies, hold them accountable in court, and force them to pay for the damage caused by their illegal actions.

A prime example of this lacking involvement can be seen when looking at Louisiana and their response to environmental issues. The EPA conducted reports in the early 2000s on the enforcement of federally created environmental regulations in all fifty states. From the results, the EPA found that Louisiana had the worst enforcement rankings of these policies in the entire southeastern United States (Hochschild 2016, 109). It is unsure how they stack up against all other states because comprehensive investigations have not been conducted there. Moreover, the Louisiana Department of Environmental Quality (LDEQ), their state-level version of the EPA, "did not know if many companies were or were not 'in compliance'" (Hochschild 2016, 109). The EPA has known for nearly twenty years that the state of Louisiana was failing to protect its land and people from destructive industries, yet they have not proceeded to increase their involvement. They have actually done the opposite; the EPA recently dropped an investigation into the toxic emissions coming from petrochemical plants and their effect on nearby residents because they received overwhelming opposition from massive companies with interests in the area. This display emphasizes the worst flaw of the EPA: "they neglect to identify private industry as the prime locus of pollution and the focus instead is on assisting some anonymous 'others' to develop better technology" (Howes 2005, 60). In other words, many state governments, including Louisiana, focus on abatement through expensive and ineffective technology, as opposed to stopping the toxic pollution at its source. As mentioned in the previous chapter, technological advancements will not work, as they eventually will fall behind due to the exponential nature of capitalism. Empty promises from the EPA about innovating our way out of catastrophe only worsens the living conditions in Louisiana.

In the State of Louisiana. As detailed above, the delegation of environmental protection to the states is the worst-case scenario for Louisiana due to their heavy reliance on big industry. To recap what was explained in Chapters 1 and 2, "Louisiana was rich in natural resources and offered a low-cost labor force and a state government eager to provide lower taxes and lax environmental regulations" (Markowitz and Rosner 2003, 234). This made the state extremely attractive to chemical and oil companies looking to expand their empires into other states or countries. When these corporations came in, they were charged various property and import-export taxes by the state government as a form of payment, in exchange for cooperation from the state government. The revenue raised from these taxes was supposed to trickle down into the pockets of every Louisiana citizen and improve quality of life state-wide. Instead, the political agents at the top gained a profit and were cemented into their positions of power now that they had the industry's loyalty. This process continues today, with many politicians selling out their vote in exchange for monetary and electoral benefits.

Arguably the most controversial political figure in Louisiana is Cedric Richmond. Richmond is a seasoned Democratic politician from New Orleans who represented Louisiana's 2nd District in the House of Representatives from 2011 to 2021. For the 10 years prior to that, Richmond served in the Louisiana House of Representatives with his jurisdiction being the 101st district ("Cedric L. Richmond"). While Richmond was in Congress, he was a co-chair for President Joe Biden's successful election campaign. As a so-called reward for his aid in Biden's campaign, he became a member of the cabinet, serving as the Director of the White House Office of Public Engagement ("Congressman Cedric Richmond" 2022). Based on these accolades, it's apparent that Richmond is high ranking in the Democratic party. As mentioned, Richmond represented the 2nd Congressional District of Louisiana. In Figure 6 below, a map depicts the

Congressional districts in the state. The coloring is no coincidence; the red and blue areas are demarcated to show the party affiliation of the district. Fittingly, Richmond represented the only Democratic district in the state. The 2nd Congressional District almost perfectly overlaps with the boundaries of Cancer Alley.

