Green Light to Pollute in Texas: Proposed Buildout of Petrochemical Facilities Targets Most Vulnerable Communities, Again

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About the Bullard Center

The Robert D. Bullard Center for Environmental and Climate Justice at Texas Southern University was launched to address long-standing issues of systemic inequality and structural racism that cause disproportionate pain, suffering, and death in Black communities and those of other people of color. Texas Southern University is a student-centered, comprehensive doctoral university committed to ensuring equality, offering innovative programs that are responsive to its urban setting, and transforming diverse students into lifelong learners, engaged citizens, and creative leaders in their local, national, and global communities.

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Preface

We began this study in 2024, when Joseph R. Biden Jr. was president, to examine the unprecedented petrochemical industry expansion underway in Texas, where new facilities are proposed and existing facilities are set to expand in locations that are already saturated with industrial plants, often described as environmental "sacrifice zones." The petrochemical industry in Texas has expanded rapidly over the past several decades—bringing jobs, but also bringing significant environmental and health burdens to fenceline communities while failing to provide substantial economic benefits (e.g., employment, enhanced property values, and improved residential amenities and infrastructure).

Our study sought to analyze the extent to which the current petrochemical industry expansion in Texas impacts marginalized communities and how this expansion aligns with historical patterns of environmental injustice in fenceline communities. The petrochemical industry's plan for more than 100 new facilities and expansions in Texas within the next few years evokes a pressing need to clearly document existing environmental inequities that predate this buildout, before more facilities are sited in communities already overburdened with industrial pollution.

The study employed a multidisciplinary approach using quantitative and qualitative analysis and data tools to examine the locations of 89 proposed new or expanding petrochemical facility sites across Texas. The study's primary goal is to shed light on the demographics of areas that surround these proposed petrochemical facilities and to provide information to residents in those communities about the existing conditions and potential harms that may accompany the new or expanded facilities. Study results show that proposed petrochemical expansion in Texas is planned for communities already facing elevated pollution and health threats.

Elections have consequences. Environmental protection principles and priorities changed dramatically in January 2025 with the second Donald J. Trump administration—which shifted the regulatory landscape in the country during his first 100 days and continued shifting it through the first six months of his term. Using 142 executive orders and directives, President Trump tilted federal policies toward less protection, less federal regulatory oversight, less science-based decision-making, and more fast-tracked and streamlined permitting, more petrochemical facility siting, and more exemptions, waivers, and rollbacks—all giving the petrochemical industry a green light and a license to pollute. The new policies will likely accelerate the petrochemical buildout in Texas because environmental protections were eviscerated, clean air and clean water regulations and standards were weakened, and health standards and chemical safety safeguards were rolled back—collectively reshaping the federal approach to regulating the petrochemical industry in Texas, the Gulf Coast, and the United States.

EXECUTIVE SUMMARY

I. Introduction

Texas is at the epicenter of a rapidly expanding petrochemical industry that processes fossil fuels into thousands of chemical products, including plastics, fertilizers, and fuels (Petrochemicals Europe, 2023). The state leads the nation in refining capacity and petrochemical production, with Greater Houston alone accounting for over 42% of U.S. base petrochemical capacity (Economic Development & Tourism, 2015; U.S. Energy Information Administration, 2025). Fenceline communities—disproportionately low-income communities of color—bear the brunt of this industrial growth, facing heightened health and environmental risks (Amnesty International, 2024; Lerner, 2012; Robinson, 2024). Despite public resistance and evidence of environmental injustice, the Texas Commission for Environmental Quality continues to approve permits for facility expansions (Baddour et al., 2024; Sadasivam & Aldern, 2023).

This pattern of concentrated petrochemical expansion in already overburdened communities reflects the historical roots of the environmental justice movement, which challenges the unequal distribution of environmental harms and calls for policy that centers equity and accountability (Bullard, 2000; Bullard & Wright, 1986, 2023; Van Horne et al., 2023). The ongoing surge in plastics and petrochemical production, fueled in part by the fracking boom, exacerbates burdens on vulnerable communities and sustains industry profits while undermining decarbonization efforts (Center for International Environmental Law, 2019; Morello-Frosch & Obasogie, 2023; Shaykevich et al., 2024).

Texas, unlike several other states, lacks a state-level environmental justice screening tool or policy infrastructure to identify and address these inequities, leaving communities without critical data or regulatory support (Konisky et al., 2021). The recent removal of the Environmental Protection Agency's (EPA's) EJScreen tool further limits access to updated federal data (Quinn, 2025). In contrast, at least 11 states have developed their own EJ tools to evaluate and mitigate localized harms. The absence of such tools in Texas reflects a broader political unwillingness to engage environmental justice at the state level (Konisky et al., 2021).

Furthermore, petrochemical infrastructure is concentrated in both dense urban centers and semirural regions across Texas, including pipeline networks and fossil fuel extraction hubs in west Texas, the Panhandle, and near San Antonio (Berberian et al., 2024; Gonzalez et al., 2023; Railroad Commission of Texas, 2024a, 2024b). This pattern of development continues to reproduce environmental inequities, reinforcing the need for a comprehensive, justice-oriented response.

A. Problem

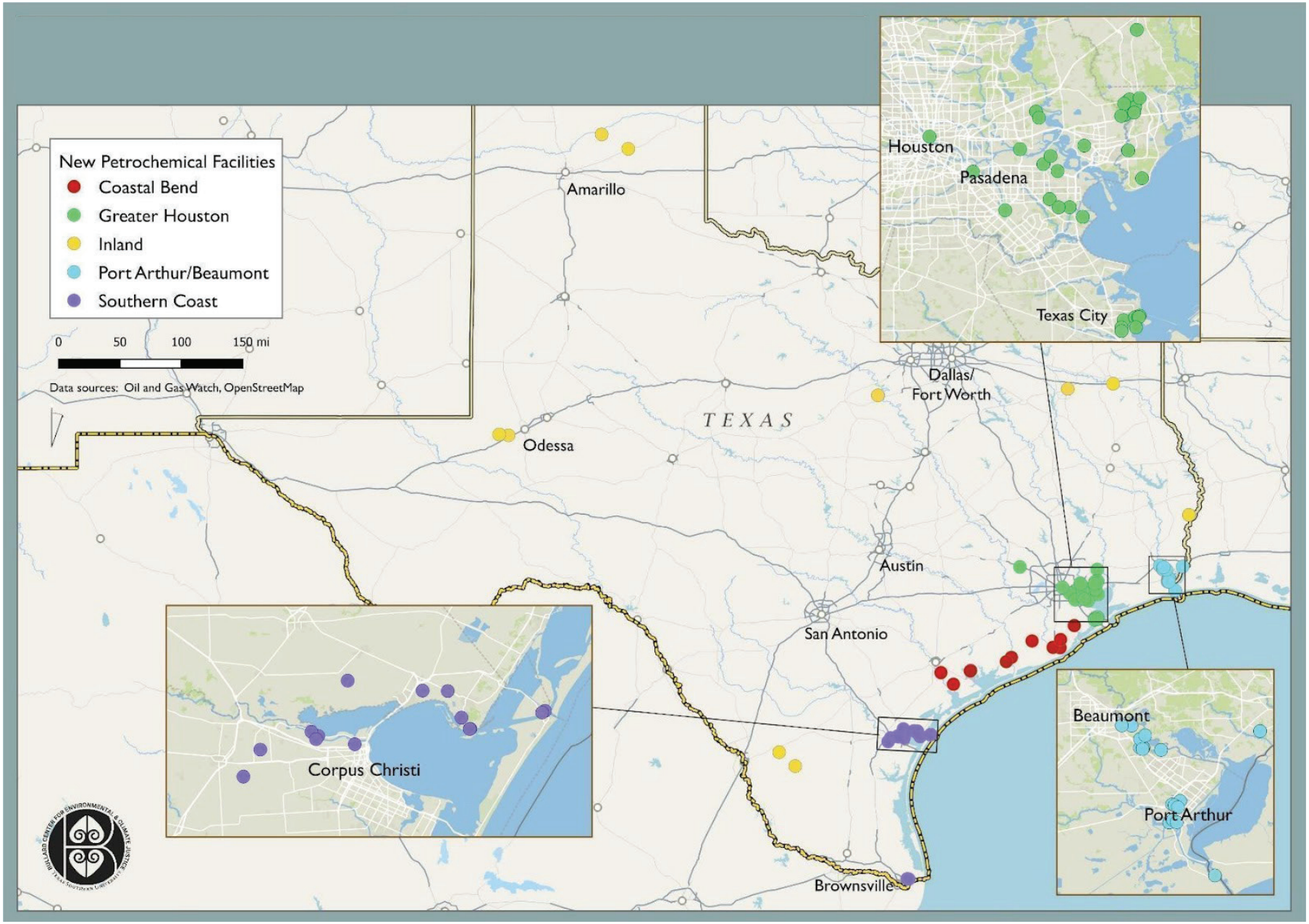
Today, there is an unprecedented petrochemical industry expansion underway in Texas, where new facilities are proposed, and existing facilities are set to expand, in at-risk fenceline and frontline communities often described as environmental "sacrifice zones" (Bullard, 2011; Lerner, 2012). Fossil

fuels are a prime contributor to climate change and it is critical to address climate change and transition to a clean energy economy. Sacrifice zones are regions of chemical corridors where the environmental and public health ramifications of industrial activities fall disproportionately on people of color, poor people, and vulnerable populations (Bullard, 2011; Lerner, 2012). Vulnerable populations face elevated threats and social and environmental harms, especially where a social safety net is missing or insufficient (Robinson, 2024). These patterns of petrochemical expansion in Texas raise significant concerns, because they continue to place the greatest environmental and health burdens on existing overburdened sacrifice zones (Amnesty International, 2024; Mohai & Saha, 2007). This study examines the extent to which the current petrochemical industry expansion in Texas disproportionately impacts marginalized communities and how this expansion aligns with historical patterns of environmental injustice in fenceline communities.

B. Scope of Report

The petrochemical industry's plans for more than 100 new facilities and expansions in Texas within the next few years evokes a pressing need to clearly document the existing environmental inequities produced by fossil fuels and petrochemical plants, before more facilities are built in communities already overburdened with industrial pollution (Environmental Integrity Project, 2024; Shaykevich et al., 2024).

This report examines the buildout of new, under-construction, and proposed petrochemical facilities (as of February 2024), including expansions, in Texas (Map ES-1), within the context of existing environmental degradation, pollution, and health burdens. It also explores the historical roots of the petrochemical industry, with a focus on Texas and the intersection with environmental injustice, paying particular attention to plastics production.



Map ES-1. Overview - Sites of new, proposed, and under-construction petrochemical facilities analyzed in this report. Facilities are color coded to the geographic region. The Greater Houston, Southern Coast, and Port Arthur/Beaumont regions are enlarged in the corners of the figure, as those regions have the highest numbers of clustered facilities examined by this study.

This report describes the study's research questions, methods, and analysis, then presents and discusses the results. The conclusion contextualizes the analysis and findings, highlighting patterns of environmental injustice and emphasizing how certain communities face a disproportionate burden of pollution and health risks compared with others. The primary goal of this report is to elucidate the demographics in areas surrounding the proposed new or expanding petrochemical facilities. The results will be used to further equip residents in communities that already live in the shadow of such facilities, or whose communities are threatened by new facilities coming in, with information about the existing conditions and what is being proposed for their communities.

II. Environmental Justice and the Petrochemical Industry

The petrochemical industry in Texas has expanded rapidly over the past several decades, bringing significant environmental and health burdens to fenceline communities, in which people of color and low-income demographics are the majority population (Bullard & Wright, 2023; Morello-Frosch & Obasogie, 2023). These communities face disproportionate exposure to air toxics, hazardous waste, and chemical disasters due to the legacy of redlining, housing discrimination, and lax environmental enforcement (Mohai and Saha, 2007; Roberts et al., 2022). Nationally, Black Americans in particular are 79% more likely to live near heavy industrial pollution than are their White counterparts, while studies show that people of color in 46 states breathe more polluted air than White populations (Mikati et al., 2018; Ramirez, 2021).

For more than four decades, grassroots movements have sounded the alarm about environmental racism and industrial pollution, with pivotal moments like *Bean v. Southwestern Waste Management* and the 1982 Warren County protests, which drew national attention to the disproportionate siting of hazardous facilities in communities of color (Bullard, 1994, 2000). These early struggles laid the foundation for the environmental justice (EJ) movement, grounded in research that identifies race as the strongest predictor of exposure to toxic industry by-products (Bullard et al., 2007; Bullard & Wright, 1986). Despite federal action—such as President Clinton's 1994 Executive Order 12898 and President Biden's 2023 Executive Order 14096, which directed $60 billion toward EJ initiatives under the Inflation Reduction Act—implementation has lagged (Exec. Order No. 12898, 1994; Exec. Order No. 14096, 2023).

The same pattern of neglect persists today. Residents of Texas's petrochemical corridors face many of the same conditions fought by early EJ advocates: systemic pollution, regulatory failure, and exclusion from decision-making (Amnesty International, 2024; Bullard, 2000). Across the Gulf South, communities living on the front lines of petrochemical expansion continue to fight for basic protections, clean air and water, and a voice in their futures (Azhar, 2021; Bruggers, 2024).

Industrial development has historically prioritized corporate profits over community health. In Texas, petrochemical facilities cluster in areas like Port Arthur, Houston, and Corpus Christi, where communities of color are heavily impacted by pollution, poverty, and health disparities (Azhar, 2021; Genoways, 2014; Martinez & Perez, 2024). Fenceline communities in Texas also bear the

brunt of chemical disasters and climate-related double disasters, such as Hurricane Harvey and Winter Storm Uri, which led to massive industrial emissions (Chakraborty et al., 2019; Craft, 2021). Texas leads the United States in chemical incidents, with over 2,300 high-risk facilities regulated under EPA's Risk Management Program (EPA, 2024b; Nelms & Bernat, 2023).

Health impacts in these communities are profound. Residents experience higher rates of asthma, cancer, birth complications, mental health stressors, and premature death linked to petrochemical emissions (Di et al., 2017; Gillam, 2024; Woodruff, 2024). Children are especially vulnerable to pollutants, which are linked to obesity, development disorders, and psychological distress (Lopez-Moreno et al., 2024; Newbury et al., 2024).

Despite their proximity to industry, residents who live on the fence line rarely share in the economic benefits of industries located so close to their homes. People of color comprise 59% of the Texas population, but hold only 38% of high-paying chemical manufacturing jobs (Terrell et al., 2024). In places like Port Arthur, with a population that is two-thirds people of color, disparities are even more pronounced (Genoways, 2014; Jones, 2024). Meanwhile, between 2012 and 2024, Texas awarded $1.65 billion in tax subsidies to plastics facilities, many of which had a history of repeated pollution violations (Shaykevich et al., 2024).

The fossil fuel industry is starting to pivot toward increasing plastics production to sustain its profitability amid calls for decarbonization to save our climate. Disadvantaged communities that are already overburdened with petrochemical pollution and safety risks will likely bear the brunt of the new petrochemical expansion and plastics production (Amnesty International, 2024). According to a recent Environmental Integrity Project report, *Feeding the Plastics Industrial Complex*, companies have plans to build an additional 42 plastics plants, with 24 of them (over half) in Texas (Shaykevich et al., 2024).

III. Methodology

This study analyzed 89 proposed or expanding petrochemical facility sites across Texas using the U.S. EPA's EJScreen tool, version 2.2 (EPA, 2023). Each site was evaluated at the Census block group level and within a three-mile buffer, following best practices for fenceline analysis (Bullard et al., 2007; Mohai and Saha, 2007). Facility locations were sourced from the Environmental Integrity Project's Oil & Gas Watch database and represent major petrochemical proposals planned for construction or expansion statewide (Environmental Integrity Project, 2024).

Five EJScreen indicators were selected (see Table ES-1): exposure to fine particulate matter (PM2.5), toxic releases to air, risk management program (RMP) facility proximity, demographic index (DI), and supplemental demographic index (SDI). These indicators assess exposure to harmful air pollutants and proximity to hazardous facilities, while capturing social vulnerability based on race, income, language, and education level (EPA, 2023, 2024b, 2024c).

Table ES-1. EJScreen Categories Used in the Study

EJScreen Categories Used	Alias in the Report
Demographic Index	DI
Supplemental Demographic Index	SDI
Particulate Matter 2.5 Indicator	PM2.5
RMP Proximity Indicator	Proximity to Major Polluting Facility
Toxic Releases to Air Indicator	Tox Air

Using five geographic clusters or regions, the analysis examined a three-mile area surrounding each petrochemical facility proposed for demographic and environmental stressors and vulnerabilities.[1] The five clusters are

- the **Golden Triangle** (Port Arthur, Beaumont, and Orange);
- **Greater Houston** including Galveston;
- the **Coastal Bend** from Freeport to San Patricio County;
- the **Southern Coast** from Nueces County to Brownsville; and
- **Inland** areas encompassing sites near McAllen, Lubbock, Tyler, Longview, and Odessa.

The facility database was derived from 114 proposed projects, consolidated into 89 sites to avoid duplication at colocated industrial areas. The study identified fenceline communities with index scores above the 75th and 90th percentiles, reflecting the most severe pollution and vulnerability burdens nationwide (EPA, 2023). Findings are intended to inform advocates, researchers, and policymakers about disproportionate environmental risks from petrochemical expansion in Texas.

IV. Results

This section outlines the results of the study in the context of existing communities and petrochemical facilities in Texas. State-level results are presented first, followed by county-level results, then geographic region or cluster results.

A. Statewide Results

The study revealed that most of the 89 Texas sites are located in areas already facing significant environmental and demographic burdens. Some 92% of the sites rank above the 66th percentile in at least one of the five environmental justice indices used in this study, indicating they are more burdened than two-thirds of U.S. communities (EPA, 2023). This finding indicates that nine of 10 proposed facilities are in fenceline communities where residents already experience higher environmental and health risks from industrial pollution compared with the national average.

1 - Three-mile areas were calculated from a point location that had been previously assigned to each site, rather than using the three-mile buffer of a polygon, which would have encompassed a larger area of analysis for some sites.

1. EJ Screen Results

Particulate Air Pollution. Most proposed petrochemical facilities in Texas are located in areas facing elevated air pollution burdens. In this analysis, 85 of 89 facilities (95%) ranked above the 50th percentile for particulate matter exposure, indicating disproportionate facility siting in already overburdened areas. Notably, 78% of facilities ranked at or above the 66th percentile, and 63% were above the 75th percentile. Nearly one in five facilities (19%) were located in areas at or above the 90th percentile. These high air pollution exposure levels were found across all geographic clusters, except for the Coastal Bend, which has no facilities in the top 10% for PM2.5 risk (EPA, 2023).

Toxic Releases to Air. The EJScreen toxic releases to air index revealed particularly high pollution burdens across petrochemical facilities in Texas. Of the 89 facilities analyzed, 84% ranked at or above the 66th percentile, and nearly half (46%) ranked above the 90th percentile. Three facilities in the Port Arthur/Beaumont area ranked at the 99th percentile, and 10 others were at the 98th percentile. These findings are especially significant because the toxic releases to air index is based on the EPA's risk-screening environmental indicators model, which incorporates the toxic release inventory's pollutant volume, toxicity, environmental fate, and potential human exposure factors (EPA, 2023).

Across the state, results from both EJScreen air pollution indicators (PM2.5 and toxic releases to air) suggest that nearly three-fourths (74%) of proposed petrochemical facilities are in areas at higher risk of exposure to air pollution than the rest of the country.

Proximity to Polluters. The proposed petrochemical facilities in Texas show a clear pattern of clustering near other polluting industries, especially in Houston, where the absence of zoning laws has historically enabled the concentration of industrial land uses in communities of color along the Houston Ship Channel (Bullard, 1987; Leffler et al., 2023; Martinez and Perez, 2024; Pacheco et al., 2024). With or without zoning, this pattern continues in the current petrochemical expansion across the state. According to the EJScreen proximity to major polluters indicator, 83% of the 89 analyzed facilities ranked above the 66th percentile, and 42% ranked above the 90th percentile, indicating a potential for elevated exposure risks due to facility clustering. Only six sites were below the 50th percentile, while 93% were in areas with higher-than-average proximity to other polluters, such as the proposed Diamond Green Diesel facility in Port Arthur, which ranks in the 99th percentile for proximity to major polluters (EPA, 2023).

Demographic Indexes. The EJScreen demographic indexes measure similar factors. The SDI includes five indicators (low income, disability, limited English language ability, low education, and low life expectancy) but excludes race; the DI includes two indicators, low income and people of color. Each index suggests something slightly different about an area. The SDI includes more social indicators of vulnerability; the DI includes the powerful indicators described by race and income. For both indexes, the majority of facilities are in areas above the 66th percentile for SDI (50 of 89, 56%) and DI (57 of 89, 64%), in all geographic clusters.

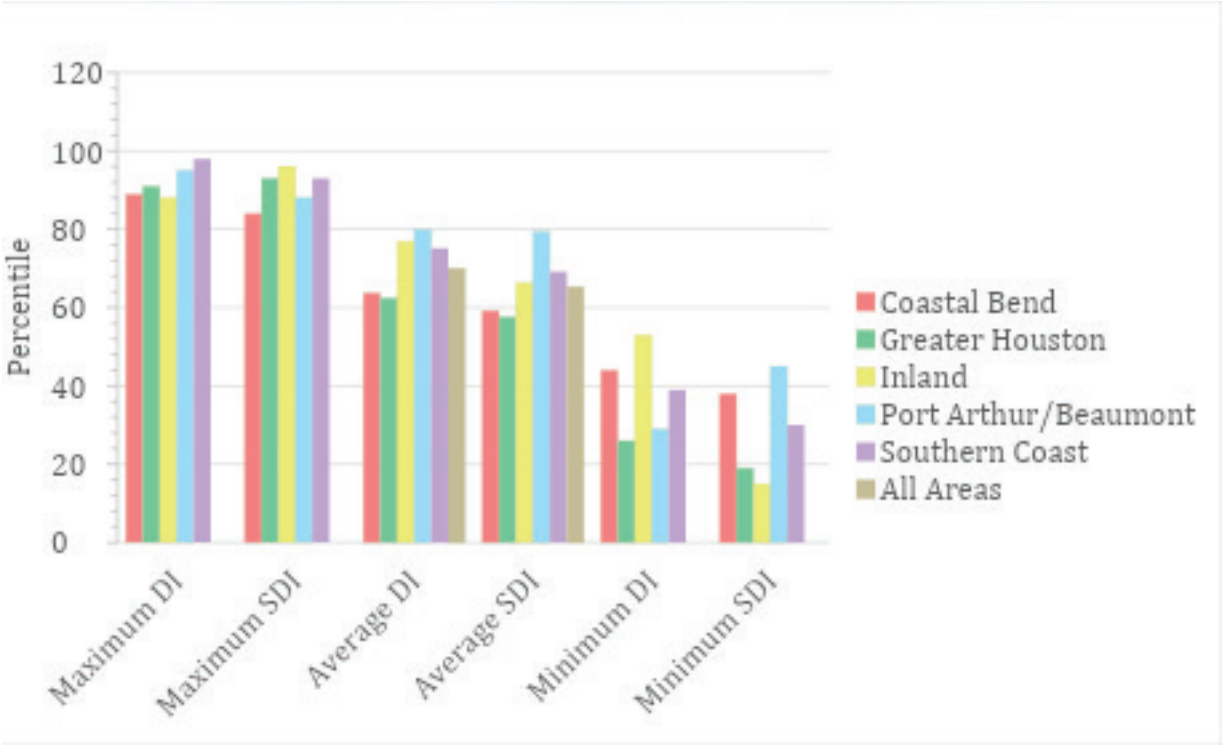


Figure ES-1 - Demographic and Supplemental Demographic Index Values. As shown in Figure ES-1, EJScreen's two demographic indexes show that the petrochemical facilities planned for Texas are most often proposed in areas with a larger percentage of people of demographic vulnerability, compared with the rest of the nation.