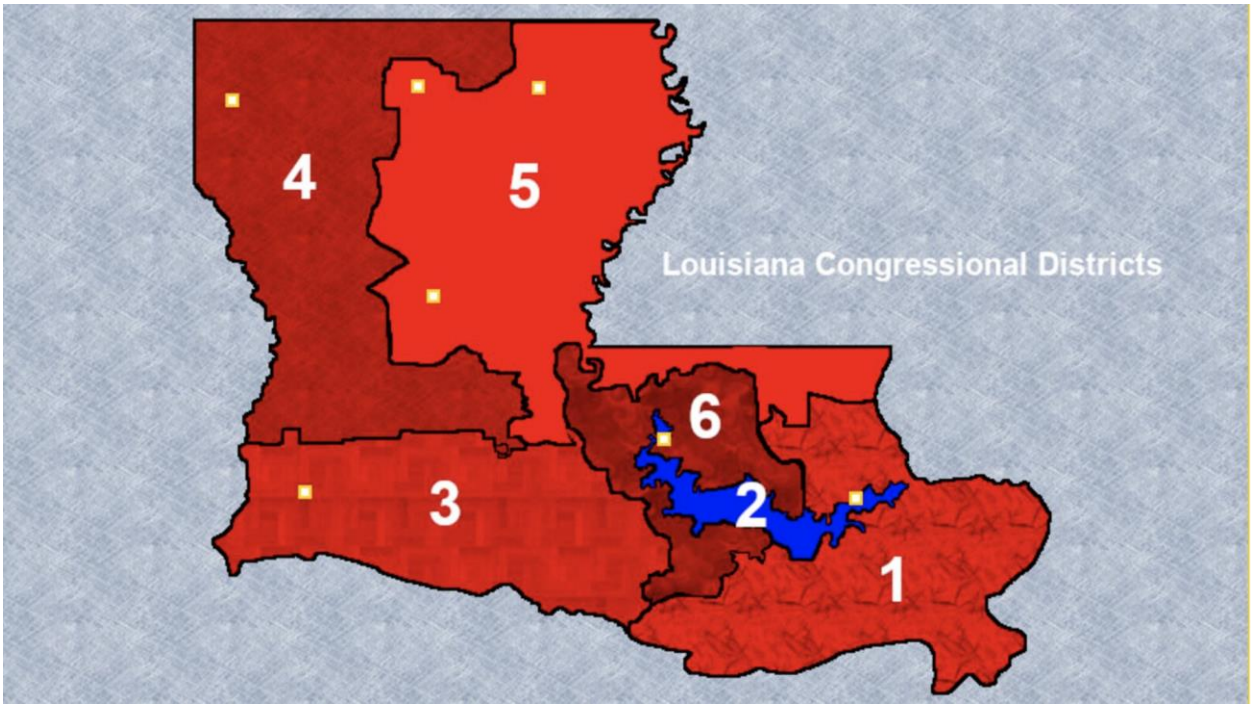

Figure 6. “Louisiana Congressional Districts,” KNOE News.

The source of controversy behind Richmond lies in the motives behind his political actions. Throughout his 10 years in Congress, Richmond accepted over $300,000 in donations from petrochemical companies and their affiliates (“Representative Cedric Richmond” 2020). Some of these companies included Chevron Corporation, which used to go by the name of Standard Oil, Exxon Mobil, and Chesapeake Energy, all of whom utilize lobbyists to donate and coordinate with their selected candidates (“Richmond for Congress”). These companies employ lobbyists to give money to campaigns and willfully push for the legislation that the private interests desire. In this case, it appears that companies like Exxon recruited lobbyists to donate to

Richmond's campaign; these donations are not just gifts, they are quid pro quos. In return for support, Richmond was almost certainly expected to support these industries while in office. At first glance, this looks terribly incriminating for Richmond. But there is another aspect to consider; Richmond tried to push for policies in the House of Representatives that would provide monumental help for his district in Louisiana. For example, Richmond sponsored and introduced a bill called H.R.314, also known as the Communities and Environment First Act of 2021 ("H.R.314" 2021). The goal of the bill was to provide federal funding for the relocation of communities that are located dangerously close to petrochemical facilities ("H.R.314" 2021). Moreover, the bill sought to remediate the hazardous effects of petroleum refineries on neighboring communities and do away with the tax exemptions that large industries receive. In the last chapter, I discussed the harsh consequences of lacking regulations; this bill would largely combat the chokehold that conglomerates have on Cancer Alley. In addition to H.R.314, Richmond also sponsored H.R.313, known as the Targeted Federal Funding to Invest in Communities Act. The focus of the bill was to support "state, territorial, tribal, and local governments in providing resources to residents, especially those in historically underserved communities, to improve measurable outcomes for health, education, and quality of life" ("H.R.313" 2021). This piece of legislation homes in on the most salient aspects of Cancer Alley: it's an underserved community in which residents have diminished quality of life and health outcomes. For both H.R.314 and H.R.313, Richmond was the only sponsor of the bills, meaning no one else helped to write or introduce the legislation. This tells us two things; firstly, this legislation was radically progressive enough to the point where other Democrats did not want to back him. This lack of support could also be attributed to the fact that other House Representatives from Louisiana were from the opposite party. Secondarily, the lack of

sponsorship indicates that Richmond's bills had little to no hope of passing through Congress. For a bill to be passed, it usually needs immense support from heavy hitters within Congress and the backing of a committee. Whether Richmond intended for the bill to fail or not is up for interpretation.

The controversy surrounding Cedric Richmond comes from the clash between his campaign finances and the work he has done in the House of Representatives. While serving in office, he did push pieces of legislation that would greatly benefit his constituents. But these proposals made no progress and were not backed by any other members of Congress, indicating something eerie going on behind the scenes. Compiling with this, Richmond accepted hundreds of thousands of dollars from the very same companies that are slowly poisoning his constituents. The jury is still out on Cedric Richmond, but his overall attempts to help his people have been futile. This theme echoes among most other elected officials from Louisiana, displaying the pitfalls of the political system within the United States. Residents of Cancer Alley elected Cedric Richmond, and hopefuls like him, with dreams of them fighting for a better future. It appears that no matter who Louisianans vote for, their interests will never be thoroughly represented.

One of the most famous fighters against this submissive regime was Huey Long, the governor of Louisiana from 1928-1932. He went up against Standard Oil, the most powerful petroleum company of the time, through legislation and imposed financial burdens. While in power, he pushed the Louisiana state legislators to pass a bill requiring economic setbacks for petrochemical companies that would limit their influence, control, and profits in the state. Long did this because he cared for the people of Louisiana and could not stand to see conglomerates taking over innocent communities. This cause was not an easy battle. Long's opposition frequently paid off legislators with $20,000 buyouts in order to sway them to vote against Long's

desired increase in taxes (Markowitz and Rosner 2003, 236). In today's monetary terms, that's the equivalent of over $300,000 paid to over a hundred individuals. Payoffs in such high numbers give base to the financial influence of companies like Standard Oil and their competitors. To residents' dismay, the progress of Huey Long was eventually unwound by his successors which led the state back into a tug-of-war with petrochemical companies that continues to this day.

Another champion of environmental causes is Buddy Roemer, the governor of Louisiana from 1988 to 1992. He went on a campaign similar to that of Huey Long but in a time more dire. In the 80s and 90s the recognition of environmental justice and environmental racism was growing. Activists, political figureheads, and companies within the state were starting to realize the systems of oppression holding down people of color and poor communities. Roemer initiated multiple programs to embark Louisiana's industries on a greener path (Markowitz and Rosner 2003, 236). His predecessor and successor, Edwin Edwards, criticized him greatly for limiting the power and profitability of industry and creating too much government interference in the private sector. Edwards' claims eventually won in terms of political support as he defeated Roemer in the next gubernatorial election. At the end of the day, Roemer's intentions were never pure. Even though he fought for a "greener" Louisiana, he actually wanted to create more profitable and technologically advanced industries with the potential to increase his political punch. This historical account is disparaging to the image of Louisiana governors but acts as a strong example of the pervasive corruption within the state's political system. It also draws a parallel to the case of Cedric Richmond, who also had flaws and downsides to his political stance. The issues with Roemer and Richmond highlight the corruption of elected officials and help to paint the picture of how industry gained so much power in Louisiana. This deceit is

concentrated into the hands of the most powerful political actors of the state, ensuring that the same practices occur at lower levels as well.

Perhaps the most prevalent example of governor corruption is that of Bobby Jindal who held the position from 2008 to 2016. During his reign, a sinkhole was created in a massive salt dome underneath the Louisiana bayou. The walls of the salt dome were punctured through drilling conducted by petrochemical company Texas Brine, causing the dome to lose integrity and create a sinkhole (Hochschild 2016, 100). The sinkhole sucked in water, trees, and plant life from the bayou while spitting up mud, oil, and sludge, essentially destroying the bayou's health and biodiversity. The locals, who were forced to flee due to high levels of gasses emitted into the air, nicknamed it the Bayou Corne sinkhole. Hundreds of families, who were already struggling financially, were forced from their beloved communities on short notice, due to the negligent actions of a massive conglomerate. As it turns out, Scott Angelle, the secretary for the Louisiana Department of Natural Resources, knew of the weaknesses in the salt dome, but let Texas Brine continue drilling (Hochschild 2016, 108). To top it all off, Governor Bobby Jindal took seven months to visit the sinkhole, located just a five-minute helicopter ride from his office. When he visited the site and heard from residents, he responded in an avoidant, urgent, and careless manner. In reality, Governor Jindal had no answers because his own office was liable for the intrusion and conduct of these companies; there was no one else to blame but himself. It is extremely disappointing that the elected officials who are instilled with the power to protect their constituents, are the same sell-outs that endanger them. The corruption within the Louisiana government can be boiled down to the idea that "more government is involved, the more business profitability depends on government support rather than on productive activity, so political connections become all the more important for business success" (Holcombe 2013, 541-

542). Companies situated with Cancer Alley work their way into relationships with elected officials because it's necessary for their survival. As a consequence, the health and wellbeing of everyday citizens is sacrificed by actions like those of Texas Brine.

Fighting Back. From the previous paragraphs, it would seem that the conditions in Louisiana are pretty bleak. This is true to an extent; there is little to no support from the federal or state governments. But the oppression and neglect directed towards the people has emboldened them to take control of their lives and communities. There is a strong history of rebellion and activism in this region, dating back to the days of slavery. Since then, minorities have been taking a stand against their tormentors, whether that be plantation owners, corrupt politicians, or the entire petrochemical industry.

Throughout the civil rights movement, the "Congress of Racial Equality (CORE) began major organizing drives to register voters and to desegregate stores, public buildings, and the workforce" (Markowitz and Rosner 2003, 240). By increasing their public engagement and stake in the welfare of the state, people of color in Louisiana were slowly empowering themselves against the petrochemical bullies. Moreover, CORE continued to do the work by bringing in "volunteers who challenged segregation and thereby threatened the power of planters, industrial leaders, and state and local officials" (Markowitz and Rosner 2003, 241). CORE recognized early on that environmental racism is woven into Louisiana's history. The siting and scare tactics of petroleum companies continued that legacy.

As CORE and other activist groups have worked to unite Louisianans under one common goal since the 1960s, the state government has continued to combat them just as strongly. The largest block to activism in the state has come through the "critical infrastructure law has rendered protest on or near the region's ubiquitous industrial infrastructure a felony" (McCoy

2023, 582). In 2018, Louisiana passed a critical infrastructure bill after the petrochemical industry pressed them for more protections against protest. This came about in the wake of movements such as Occupy Wall Street and Black Lives Matter (McCoy 2023, 594). This law made it illegal and punishable to protest near or on a company's property. This included pipelines, which are hidden underground and crisscross over the entirety of the state. The legislation essentially blocked all forms of protest in an area that needs to be confronted the most. The issue with the law is that it contains extremely broad definitions as to what counts as company property, causing it to severely limit freedom of speech for protesters. As one legal source writes, "Equal Protection and First Amendment law do not adequately address this disproportionate censorship of Black communities based on their high concentration of environmental hazards" (McCoy 2023, 582). Black communities should instead be uplifted and made to be heard considering their lacking representation in all areas of the United States such as politics and environmentalism. For those trying to demonstrate against petrochemical companies, a violation of the infrastructure law could result in five years of prison and thousands of dollars in fines (McCoy 2023, 595). Despite the extreme law, activists have gone down the legal avenue and are currently in the process of litigating two court cases against the state and these companies for infringement of basic rights, as they are seen in the Constitution. The outcome is yet to be determined, but citizens of Cancer Alley are resilient. No matter the decision, they will keep fighting to protect their communities and end the tyranny of petrochemical companies.