2. Results by County and Project

New petrochemical facilities are proposed for 22 counties within Texas. Only two of the 22 counties have people of color or poverty population rates that are below state or national rates (Table ES-2). These counties account for nine of the 89 facilities in the study (Table ES-3). In other words, 90% of new petrochemical facilities proposed for Texas are in counties with higher demographic vulnerability (in the form of higher percentages of people of color, or higher percentages of people in poverty, or both) than other areas of the state or the nation.

Table ES-2. County Demographics

County	County Poverty %	County People of Color %	TX	USA	Above TX Poverty	Above USA Poverty	Above TX POC	Above USA POC
Brazoria	9.4	58.5						x
Calhoun	14.6	58.3			x	x		x
Cameron	23.5	91			x	x	x	x
Chambers	8.6	39.2						
Duval	29.1	85.5			x	x	x	x
Ector	11.7	71.9				x	x	x
Galveston	11.5	45.2				x		x
Gray	17.3	40.4			x	x		
Harris	16	73			x	x	x	x
Harrison	17.2	38.6			x	x		
Hutchinson	14.3	31.6			x	x		
Jefferson	20.1	63.5			x	x	x	x
Liberty	14.5	52			x	x		x
Matagorda	17.9	57.6			x	x		x
Newton	18.5	24.2			x	x		
Nueces	17.3	70.4			x	x	x	x
Orange	14.5	22.3			x	x		
San Patricio	17.2	60.9			x	x	x	x
Smith	13.2	42				x		x
Somervell	8.8	22.6						
Victoria	14.1	56.9			x	x		x
Webb	22.5	96.1			x	x	x	X
Totals			Sum		16	19	8	15
			%		73%	86%	36%	68%
				TX Both	7			
				USA Both	14			

Note: = exceeds people of color; = exceeds poverty rate; = exceeds both people of color and poverty rate; POC = people of color; x = county percentages exceed the comparison group percentages.

According to the U.S. Census American Community Survey 2020–2024 (U.S. Census Bureau, 2024), 13.7% of Texas residents are people living in poverty and 11.1% of U.S. residents are people living in poverty. The proportion of people of color in Texas is 60.4%, and that of the United States is 41.6%. This table compares these rates with the rates by county for the 22 Texas counties with new petrochemical facilities proposed.

Given the state's large size, the findings suggest that the proposed sites are clustered. County-level data show that the 89 proposed petrochemical projects in this study are located in only 22 (9%) of 254 Texas counties. Eight (3%) of the new proposed facility counties have more than two facilities proposed (Table ES-3), and these eight counties already host existing petrochemical facilities; thus, statewide facilities' siting focuses on locations that already have elevated historical pollution burdens.

Harris and Jefferson Counties. The county results are calculated for "projects," of which there are sometimes more than one per facility (Table ES-3).[2] Harris and Jefferson Counties dominate, with the highest numbers of project categories across the board (Table ES-3), along with the highest existing vulnerability and cumulative burden. Harris and Jefferson Counties also have the most projects proposed (22 and 20, respectively), and the highest numbers of projects that exceed every percentile threshold. Note that the 89 facilities analyzed in this study comprised 114 projects, since some facility sites had multiple projects or facility phases proposed. In Jefferson County, 90 of 100 (90%) EJScreen project categories exceeded the 75th percentile. Harris County's levels were a bit lower, but still a majority, with 65 of 110 project categories (59%) exceeding the 75th percentile.

Harris County, population 4,800,000, is home to Houston (U.S. Census Bureau, 2023a). Jefferson County, population 250,000, is home to Beaumont, Port Arthur, and the Golden Triangle chemical corridor (U.S. Census Bureau, 2023b). Given this dramatic difference in population, yet with similar numbers of projects per category exceeding each threshold, Jefferson County has an extremely high burden per capita, compared with the rest of the state.

2 - It is important to discuss projects at the county level because two projects are more likely to add more pollution than one project; this effect would not have been captured if we limited the calculation to facilities, without including counties.

Table ES-3. Threshold EJ by County

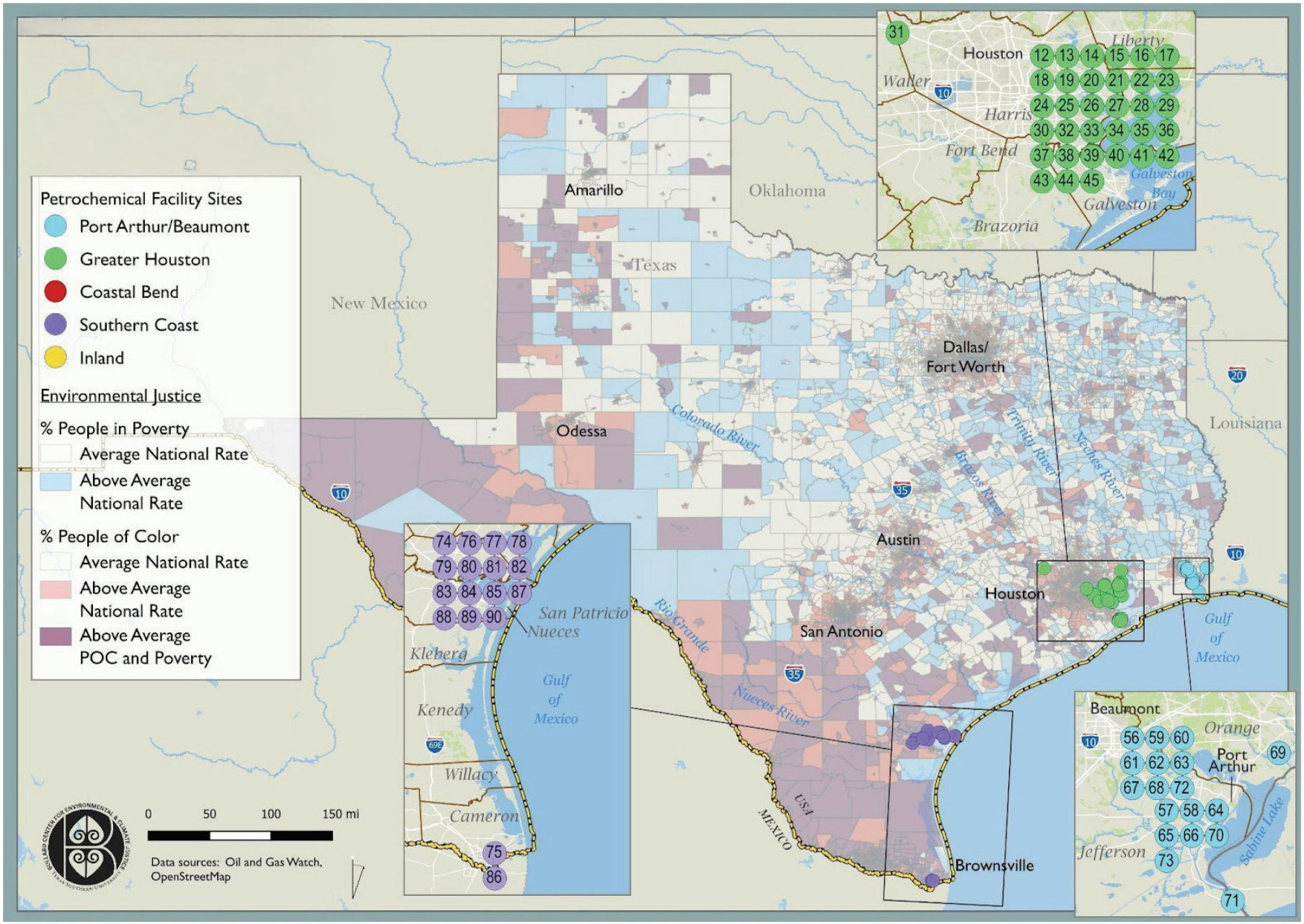
	Facilities	Projects	Total Possible	Above 66th %ile	Above 75th %ile	Above 90th %ile
			EJS (Proj. * 5)	EJS	EJS	EJS
Brazoria	**5**	**7**	35	20	12	4
Calhoun	**3**	**4**	20	7	6	0
Cameron	**2**	**2**	10	8	8	8
Chambers	**8**	**12**	60	14	6	1
Duval	**1**	**1**	5	3	2	0
Ector	**2**	**2**	10	2	2	1
Galveston	**8**	**12**	60	60	54	22
Gray	**1**	**1**	5	3	2	0
Harris	**17**	**22**	110	85	65	30
Harrison	**1**	**1**	5	5	5	2
Hutchinson	**1**	**1**	5	4	3	0
Jefferson	**17**	**20**	100	92	90	48
Liberty	**1**	**1**	5	3	2	0
Matagorda	**2**	**2**	10	4	2	0
Newton	**1**	**2**	10	6	6	0
Nueces	**9**	**12**	60	49	45	24
Orange	**1**	**1**	5	2	1	0
San Patricio	**6**	**7**	35	26	19	0
Smith	**1**	**1**	5	5	5	1
Somervell	**1**	**1**	5	0	0	0
Victoria	**1**	**1**	5	5	5	1
Webb	**1**	**1**	5	3	2	0
Totals	**90**	**114**				

Note: EJS = EJScreen

The 89 facilities analyzed in this study comprised 114 projects, since some facility sites had multiple proposed projects or facility phases. Of the 114 projects, the number of categories above a given threshold were tallied. The total possible number of categories comprised the number of total projects in the county multiplied by the number of possible categories (EJScreen has five categories).

3. Race and Poverty

Map ES-2 shows that much of south, and Gulf Coast Texas are coded either blue or purple, indicating that those areas have higher rates of people living in poverty than the rest of the nation. Twenty-seven of 89 (30%) proposed petrochemical sites are in areas with a higher percentage of people living below the federal poverty line than the national average, and 24 of 89 (27%) for the state average (Table ES-3). However, expanding the analysis from a single point location to the area inside a three-mile buffer from the point location, the numbers skyrocket to 84 facility sites (93%) exceeding national poverty rates and 82 sites (91%) exceeding state poverty rates. The three-mile buffer areas offer a more accurate demographic description of the fenceline communities surrounding the facilities, since the point location itself does not necessarily capture the demographics of the communities nearby.



Map ES-2 - Texas petrochemical facility locations analyzed in this report, with areas shown that exceed the national rates of poverty and people of color populations. For rankings and data, see Table ES-4. U.S. Census block group areas show areas in Texas where the people of color population rates exceed the national average, and the people in poverty population rates exceed the national average. When both averages exceed the national rate, a darker color is displayed. Inset map point locations do not correspond to the exact site locations.

Forty-six sites (51%) exceed the average people of color population rates compared with the national average, and 33 sites (37%) exceed the state average (Table ES-4). Including the fence line dramatically increases the number of sites exceeding national and state averages: 84 fenceline communities (93%) exceed the average people of color population rate at the national level, and 76 fenceline communities (84%) exceed the state rate.

Table ES-4. Sites Exceeding Low-Income and People of Color Percentiles

Sites	Higher Than **National Poverty**	Higher Than **State Poverty**	Higher Than **National People of Color**	Higher Than **State People of Color**
Number of Sites	27	24	46	33
Percent Sites	*30%*	*27%*	*51%*	*37%*
Number of Fenceline Three-Mile Buffers	84	82	84	76
Percent Fencelines	*93%*	*91%*	*93%*	*84%*

Number and percent of the 89 petrochemical sites exceeding national and state average rates of poverty and people of color. Fenceline communities within a three-mile buffer of a facility's point location are also displayed. Numbers are calculated from EJScreen 2.2 "low-income" and "people of color" data of block groups in the U.S. Census American Community Survey 2017–2021 (U.S. Census Bureau, 2022). Where three-mile buffers contained multiple block groups, the buffer was considered higher if any block group having a higher rate overlapped with the buffer.

These results show that race continues to be a potent predictor for polluting industry and chemical exposure locations (Johnston et al., 2020), which is consistent with other studies showing that residents who live on the fence line with petrochemical plants and other polluting industries are disproportionately people of color. In Texas communities, people of color are often segregated and in close proximity to polluting industries with which they have historically lived. This pattern is also evident at the national level—where America is segregated, so is pollution (Bullard, 2000)—but the study results show that this is worse in Texas, where race and poverty combine to create a double whammy that places fenceline communities at special risk from petrochemical facilities and their operations (Gillam, 2024). New petrochemical plants and expansions are being proposed in a state that currently has a disproportionately large proportion of people of color and high poverty rates compared with the nation as a whole (EPA, 2023).

B. Regional Results

The study confirms that proposed petrochemical development in Texas reinforces a long-standing pattern of siting facilities in communities already facing elevated pollution burdens and demographic vulnerability (Bullard & Wright, 2023; Mohai & Saha, 2015). Across all five geographic regions, EJScreen index averages in at least two clusters exceeded statewide values, reflecting cumulative impacts on marginalized communities (EPA, 2023).

Several geographic cluster areas emerged as particularly concerning, as already evidenced by the county results. The **Golden Triangle** area (Port Arthur, Beaumont, and surrounding communities), and the **Greater Houston** area have the highest numbers of facilities where the fenceline demographic and existing pollution burden are highest. **Greater Houston** has the greatest number of facility sites in the study (34).[3]

Port Arthur/Beaumont. This region ranks among the most heavily burdened in Texas. Of 18 facility sites, 94% are in communities with high percentages of people of color and/or low-income populations. All EJScreen indicators averaged above the 75th percentile. Sites such as Valero Port Arthur and Diamond Green Diesel rank in the 99th percentile for air toxics and proximity to major polluters. Port Arthur, where 83% of residents are people of color and nearly 28% live in poverty, exemplifies an environmental sacrifice zone suffering from high poverty, asthma, cancer rates, and overexposure to industrial pollution (Kreider, 2023; Saha et al., 2024).

Greater Houston. With 22 facility sites, this region has the largest concentration of proposed developments. All are located in fenceline communities where poverty and people of color percentages exceed national averages. The TPC Houston site ranks above the 90th percentile in nearly all EJScreen categories and has a history of Clean Air Act violations (Amnesty International, 2024; EPA, 2024a). Industrial expansion in Galveston, LaMarque, and Texas City are planned for areas long affected by catastrophic accidents, redlining, and petrochemical pollution (Pacheco et al., 2024; Stephens, 1997).

Coastal Bend. Although sites here show slightly lower EJScreen scores overall, 91% of facilities are in vulnerable communities. Dow Freeport ranks at or near the 90th percentile in every EJScreen index. The East End of Freeport, a historically Black community, was displaced but endured cumulative harm due to industrial encroachment (Ahmed, 2020; Environmental Integrity Project, 2024).

Southern Coast. Fifteen of the 17 sites are in areas with high pollution and demographic risk. The Jupiter Brownsville Condensate Splitter ranks in the 98th percentile nationally for PM2.5 and demographic indicators. In Corpus Christi, the Inner Harbor Desalination Plant is sited in the historically Black Hillcrest neighborhood, compounding displacement and exposure to adjacent petrochemical facilities (Beeler et al., 2015; Davies, 2024).

Inland. This non-clustered region includes sites across east, west, and south Texas. All 10 sites are in or near communities with high EJScreen demographic index scores. Chemical recycling facilities in Tyler and Longview rank high for air toxics and proximity to other polluters, and are sited near historically segregated Black and Latino neighborhoods (Guevara, 2016; Shaw & Green, 2023). In the Permian Basin, oil and gas activity add cumulative pollution risks to rural, underserved communities facing regulatory neglect (Johnston et al., 2020; McDonald & Wilson, 2021, p. 33).

3 - Note that "sites" are not the same as "projects" as there can be multiple projects at the same site.

C. Summary of Key Findings

1. Facility Siting Reflects Historic Pattern of Environmental Injustice

Petrochemical facility siting in Texas reflects a legacy of racialized land use, redlining and exclusionary zoning, and locating in environmentally and economically vulnerable communities:

- 92% of the proposed facility sites rank above the 66th percentile in at least one EJScreen index, meaning they are more environmentally or socially vulnerable than two-thirds of the United States.
- The vast majority of new petrochemical sites are located in Texas counties with high percentages of people of color and people living below the federal poverty line, perpetuating patterns rooted in redlining, segregation, and discriminatory land use.

2. Fenceline Communities Are Already Overburdened

Petrochemical development is intensifying existing environmental and health burdens in already overexposed communities:

- 96% of sites exceed the 50th percentile nationally for either PM2.5 or toxic release to air indexes.
- 84% of facilities rank above the 66th percentile for toxic air releases, and 78% for PM2.5.
- Nearly 46% of all sites are in the top 10% nationally for toxic air pollution.
- 93% of sites are closer to other industrial polluters than the national average; 42% are in the top 10% for proximity to hazardous facilities.

3. Intersecting Inequities: Race and Poverty at the Petrochemical Fence Line

Petrochemical development in Texas continues to locate in communities where both race and poverty intersect to create compounded risk:

- 93% of fenceline communities have a higher percentage of people living below the federal poverty line.
- 91% of fenceline communities exceed the Texas poverty rate.
- 93% of fenceline communities exceed the national average for people of color.
- 84% of fenceline communities exceed the state average for people of color.

The dual exposure—being both low income and predominantly people of color—creates what advocates call "double jeopardy" for fenceline neighborhoods. These communities are already overburdened by decades of disinvestment, racial segregation, and poor infrastructure, and are also being disproportionately targeted for new toxic industrial development.

4. Race Versus Poverty in Predicting Industrial Siting Patterns

Race remains a more consistent predictor than poverty in determining petrochemical facility locations:

- Only 30% of proposed facility sites are located in areas with poverty rates above the national average.
- Yet 51% of sites exceed the national average for percentage of people of color, even when considering just the facility's point location.
- In surrounding fenceline communities, poverty and race factors both spike—yet race factors continue to be slightly more prevalent in proximity to polluting sites.

5. Regional and County-Level Concentration

Petrochemical development is concentrated in just 22 (9%) of Texas's 254 counties, with eight counties hosting multiple facilities or projects:

- Jefferson County (Port Arthur/Beaumont) and Harris County (Houston) dominate, with the highest number of projects, and the highest concentration of environmental and demographic risk.
- In Jefferson County, 90% of all project index values exceeded the 75th percentile.
- Jefferson County, with only 250,000 residents, bears a greater per capita industrial burden than Harris County, home to over 4.8 million.

6. Environmental Justice Facility Siting Concerns Occur in All Texas Regions

All regions analyzed in this study demonstrate consistent patterns of overburden and environmental injustice:

- Port Arthur/Beaumont: Every index category averaged above the 75th percentile, with communities such as the South End and Charlton-Pollard facing some of the nation's highest pollution levels.
- Greater Houston: This area hosts the largest number of proposed sites (34), with many located near predominantly Black and Latino neighborhoods and within already-saturated chemical corridors.
- Coastal Bend: Despite slightly lower in EJScreen rankings, areas such as Freeport's East End face extreme burdens. The Dow Freeport complex alone ranks in the 97th percentile for toxic releases to air.
- Southern Coast: This area includes historically Black and Latino neighborhoods in Corpus Christi and Brownsville. Facilities here scored among the highest in the state for PM2.5 and demographic vulnerability.
- Inland Texas: Though more dispersed, inland sites such as those in Tyler and Longview are located in racially segregated areas, as are inland fracking-related facilities.

V. Assessing Early Impacts of the Second Trump Administration

We began this study in 2024 when Joseph R. Biden Jr. was president. The federal environmental protection and regulatory landscape changed dramatically with the election of Donald J. Trump as the 47th President of the United States. This section provides a summary of major changes made by the second Trump administration and their implications for underserved and disadvantaged communities in the Gulf Coast region. The second election of President Trump ushered in a wave of policy shifts that removed environmental safeguards, reversed regulatory policy, and implemented administrative decisions that collectively reshaped the federal approach to environmental protection and public health and safety in the United States (Gomez & Bryson, 2025).

1. Signed Record Number of Executive Orders

In the first 100 days of his second term, President Trump issued executive orders—more than any other president—to aggressively reshape federal environmental, climate, energy, public health and safety, and civil rights policies through executive authority (Gomez & Bryson, 2025; Popli, 2025):

- He used executive power to reshape federal policy and funding by redirecting departments' and agencies' missions, embedding new priorities, and altering regulatory frameworks that will be difficult to fully reverse (Lowande & Poznansky, 2024; Popli, 2025).
- He overhauled environmental, climate, energy, public health and safety, and civil rights policies with 142 executive orders that eviscerated environmental and public health and safety protections, and weakened clean air, water, wildlife, and environmental justice protections (Popli, 2025; Southern Environmental Law Center, 2025).

2. Assaulted Environmental Protection

The Trump administration launched a sweeping attack on environmental protections, targeting foundational laws for rollbacks and weakening, such as the National Environmental Protection Act (McGrath et al., 2025) , the Clean Air Act, and the Clean Water Act (Bense et al., 2025). These actions

- eliminated limits on toxic air pollutants, including lead and mercury (Daly, 2025a);
- delayed rules on methane and hazardous air emissions (Conley, 2025; Daly, 2025a);
- used regulatory process generally reserved for emergencies to suspend methane limits without public input (Chemnick, 2025);
- terminated the Hazardous Organic National Emission Standards for Hazardous Air Pollutants Rule issued by the Biden administration to target carcinogens (Jouppi, 2025a); and
- rolled back limits on toxic PFAS (forever chemicals) in drinking water (Gustin, 2025).