It is equally as prevalent to discuss the road bumps and issues that Louisianans find when fighting corporate corruption. When trying to fight this issue of environmental justice, activists and residents do not always share consensus on which approaches are best. As a consequence, "the environmental opposition suffers from a lack of cohesiveness among its myriad groups"

(Switzer 1997, 275). Moreover, activist groups that wish to help those in Cancer Alley suffer from the fact that the environmental justice movement has an "institutionally rooted inability to define and pursue a coherent set of environmental policy priorities" (Foreman 2000, 4). In short, interest groups in Cancer Alley are struggling to mobilize and unite in a way that is beneficial for everyone. In addition to this, any attempts to remedy the situation in Cancer Alley clashes with "a lack of resources with which to mobilize its members or influence policy, the absence of an articulated policy program, and the countervailing forces of public opinion" (Switzer 1997, 275). There is widespread opinion amongst the community members, and those trying to help them, about what solutions are most salient. Some residents are willing to take a settlement offer and relocate, while others are attached to the history, culture, and tradition of their land. Many residents who take settlements seek a better life for their families, an aspect that is of the utmost importance to them. Whichever side of the issue you stand on, the communities on the Mississippi know that relocation will not solve the problem; it may only make things worse by allowing companies to expand their operations and streamline their production processes. Community leaders and activists also differ in their outlooks when it comes to deciding what methods of opposition will be the most valuable for those being negatively impacted. As mentioned, Cancer Alley covers a stretch of land almost 100 miles long, meaning there are a myriad of activism organizations and community alliances happening at once. Some of these progress groups include Rise St. James, Louisiana Environmental Action Network, Louisiana Bucket Brigade, and the Sierra Club (Greenfield 2022). All of these groups have varying approaches with the same end goal in mind. On the one hand, this can be more effective as trying multiple perspectives ensures higher rates of success. But in reality, the lack of strong coalitions within Louisiana creates a dispersed and ultimately less powerful movement. When trying to

take down a multi-billion-dollar industry, forming a strong union of activists, lawyers, policymakers, and community members is primary.

The activism and awareness-raising in Cancer Alley has been monumental in helping local citizens get informed and stay informed. But as mentioned, the petrochemical industry is unthinkable in size and is being protected by the federal government. That being said, one of the only entities that may be able to bring the industry to the ground is the government itself. This creates a slew of issues for residents who are not heard by their representatives or have a strong distrust in the government. Making federal policy to alleviate the issues in Cancer Alley is proving to be quite the issue as there are several obstacles in the way. Some of these include "the lack of congressional support, the primacy of states and localities in siting issues generally, and the infeasibility of what would otherwise be an obvious policy response– a ban on new siting in low-income communities and communities of color" (Foreman 2000, 3). As seen with the example of Cedric Richmond, Congress is not actively supporting progressive bills that would make monumental strides nor are they working on a ban for new facilities in Cancer Alley. Moreover, it is extremely difficult for the federal government to address goals "for community empowerment, for social justice, and for public health" seeing as these are area-specific aspirations that federal policy may not be able to touch (Foreman 2000, 3). Lastly "the EPA and Congress will probably lack strong scientific justification for major policy changes" in the petrochemical sector (Foreman 2000, 3). While there is strong data regarding the adverse health effects placed on Cancer Alley residents, scientific research provides an array of cancer rates. While all of them display alarmingly high instances of cancer, the federal government and its regulatory agencies cannot make policy when the data is inconsistent. This was discussed briefly in the first chapter, but the rates of cancer recorded by researchers has varied greatly, leaving the

results vulnerable to scrutiny by the industry. That is exactly what happens: any research published has been discredited and painted in a bad light by petrochemical companies. These companies do not want the data to be taken seriously, or else it could mean serious consequences for them.

Another course of action for Cancer Alley residents seeking justice is through lawsuits. Most lawsuits brought against petrochemical companies have been based on "Title VI of the 1964 Civil Rights Act" which "prohibits the use of federal funds in programs having discriminatory effects" (Kraft and Vig 2003, 265). This type of lawsuit is most useful when trying to prevent the siting of a chemical plant because evidence of adverse effects on nearby neighborhoods can be used. Title VI is especially interesting because it calls out the federal funding of petrochemical companies and uses this against them. Another method of employing Title VI is to sue as an individual, or within a class-action lawsuit, for compensation after a petrochemical plant's actions inflicted damage of any form. These cases are more difficult to get to trial and win because "many people had concluded that the courts could not address illnesses such as cancer, which could be triggered at one point in time but not actually appear until many years later" (Anderson 1997, 119). Previous cases focused on issues of point pollution as a cause of damage, not carcinogens that may build up over time. Legal experts are increasingly opening up to these cases at the same time that judges are becoming more equitable, just, and fair with their rulings. One example of using the law successfully occurred in 1993 when "the EPA sued Borden Chemicals and Plastics for illegally storing and disposing of large quantities of hazardous chemicals that eventually contaminated the groundwater in nearby poor and minority communities" (Kraft and Vig 2003, 265). Borden had already been allotted a certain number of permits to pollute, but they had egregiously exceeded this by haphazardly storing chemicals in a

way that negatively impacted surrounding neighborhoods. This was the first time a case regarding environmental racism won in court (Kraft and Vig 2003, 265). This small yet impactful victory displays the power of governmental intervention; the difficulty lies in attracting the attention of regulatory bodies and compelling them to take the issue on.