3. Dismantled Environmental Justice and Civil Rights

Decades of environmental justice and civil rights protections were stripped away through executive orders, budget cuts, and the closure of key federal offices (Frank & Chemnick, 2025), which severely limits the federal government's ability to address disproportionate harm in frontline communities and undermines tools to fight environmental racism (Strott, 2025). The dismantling

- revoked Environmental Justice Executive Order 12898 and closed Environmental Justice offices for the EPA and Department of Justice (Frank & Chemnick, 2025; Strott, 2025);
- banned the use of disparate impact analysis across federal policy via Executive Order 14281 (Bellware, 2025);
- dropped the landmark environmental justice lawsuit in Louisiana's "Cancer Alley" that the Biden administration filed to curb emissions of the cancer-causing chloroprene at the Denka synthetic rubber plant formerly owned by DuPont (Laughland, 2025); and
- terminated programs for disadvantaged communities and equity, air monitoring, clean water, and climate resilience in overburdened communities (Volcovici et al., 2025).

4. Rolled Back Climate Policies and Climate Progress

Amid intensifying climate disasters, the Trump administration systematically reversed the nation's core climate policies and removed critical assessment tools (Gelles & Brown, 2025). These reversals narrowed the scope of environmental reviews and halted climate science efforts that supported planning and preparedness (Daly & Borenstein, 2025; Friedman, 2025b). The rollbacks

- withdrew the United States from the Paris Agreement for a second time (Daly & Borenstein, 2025);
- drafted plans to repeal the "endangerment finding," which determined that greenhouse gas emissions endanger public health and welfare (Brady, 2025; Friedman, 2025a);
- halted the Methane Emissions Reduction Program (Conley, 2025);
- revoked the National Environmental Policy Act's climate reviews and greenhouse gas assessment requirements (Brady, 2025; McGrath et al., 2025);
- halted publication of the National Climate Assessment reports (Borenstein, 2025a, 2025b); and
- proposed phasing out and eliminating FEMA after the 2025 hurricane season and shifting responsibility for disasters onto state governments (Angueira, 2025; Scripps News Group, 2025).

5. Prioritized Fossil Energy Development and Expansion

The administration made fossil energy development a national priority, using emergency authorities to dismantle environmental safeguards (Cunningham, 2025; Gibbs et al., 2025). These measures expanded leasing, slashed oversight, and promoted fossil fuel exports, accelerating long-term emissions and community health risks (Meiburg & McCabe, 2025; Shapiro & Walker, 2018). The emergency authority actions

- declared a "national energy emergency" with Executive Order 14156 to override environmental laws and regulations (Cunningham, 2025);
- issued a series of proclamations that grant two years of regulatory relief to coal-fired power plants, chemical manufacturers, and other polluting industries (Daly, 2025c);
- invoked emergency powers to fast-track fossil energy infrastructure, and offered step-by-step instructions for companies to apply for exemptions (Cunningham, 2025; Jouppi, 2025b);
- opened 625 million acres of federal waters and 19 million acres of public land to leasing (Edwards, 2025); and
- rolled back methane oversight and imposed "10-to-1" deregulatory rule (Conley, 2025; Medicherla, 2025; Washko, 2025).

6. Slowed Clean Energy Transition

In contrast to fossil energy support, the administration used executive orders, directives, and the One Big Beautiful Bill Act (OBBA) to slow and obstruct clean energy deployment through project freezes, funding and grant cancellations, and legislative repeals (Eisenson, 2025). These actions

- targeted provisions of the Inflation Reduction Act that addressed climate risks and included tax credits and subsidies for wind and solar (Cavanaugh et al., 2025; Krawczyk, 2025);
- slashed tax credits that will cut annual clean energy installations by 41% after 2027 (Adams, 2025; Chediak, 2025);
- stalled clean energy investments, risking job losses and higher utility bills (Copley, 2025; Orvis et al., 2025); and
- froze permits for solar, wind, geothermal, and battery storage (Eisenson, 2025; Strupp, 2025).

7. Endangered Public Health and Safety

The mission of the EPA has always been to "protect the environment and public health" (EPA, 2025). Experts caution that straying from this core mission and abandoning its enforcement norms could lead to more disasters, petrochemical incidents, oil spills, and toxic chemical discharges, especially as EPA's regulatory staff and oversight mechanisms are rapidly downsized (Cunningham, 2025). Public health and safety are endangered by these new policies, which

- propose weaker standards for hazardous pollutants and eliminate oversight mechanisms, exposing communities to more toxic emissions (Baurick, 2025; Jouppi, 2025b);
- suspend protections against carcinogens and air toxics (Drugmand, 2025; Jouppi, 2025b);
- propose weaker mercury and particulate matter standards from coal plants (Daly, 2025b; Zhao et al., 2025);
- exempt more than 100 chemical manufacturers, oil refineries, coal plants, medical device sterilizers, and other industrial polluters from Clean Air Act rules (Frazin, 2025b);
- implement policies that allow industrial polluters to avoid clean air rules under the Clean Air Act (Banks & Marquez, 2025; Daly, 2025a; Tabuchi, 2025b);

- exempt over 200 chemical plants from fenceline monitoring for hazardous pollutants (Borenstein et al., 2025);
- roll back safeguards against catastrophic explosions and toxic releases and reconsider safety rules for chemical facilities (Strott, 2025); and
- move to close the U.S. Chemical Safety and Hazards Investigation Board and early-warning systems (Baurick, 2025; Tabuchi, 2025a).

8. Attacked Science and Research Infrastructure

The administration offered sweeping policy directives that targeted core programs supporting science, resilience planning, pollution prevention, and public health and safety, and slated them for termination. Antiscience rhetoric has sidelined experts and evidence, gutted weather science, dismantled the research infrastructure, and reduced our nation's ability to prepare for, respond to, and recover from catastrophic disasters (Friedman et al., 2025; Jacobo, 2025). This core program targeting has

- developed an artificial intelligence tool to target 100,000 federal regulations, including those that tackle the climate crisis, with a stated goal of eliminating 50% of these federal rules by the first anniversary of President Trump's second inauguration (Castro, 2025);
- allowed science to be politicized by granting political appointees power to define scientific integrity and control what evidence federal agencies use in policymaking (Michaels & Wagner, 2025);
- shifted focus away from science-based environmental governance in favor of deregulation, industry accommodation, and reduced federal accountability (Drugmand, 2025);
- closed the EPA Office of Research and Development and fired its staff (Friedman & Joselow, 2025); and
- deleted over 2,000 datasets on environmental and climate-related resources from federal agency websites (Santarsiero, 2025).

9. Slashed Budgets and Fired Federal Workers

Cutting the federal budget and shrinking the federal workforce were two top priorities, and both were implemented through executive orders and passage of the OBBA, signed by President Trump on July 4, 2025—laying waste to federal budgets, safety net programs, and environmental, health, and safety protections (Lavelle & Aldhous, 2025). These cuts to the budget and federal workforce have

- reduced EPA's budget to $7 billion and decreased its workforce by 23%, from 16,155 in January to 12,448 in July (Frazin, 2025a; Meiburg & McCabe, 2025; Stimson, 2025);
- targeted environmental justice, climate science research, and environmental monitoring by slashing budgets, closing offices, and firing staff (Bense et al., 2025); and
- reduced the number of federal workers in the first six months of the second Trump administration by 134,856 (Canon et al., 2025; Dance, 2025; Grist, 2025; Shao & Wu, 2025).

10. Canceled Federal Grants

One of the administration's most far-reaching impacts came through the systematic freezing and cancellation of federal grants for environmental protection, climate and resilience planning, clean energy, and public health and safety—many of which had been made possible by Congress passing, and President Biden signing, the historic $369 billion Inflation Reduction Act, the largest climate program in history, and the $1.2 trillion Bipartisan Infrastructure Law. These actions

- canceled hundreds of grants in the Gulf Coast regions—grants that would have supported solar installations on homes, schools, churches, and community centers, flood resilience upgrades, and community-based monitoring of oil and gas and petrochemical emissions (Lavelle & Aldhous, 2025; Strott, 2025);
- terminated billions in federal grants critical for climate, energy, health, and environmental justice (Lavelle & Aldhous, 2025);
- cut NASA and NOAA climate science funding (Borenstein, 2025b; Dance, 2025; Temple, 2025);
- targeted more than 4,000 grants for cancellation at more than 600 universities, valued between $6.9 billion and $8.2 billion, with Texas among the top 15 states losing the most federal funding based on population (Center for American Progress, 2025);
- revoked or froze over $23 billion in grants across energy, health, climate, and research sectors (Lavelle & Aldhous, 2025; Lea, 2025);
- canceled congressionally appropriated PFAS research grants, then reversed a few terminations while leaving others in limbo (Clark, 2025); and
- eliminated 1,600 NSF and 2,500 NIH grants—many of which focused on equity and health (Reardon, 2025; Williams, 2025).

VI. Conclusions

Across the six Texas regions, the study results reflect persistent environmental justice challenges: the overwhelming majority of 89 petrochemical facilities are proposed to be sited in communities already burdened by pollution, poverty, and racial inequity. This geographic concentration of risk reinforces the need for stronger petrochemical siting protections, meaningful public engagement, and environmental justice accountability in Texas.

Petrochemical facilities in Texas are being proposed and planned that, if built, will disproportionately and adversely impact the most vulnerable people and places in communities that are already overburdened with industrial pollution and environmental hazards (Amnesty International, 2024; Shaykevich et al., 2024). Many of the existing environmental, social, and health burdens stem from decades of discriminatory land use, biased planning, racial redlining, and rubber-stamp facility permitting by the state government (Baddour et al., 2024; Bullard et al., 2007; Roberts et al., 2022).

The buildout and expansion of petrochemical facilities in Texas follows a pattern set in motion decades ago, targeting fenceline communities where incomes are lower, poverty rates are higher, and the proportion of people of color is higher than that of the state and nation overall (Bullard, 2000; Bullard et al., 2007). This mirrors decades-old patterns of environmental racism and sacrifice zone creation (Bullard, 2000; Lerner, 2012). These fenceline communities face cumulative threats from chemical emissions, explosions, flaring, and climate disasters (Flores et al., 2021; Robinson, 2024). They receive few direct economic benefits, but bear the brunt of long-term environmental and health costs (Morello-Frosch & Obasogie, 2023; Terrell et al., 2024). Without intervention, the proposed petrochemical buildout will reinforce and deepen existing environmental, economic, and health disparities and vulnerabilities. Mitigating harm in these communities requires more than pollution controls—it requires dismantling systems and structures that allow and encourage low-income and people of color communities to bear the burden of polluting industries, while allowing the economic benefits to accrue elsewhere (Amnesty International, 2024; Malin, 2020).

The study clearly shows that having a petrochemical plant as a next door neighbor does not create an economic renaissance or bring economic prosperity to the residents who live on the fence line with these polluting facilities. Conversely, residents who live closest to these facilities face elevated health threats from both pollution and poverty, compared with the general population.

The federal environmental protection and regulatory landscape has clearly shifted dramatically under the second Trump administration. Using rapid-fire executive orders and directives, the administration tilted federal policies toward less protection, less federal regulatory oversight, less environmental and health impact assessment, less science-based decision-making, less clean energy, and more fast-tracking, more streamlined permitting, more oil, gas, and petrochemical facility siting, more exemptions and licenses to pollute, and more fossil energy. Nowhere are these dynamics clearer than in Texas, where the petrochemical buildout has concentrated in already

overburdened and economically marginalized communities (Amnesty International, 2024; Saha et al., 2024; Shaykevich et al., 2024).

Many of the administration's executive orders and policy changes have placed people and places at risk from human-made and natural disasters (Bense et al., 2025; Canon et al., 2025). Public health and safety goals are not enhanced when vital federal programs like EPA, NOAA, FEMA, OSHA, and NIH are weakened, gutted, and dismantled, with budgets cut and staff fired. Slashing protections and providing waivers that allow petrochemical, fossil energy, and vehicles manufacturers to ignore the federal Clean Air Act rules will not make Americans healthier, safer, or more economically secure. Ignoring the "endangerment finding" and decades of science and facts will not wipe away the known causes and harmful impacts of climate change. Returning to a sense of normalcy will require sustained action by people who care about building a just, healthy, livable, and sustainable future for all. It is imperative that the federal government live up to its responsibility to protect the environment along with public health and safety.

Climate Justice. The proposed buildout of new petrochemical plants in Texas has impacts beyond state boundaries. This proliferation will increase emissions and lessen any U.S. ability to meet Paris Agreement climate goals. Climate change alleviation must prioritize environmental justice in Texas and beyond (Saha et al., 2024; Tilsted et al., 2023).

Protection for Fenceline Communities. The continued buildout of petrochemical facilities disproportionately harms low-income people and communities of color living near polluting industries. These fenceline communities—long treated as sacrifice zones—are calling on all levels of government to reject new petrochemical and plastics plants (Bruggers, 2024; Food and Water Watch, 2018). Community leaders emphasize that a just transition must go beyond job replacement to address broader goals of health, racial equity, and economic and environmental justice (Azhar, 2021; Genoways, 2014; Gilio-Whitaker, 2019; Robinson, 2024). Because petrochemical production is deeply tied to fossil fuels, its expansion worsens the global crises of plastics, toxic emissions, and climate change—requiring urgent action to phase out unsustainable production and drastically cut emissions (Center for International Environmental Law, 2019; Shaykevich et al., 2024).

Transition to Clean Energy. Texas must accelerate a just transition away from petrochemicals and fossil fuel dependency. This includes ending subsidies for polluting industries and investing in clean energy jobs and infrastructure (Center for International Environmental Law, 2019; Tilsted et al., 2023).

Public Health Protections. Proposed projects must be evaluated for cumulative health impacts. Communities already facing elevated asthma, cancer, and chronic disease from petrochemical exposure should not face additional burdens (Flores et al., 2021; Randolph, 2021).

Economic Justice and Accountability. Fenceline residents deserve not only environmental protection, but also equitable access to economic opportunity. Job creation and investment must

be transparent and accountable, and must benefit those most affected by the petrochemical industry (Jones, 2024; Tomaskovic-Devey, 2016).

Policymakers, regulators, and industry leaders must consider the public health, safety, and environmental consequences of petrochemical and fossil energy projects, and work together to create solutions that prioritize the well-being of all Texans. This analysis and its findings summarize an array of issues surrounding petrochemical development in overburdened communities. The impact to local fenceline communities in Texas also has ripple effects around the world. Globally, the inequity of the Texas petrochemical buildout is present for poor people, people of color, and people in the Global South, who are disproportionately affected by pollution and the climate crisis (Dauvergne, 2023; Geyer et al., 2017).

Texas has a social responsibility and a moral imperative to do more to protect people's health and well-being—both in Texas and beyond. Addressing these issues requires urgent attention to the environmental and social factors contributing to vulnerability, and a concerted effort to prevent further environmental injustice and threats to public health (Bullard, 1994, 2000; Bullard & Wright, 2023; Gonzalez et al., 2023).

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I. INTRODUCTION

The petrochemical industry is a vast enterprise that processes fossil fuels (oil and fossil gas) into new products such as gasoline, synthetic fertilizers, paints, and plastics. Tens of thousands of chemicals are derived from crude oil and raw fossil gas (Petrochemicals Europe, 2023). Texas is the number one refiner of petroleum in the United States, and it is a leading global petrochemical producer (U.S. Energy Information Administration, 2025).

The expansion of petrochemical facilities in Texas has long been a point of contention, especially for the communities living near these industrial sites, often referred to as "fenceline communities" (Amnesty International, 2024). Some people speak out about the harms that the industry brings, while others do not have the agency or ability to speak out, and still others claim that the industry supports them (Lerner, 2012; Robinson, 2024). Texas leads the nation in petrochemical production; it has the largest number of petrochemical plants of any U.S. state, and Texas petrochemical facilities employ more than 100,000 workers (Economic Development & Tourism Division, 2015). According to the Federal Reserve Bank of Dallas, Texas was home to 75% of the nation's petrochemicals manufacturing in 2023 (Thompson & Hines, 2023). Greater Houston alone accounts for more than 42% of the nation's base petrochemical capacity (Economic Development & Tourism Division, 2015). Despite ongoing public outcry and evidence of environmental injustice, the Texas Commission for Environmental Quality continues to grant permits for the expansion of plastics and petrochemical facilities, exacerbating the burden for communities neighboring the petrochemical infrastructure (Baddour et al., 2024; Sadasivam & Aldern, 2023).

The environmental justice framework calls for the eradication of inequitable conditions and raises crucial ethical, moral, and political questions about who is most burdened by environmental degradation (Bullard & Wright, 1986; Van Horne et al., 2023). It aims to reveal the underlying assumptions that drive disparities in exposure to, treatment for, and protection from environmental harm (Bullard, 2000; Bullard & Wright, 2023). This framework was shaped by scholars and community scientists with a major focus on disproportionate and cumulative impacts of environmental threats to sensitive and vulnerable populations (Lazarus, 1992; Mohai, 1985).

The large growth in plastic production over the last 50 years has compounded the environmental impacts in communities, leading to new and significant challenges for fenceline communities in Texas (Bullard et al., 2007; Center for International Environmental Law, 2019; Morello-Frosch & Obasogie, 2023). Despite the recent renaissance in awareness and action around environmental and climate justice, along with calls for decarbonization in the United States, Texas and disadvantaged communities remain a prime target for the petrochemical industry to grow itself. Yet fossil fuel industries continue to ramp up plastics production and other high-financial-yield petrochemicals to sustain their profitability, propagating the patterns of disadvantage (Amnesty International, 2024; Bullard et al., 2011; Food and Water Watch, 2018; Shaykevich et al., 2024; Sicotte, 2021, p. 12). Petrochemicals are on the rise in large part due to the hydraulic fracturing (fracking) boom in Texas (and beyond) (Shaykevich et al., 2024).

Texas has no state-backed efforts to enumerate or remedy the systemic environmental inequities in neighboring Louisiana or any of the five Gulf Coast states (Sotolongo, 2023). As such, Texas and Gulf Coast residents lack state-level tools and data to even assess and document conditions, much less make decisions based on the findings. Advocates, nonprofits, and community-based organizations are left to fend for themselves. This is in sharp contrast to a growing number of states that have developed their own environmental justice assessment tools. At least 11 states have customized tools to evaluate environmental justice: CalEnviroScreen (California Office of Environmental Health Hazard Assessment, n.d.),[4] Connecticut EJ Screening Tool (University of Connecticut, n.d.),[5] EJ Start (Illinois Environmental Protection Agency, 2024),[6] Maryland EJ Screening Tool (Maryland Department of the Environment, n.d.),[7] Minnesota Map of Environmental Justice Areas (Minnesota Pollution Control Agency, 2024),[8] MiEJScreen (Michigan Department of Environment, Great Lakes , and Energy, n.d.),[9] New Jersey EJMAP (New Jersey Department of Environmental Protection, 2024),[10] New York Potential Environmental Justice Areas (New York Department of Environmental Conservation, n.d.),[11] North Carolina Community Mapping System (North Carolina Environmental Quality, n.d.),[12] PennEnviroScreen (Pennsylvania Department of Environmental Protection, n.d.),[13] and Washington Environmental Health Disparities Map (Washington State Department of Health, n.d.).[14] The lack of localized tools and regulations in Texas also points to a vacuum of political will at the state level to address the problem of environmental injustice (Konisky et al., 2021), leaving Texans to rely on federal assessment tools and regulations. This perfect storm of contradiction and neglect makes the present analysis crucial, because it gives advocates a chance to stand up for their communities, their health, and the ecosystems upon which they depend.

Texas's dense population centers and semirural areas are more likely than other areas of Texas to host petrochemicals manufacturing, export, and waste management (Berberian et al., 2024; Bruno & Jepson, 2018; Union of Concerned Scientists & Texas Environmental Justice Advocacy Services, 2016). In west Texas, as well as in some other rural areas near San Antonio and in the Panhandle region, oil and gas extraction and production dominate (Gonzalez et al., 2023; McDonald & Wilson, 2021, p. 33; Public Citizen, 2016; Zhang et al., 2020). Across the state, thousands of pipelines carry fracked methane gas, oil, fossil gas liquids, and other materials used in petrochemical products (Railroad Commission of Texas, 2024a, 2024b; U.S. Energy Information Administration, 2024).

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4 - https://oehha.ca.gov/calenviroscreen
5 - https://connecticut-environmental-justice.circa.uconn.edu/
6 - https://experience.arcgis.com/experience/aa364c77db684dfa92afa5094b69f6ff
7 - https://mde.maryland.gov/Environmental_Justice/Pages/EJ-Screening-Tool.aspx
8 - https://experi-ence.arcgis.com/experience/bff19459422443d0816b632be0c25228/page/Page/?views=EJ-areas
9 - https://www.michigan.gov/egle/maps-data/miejscreen
10 - https://experience.arcgis.com/experience/548632a2351b41b8a0443cfc3a9f4ef6
11 - https://www.arcgis.com/home/webmap/viewer.html?url=https://services6.arcgis.com/DZHaqZm9cxOD4CWM/ArcGIS/rest/services/Potential_Environmental_Justice_Area__PEJA__Communities/FeatureServer&source=sd
12 - https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1eb0fbe2bcfb4cccb3cc212af8a0b8c8
13 - https://gis.dep.pa.gov/PennEnviroScreen/
14 - https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map

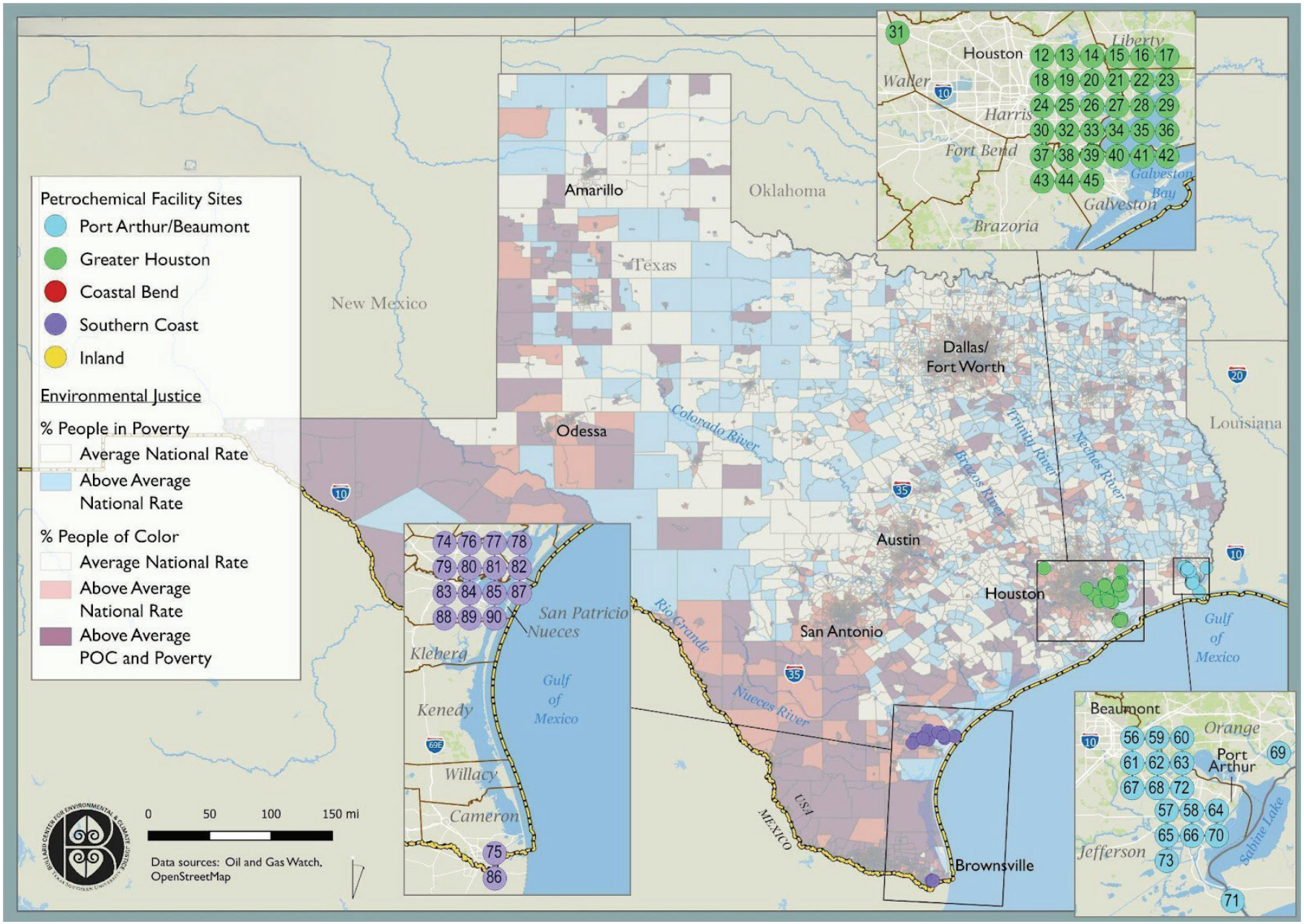
A. Problem

Today, an unprecedented petrochemical industry expansion is underway in Texas, where new facilities are being proposed. This study asks whether the proposed buildout of petrochemical facilities in Texas locates new facilities, or expands existing facilities, in already at-risk fenceline community "sacrifice zones" (Bullard, 2011; Lerner, 2012)—regions of chemical corridors where the environmental and public health ramifications of industrial activities fall disproportionately on people of color, poor people, and vulnerable populations (Bullard, 2011; Lerner, 2012). Vulnerable populations face elevated threats and social and environmental harms, especially where a social safety net is lacking or insufficient (Robinson, 2024). The petrochemical expansion patterns in Texas raise significant concerns, because they continue to place the greatest environmental and health burdens on already existing sacrifice zones (Amnesty International, 2024; Mohai & Saha, 2007). This study examines the extent to which the current petrochemical industry expansion in Texas disproportionately impacts marginalized communities, and how this expansion aligns with historical patterns of environmental injustice in fenceline communities.