The political situation surrounding Cancer Alley is nuanced: industries have built deceitful relationships with elected officials on every level, from Washington D.C. to the local parish. These mutual agreements benefit those in power in the corporate and governmental sectors yet leave residents in Louisiana with poor living conditions and deadly diseases in their communities. Some political heroes have attempted to make a stand by regulating and sanctioning these conglomerates, but they have never been able to gain much ground. The sickness and poverty in Cancer Alley are more pervasive than ever. One of the last hopes for this community is to gain the interest of outside regulators who can punish petroleum companies to the point that they drastically change their operations. To do so, it is vital that residents and activists in Louisiana unite behind one common goal and gain more political traction. The next chapter will discuss these ideas in detail with the addition of concrete solutions for a better environment in Cancer Alley.

Chapter 5: Proposed Solutions

Over the past several chapters, the environmental sacrifice in Cancer Alley has been detailed through the lens of history, economics, and politics. Each discipline gives a different and deeper perspective than the next. Now that the issue has been fully discussed, it would be remiss to not include proposed solutions to help the communities along the Mississippi River. There are thousands of avenues to try and better the quality of life in southeast Louisiana, but this chapter

will focus on a few different options. The first is a reimagination of already existing policy in the United States that has largely failed despite its hopeful potential. The second proposal entails a groundbreaking model for shifting away from the petrochemical industry on a nationwide scale, while also emphasizing principles of social and environmental justice. The last suggestion involves the creation of a powerful and overarching bill that would place power into the hands of Cancer Alley residents.

Toxic Substances Control Act – An Overhaul. The Toxic Substances Control Act (TSCA) was passed in 1976 by the 94th Congress of the United States. In general, the act gave the EPA the power to regulate and screen the chemicals that are being imported into or produced within the country (USC 2023). The TSCA was ideally supposed to be more effective than the Clean Air Act of 1963 because it stopped chemical use at the source, instead of trying to patrol the air over factories. Moreover, the EPA supervises imported chemical substances, conducts research on chemicals, and bans or restricts their use based on the results. When the TSCA went into effect, the 62,000 chemicals already being used got grandfathered in on the idea that they are innocent until proven guilty (Krimsky 2017). Instead of testing each chemical to make sure it was safe for every kind of organism, all chemicals are considered safe until they aren't. Take for example the insecticide known as DDT. This chemical was marketed by its manufacturers as incredibly safe for plants, animals, and humans when in actuality it has a host of negative side effects such as birth abnormalities, mutations, and even death. After Rachel Carson published her groundbreaking book, *Silent Spring*, the public finally started to become aware of the possible dangers of being around chemicals like and including DDT (Carson 1962). Within a decade, the National Institute of Health (NIH) had tested it and determined it was truly unsafe for use. The government banned its use and enforced it through the EPA and the TSCA. After this

experience, the federal government should have learned a valuable lesson: test all chemicals in use. Yet, there are at least 62,000 untested chemicals in use in this country, many of which are produced through the petrochemical industry.

In using this innocent until proven guilty mindset, the EPA has only successfully tested and banned five chemicals in the last half century, one of which being DDT. This is due to a slew of issues including "complex and cumbersome administrative burdens, data limitations, vulnerabilities in risk assessments, and recurring corporate lawsuits" (Krimsky 2017). In order for the EPA to take a chemical off the market, it must be proven that it imposes a health risk to people and the environment. The term used in the TSCA is "unreasonable risk" (Krimsky 2017). An issue arises because unreasonable risk was not clearly defined within the legislation and thus poses a confusing situation for the EPA. Testing for unreasonable risk requires resources that the EPA does not have, especially considering the other duties they must stay on top of.

I propose a complete overhaul of the TSCA that would give more power and effect to the EPA in terms of chemical regulation. This can be done through a three-step process: reallocating government funds to grant the EPA a larger budget, outsourcing chemical testing to consultants within the industry, and creating a joint force between the NIH and EPA. In the 2022 fiscal year, the federal government allocated less than 1% of the yearly budget towards the EPA (U.S. Treasury 2023). This less than 1% allotment amounted to just over $10 billion dollars compared to the military's funding of over $150 billion dollars (U.S. EPA 2023) (U.S. Treasury 2023). It's no mystery that a lack of federal funding is the largest obstacle in the EPA's way when it comes to executing the tasks they have control over. On top of this, the EPA has still not regained their employment numbers from its peak of over 17,000 during the Obama administration (U.S. EPA 2023). I propose a reallocation of federal dollars away from overfunded areas such as national

defense towards the EPA's budget. Even a reallocation of $10 billion dollars would do wonders for not just the EPA, but the wellbeing of the country as a whole. To prevent the everchanging funding and employment levels at the EPA between presidential administrations, I also suggest the passage of an amendment within each future fiscal year budget to provide a baseline of $25 billion dollars and 20,000 employees for the EPA. This would drastically help the resource issue at the EPA and can give them more ability to test chemicals. Once these chemicals are tested, they can be effectively banned. This process would hinder petrochemical companies to the point that they either adapt to more sustainable practices or go out of business.