B. Scope of the Report

The petrochemical industry's plan for more than 100 new facilities and expansions in Texas within the next few years evokes a pressing need to clearly document the existing environmental inequities presented by fossil fuels and petrochemical plants, before more facilities are built in communities already overburdened with industrial pollution (Environmental Integrity Project, 2024; Shaykevich et al., 2024).

This report examines the buildout of new, under-construction, and proposed petrochemical facilities (as of February 2024), including expansions, in Texas (Map 1) within the context of existing environmental degradation, pollution, and health burdens. It also explores the historical roots of the petrochemical industry, with a focus on Texas and the intersection with environmental injustice, paying particular attention to plastics production.



Map 1. **Overview map -** Sites of new, proposed, and under-construction petrochemical facilities analyzed in this report. Facilities are color coded to the geographic region. The Greater Houston, Southern Coast, and Port Arthur/Beaumont regions are enlarged in the corners of the figure, as those three regions have the highest numbers of clustered facilities examined by this study.

This report describes the research questions, methods, and analysis, then presents and discusses the results. The conclusion contextualizes the analysis and findings, highlighting patterns of environmental injustice and emphasizing how certain communities face a disproportionate burden of pollution and health risks compared with others. The primary goal of this report is to elucidate the demographics in areas surrounding locations where new petrochemical facilities (including expansions) are proposed. The results will be used to further equip residents in communities that already live in the shadow of such facilities, or whose communities are threatened by new facilities coming in, with data about the existing conditions and what is being proposed for their communities, to inform their advocacy.

II. ENVIRONMENTAL JUSTICE AND THE PETROCHEMICAL INDUSTRY

Industrial pollution in the United States has traditionally been concentrated in communities with limited resources to oppose it, disproportionately affecting neighborhoods largely composed of low-income residents and people of color (Bullard & Wright, 2023; Morello-Frosch & Obasogie, 2023). Black Americans in 19 states are 79% more likely than their White counterparts to live in areas heavily impacted by industrial pollution (Ramirez, 2021). The environmental justice (EJ) movement, which grew out of civil rights efforts, addresses these inequities by challenging the systemic factors that perpetuate them. This movement has reshaped the concept of environmentalism, aligning it with the fight against institutional racism and advocating for risk reduction and the equitable treatment of all communities under environmental regulations (Bryant & Hockman, 2005; Bullard, 1994).

The intersection of environmental and racial justice gained prominence in the 1960s, when Dr. Martin Luther King Jr. supported striking Black sanitation workers in Memphis, Tennessee, linking civil rights activism to environmental justice (Honey, 2007). In 1979, *Bean v. Southwestern Waste Management Corp*., became the first civil rights lawsuit to challenge environmental racism, addressing the discriminatory siting of landfills near marginalized communities (Bullard, 2000). Protests in Warren County, North Carolina in the early 1980s exposed racial and economic justice in hazardous waste facility siting. These events together introduced *environmental racism* to public discourse and fueled the environmental justice movement (Bullard, 2000).

Over more than four decades, the environmental justice movement has grown substantially, driven by grassroots activism, community-based research, and the creation of alliances, networks, and coalitions (Bullard, 1994, 2021; Lerner, 2012). A pivotal moment for the EJ movement was the 1991 First National People of Color Environmental Leadership Summit, where activists from across the nation gathered. Members of the summit developed and adopted a seminal 17-point treatise, *The Principles of Environmental Justice*, which remains central to the movement's philosophy today (People of Color Environmental Leadership Summit, 1991). The movement was then embraced

by grassroots community leaders and academic leaders, especially leaders from historically Black colleges and universities. These actions paved the way for mobilization and significant policy advancements, including President Clinton's 1994 Executive Order 12898 on environmental justice, which addressed environmental disparities within federal programs, aimed to strengthen civil rights protections, and emphasized the need for improved methods to assess and mitigate the impact of environmental hazards on low-income and minority populations (Exec. Order No. 12898, 1994). However, the executive order did not provide funding or enforcement, and two recent studies by the U.S. General Accountability Office (2019a, 2019b) found that the executive order fell short of its goals.

Nearly 30 years after President Clinton's EJ executive order, President Joe Biden signed Executive Order 14096, "Revitalizing Our Nation's Commitment to Environmental Justice for All" in April 2023 (Exec. Order 14096, 2023). President Biden's EJ executive order included substantial financial resources made possible by passage of the Inflation Reduction Act, which authorized $369 billion to mitigate climate change and provided $60 billion for environmental justice (The White House, 2024). To date, the Inflation Reduction Act is the largest financial commitment in U.S. history to address the climate crisis.

The fight for environmental justice is about much more than environmental protection. The movement continues to confront the unequal distribution of environmental harms and burdens, and works to ensure that all people, regardless of race, color, national origin, or income, have the right to live in a healthy, sustainable, and safe environment (Bullard & Wright, 2023). The justice framework is more important now than ever before, given the challenges made worse by climate change.

A. The Politics of Pollution and Petrochemicals in the Gulf South

The United States of America is segregated, and so is pollution. Nowhere is this better illustrated than in the Gulf South (also referred to as the Gulf Coast). Environmental racism is deeply rooted in Gulf Coast states, springing from colonization and continuing through enslavement, Jim Crow discrimination, and racial redlining (Bullard, 2000; DeLeon & Calvert, 2021). After the turn of the 20th century, Louisiana and Texas became fossil fuel and petrochemical havens, and over the following decades they led the nation in luring fossil fuel and petrochemical industries to their states with the promise of cheap labor, generous tax breaks, and abundant natural resources (Glaeser & Tobio, 2007, p. 56; Jaworski, 2017; Saha et al., 2024). In Greater Houston, the rise of the city was accompanied by the rise of polluting industries. Housing discrimination also gained new legs, and many Black and Latino residents were constrained to areas adjacent to industrial zones and chemical corridors (Roberts et al., 2022).

Toxic hot spots, where pollution is concentrated, correspond with places where vulnerable populations, people of color, and low-income families live. In Texas, Black and Latinos residents are disproportionately concentrated near hazardous waste facilities, comprising over 66% of the population in fenceline communities, on average (Bullard et al., 2007).

Black and Latino Americans are also disproportionately burdened with breathing polluted air. Tessum and colleagues (2019) found that White Americans enjoy a "pollution advantage," meaning they breathe 17% less air pollution than they cause. Mikati and colleagues (2018) found that people of color in 46 states live with more air pollution than White Americans. Furthermore, Black Americans are exposed to fine particulate matter (PM2.5) levels that are 1.54 times higher than White Americans' exposure levels, and Latino Americans are exposed to levels that are 1.28 times higher White exposure levels. People living in poverty are exposed to harmful air pollution at levels that are 1.35 times higher than the exposure levels of people living above the federal poverty level (Mikati et al., 2018).

B. Vulnerable People in Vulnerable Places

As the nascent petrochemical industry grew, Texas and Louisiana state and local governments strategically provided land to industrial facilities that were located near impoverished neighborhoods and communities of color (Bullard, 1994; Roberts et al., 2022). Many of these facilities were erected during a time when Black Americans had limited access to voting, decision-making, and the political power needed to stop these industries from encroaching upon their communities (Mohai & Saha, 2007, 2015). Later, redlining relegated neighborhoods comprising mostly or exclusively people of color to areas near polluting facilities (Gonzalez et al., 2023).

The discriminatory placement of polluting industries near communities of color has persisted, even as local, state, and federal environmental laws and regulations have been strengthened because lax enforcement has allowed petrochemical plants and other polluting industries to follow a path of least resistance by creating environmental sacrifice zones (Bullard, 2011). Government officials and regulatory policies continue to approve permits that perpetuate decades-old historical patterns of environmental injustices and environmental racism (Bullard & Wright, 2023; Mohai & Saha, 2007).

The Gulf South region has dense concentrations of oil refineries and petrochemical plants, exemplifying environmental sacrifice zones. One infamous example is Louisiana's "Cancer Alley," an 85-mile stretch of land on the banks of the Mississippi River between Baton Rouge and New Orleans. The industrial corridor is home to over 100 petrochemical facilities (Terrell & St. Julien, 2022). Black communities in Cancer Alley face some of the highest poverty, pollution, and cancer rates in the nation (Terrell & St. Julien, 2022). Chemical corridor sacrifice zones dot the Gulf South coastline, from Pascagoula, Mississippi, to Cancer Alley, and from Lake Charles, Louisiana, to the Golden Triangle, Greater Houston, Freeport, and Corpus Christi, Texas. Each of these areas of injustice has its own story to tell, but the similarities of environmental racism run throughout.

The Texas Golden Triangle is the area that surrounds Port Arthur, Beaumont, and Orange. It gained the Golden Triangle moniker for the wealth that oil brought to the area, yet this region is one of the most impacted and vulnerable, with fenceline communities located among behemoth industrial facilities (Beaumont Convention & Visitors Bureau, n.d.; Garrand, 197x). Great wealth was

supposed to accrue to the Golden Triangle with the rise of oil and petrochemicals, beginning with the discovery of the Spindletop oil field. However, the benefits of development there and in other Gulf South areas have not been widely shared (DeLeon & Calvert, 2021; Saha et al., 2024).

Extracted and refined fossil fuels and resultant chemicals have largely benefited corporations, rather than the people living in the shadow of the facilities (Lerner, 2012). Instead of benefiting, the region became a triangle of pollution, poor health, and poverty that has persisted for generations amid petrochemical industry growth. The population of Port Arthur, home to Motiva, one of the largest oil refineries in North America, is more than two-thirds people of color (Genoways, 2014). The city suffers from high rates of asthma and cancer and an extremely high poverty rate—confirming that living next to polluting petrochemical industries does not create an economic renaissance for everyone living in the city (Genoways, 2014).

A similar pattern of uneven benefits and burdens occurs in Corpus Christi's Hillcrest neighborhood. This historically thriving Black community has been encroached upon by oil refineries for decades. High rates of harmful emissions, including cancer-causing benzene, have caused severe health problems, and industrial growth has displaced many Hillcrest residents (Azhar, 2021).

The Greater Houston area is home to the largest petrochemical corridor in the world, with hundreds of polluting facilities in the area bordering the Houston Ship Channel (Amnesty International, 2024; Pacheco et al., 2024). Communities such as Baytown, Cloverleaf, Pleasantville, Channelview, Galena Park, and Manchester—with majority people of color and low-income populations—line the Houston Ship Channel and dot the area. These communities face high levels of industrial pollution (Martinez & Perez, 2024; Leffler et al., 2023).

C. Dangers of Living on the Fence Line

The persistent issue of pollution disproportionately affecting marginalized communities has endured for decades, and recent data highlight just how deeply these injustices remain ingrained. In formerly redlined neighborhoods, the legacy of discrimination continues to manifest in the very air residents breathe, because those neighborhoods tend to have lower air quality (Roberts et al., 2022). Lack of opportunity accompanied redlined areas, where neighborhoods were deemed less desirable for home loans and other investments, leading to persistent disinvestment and segregation. In addition to redlining, the widespread practice of covenants and deed restrictions in various neighborhoods added to race and income segregation (Bullard, 1994). Redlined areas now face nearly twice the pollution exposure from both active and inactive gas wells compared with other regions (Gonzalez et al., 2023). Methane natural gas leaks are more prevalent in neighborhoods with higher rates of people living in poverty or where higher proportions of residents are people of color (Weller et al., 2022). These troubling trends are a nationwide pattern.

1. Health Impacts

The location of petrochemical plants has long been a major environmental justice concern, because pollution risks are more acute at the fence line. Pollution risk is exacerbated by economic stressors such as poverty, lack of healthcare and insurance, and lack of other residential health and resilience amenities (Johnston et al., 2020). This combination of many stressors, in turn, makes communities more vulnerable, and the cycle is further entrenched. Oil refineries operating in the United States emit thousands of tons of hazardous and carcinogenic air pollutants (Fox, 2015).[15] Yet pollution from refineries is not equally distributed. Half of the people that are at an elevated cancer risk from refinery pollution are people of color (Garcia, 2014). Studies also show that Black Americans are nearly three times more likely to die from exposure to airborne pollutants than are other racial and ethnic groups (Di et al., 2017). While overall pollution levels have declined nationally in recent years, Black Americans continue to die at disproportionately higher rates from particulate matter exposure (Geldsetzer et al., 2024). Research has found that increased petrochemical production and fossil fuel use have contributed to a rising rate of neurodevelopmental issues, diabetes, chronic respiratory diseases, and certain cancers, particularly among people of color (Gillam, 2024; Woodruff, 2024). Mental health is also impacted by the fossil fuel industry, which contributes to chronic stress and feeling powerless and uncertain because the regulating bodies and the industry lack transparency (Malin, 2020).

Children in sacrifice zones are especially vulnerable to the health impacts of pollution. Exposure to chemicals like bisphenol A in plastics has been linked to childhood obesity and developmental disorders (Lopez-Moreno et al., 2024). Exposure to air pollution during fetal development and early childhood has been associated with a higher likelihood of mental health problems later in life, such as depression and symptoms of psychosis (Newbury et al., 2024). Furthermore, younger cancer patients from vulnerable communities face a 58% higher mortality rate than older adults, and those young patients tend to die within a few years of diagnosis (Tortolero et al., 2024).

Higher proportions of people of color and low-income populations live near environmental hazards in Texas, and fenceline community members are more likely to experience adverse health impacts from those hazards (Chakraborty et al., 2019; Cushing et al., 2015; Flores et al., 2021; Gonzalez et al., 2023). People living in Texas communities situated near petrochemical facilities and oil and gas extraction activities, such as fracking, have a higher risk of neurodevelopmental issues, diabetes, chronic respiratory diseases, debilitating mental health issues, asthma, preterm births, and leukemia, to name only a few (Breakey et al., 2024; Pederson et al., 2024; Whitworth et al., 2008, 2017).

Fifty years of surging plastics and petrochemical production have compounded the environmental and health impacts on communities and populations located along the fence lines of petrochemical facilities in Texas (Morello-Frosch & Obasogie, 2023).

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15 - Modern oil refineries all process and manufacture many types of petrochemicals, as well as producing materials like gasoline and jet fuel.

2. Safety Impacts

Studies over the decades have shown that Black and Latino Americans face an increased risk of experiencing chemical disasters (Orum et al., 2014) because they are more likely than other racial/ethnic groups to live closer to facilities storing large amounts of explosive and flammable chemicals. The risk of catastrophic explosions is a constant fear for residents living near petrochemical facilities in sacrifice zones; this fear, coupled with repeated chemical incident exposures, has long-term mental health impacts (Sansom et al., 2022). A report released in 2023 by Coming Clean and the Coalition to Prevent Chemical Disasters revealed that chemical incidents occur almost daily in the United States (Nelms & Bernat, 2023), exposing nearby residents to deadly toxins through fires, explosions, leaks, and spills. The study authors found that over 279 news-reported chemical incidents occurred between January 1, 2021, and October 15, 2023, and 79 of those hazardous chemical events occurred in Texas, which had the highest number of incidents for any one state. Nearly two-thirds (175 of 279, 63%) of incidents occurred at facilities covered by the Environmental Protection Agency's (EPA's) risk management program (RMP; EPA, 2000).[16] Texas has 2,373 RMP hazardous chemical facilities, the largest number of RMP facilities of any state in the country (EPA, 2024d).

Contaminants released during disasters also have a disproportionate impact on communities of color and lower-income communities (Berberian et al., 2024; Burleson et al., 2015; Chakraborty et al., 2019; Flores et al., 2021). An insidious loop exists, where people of color and people with lower incomes are more likely to experience harm as a result of chemical facilities and disasters, yet destructive weather events fueled by climate change have led to more chemical disasters, all rooted in the same fossil fuel industry underlying the chemical facilities (Berberian et al., 2024; Flores et al., 2021). The expansion of plastics processing continues the fossil fuel industry's runaway train of increasing plastics production, and disadvantaged communities will likely bear the brunt of the new safety risks therein (Amnesty International, 2024).

3. Light and Noise Impacts

Fenceline communities suffer from constant light and noise pollution emanating from industrial activities. For example, in the Permian Basin, gas flaring (burning) from drill pads not only releases harmful chemicals, but also emits bright light and loud noise, which disrupt daily life (Johnston et al., 2020). The same flaring, which emits high levels of harmful particulates and noxious gases, also occurs regularly in petrochemical facilities adjacent to fenceline communities. Asian, Latino, and Black Americans experience two times the exposure rate of light pollution from artificial light than do White Americans (Nadybal et al., 2020).

Research has found that noise pollution is higher in lower-income and predominantly people of color communities (Boakye et al., 2024; Casey et al., 2021). Noise pollution can cause chronic stress and lead to a host of health problems such as hearing impairments, sleep disorders, and

16 - RMP facilities have a risk management program registered under the Right-to-Know Laws governed by the EPA. Risk management programs are required when industrial facilities store large quantities of any explosive chemical; the program details the risk profile of potential outcomes if a "worst case scenario" event occurred and the explosives on site detonated.

cardiovascular disease (Ray, 2021). According to the EPA, people who experience a continuous level of noise within the 80 dBA or above range often experience negative health impacts. This level of noise exposure can carry a greater risk for older adults, children, and people with chronic health issues (EPA, 2024a).

4. Displacement Impacts

Displacement is a recurring theme in fenceline and frontline environmental sacrifice zone communities, where residents are often forced to leave their homes because of industrial encroachment (Amnesty International, 2024; Bullard, 2005; Bullard & Wright, 2023). Sociologist Beverly Wright detailed the pain caused by oil and gas and petrochemical plant displacement along Louisiana's Cancer Alley, involving the historically Black communities of Reveilletown, Sunrise, Morrisville, and Norco (Bullard, 2005). The historically Black area of Hillcrest in Corpus Christi is being methodically displaced by industrial interests, revealing how economic and corporate interests override the needs of vulnerable populations (Beeler et al., 2015). Similar stories have occurred in historically Black or Latino communities in Freeport, Beaumont, and across the Gulf Coast (Ahmed, 2020; Lerner, 2012; Mahoney, 2023). Modern buyouts and forcible displacement were foreshadowed by the brutal and forcible displacement of Indigenous people, also in the name of economic prosperity and industrial pursuits (Gilio-Whitaker, 2019; Roberts et al., 2022). Being uprooted from their homes is traumatic and painful, and the legacy of forcible displacement can leave a lasting scar.

5. Climate Impacts

Climate change intensifies the vulnerabilities faced by communities in sacrifice zones. A recent Pew Research Center survey found that 72% of Americans reported encountering extreme weather in their local community within the past year (Kennedy et al., 2024). When storms result in a chemical disaster, a double disaster ensues, and such double disasters have become increasingly common in Texas. During Hurricane Harvey, Black communities in Houston were disproportionately affected by flooding and air releases from oil and gas and petrochemical facilities, exacerbating health equity issues (Chakraborty et al., 2019; Flores et al., 2021). Winter Storm Uri in 2021 was another Texas double disaster, where electrical grid failures led to the release of an estimated 3.5 million pounds of pollutants (Craft, 2021). Similarly, in 2024 Hurricane Beryl resulted in power outages that led to extensive flaring along the Texas Gulf Coast (Ludwig, 2024).

D. Looking Ahead

Over the last 12 years, 50 plastics complexes in Texas have received $1.65 billion in tax subsidies, despite that many had repeatedly violated pollution permits (Shaykevich et al., 2024). Tax subsidies are frequently offered when industries promise big employment opportunities in exchange. But the promise of plentiful jobs is quite different from people actually getting jobs. Black workers comprised less than 10% of the workforce during the oil and gas boom and earned

significantly less than their White counterparts (Tomaskovic-Devey, 2016). In Texas, people of color account for 59% of the population, yet they occupy only 38% of the high-paying jobs (e.g., an hourly rate of $28 or more) in the chemical manufacturing sector (Terrell et al., 2024). The disparity is even more pronounced in Jefferson County, where people of color comprise 59% of the working-age population, but hold just 28% of the manufacturing jobs (Jones, 2024).

The lived experiences of fenceline community residents offer a stark portrayal of life under the constant presence of petrochemical industries. Community members are deeply concerned that their insights and knowledge—developed through direct encounters with the environmental and health impacts of these industries—are often disregarded in decision-making processes (Bullard, 2023). Local knowledge—grounded in community science and in an understanding of their surroundings—should play a crucial role in crafting policies that are more responsive to the specific needs of these areas (Grineski, 2006; Hemmerling et al., 2020).

Including local knowledge in decision-making processes can help policymakers address important nuances they might otherwise overlook, ultimately leading to more effective and equitable solutions (Coburn, 2003). However, despite the importance of this input, community members are frequently excluded from meaningful participation, with procedural justice often lacking. Opportunities for input are sometimes seen as mere formalities, particularly for vulnerable populations (Amnesty International, 2024; Hemmerling et al., 2020).

III. METHODOLOGY

The report examines the environmental injustice setting for proposed petrochemical facilities in Texas, highlighting the disproportionate impacts on communities near those industrial sites. Conducted in 2024, the study created a spatial analysis using two environmental justice screening tools to address several primary questions. First, spatial analysis compared the relative vulnerability—characterized through demographics, or environmental burden, or both (Berberian et al., 2024; Martenies et al., 2023)—of fenceline communities near proposed petrochemical facilities in Texas. Second, the researchers examined whether spatial analysis identified communities near proposed petrochemical facilities in Texas that are particularly threatened, at risk, or vulnerable, compared with other communities in Texas and the United States, and if so, in what way? Metrics that captured environmental pollution burden (EJScreen indicators and indexes, described below) were prioritized; state and national demographics were tabulated for petrochemical facility sites and for buffers around the sites; and results were examined at the state level, by county, and by user-defined regions.

This spatial assessment used the EPA's environmental justice mapping tool, EJScreen, version 2.2 (EPA, 2023). Five of 28 available EJScreen index categories were used: three environmental justice indexes (fine particulate matter [PM2.5], toxic releases to air, and risk management program facility proximity), and two demographic indexes (the demographic index [DI] and the supplemental demographic index [SDI]; see Table 1). These five factors provide a reasonable

snapshot of or proxy to components of exposure, proximity to pollution, and demographic vulnerability. Each index category is described in more detail below. EJScreen displays results in Census block groups, but sometimes analyses indicators are displayed in a Census tract when data are not available at the finer scale (EPA, 2023).

EJScreen's environmental justice indexes are compiled by combining an environmental indicator measure or modeled value with demographic information (at the Census block group or tract level). The PM2.5 indicator enumerates the average annual percent of days that PM2.5 exceeds the daily 24-hour average concentrations above the National Ambient Air Quality Standard, averaged over three years (2014–2016; EPA, 2023).[17] The toxic releases to air index is built from modeled results of *air toxics*, a broad category of air pollutants that are particularly harmful to public health, using the EPA's risk-screening environmental indicators results (EPA, 2023). The RMP proximity indicator measures the percentage of a Census tract that intersects with a one-mile buffer of RMPs (EPA, 2023). An RMP is an industrial facility that stores enough quantities of volatile chemicals that it is required by EPA to have a risk management program, or RMP (EPA, 2000). An RMP is sometimes understood as a worst-case-scenario risk assessment of what could happen if the chemicals stored at the facility were to explode or ignite. The study used this index because RMP facilities store and process chemicals that can also become pollutants or that emit pollutants as a by-product. Given the nature of RMP facilities, and for ease of understanding, in this report, the RMP proximity index is also referred to as *proximity to major polluter* (Table 1).

The EJScreen's two demographic indexes measure similar factors. The DI combines percentages of low-income and people of color populations; the SDI includes those same variables plus the unemployment rate, limited English-speaking skills, less than a high school education, and people below age five years or above age 64 years (EPA, 2023). EJScreen defines "low income" as the percentage of people with income less than twice the poverty level (EPA, 2023).

EJScreen indexes are represented as percentiles for Census block groups, which is a finer scale of analysis than a Census tract (EPA, 2023). This study used nationwide percentiles, rather than state-level percentiles.

Table 1. EJScreen Categories Used in the Study

EJScreen Categories Used	Alias in the Report
Demographic Index	DI
Supplemental Demographic Index	SDI
Particulate Matter 2.5 Indicator	PM2.5
RMP Proximity Indicator	Proximity to Major Polluting Facility
Toxic Releases to Air Indicator	Tox Air

This study relied on a comparison of localized conditions at the Census block group with national-level rather than state-level demographics to illuminate existing conditions in Texas compared with conditions people in other states might experience.

17 - PM2.5 denotes fine particulate matter in the air that is smaller than 2.5 microns. These are microscopic particles; a strand of human hair is approximately 60 microns (EPA, 2024c).

Demographics examined for *all sites* or *all facilities* used the EJScreen results for the five chosen indexes compiled for all 89 proposed petrochemical facility sites in Texas (Map 1), which included new facilities, expansions to existing facilities, or facilities under construction, selected from the Environmental Integrity Project's Oil & Gas Watch database (Environmental Integrity Project, 2024). The database was searched for non-pipeline facility projects in Texas, limited to 35 types of facilities (Table 2), with a status of "new," "announced," "under construction," "preconstruction," "on hold," or "unknown." These parameters identified 114 projects, some of which were phases of the same facility project or were on the same site as another project.

Table 2. Facility Types

No.	Facility Type	No.	Facility Type
1	Ammonia/Urea Plants (NH_3)	19	Hydrogen Plant (H_2)
2	Associated Electricity Generation	20	Hydrogen Plant, Methanol Plant, Other Chemicals
3	Blue Ammonia (NH_3)	21	Hydrogen Plant, Other Inorganic Gases
4	Blue Ammonia, Blue Hydrogen (NH_3, H_2)	22	Methanol Plant
5	Blue Ammonia, Green Ammonia (NH_3)	23	Methanol Plant, Hydrogen Plant
6	Blue Hydrogen (H_2)	24	Natural Gas Liquids Fractionator
7	Chemical Recycling Plant	25	Natural Gas Liquids Fractionator; Plastic Resin Manufacturing
8	Condensate Splitter	26	Other
9	Crude Oil Terminal	27	Other Chemicals
10	Desalination Plant	28	Other Inorganic Gases
11	Desalination Plant, Plastic Resin Manufacturing, Associated Electricity Generation	29	Other Organic Chemicals
12	Ethylene Cracker	30	Other Pipeline Infrastructure
13	Ethylene Cracker, Blue Ammonia, Blue Hydrogen	31	Plastic Resin Manufacturing
14	Ethylene Cracker, Natural Gas Liquids Storage Facility	32	Plastics-to-Fuel Plant
15	Ethylene Cracker, Plastic Resin Manufacturing	33	Propylene Dehydrogenation (PDH) Plant
16	Ethylene Cracker, Plastic Resin Manufacturing, Natural Gas Liquids Fractionator, Propylene Dehydrogenation (PDH) Plant	34	Refinery
17	Gas to Liquids Plant	35	Renewable Diesel or Gasoline Refinery
18	Gas to Liquids Plant, Green Hydrogen		

Note: NH_3 = ammonia; H_2 = hydrogen.

QGIS 3.36 software was used to buffer facility site point locations using a three-mile radius. The three-mile radius buffer was chosen based on accepted best practices and because it would capture a representative snapshot of the population of people directly affected by pollution from nearby industrial facilities (Bullard et al., 2007; Mohai & Saha, 2007). Buffers were uploaded to the EJScreen website, and data reports were created for each buffer site.

The petrochemical facility sites were divided into five geographic regions or clusters of existing petrochemical facilities: Port Arthur/Beaumont (also referred to as the Golden Triangle, encompassing Jefferson and Orange Counties), Greater Houston (Harris, Liberty, Chambers, and Galveston Counties), Coastal Bend (Brazoria, Matagorda, Calhoun, and Victoria Counties), Southern Coast (San Patricio, Nueces, and Cameron Counties), and inland (everywhere else in Texas with sites; Map 1). The inland facilities are less of a cluster, with rather dispersed facilities throughout the state, some in more rural areas or where there are fewer other facilities proposed nearby. Greater Houston contains the greatest number of sites (Table 3).

EJScreen percentiles were examined for each index, for each facility (and in the case of counties, for each project). Results at the 50th, 66th, 75th, and 90th percentiles were discussed, since anything above the 50th percentile denotes more impact than that experienced by half the nation. Similarly, the 66th percentile denotes more impact than that experienced by two-thirds of the nation, and the 75th percentile denotes more impact than three-fourths of the nation, and the 90th percentile denotes more impact than 90% of the nation.

Table 3. Geographic Areas and Site Counts

Geographic Area or Cluster	Number of Sites
Coastal Bend	11
Greater Houston	34
Inland	9
Port Arthur/Beaumont	18
Southern Coast	17
Total	89

Note: Also see Map 1.

Metrics were tabulated by county as well, because only a small number of counties in the state are targeted for new facilities and expansions. Results tabulations for individual projects (including multiple projects or phases at the same location) are included with the county's analysis, because having more than one project at a facility site means a higher likelihood of additional pollution or risk of pollution at that site. The remainder of the results present the data by facility site rather than project.

IV. RESULTS

The results are framed within the context of existing communities and petrochemical facilities in Texas. State-level results are presented first, followed by county-level, then by geographic region or cluster.

A. Statewide Results

Of the 89 petrochemical facility sites studied, 82 (92%) have at least one EJScreen index (of five possible) that ranks above the 66th percentile (e.g., more impact than that experienced by

two-thirds of the nation). This finding suggests that nine of 10 facilities in the study area are in fenceline communities where residents already face elevated environmental and health threats from industrial pollution.

1. EJ Screen Results

The results show that a sizable majority of new, planned, and under-construction petrochemical facilities in Texas are proposed in areas with higher levels of pollution, environmental risk, and demographic vulnerability, compared with the rest of the nation.

Particulate Air Pollution. Facilities throughout the state are located in areas with disadvantages resulting from air pollution, which often occurs in concert with other existing polluting conditions. Air pollution impact in this study was evaluated by the EJScreen indexes PM2.5 and toxic releases to air.

All except four facilities were above the 50th percentile for PM2.5, with the four exceptions being two inland facilities (Borger and Cabot Pampa); one Golden Triangle facility (Sabine Pass NGL); and one Greater Houston facility (ONEOK NGL; see the appendix). Sixty-nine (69) of 89 facilities (78%) were at or above the 66th percentile for PM2.5, and those occurred in every geographic cluster. Sixty-three percent (63%) of facilities were at or above the 75th percentile for PM2.5, and 19% were at or above the 90th percentile (see the appendix). Only when examining facilities at or above the 90th percentile for PM2.5 did the number of facilities reduce to below a majority. This examination also revealed that only one geographic cluster, the Coastal Bend, had no facilities ranking above the 90th percentile for PM2.5.

Toxic Releases To Air. The tox air index had higher rankings than the other EJScreen environmental indexes examined, across both clusters or regions. Three facilities, all in the Port Arthur/Beaumont area, had tox air at the 99th percentile (see the appendix); 10 facilities were at the 98th percentile; and 75 (84%) ranked at or above the 66th percentile for tox air (see the appendix). Almost half (41, 46%) ranked above the 90th percentile for tox air in all regions. The large number of sites found to be above the 90th percentile for tox air is a significant finding, since the tox air indicator is based on the EPA's risk-screening environmental indicators model, which evaluates the risk associated with pollutants tracked in the EPA's toxics release inventory (EPA, 2023). The model considers factors such as pollutant quantity released, toxicity, environmental fate, and potential human exposure (EPA, 2023). Similar to the PM2.5 findings, only four facility sites were below the 50th percentile for toxic releases to air (albeit, the four facilities differed from the facilities with low percentiles for PM2.5).

Proximity to Polluters. The results provide clear evidence that polluting industries are clustered, especially in Houston—the only major U.S. city without zoning (Bullard, 1987). Houston, both decades ago and still today, unofficially zoned major industrial land uses, including oil refineries and petrochemical plants, and confined these facilities to the east in areas along the Houston Ship Channel, where a disproportionate share of the fenceline communities are poor and have high proportions of people of color (Leffler et al., 2023; Martinez & Perez, 2024; Pacheco et al., 2024).

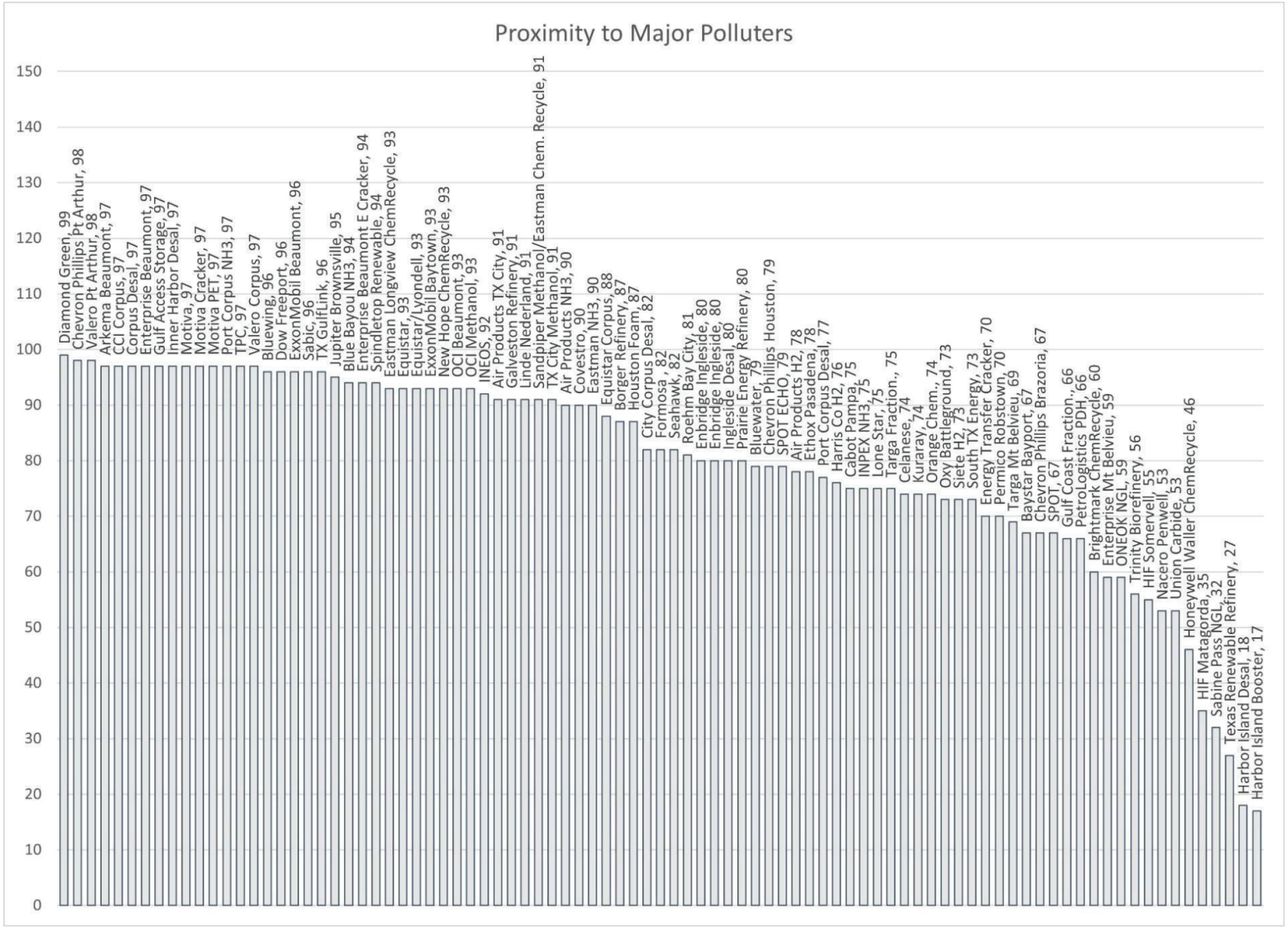
The same clustering land-use pattern holds true for the new petrochemical buildout in Texas. Incidentally, similar problems also occur in areas with zoning, but Houston offers no opportunities to change the zoning code to achieve more equitable land use. Without land-use protectionist devices, poor people and people of color in Texas are less able to protect themselves and their communities from the onslaught of polluting facilities, including petrochemical plants, when compared with their more affluent and White counterparts in Texas.

Most of the analyzed facilities were within industrial corridors or clusters of point-source polluting facilities, and thus numerous facilities rank high in the proximity to major polluters category (Figure 1), which assesses whether the proposed petrochemical site is near other point-source polluting facilities.[18] The Diamond Green Diesel site, a proposed plant in Port Arthur, ranked as the most vulnerable or highest for proximity to major polluters, landing at the 99th percentile (see the appendix); 37 of 89 facilities (42%) ranked above the 90th percentile; 74 (83%) ranked above the 66th percentile; and only six sites were below the 50th percentile for this category. Of the 89 facility sites examined, the vast majority (83, 93%) were above the 50th percentile, meaning they are closer to more point-source polluters than the rest of the nation (for details, see Figure 1).

Demographic Indexes. The results for the two indexes varied slightly, with a trend toward lower SDI percentiles for most sites compared with DI (see the appendix). However, most facilities were above the 66th percentile for both indexes (SDI = 50 of 89, 56%; DI = 57 of 89, 64%), in all geographic clusters and in the dispersed inland area.

18 - "Point-source polluter" is an individual facility location to which air, water, or soil pollution can be directly traced. Examples of point-source polluters are petrochemical facilities and scrap metal recyclers. Examples of non-point-source polluters are automobiles contributing to highway traffic and agricultural pollution.

Figure 1. Proximity to Major Polluters



Rank in percentile (1–99) of proposed petrochemical projects in Texas for their proximity to major polluters. The percentile number appears after the facility site name in the figure. For example, a facility in the 68th percentile would show "68" after the name. Data Source: EJScreen RMP Proximity index.

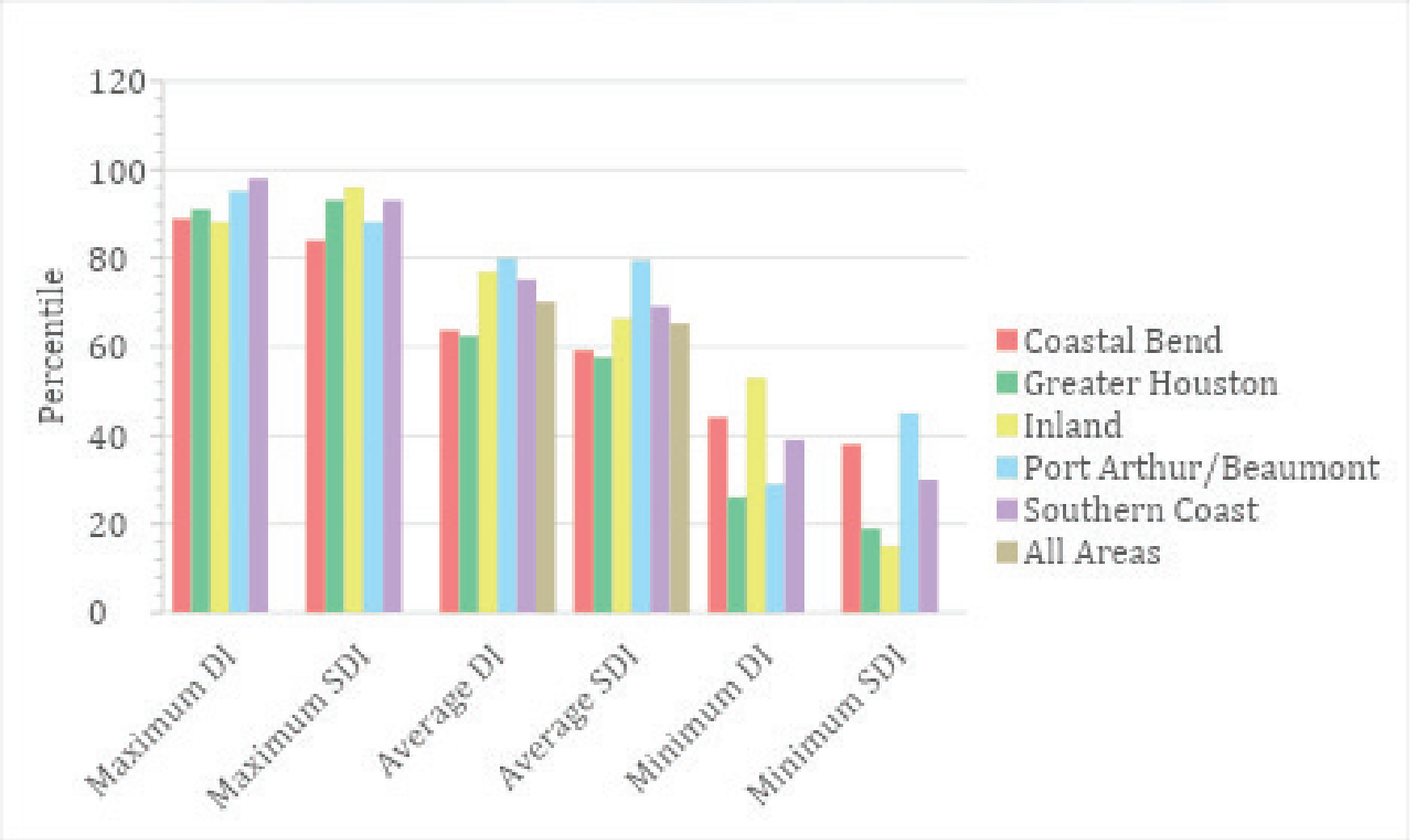
Figure 2 presents the DI and SDI, which had high value ranges in the Coastal Blend and Greater Houston clusters. The average DI and SDI for all facilities was highest in the Port Arthur/Beaumont region, and lowest in the Greater Houston region. The maximum and average DI percentiles for each region were similar to the SDI percentiles for each region, but the minimum values of DI in each region differed dramatically from SDI for the inland and Port Arthur/Beaumont regions. The minimum DI for the inland region was the highest minimum of any region (53rd percentile), but the minimum SDI for the inland region was the lowest of any region (15th percentile).

The Jupiter Brownsville Condensate Splitter Upgrade site was the most demographically vulnerable in the state for DI, with an EJScreen rank at the 98th percentile; the Nacero Penwell Methanol CCUS Facility in Ector County was highest for SDI at the 96th percentile. Ector County is in the heart of the Permian Basin and is a highly active area for fracked oil and gas wells and extraction rigs (U.S. Energy Information Administration, 2024).

The toxic releases to air and proximity to major polluter indexes both contain the highest rankings across geographies, more often outranking the other EJScreen categories, although PM2.5 also had a high average ranking (Table 4). The SDI trended lower than the DI for most sites, except for a few sites where the reverse was true (see the appendix). The SDI and DI showed more disagreement in geographic regions for the lowest percentile ranks (see Figure 2 and the appendix for more details).

In sum, the petrochemical industry in Texas was built around inequities in many locations across the state. Petrochemical facilities' fenceline communities disproportionately suffer from a number of conditions and stresses compared with non-fenceline communities, including health, safety, light, noise, displacement, and climate-related impacts. Communities in the Golden Triangle, Corpus Christi, and Houston exemplify some of the disparities discussed above.