I suggest outsourcing chemical testing to consultants within the field. As mentioned in a previous chapter, the individuals within the petroleum industry have the most knowledge about their chemicals, production, and resources. By outsourcing the testing, which has proven to be too costly for the EPA to conduct, the EPA can divert their resources into other areas while also staying true to the goals of the TSCA. Consultants within the industry have the most experience and are thus best equipped to test these chemicals. They know what is in use, how it is being disposed of, and the possible consequences. By outsourcing testing to third party entities, the EPA can better focus its resources on communicating results to the federal government and petrochemical companies.

Lastly, I recommend a joint task force between the EPA and the NIH. As mentioned, the NIH conducted research on the effects of DDT on humans and animals and were instrumental in getting the chemical banned. The NIH is well-equipped to make the connection between the harmful chemicals used in Cancer Alley and its consequences for residents. The NIH also has the most updated data and results regarding diseases caused by petrochemicals and other carcinogenic pollutants, thus making them an excellent consulting resource for the EPA. In

addition to this, the NIH has the platform and credibility to communicate health risks to communities that may not know of the EPA. In this task force the EPA has the position of gaining information while the NIH can broadcast the findings. The NIH is supported by the federal government and its Department of Health and Human Services, meaning that there is political prowess backing them and giving them credibility ("About the NIH" 2015). There are a few goals in mind when proposing a reform of the TSCA. The first is that more chemicals are screened at a faster rate than ever before. Ideally, all chemicals in use in the United States should be screened before being used in manufacturing, but the EPA has a lot to catch up on. In a naive sense, the testing should be done to ensure that the chemicals are safe for humans, plants, and animals as well. If the chemicals are found unsafe, the second goal is to have them effectively banned from usage in the country. This banning can be done through a years-long phase out system; this will prevent serious backlash from petrochemical companies and will allow them to change their means of production without disrupting supply chains.

A "Just Transition" Model. Among European countries, the ideas of carbon sequestration or pollution abatement are rejected. These Americanized solutions are refuted based on the fact that within a capitalistic system, companies will continue to grow and emit pollution. Abatement and sequestration efforts will not be able to keep up with such growth, and thus these efforts will become futile. European authorities thus view these tactics as useless and fraudulent when it comes to making environmental progress. Instead, scholars of the environmental field suggest a "just transition" model when moving from one type of industry or economic model to another (Rootzen et al. 2023). This approach prides itself on shifting to a more sustainable economic model without endangering the wellbeing of any groups including companies, public institutions, or the general population. A just transition aims to support those that would be most affected by

a change in economic production, such as companies, their employees, and nearby communities. In this case study, the focus groups would be petrochemical companies and their employees along with Cancer Alley residents and other stakeholders within Louisiana. I propose this method because it emphasizes the "balance between the technical, social, and spatial elements of a just transition" and acknowledges the need to regulate socioeconomic and environmental progress for those that are most disadvantaged within the previous system.

For the purposes of Cancer Alley, a just transition would start with divestment from petrochemicals so that state and local actors are not perpetuating industry patterns and a dependency on fossil fuels. The underlying theme within such a movement would be the decarbonization of the state and eventually the United States as a whole. At the heart of environmental degradation and social injustice is a society reliant on fossil fuels to function. As fossil fuels are a nonrenewable resource that emit vast amounts of pollution, everyone in this system loses. Subtle shifts towards renewable energy are the key to building a more sustainable and just world. With a push for renewable energy, the petrochemical industry and its products can slowly become obsolete, thus reducing its demand and eventually its supply. In a transition like the one mentioned, subsidies or investment into renewable energy and sustainable sectors must become the norm so that petrochemical companies experience what it is like to not profit and have the upper hand within the economic and political spheres (Rootzen et al. 2023).

The most important aspect of a just transition is that the "recognition of political rights, civil liberties and labor rights increases the chances of creating legitimacy for change and potentially building bottom-up pressure for a timely climate transition" (Rootzen et al. 2023). By recognizing the basic human rights of the general population, you can gain support for an economic transition. Cancer Alley desperately needs a social and economic movement in which

their concerns and needs are pushed to the forefront. If approached with the prospect of a shift in which they are the stakeholders, the residents of Louisiana would jump at the opportunity. To do this, there must be "a well-developed system of social dialogue and the active involvement of social partners in policymaking," particularly unions and other community protection activists (Rootzen et al. 2023). The end goal of the just transition is to increase the power of disadvantaged communities in Cancer Alley. Through the study of Cancer Alley "it is becoming increasingly clear that the definition of environmental justice is not just about disproportionately distributed hazards but access to power and having a voice in preventing unfair practices" (Morrone and Buckley 2013, 6). For far too long, Cancer Alley residents have been ignored when trying to speak up about the harms unwillingly placed onto them. This transition model aims to empower Louisiana residents to have a say in decisions regarding their community. In short, a bottom-up approach to enfranchisement is required not only to gain support for the movement, but also to protect those who are most vulnerable.

I propose the just transition model for a handful of reasons. The beautiful thing about this type of approach is that it is generic; this results in it being applicable to an industry, a state, a country, or the entire world. On top of this, it is an economic model as opposed to a political one. As seen in Chapter 4, political agents have done little for the people of Cancer Alley and those in other environmentally unjust situations. Based on the increasing gridlock in the US legislative system, I do not hold much hope for progress to be gained here. I am attuned to the idea of an economic transition model that focuses on a ground-up approach and prioritizes the lowest level individuals rather than those at the top. Chapters 3 and 4 displayed the power and influence of petrochemical companies. A just transition model dismantles this system of power and focuses on change through the masses. This is specifically necessary in Cancer Alley considering the

region's dark history of slavery, oppression, and social injustice. This transition framework is beneficial for Cancer Alley because the "strategies were first forged by labor unions and environmental justice groups, rooted in low-income communities of color, who saw the need to phase out the industries that were harming workers, community health and the planet" ("Just Transition" 2023). The blueprint that I propose implementing was formulated by communities that experienced similar inequities such as environmental injustice and environmental racism. The federal government has claimed to utilize a just transition approach by increasing "the role of workers in policymaking in the clean energy transition" ("Just Transition" 2024). The drawback of this approach is their hyperfocus on transitioning only fossil fuel industries and increasing the amount of renewable energy. Moreover, the main focus rests on a better transition for workers from the nonrenewable to the renewable sector. While these aspects are necessary and beneficial, they lack an environmental justice perspective and thus will not largely benefit communities suffering at the hand of big industries. An environmental justice paradigm is inherent in the just transition model, meaning that the government's claims of utilizing this approach fall short. While my proposition of an overhaul of the TSCA is feasible, there are many opportunities for failure along the way. The EPA has a reputation of misusing or wasting resources; thus, an economically focused approach bodes better.

Federal Investment in Endangered Communities and Environments Act. The last proposal entails the creation of the Federal Investment in Endangered Communities and Environments Act (FIECEA). This is a federally enacted bill that would need to pass in Congress and then be signed into law by the President of the United States. The bill focuses on investing into disadvantaged communities that have been abused by big industries in their surrounding neighborhoods. The money for this funding would be generated by placing a tax on companies in

the petrochemical industry. In 2024, the petrochemical sector earned $81.1 billion in revenue ("Petrochemical Manufacturing" 2024). By taxing these companies just 1 percent of their revenue, $810 million can be generated in funds. 1 percent is an incrementally small number compared to the relative damages inflicted by petroleum companies.

This money would be invested into non-profit organizations around the country that represent communities who have been negatively impacted by the conduct of the petroleum industry. In addition to these local groups, 50 percent of the funding would be granted to the EPA. The caveat is that the grant given to the EPA must strictly be used to research and test the chemicals handled in petroleum manufacturing. The rest of the funding should be distributed to organizations that have no malintent in their missions and purpose.

For Louisiana specifically, I recommend several organizations that should be granted funding. The first organization is the Louisiana Environmental Action Network (LEAN). The mission of LEAN is to "foster cooperation and communication between individual citizens and corporate and government organizations in an effort to assess and mend the environmental problems in Louisiana" ("Louisiana Environmental Action Network"). LEAN's mission seeks to build the relationships highlighted in the just transition section of this chapter. LEAN seeks to empower communities by making their voices heard in offices, courtrooms, and board meetings. The group does incredible work educating citizens and providing them with the tools they need to join the coalition that fights back against corporate corruption ("Louisiana Environmental Action Network"). LEAN could greatly benefit from a grant; this would allow them to invest more money into their air quality monitoring, outreach programs, and their water quality measures.

Another organization that could utilize additional funding is Earthjustice. Earthjustice is a non-profit legal organization that helps in providing lawyers for clients that cannot afford representation. Earthjustice is currently representing Rise St. James in their fight against the siting of a nearly $10 billion petrochemical plant by Formosa Petrochemical Company (Karrick 2024). Earthjustice has been especially successful in their other lawsuits concerning coal plants. They have been able to convince the EPA and federal government, through high priority court cases, to impose stricter regulations on the emissions from these plants ("Victories" 2024). Granting additional support to Earthjustice would allow them to continue fighting discriminatory siting practices in Louisiana while also representing clients who want to sue on behalf of their medical conditions like cancer.

As mentioned, Rise St. James is currently in the process of fighting Formosa and their proposed siting of a massive petrochemical plant in the St. James Parish. Sharon Lavigne started this group as a response to the increased siting of noxious petrochemical facilities in her parish of St. James Louisiana ("Battling Petrochemical Expansion" 2024). Lavigne has been able to educate and empower her community to become bold activists. The Formosa plant they have combated is a part of a billion-dollar company, yet they have not backed down. Rise St. James continues to stand up for their parishioners' health and well-being, despite the goliath of a company that they're facing. Rise St. James could utilize additional funding to push for legislation that will put an end to the disproportionate siting of petrochemical plants in Louisiana. This group needs continued support to raise awareness, gather allies, and sue large conglomerates ("Battling Petrochemical Expansion" 2024). Figure 7 below displays just one of the many events Sharon and Rise St. James conducted in response to the siting of the Formosa

plant. This organization is an inspiring example of the power that people have when they work together.