Figure 2. Demographic and Supplemental Demographic Index Values



Maximum, average, and minimum EJScreen percentiles for each DI and SDI by region. The "all areas" values are displayed only for the averages, since the "all areas" maximum is equal to the largest value in that category, and the "all areas" minimum is equal to the minimum in that category.

Table 4. Average EJScreen Index Percentiles by Region

	# of Sites	Avg. PM2.5	SD PM2.5	Avg. ToxAir	SD ToxAir		Avg. Prox. Polluter	SD Prox. Polluter	Avg. DI	SD DI	Avg. SDI	SD SDI
Coastal Bend	11	70.9	10.9	79.9	14.5		73.2	18.2	63.7	17.3	59.2	18.6
Greater Houston	34	74.8	12.4	84.5	10.4		79.4	13.5	62.5	18.9	57.6	**22.9**
Inland	9	66.6	**29.2**	65.0	**22.4**		69.9	**21.7**	76.9	10.2	66.3	**31.0**
Port Arthur/ Beaumont	18	82.4	13.6	92.9	10.2		89.6	16.4	79.9	**19.7**	79.4	12.6
Southern Coast	17	81.9	13.4	81.1	**19.0**		79.2	**24.9**	75.2	17.9	69.2	20.6
Total Sum	89											
Total Average		76.4	15.7	82.9	15.9		79.7	18.7	70.0	19.2	65.3	22.4

Note: Avg. = index average; SD = standard deviation; PM2.5 = particulate matter 2.5; ToxAir = toxic releases to air; Prox. Polluter = proximity to major polluter; DI = demographic index; SDI = supplemental demographic index; see also, the full results table in the appendix.

Each geographic region cluster's averages and standard deviations for the percentiles in each EJScreen category are presented. Maximum is 99, which equals the 99th percentile. Index average percentiles for any region greater than the overall are denoted in red font, while standard deviations higher than the average for that index are indicated in boldface font. Total Average is the average of all averages or standard deviations for each index.

2. Results by County and Project

Examining the distribution of petrochemical proposals across Texas counties reveals that a small number of counties in the state are targeted for facility sites and expansions (see Table 5, which summarizes EJ thresholds by project and county). Petrochemical projects are proposed in 22 counties, or 9% of the 254 counties in Texas. Only eight counties had more than two projects proposed, and these eight counties already host existing petrochemical facilities. Harris and Jefferson counties dominated, with the highest numbers of project categories across the board, 22 and 20, respectively, as well as the largest numbers of projects that exceeded every percentile threshold ("projects" can include multiple facilities or phases of a facility at a single site). In Jefferson County, 90 of 100 total possible EJScreen category ranks for each project

(90%) exceeded the 75th percentile. Harris County's levels were lower with 65 of 110 possible project category ranks (59%) exceeding the 75th percentile. Harris County, home to Houston (U.S. Census Bureau, 2023a) has a population of about 4,800,000. Conversely, Jefferson County, home to Beaumont, Port Arthur, and the Golden Triangle chemical corridor, has a population of about 250,000 (U.S. Census Bureau, 2023b). Given this dramatic difference in population, with similar numbers of projects per category exceeding each threshold, Jefferson County has a higher burden per capita, compared with the rest of the state. Cameron County (home to Brownsville) shows a relatively high existing burden (eight of 10) for EJScreen categories.

Table 5. Proposed Petrochemical Sites by County

County	# Facility Sites	# Total Projects	Total Possible EJScreen	EJScreen Percentile		
				> 66th	> 75th	> 90th
Brazoria	**5**	**7**	35	20	12	4
Calhoun	**3**	**4**	20	7	6	0
Cameron	**2**	**2**	10	8	8	8
Chambers	**8**	**12**	60	14	6	1
Duval	**1**	**1**	5	3	2	0
Ector	**1**	**1**	**5**	2	2	1
Galveston	**8**	**12**	60	60	54	22
Gray	**1**	**1**	5	3	2	0
Harris	**17**	**22**	110	85	65	30
Harrison	**1**	**1**	5	5	5	2
Hutchinson	**1**	**1**	5	4	3	0
Jefferson	**17**	**20**	100	92	90	48
Liberty	**1**	**1**	5	3	2	0
Matagorda	**2**	**2**	10	4	2	0
Newton	**1**	**2**	10	6	6	0
Nueces	**9**	**12**	60	49	45	24
Orange	**1**	**1**	5	2	1	0
San Patricio	**6**	**7**	35	26	19	0
Smith	**1**	**1**	5	5	5	1
Somervell	**1**	**1**	5	0	0	0
Victoria	**1**	**1**	5	5	5	1
Webb	**1**	**1**	5	3	2	0

The 89 facility sites analyzed in this study comprised 114 projects (because some sites had multiple proposed projects, or phases) that were proposed in 22 counties. Sites where the "Facility Sites" column value is equal to the "Total Projects" column value have only one project per site. The number of EJScreen categories above the given threshold were tallied for the 114 projects. The "Total Possible EJScreen" value is the number of facility sites multiplied by the number of total projects in the county. For example, Brazoria County has five facility sites for seven projects resulting in 35 total possible EJScreen categories. Projects were used to assess intensity of proposed facilities, because larger numbers of projects at each facility site would add more pollution, or at least more risk of pollution and/or chemical disaster. The percentile columns represent the number of EJScreen indexes above the percentile, for each project. Therefore, there is a higher "Total Possible" than when examining facility sites as above for the number of EJScreen index categories exceeding that percentile.

Table 6 describes demographic patterns in 22 Texas counties with new petrochemical facilities proposed. According to the U.S. Census American Community Survey 2020–2024 (U.S. Census Bureau, 2024) and EJScreen, low-income people comprise 13.7% of the Texas population (on average) compared with 11.1% of the U.S. population. People of color comprise 60.4% of the Texas population and 41.6% of the U.S. population. Table 6 compares county-level low-income

population percentages and county-level people of color population percentages with those of Texas and the United States, and indicates which counties exceed the state and national proportions. Of the 22 counties with proposed new petrochemical facilities, only two (Chambers and Somervell) did not exceed the state and national population rates for either low-income or people of color proportions. These two counties account for nine of the 89 facility sites in the study. In other words, 90% of new petrochemical facilities proposed for Texas were in counties with higher demographic vulnerability than other areas of the state or the nation. (Elsewhere in this report, comparisons are with national reference values, but in this case, state reference values were included in the comparisons.)

Compared only with Texas proportions, five counties had lower population percentages than the state for people of color or low-income people, or both. Comparing both state and national proportions with counties where new facilities are proposed, low-income population percentages more often exceeded state and national percentages than did people of color population percentages. However, a clear pattern emerged indicating that new petrochemical facilities are more likely to be proposed in more demographically vulnerable counties, compared at both the state and national levels.

Moreover, in all the chemical corridors, or facility clusters (excluding the inland area), the chemical complexes are so large that pollution from the clustered facilities is highly concentrated and sprawls well beyond the facility boundaries.

Table 6. County Demographics

County	County Poverty %	County People of Color %	TX	USA	Above TX Poverty	Above USA Poverty	Above TX POC	Above USA POC
Brazoria	9.4	58.5						x
Calhoun	14.6	58.3			x	x		x
Cameron	23.5	91			x	x	x	x
Chambers	8.6	39.2						
Duval	29.1	85.5			x	x	x	x
Ector	11.7	71.9				x	x	x
Galveston	11.5	45.2				x		x
Gray	17.3	40.4			x	x		
Harris	16	73			x	x	x	x
Harrison	17.2	38.6			x	x		
Hutchinson	14.3	31.6			x	x		
Jefferson	20.1	63.5			x	x	x	x
Liberty	14.5	52			x	x		x
Matagorda	17.9	57.6			x	x		x
Newton	18.5	24.2			x	x		
Nueces	17.3	70.4			x	x	x	x
Orange	14.5	22.3			x	x		
San Patricio	17.2	60.9			x	x	x	x
Smith	13.2	42				x		x
Somervell	8.8	22.6						
Victoria	14.1	56.9			x	x		x
Webb	22.5	96.1			x	x	x	X
Totals			Total #		16	19	8	15
			%		73%	86%	36%	68%
				TX Both	7			
				USA Both	14			

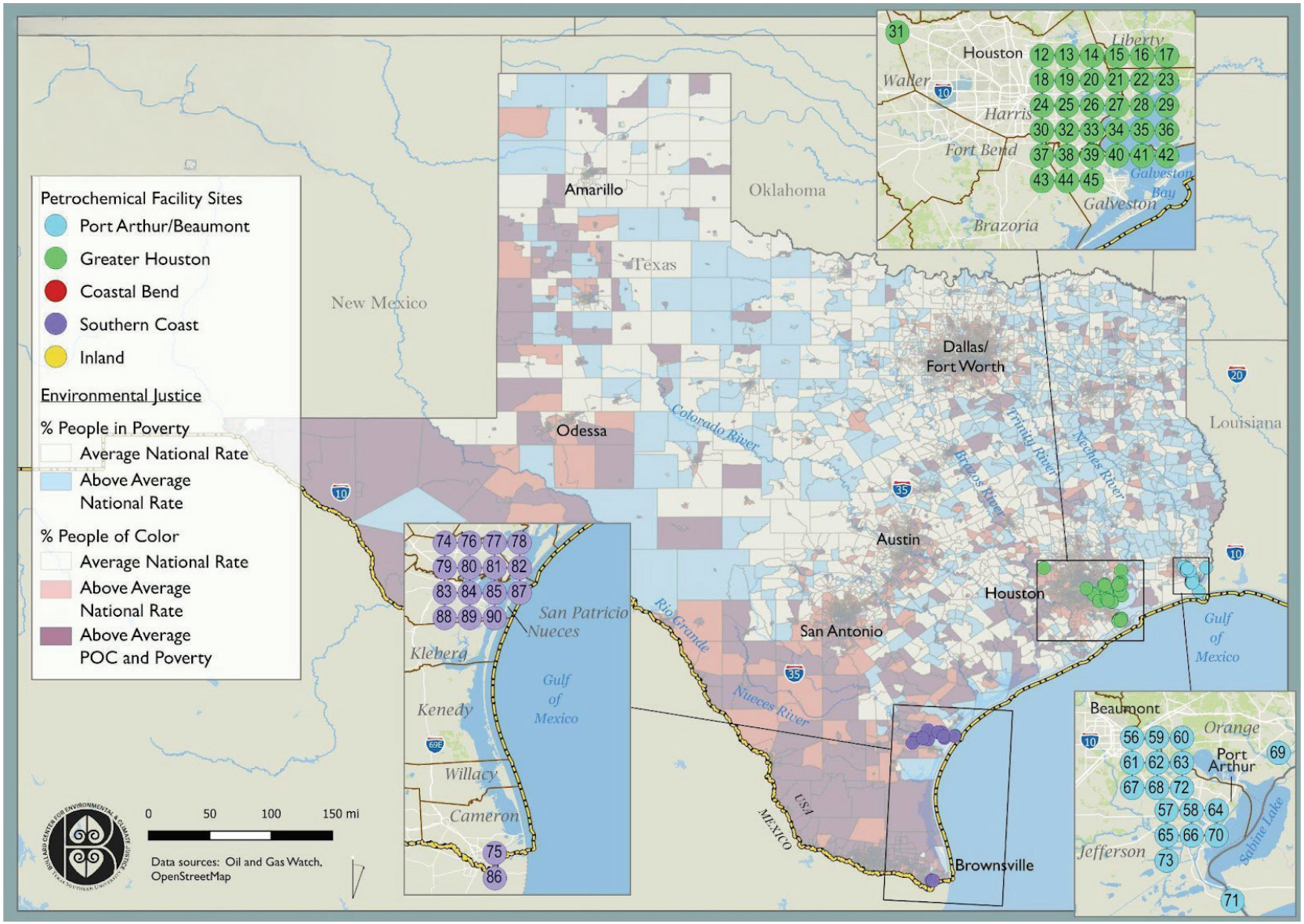
Note: = exceeds people of color; = exceeds poverty rate; = exceeds both people of color and poverty rate; x = county percentages exceed the comparison group percentages.

This table compares county-level race and poverty population percentages with state and national percentages (U.S. Census Bureau, 2024).

3. Race and Poverty

The people of color population percentages of 46 facility sites (51%) exceed the national average, and 33 facility sites (37%) exceed the state average (Table 7). These percentages increase dramatically when the fence line (three-mile buffer) is included: 84 fenceline communities (93%) exceed the national people of color population percentages, and 76 fenceline communities (84%) exceed the state percentages. These findings suggest that between eight and nine of 10 facilities in the study area are in fenceline communities where residents already face elevated environmental and health threats from industrial pollution. New facilities would add to these vulnerable residents' pollution burden, further endangering them.

Map 2. New and Under Construction Petrochemical Facilities Proposed in Texas



Texas petrochemical facility locations analyzed in this report, with areas shown that exceed the national poverty rates and people of color population rates. For rankings and data, see Table 8. U.S. Census block group areas show locations in Texas where the people of color population percentage or the people in poverty population percentage exceed the corresponding national percentages. A darker color is displayed where both percentages exceed the national rate. Inset map point locations do not correspond to the exact site locations.

Table 7. Sites Exceeding Low-Income and People of Color Percentiles

Facility Sites	Higher Than **National Poverty**	Higher Than **State Poverty**	Higher Than **National People of Color**	Higher Than **State People of Color**
Number of Facility Sites	27	24	46	33
Percent Facility Sites	*30%*	*27%*	*51%*	*37%*
Number of Fenceline Three-Mile Buffers	84	82	84	76
Percent Fenceline	*93%*	*91%*	*93%*	*84%*

This table shows the number and percentage of petrochemical sites that exceed national and Texas state average proportions of low income (as calculated by EJScreen) and people of color. Fenceline communities within a three-mile buffer of facility site point locations are also displayed. Numbers are calculated from EJScreen 2.2 "low income" and "people of color" data of block groups in the U.S. Census American Community Survey 2017–2021 (U.S. Census Bureau, 2022a). Where three-mile buffers contained multiple block groups, the buffer was considered "higher" if any block group with a higher rate overlapped with the buffer.

The buildout and expansion of petrochemical facilities in Texas are proposed for fenceline communities where incomes are lower, poverty rates are higher, and the people of color population percentage is higher than the state and national percentages. The new petrochemical industry buildout in Texas tends to follow the same pattern set in motion decades ago—a pattern that sends new petrochemical facilities to communities largely comprising people of color and communities with disproportionately high poverty rates (Bullard, 1987; Bullard & Wright, 2023; Mohai & Saha, 2015).

The surrounding fenceline communities for 84 new facilities (93%) exceed the average people of color population percentage at the national level, and 76 facilities (84%) are in fenceline communities with people of color population percentages that exceed state percentages (Table 7). These results are consistent with other studies that showed residents who live on the fence line with petrochemical plants and other polluting industries are disproportionately people of color (Bullard et al., 2007; Mohai & Saha, 2007; Proville et al., 2022; Flores et al., 2021). Race continues to be a potent predictor of polluting industry and chemical exposure locations—especially in communities located at the fence line of these industries (Bullard, 2000). This pattern is worse in Texas compared with the nation as a whole. People of color who disproportionately live on the fence line with the 89 facility sites examined in this study are placed at special risk.

Many Texas communities have higher rates of people living in poverty than the rest of the nation, and this disparity is even more acute in the petrochemical fenceline communities. Populations at 84 facility sites (93%) exceed national poverty rates and populations at 82 sites (91%) exceed state poverty rates.

Polluting industries have a long history of concentrating their operations in low-income communities and communities with high proportions of people of color—creating pollution hot

spots and environmental sacrifice zones (Bullard, 2011; Lerner, 2012). Decades of petrochemical facility sitings have placed many fenceline communities at risk from threats of explosions, fires, major chemical releases, chronic chemical releases into air, water, and soil, and threats to public health (Annenberg & Kalman, 2019). The need to frequently shelter in place after chemical incidents and the constant worry about future chemical incidents creates additional stress for residents (Flores et al., 2021; Malin, 2020; Nelms & Bernat, 2023). Burgeoning petrochemical facilities continue to entrench environmental, economic, and social inequities and vulnerabilities that have become ubiquitous in Texas's fenceline communities.

B. Regional Results

This section details regions in geographic progression, starting at the easternmost region and moving westward down the coast, ending with the inland group. For every EJScreen category, at least two geographical clusters exceeded the overall average of the dataset category. This result supports what many others have found: in Texas, petrochemical facilities are more likely to be sited in already vulnerable, already affected places, with higher proportions of people of color and lower-income households (Bullard & Wright, 2023; Chakraborty et al., 2019; Mohai & Saha, 2015). In each region, the top ranked (maximum) facilities are all above the 80th percentile for every EJScreen category (see the appendix).

The regional geographic clusters reflect geographically clustered facilities, except for the inland group, which is a region consisting of all facilities that were not clustered. Results were compiled by region and compared as geographies. Map data are from the EJScreen rankings for each three-mile buffer around a facility site.

1. Port Arthur/Beaumont

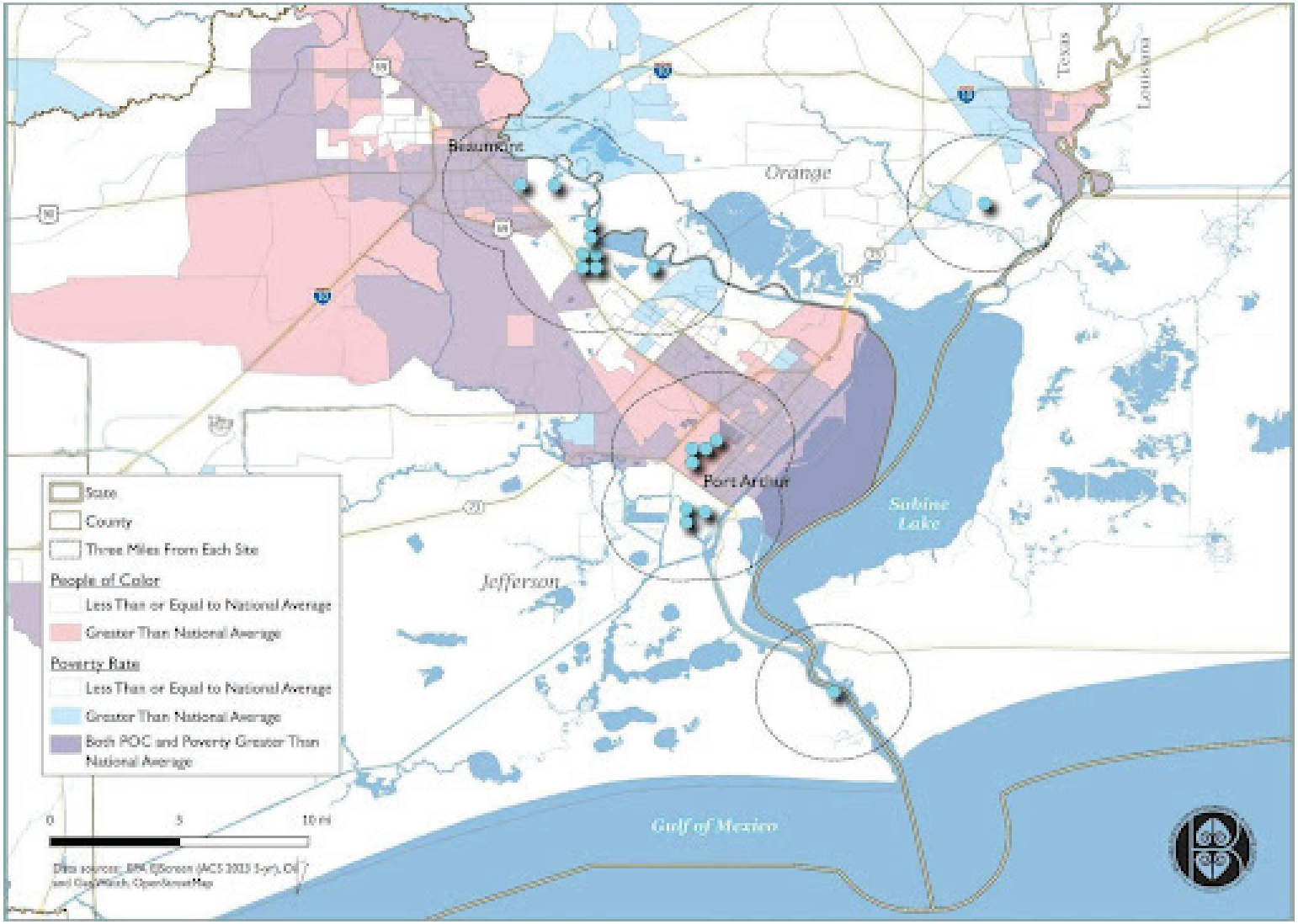
The Golden Triangle or Port Arthur/Beaumont area has 18 proposed new facility sites (Map 3). In the Golden Triangle region, 17 of these sites (94%) have fenceline communities that are either high proportions of people of color, high proportions of people earning at the poverty level (or below), or both (Map 3).

The EJScreen results for the Golden Triangle suggest existing high vulnerability, pollution, and other environmental burdens through most of the region, with highly ranked EJScreen indexes for many parts of Jefferson County. Orange County has fewer proposed facilities and lower demographic vulnerability indexes. Every EJScreen category reviewed in this area averaged above the 75th percentile across 18 sites, as shown in Table 4.

In the Golden Triangle, Chevron Phillips Port Arthur is an operating, massive petrochemical facility, and the proposed expansion involves constructing a new furnace, which would increase ethylene production (Environmental Integrity Project, 2024).[19]

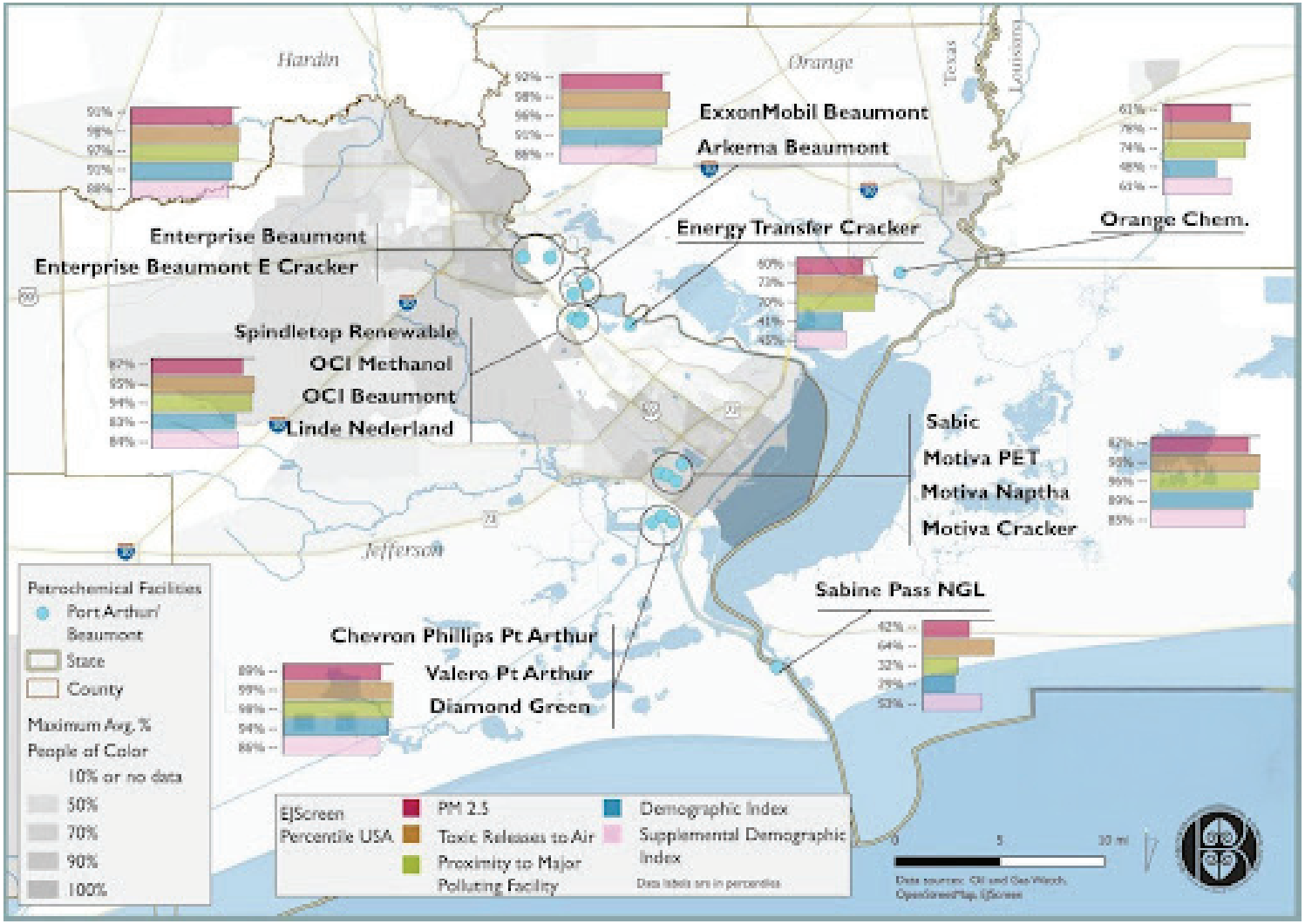
19 - In some cases, the results were very similar between sites; for these cases, only one results chart is displayed on the map for a cluster of sites, but multiple site facility names are listed. The values displayed on the map for these cases are only for the first facility in the list of multiple facilities; actual values for each site by category are available in the appendix.

Map 3. Golden Triangle Area Proposed Petrochemical Sites



The cities of Port Arthur, Beaumont, and Orange are shown, with area demographics and three-mile buffers (dotted line circles) of proposed petrochemical facilities. Almost all buffer areas in this map overlap where people of color population proportions and/or poverty population proportions are higher than the national average.

Map 4. Port Arthur/Beaumont EJScreen Results



For ease of viewing, where two or more facilities are listed for one bar chart, the value percentiles displayed are for the first facility in the list. For full EJScreen results, see the appendix. The existing Chevron Phillips facility is already allowed to emit thousands of tons of harmful pollutants in addition to greenhouse gases; the Chevron Phillips Port Arthur expansion would allow the release of even more harmful air borne pollutants (Table 8).

ExxonMobil Beaumont's Chemical Complex expansion in the Golden Triangle showed the highest EJScreen PM2.5 index value (92nd percentile; Map 4). The site has two projects- the expansion itself and a "Light Ends Enhanced Distallation" project which is a type of hydrocarbon separator used in a refinery (Environmental Integrity Project, 2024). The top-ranked Golden Triangle sites for the toxic releases to air index are the Valero Port Arthur Refinery expansion, Diamond Green Diesel, and Chevron Phillips Port Arthur, all with indexes at the 99th percentile. The Diamond Green Diesel plant is top ranked for both the proximity to polluters index and the DI (99th and 95th percentiles, respectively). Enterprise Beaumont Marine West Ethylene Cracker plant had the highest vulnerability as measured by the SDI, (88th percentile).

Table 8. Air Permit for Chevron Phillips Port Arthur

This amendment will authorize proposed changes to Unit 1544 including construction of a new furnace and increase ethylene production resulting from modifications to the compression, feed, and fractionation systems. Chevron Phillips Chemical Company LP has listed in the application the pollutants and amounts that will be emitted for each facility. Below is the current amount allowed, the amount to be added or removed, and the total amount for each pollutant that is proposed to be emitted each year for all the facilities.

Pollutant	Permitted Emissions (tons per year)	Emissions Added/Removed (tons per year)	Total Proposed Emissions (tons per year)
VOC	596.88	14.68	611.56
PM	184.92	7.50	192.42
PM10	167.95	7.50	175.45
PM2.5	155.55	7.50	163.06
NOx	1753.47	10.08	1763.55
CO	5043.25	36.80	5080.05
SO2	306.01	14.10	320.11
NH3	0	4.71	4.71
H2S	0.22	0	0.22
Benzene	9.55	0	9.55
1,3-Butadiene	2.00	0	2.00
Freon	9.77	0	9.77
CO2e	NA	130863	130863

The table shows the New Source Review air pollution application (under the Clean Air Act) for the Chevron Phillips Port Arthur Chemical Complex to build a new furnace. Note that the emissions listed are permitted emissions, as opposed to actual, or measured (Texas Commission for Environmental Quality & Chevron Phillips Chemical Company, 2024).

Beaumont and Port Arthur both have large people of color populations, with most areas ranging between 60% and 90% people of color, primarily Black Americans for most areas, with some areas being primarily Latino Americans (Kreider, 2023). Port Arthur is a relatively small city with a population of 55,000, where 83% of residents are people of color (Saha et al., 2024). Port Arthur is also one of the most economically disadvantaged cities in Texas, with a poverty rate of 27.2% (The Center Square, 2021). Downtown Port Arthur looks like a ghost town; the community is riddled

with vacant lots and has a feel of abandonment (Bruggers, 2024). Despite its economic challenges, it is home to Motiva, a subsidiary of Saudi Aramco, one of the largest refineries in North America, plus three other refineries and dozens of petrochemical plants (Genoways, 2014; Saha et al., 2024). Most residents of Port Arthur live close to sprawling polluting petrochemical facilities, and have suffered from high rates of asthma, cancer, and other pollution-related illnesses (Kreider, 2023). For example, asthma rates in Port Arthur are 70% higher than the national average, and people who develop cancer are 40% more likely to die from it than are people with similar cancers in other parts of the state (Sadasivam & Aldern, 2023).

Beaumont also has neighborhoods with high proportions of Black and Latino residents. For example, the historically Black community of South End Charlton-Pollard, which is 78% Black, abuts ExxonMobil's vast refinery and chemical complex that sits along the Neches River (Statistical Atlas, 2018). In South Beaumont, Census Tract 23, the population was 83% Black and the average household income was $30,000 to $40,000 per year, as of the 2020 Census (Kreider, 2023; U.S. Census Bureau, 2022b).

The Port Arthur and Beaumont populations are largely segregated by race (Kreider, 2023; Robinson, 2024). With so many facilities in this metropolitan area, yet a relatively small population, the per capita burden (e.g., the proportion of polluting facilities per person in the Golden Triangle), is extraordinarily high. School children in Jefferson County experience some of the worst air toxics exposure in the nation (Political Economy Research Institute, 2024a). The facilities located closer to the Port Arthur and Beaumont city limits, such as ExxonMobil Beaumont, Arkema Beaumont, Motiva, Diamond Green Diesel, Valero Port Arthur, Sabic, and Enterprise Beaumont, tend to have higher existing environmental burden rankings, indicating that the proposed buildout in the Golden Triangle will pose additional burdens for the neighborhoods in Beaumont and Port Arthur that have extremely high percentages of Black and Latino residents. The Golden Triangle (especially Jefferson County) exemplifies the environmental challenges faced by residents living in environmental sacrifice zones.

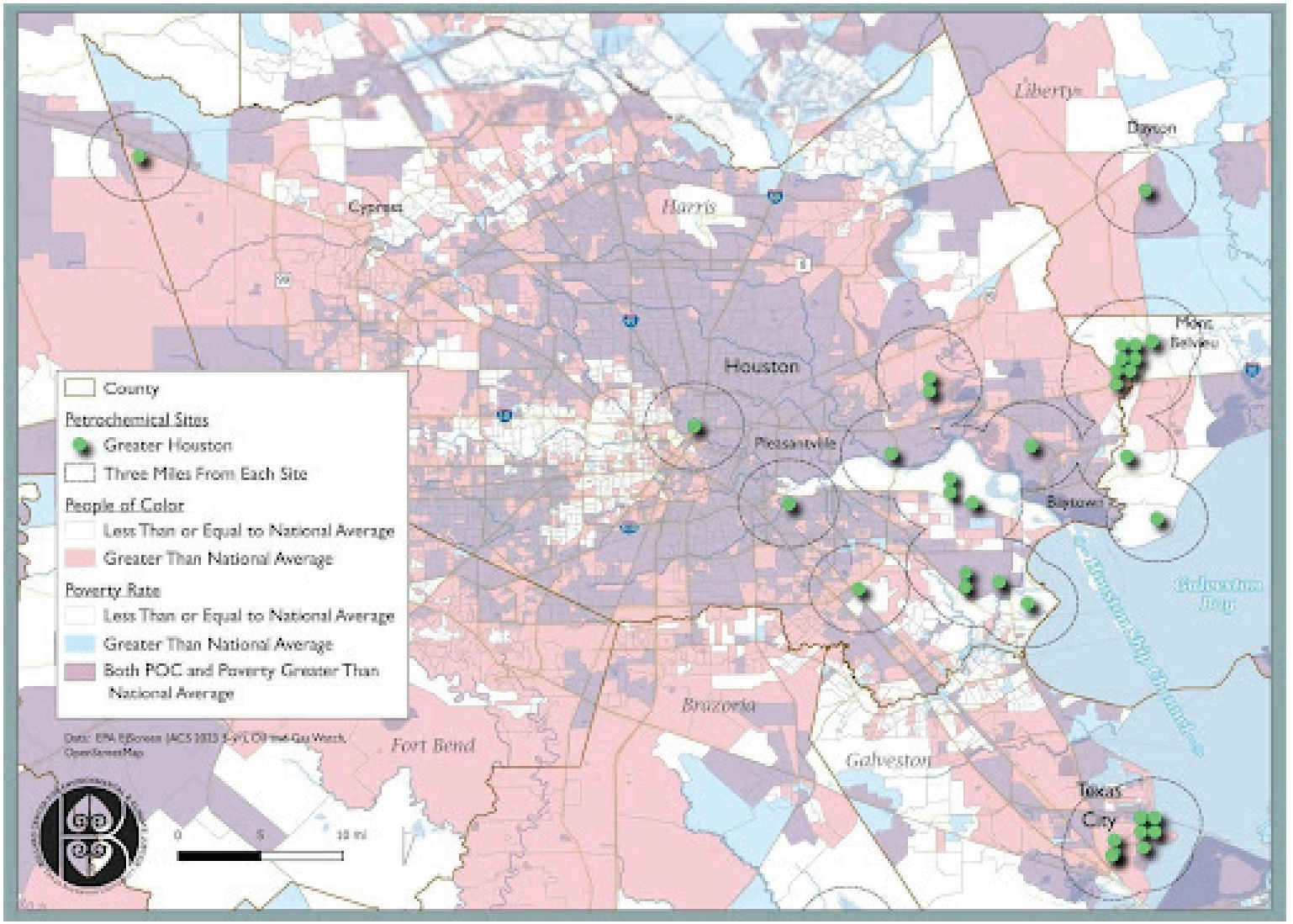
2. Greater Houston

The Greater Houston region tops all regions in this study with the highest number of new facilities proposed (22). Map 5 shows their locations with demographics and three-mile buffers. All buffer areas in this map overlap places where people of color population rates and/or poverty population rates are higher than the national average. All facility sites have fenceline communities with disproportionately high percentages of people of color, people living in poverty,[20] or both. Located in the Houston Ship Channel industrial corridor, the TPC facility is surrounded by communities composed mostly of people of color. The facility sits near other point-source polluters and near several busy interstate highways that generate pollution from traffic (Fonstein, 2024). Two expansion projects are proposed at the TPC facility site: a butadiene (a petroleum used in the preparations of

20 - This study used the EJScreen "poverty" ranking, which is twice the national poverty rate; the rate in any given block group is calculated compared with that poverty ranking (EPA, 2023).

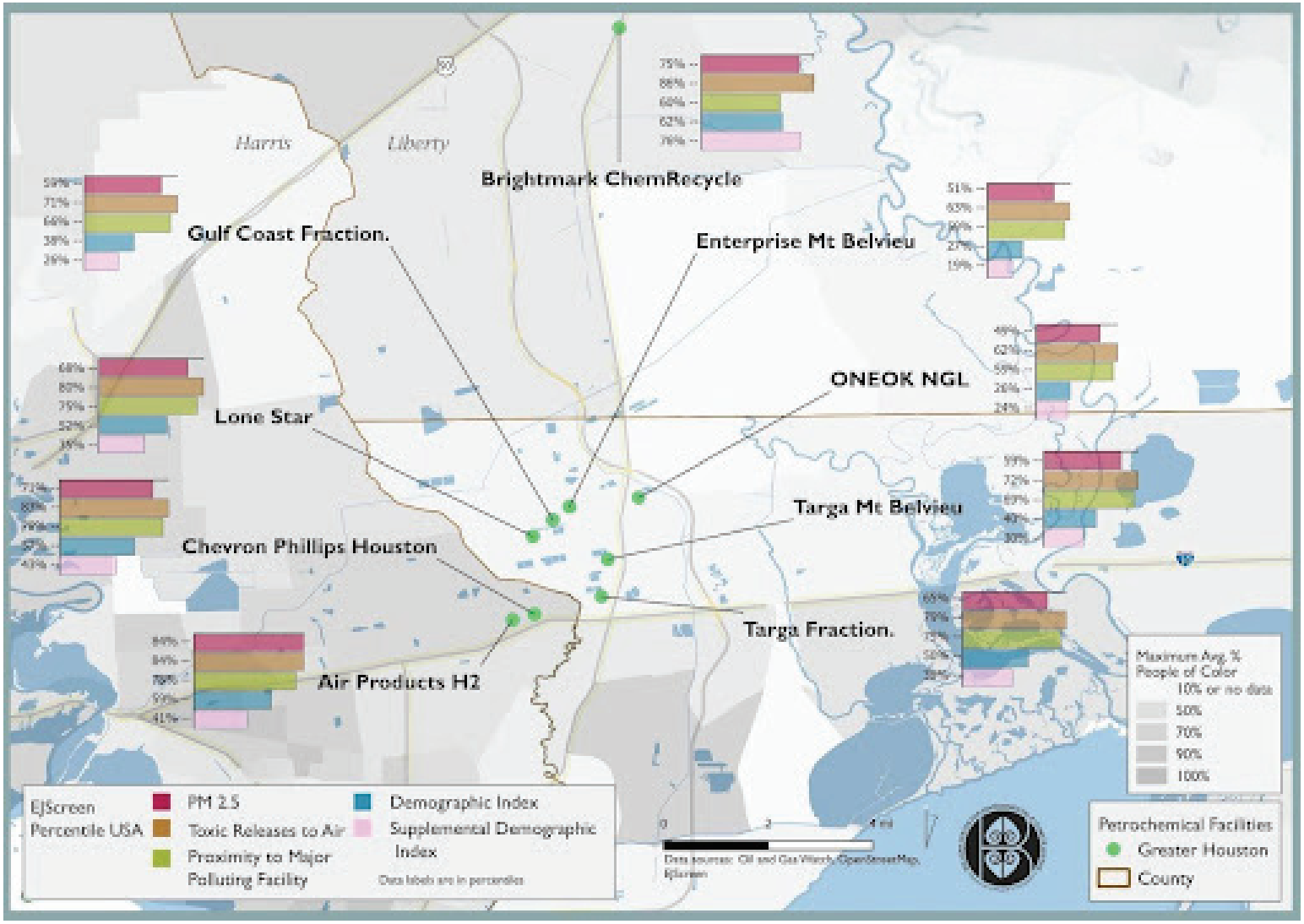
synthetic rubber) expansion unit, and a new heat recovery boiler (Environmental Integrity Project, 2024). TPC Houston ranks the highest for EJScreen's PM2.5 index, placing at the 96th percentile. TPC Houston and Gulf Access Storage Terminal facilities ranked at the 98th percentile and the 97th percentile, respectively for toxic releases to air and proximity to major polluters. The TPC Houston facility had the highest DI (91st percentile) and SDI (93rd percentile) rankings. At the eastern edge of the region, facility sites closest to the Houston Ship Channel had higher EJScreen indexes, with the exception of Brightmark Chemical Recycling (Map 6).

Map 5. Houston Area Proposed Petrochemical Sites



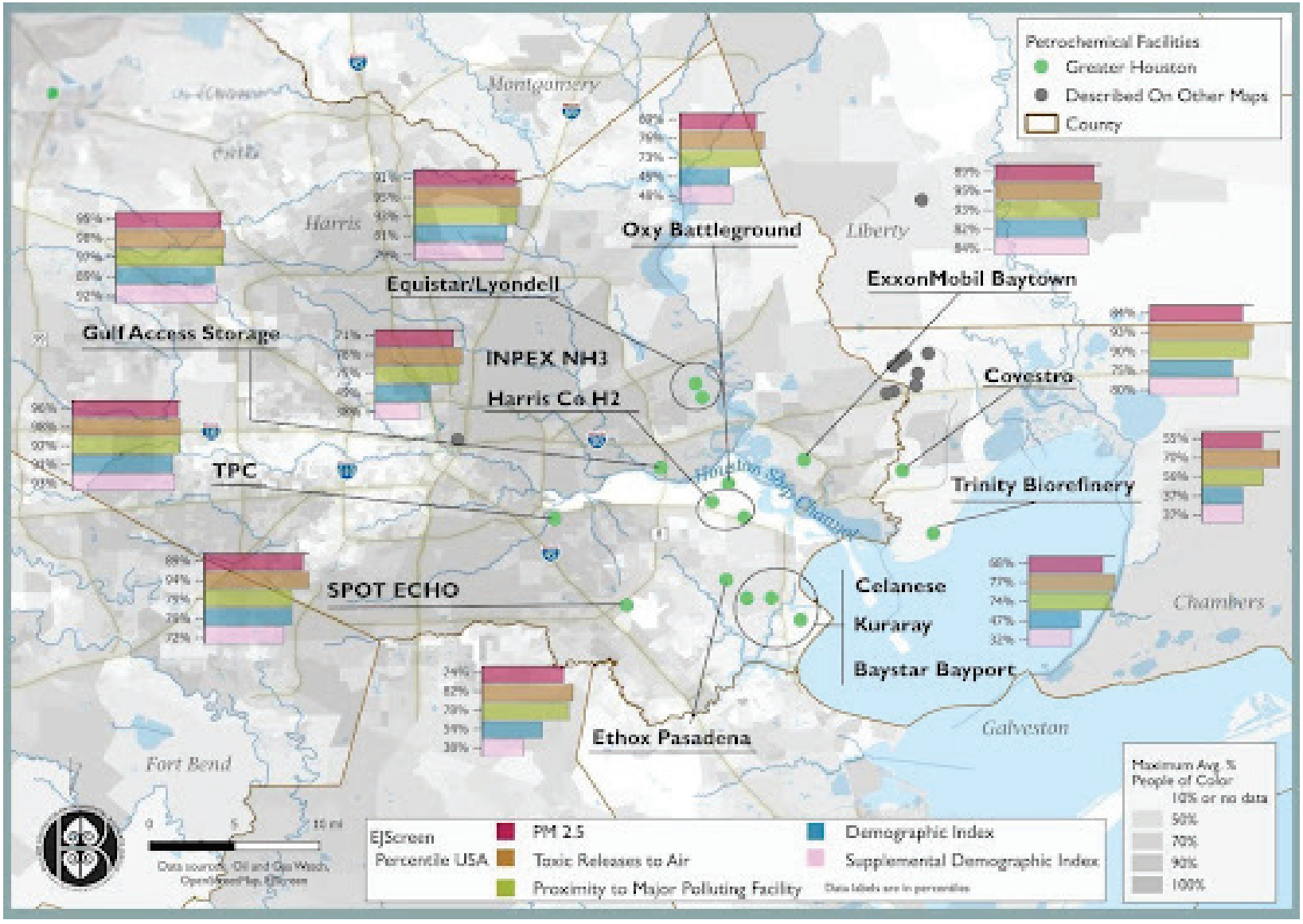
Facility sites, demographics, and three-mile buffers (dotted line circles) of facilities in this study. All buffer areas in this map overlap places where people of color population percentages and/or poverty population percentages are higher than the national average.

Map 6. Greater Houston EJScreen Results: Liberty, Chambers, and Northeast Harris Counties



One of three mapped regions for the Greater Houston area. For ease of viewing, where two or more facilities are listed for one bar chart, the value percentiles displayed are for the first facility in the list. For full EJScreen results, see the appendix.