Figure 7. “Sharon Lavigne, Foreground, is Fighting to Keep a Petrochemical Plant out of Her Louisiana Community,” by Alejandro Davila Fragoso.

In addition to Rise St. James, the Louisiana Bucket Brigade (LBB) does impactful community-building work. They facilitate coalition building between several of the most polluted parishes including St. James, Norco, Convent, and Alsen (“Supporting Fenceline Communities” 2022). Furthermore, the Louisiana Bucket Brigade coordinates between non-profit advocacy organizations such as Rise St. James, Inclusive Louisiana, Concerned Citizens of Norco, and Community Empowered for Change (“Supporting Fenceline Communities” 2022). LBB truly believes in the power of people and works to manifest change by educating

community members and nurturing activism. They also protest and negotiate with petrochemical facilities to have contaminated property bought so that residents can escape their poisoned living conditions. Funding for the Louisiana Bucket Brigade could allow them to do more education of community members, support their aligned non-profit organizations, and advocate for the safety of fence line communities.

This policy solution does not advocate for regulation specifically because federally imposed regulations are not feasible to pass in the legislative process due to the industry's close ties with the government. Even if regulation could be enacted, it is difficult to enforce and monitor. There are currently some regulations placed on industry in the United States, yet polluting companies rarely follow the rules because they want to produce the cheapest way possible. This has become widespread because the punishments for breaking the law are meager. Instead, Congress is much more likely to pass legislation that does not limit the industry and only makes them pay a small price for the harm committed. FIECEA is a productive piece of legislation that is much easier to pass in the legislative branch. The legislation is also attractive to members of Congress because it does not utilize taxpayer dollars or federal funds. The companies that do the harm are required to pay compensation, meaning that average Americans do not have to pay for the mistakes of industry.

Roughly 800 million dollars may seem like too large a sum, but there are several initiatives that would put the funding to good use. One way to apply the funding would be through lawsuits against petrochemical companies in Cancer Alley. Whether these are for individual compensation or class-action lawsuits, the precedent set within them can be beneficial for the movement. These precedents could help to set regulations on industries and hold them accountable in a way that is applicable to many other cases. Another appropriation of the funding

would be to pay for the medical bills of victims in Cancer Alley who have acquired diseases as a result of living or working near a petrol plant. Oftentimes, these victims are in a lower income bracket, causing them to struggle when paying medical bills. Although petrochemical companies should be responsible for these bills, they are rarely ever held liable. The funding of FIECEA could bridge this gap and prevent impoverished residents from being overly burned by expensive medical treatments. A large amount of the FIECEA budget could be implemented into continued research on the negative effects of petrochemical plants in Louisiana. This research should look at the impact of pollution on humans, animals, and the surrounding ecosystem in the southern region of the state. In chapter 1, data was presented regarding the cancer rates in Louisiana. But there needs to be more replicated and consistent data on the topic of cancer and other diseases so that state and local governments cannot ignore the issues. This research should also include air, water, and soil monitoring to determine the level of emissions coming from facilities. This can then be used in contrast to the number of permits allocated to companies by the Louisiana Department of Environmental Quality. If discrepancies are found between the number of permits and the actual emissions, legal action can be taken to enforce strict punishments and regulations on the polluters. One aspect of advocacy that has been brushed over in this thesis is lobbying. Lobbying happens at the state and federal levels by interest groups seeking to sway, or bribe, politicians into acting the way they desire. Petrochemical companies do large amounts of lobbying to keep federal and state regulations lax and prevent the passage of any environmentally progressive legislation. It is time that Cancer Alley groups insert themselves into the lobbying discussion. Lobbying requires a large amount of money because unfortunately, politics is based on it. A sizable chunk of the FIECEA budget could be allocated towards lobbying officials that will fight for Cancer Alley residents and protect them from corporate

harm. The last use of FIECEA funds should be put towards environmental cleanup and mitigation of chemically contaminated areas. There are many properties within the alley that have been deserted due to the poor operations and management of waste products by petroleum companies. Since the burden is hardly ever placed on the polluters, FIECEA money can be budgeted to fix these areas so that they are usable again for the riverside communities. The overarching goal of this solution is to place the power in the hands of those that have never had it. Throughout history, Cancer Alley residents and their ancestors have been disproportionately harmed by oppressors and silenced when they attempt to fight back. The creation of FIECEA hopes to place the power back into community members' hands and give them a platform to create change. No one knows how to help this region more than those living in it, thus they should be empowered to make the strides they wish to see.

This thesis sought to draw awareness to Cancer Alley and highlight it as an example of modern-day human sacrifice. Similar to Greeks being sacrificed to a deity, residents in this area of Louisiana have their health and wellbeing sacrificed for the sake of profitability in the petrochemical industry. The thesis took a multidisciplinary approach by highlighting the topic from a historical, economic, and political standpoint. By looking through these lenses, a full picture can be painted of the struggle for justice in the small towns of Louisiana. These people have struggled with one form of oppression after another. But a storm is brewing; Cancer Alley residents are more empowered and educated than ever before, indicating that petrochemical companies are soon to face a rude awakening. The policy solutions in this chapter have been developed with consideration of all aspects of the problem. The proposals seek to address the plight in Louisiana in a way that is most beneficial for residents and foreshadows the fall of petrochemical companies. Cancer Alley communities will persevere.

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