Map 7. Greater Houston EJScreen Results: Harris County

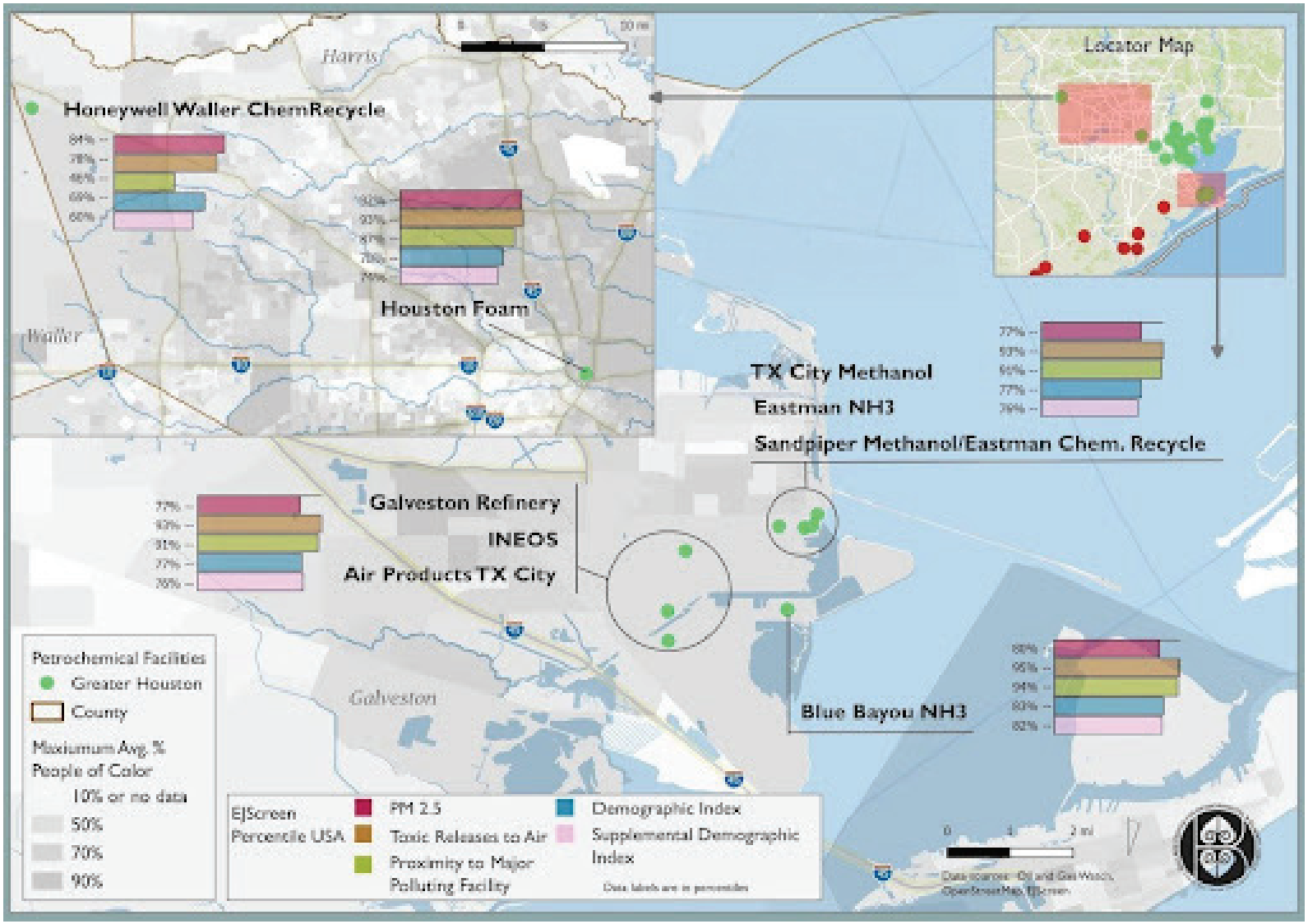


The second of three Greater Houston mapped areas, encompassing central Harris County as well as the Houston Ship Channel. For ease of viewing, where two or more facilities are listed for one bar chart, the value percentiles displayed are for the first facility in the list. For full EJScreen results, see the appendix.

As shown in Maps 5, 6, and 7, the Greater Houston region also has the largest number of sites (and projects) situated in communities that are already highly vulnerable. Some facility sites host multiple projects. For example, the Blue Bayou Ammonia site in Texas City would be massive, with four phases, each constituting a project. Many of the facilities in Texas City are ammonia facilities, and most of the proposed ammonia facilities are at the site of an existing petrochemical complex (Environmental Integrity Project, 2024).

The Greater Houston region currently has hundreds of operating industrial and petrochemical facilities (Berberian et al., 2024; Union of Concerned Scientists & Texas Environmental Justice Advocacy Services, 2016), and most region projects are expansions of or additions to an existing facility. The Houston Ship Channel alone (from the Upper Houston Ship Channel to LaPorte, Texas City, and Galveston) has an estimated 600 to 800 or more industrial and chemical facilities (Amnesty International, 2024; Berberian et al., 2024; Pacheco et al., 2024; see Map 8). In addition to petrochemical facilities, other facilities, such as concrete batch plants and power plants, add to the volume of pollution to which fenceline communities are subjected. Adding to the sheer number of facilities, the lack of zoning situates the polluting industry directly adjacent to residential neighborhoods (Bullard, 1987, 2000). Low-income, Black, and Latino residents in the Houston area have long been subjected to elevated levels of industrial pollution leading to numerous health problems and a reduced quality of life (Amnesty International, 2024; Berberian et al., 2024; Union of Concerned Scientists & Texas Environmental Justice Advocacy Services, 2016). For example, ExxonMobil Baytown, the second largest petrochemical complex in the world, is applying for an expansion, despite the fact that the facility was responsible for more than 300 suspected violations of air pollution permits in a recent five-year period (Pacheco et al., 2024).

Map 8. Greater Houston EJScreen Results: Galveston and West Harris County



The third of the three Greater Houston mapped areas encompasses Galveston County and west Harris County (inset map). For ease of viewing, where two or more facilities are listed for one bar chart, the value percentiles displayed are for the first facility in the list. For full EJScreen results, see the appendix.

TPC manufactures primarily 1,3-Butadiene (butadiene), which is a building block for many plastics and synthetic products such as tires, latex, and hoses (Shaykevich et al., 2024; TPC Group, 2024). Both the Houston and Golden Triangle facilities have had extensive problems, including a catastrophic explosion in the Golden Triangle (Parks & Kern, 2023).[21] TPC Houston, located at the fence line of Cesar Chavez High School, is surrounded by historically Black and Latino communities, such as Park Place and Manchester (Political Economy Research Institute, 2024a). TPC Houston exceeds the threshold of the 90th percentile nationally in all but two EJScreen categories, including categories that were not examined in this study (EPA, 2024b). TPC Houston's expansion plans continue, despite that the facility has had 12 consecutive quarters (three years) of high-priority violations and noncompliance under the Clean Air Act standards (EPA, 2024b).

The Houston Foam Plastics facility in the Near Northside neighborhood is at the intersection of three major interstate highways. Several point-source polluters are nearby, including concrete batch plants and a scrap metal recycler burn facility, which could contribute to cumulative pollution in the area (Amnesty International, 2024; Fonstein, 2024). Houston Foam Plastics manufactures polystyrene foam from compressed polystyrene beads (Texas Commission for Environmental Quality & Houston Foam Plastics, 2022). The air pollution permit for the proposed expansion would almost double the amount of polystyrene processed at the facility, from 9 million to 16 million pounds per year (Texas Commission for Environmental Quality & Houston Foam Plastics, 2022). With this expansion, the harmful volatile organic compound emissions would rise from 45 tons to 82 tons per year (Texas Commission for Environmental Quality & Houston Foam Plastics, 2022). Moreover, to collect data for its recent permit, Houston Foam Plastics used an air monitor located seven miles away from the impacted community (Texas Commission for Environmental Quality & Houston Foam Plastics, 2022). This is concerning, because the surrounding area—which includes Sherman Oaks Elementary School and two churches located within a half mile of the plastics facility—is at or above the 90th percentile threshold in all EJScreen categories (see Figure 3). Additionally, the area has high percentages of people of color and low-income residents. The yellow line in Figure 4 shows the distance from the farthest side of Houston Foam Plastics to the middle of the school, which is less than half a mile. The two churches (Figure 4, circled in green) are even closer than the school. The visible crossroads to the right of the facility are intersecting railroad tracks, but three major interstate highways are also close by. It is clear that the facility expansion plans would add to the pollution burden of nearby vulnerable residents and the community.

21 - After the 2019 explosion in Port Neches in the Golden Triangle, enforcement agencies began to require that TPC Group take steps to move from noncompliance to safety; TPC has not yet satisfactorily implemented those measures.

Figure 3. EJScreen Data for Houston Foam Plastics

EJScreen Indexes Shown

Index Type: Environmental Justice

Related Reports

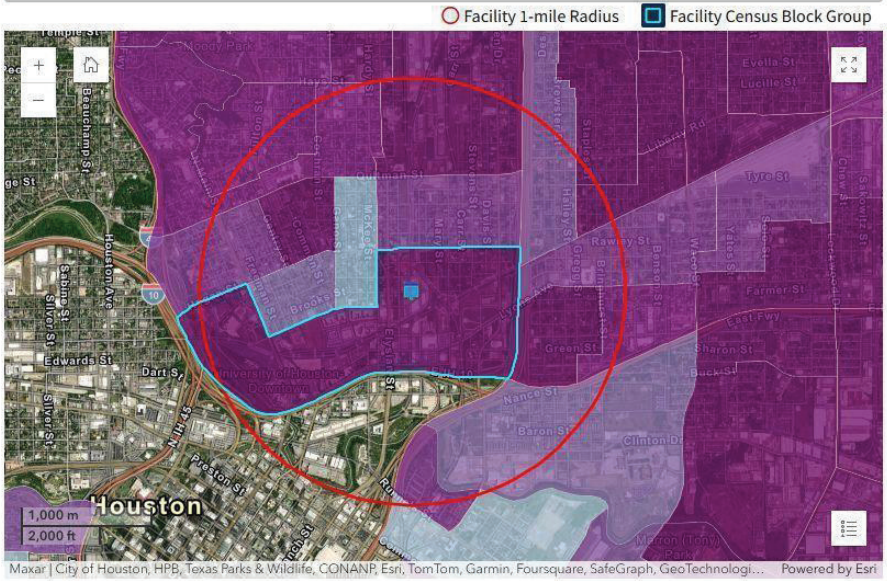
EJScreen Community Report

Download Data

Census Block Group ID: 482012123003	US (Percentile)			State (Percentile)		
Environmental Justice Indexes	Facility Census Block Group	1-mile Avg	1-mile Max	Facility Census Block Group	1-mile Avg	1-mile Max
Count of Indexes At or Above 90th Percentile	**13**	**10**	**13**	**13**	**6**	**13**
Particulate Matter 2.5	99	94	99	98	88	99
Ozone	99	93	99	97	89	99
Diesel Particulate Matter	99	93	99	99	91	100
Air Toxics Cancer Risk	95	94	98	90	91	95
Air Toxics Respiratory Hazard Index	97	90	99	98	91	99
Toxic Releases to Air	99	95	99	98	90	99
Traffic Proximity	99	92	99	98	88	99
Lead Paint	97	93	99	98	93	100
Risk Management Plan (RMP) Facility Proximity	98	90	99	92	78	97
Hazardous Waste Proximity	95	86	99	97	87	99
Superfund Proximity	99	95	100	99	90	100
Underground Storage Tanks (UST)	97	86	98	98	79	98
Wastewater Discharge	96	89	99	95	85	99

Map Display Based on: US State

Display Map Layer: Summary - Number of Indexes



The Census block group where the facility is located ranks above the 90th percentile for all EJScreen environmental indexes compared with the rest of the country and the state of Texas. Data source: EPA EJScreen.

Figure 4. Community Landmarks Near Houston Foam Plastics

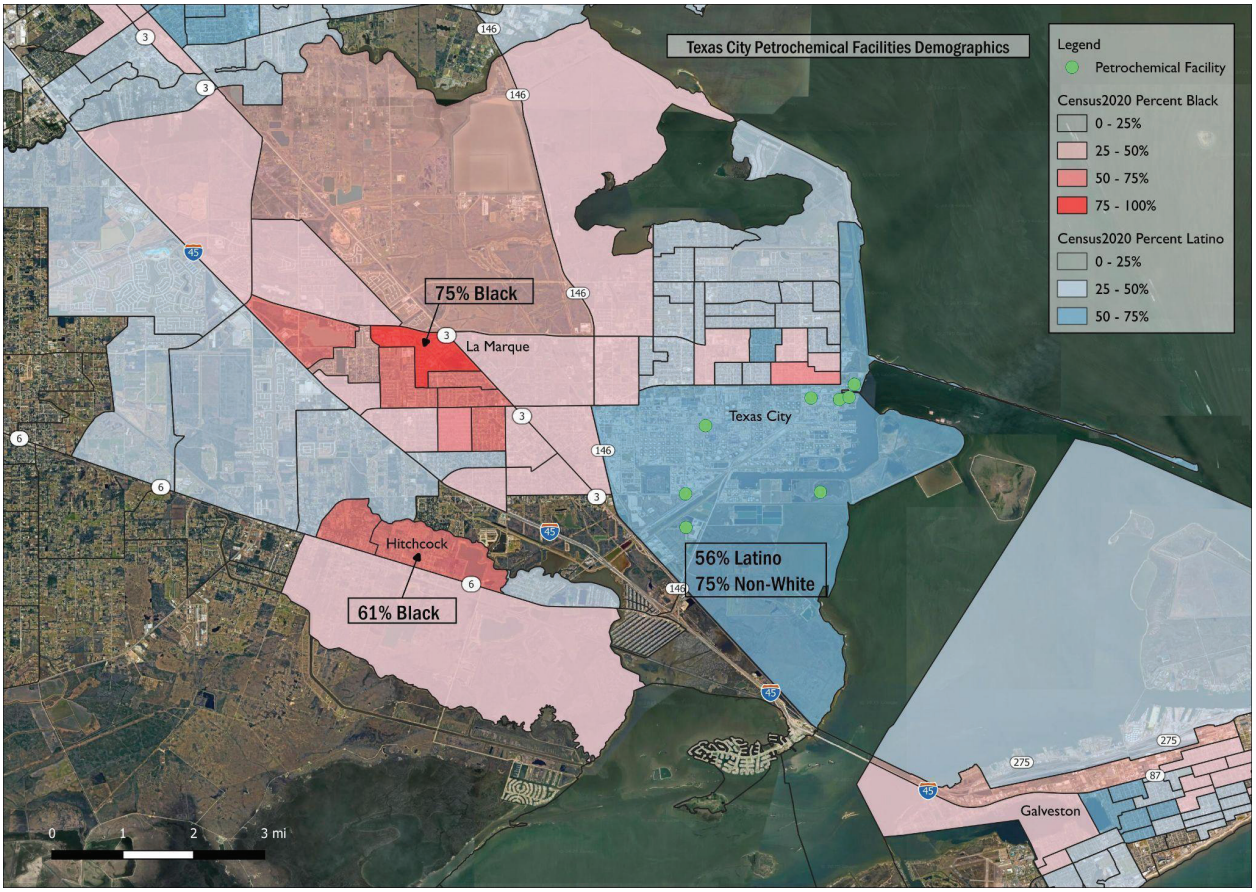
Sherman Elementary School and two churches are located within a half mile of the Houston Foam Plastics facility. The yellow line shows the distance from the farthest side of Houston Foam Plastics to the middle of the school, and the ruler box indicates that distance is 0.45 mile. The two churches (circled in green) are even closer to the facility. The visible crossroads to the right of the facility is the intersection of railroad tracks, but three major interstate highways are close by. Source: Google Earth.

Figure 5 shows that Texas City and Galveston contain largely Latino and Black communities, including the historically Black neighborhood within La Marque and Hitchcock (Moran, 2006; Ryan, 2023).

The Texas City area is no stranger to environmental and pollution threats from petrochemical facilities. Two catastrophic industrial disasters have marked the area. The first occurred in 1947, when an ammonium nitrate–loaded vessel that had docked at Texas City detonated (Fire Prevention and Engineering Bureau of Texas & National Board of Fire Underwriters, 1947). The explosion was the consequence of a ship fire, and all but one person from the Texas City Volunteer Fire Department, who had responded to the fire and thus were in the blast radius, were killed.

The primary explosion caused several subsequent fires and explosions, and much destruction, including at the oil refinery (now Marathon). The catastrophe ultimately caused an estimated 550 fatalities, with thousands more injured (Moore Memorial Public Library, 2013; Stephens, 1997). The threat of chemical disaster persists to this day, as the facilities proposed in the Texas City area have percentiles of proximity to major polluters (RMP) above the 90th percentile.

Figure 5. Facilities in Texas City



The area that hosts the Texas City facilities largely comprises people of color (75%), which includes high percentages of Latinos (56%). As the map shows, the nearby communities of Hitchcock and La Marque have relatively high percentages of Black residents. Map percentages data are from the Decennial 2020 U.S. Census, whereas the comparison data are from the American Community Survey 2020–2023 data (U.S. Census Bureau, 2024). Thus, the reach of the Greater Houston engine of disadvantage and discrimination is long and pervasive, even outside of the more densely populated areas of Houston and Harris County.

Although it was not a petrochemical-centered disaster, the worst impacts from the ammonium nitrate explosion, dubbed the "Texas City Industrial Disaster," were compounded by the presence of the petrochemical industry's chemicals and infrastructure (Fire Prevention and Engineering Bureau of Texas & National Board of Fire Underwriters, 1947). In particular, the Monsanto plant (which was trying to harvest fertilizer from ammonium nitrate in chemical weapons from World

War II) was obliterated and was the scene of many fatalities. Before World War II, Monsanto was using a site that had been home to the Texas Sugar Refining Company, which refined and transported sugar, including sugar produced by legally free, but economically enslaved Black workers (Campbell, 1989; Fire Prevention and Engineering Bureau of Texas & National Board of Fire Underwriters, 1947). Sugar and cotton are symbols of the enslavement of Black people in Texas and the Gulf Coast. Further, Galveston was a destination city for newly freed Black Americans during Reconstruction and beyond (Shelton, 2007).

In 2005, a large explosion at the same Marathon Galveston Bay Refinery (then owned by British Petroleum) resulted from botched procedures and communications (U.S. Chemical Safety and Hazard Investigation Board, 2007). The incident killed 15 people and injured 180 more. The lax safety protocols and "operate-at-all-costs" culture at the facility that led to the explosion eerily echo the culture found to be the culprit in the Deepwater Horizon oil spill disaster five years later (Knutson, 2010). While people in Texas City are deeply enmeshed in the petrochemical industry, environmental injustice reaches these fenceline communities all the same.

Within Texas City limits (which includes the northern fence line of the industrial facilities), 17% of people live below the federal poverty level, compared with 13.7% in Texas overall and 11% nationally (U.S. Census Bureau, 2023d, 2023e). Sixteen percent (16%) of La Marque residents live below the federal poverty level (U.S. Census Bureau, 2023d). Median home values in Texas City ($190,600) and La Marque ($189,400) are well below the median state ($238,000) and national ($281,000) values (U.S. Census Bureau, 2023d, 2023e). Although this area has a lower facility density than that of the upper Houston Ship Channel, it is substantially vulnerable and experiences environmental injustice related to the existing outsized petrochemical industry presence and the deepwater port that adds to particulate matter emissions.

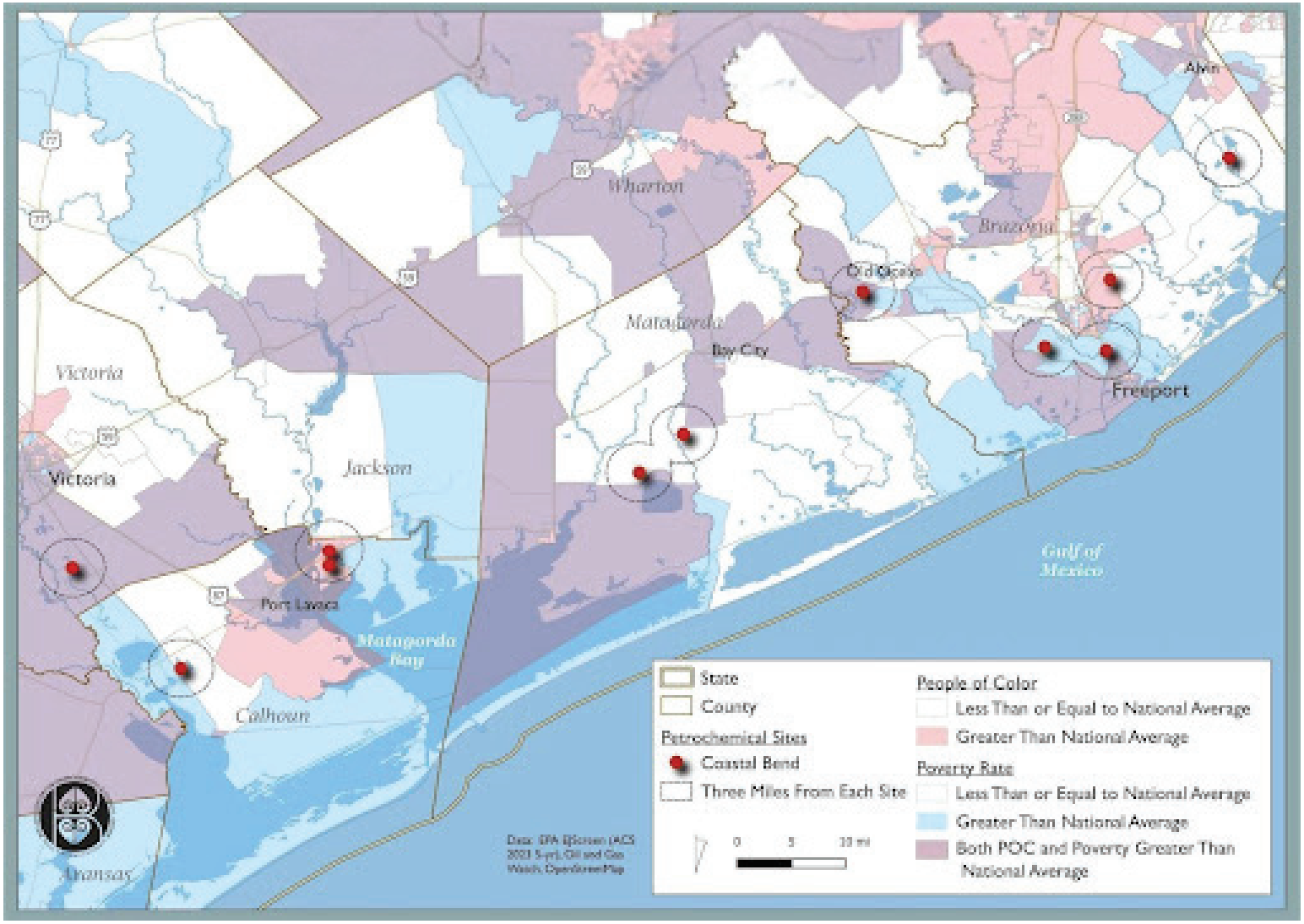
3. Coastal Bend

The geographically dispersed sites in the large Coastal Bend region rank lower in the overall ratings, compared with the other areas. The Coastal Bend region has 10 of 11 facility sites analyzed (91%), with fenceline communities that have high percentages of people of color, a high percentage of low-income residents, or both, compared with national rates (Map 9).

The EJScreen individual site percentiles for the Coastal Bend are, on average, lower than the overall state averages (Tables 6 and 7). Compared with other sites in the Coastal Bend, the Dow Freeport chemical complex is the most highly vulnerable and overburdened site, with EJScreen assigning it a very high burden ranking that includes PM2.5 at the 85th percentile, toxic air releases at the 97th percentile, proximity to polluters at the 96th percentile, DI at the 89th percentile, and SDI at the 84th percentile (see the appendix). Two onshore storage crude oil tank farms for "deepwater offshore oil export terminals"—Texas GulfLink and SPOT—are proposed for the Coastal Bend area.

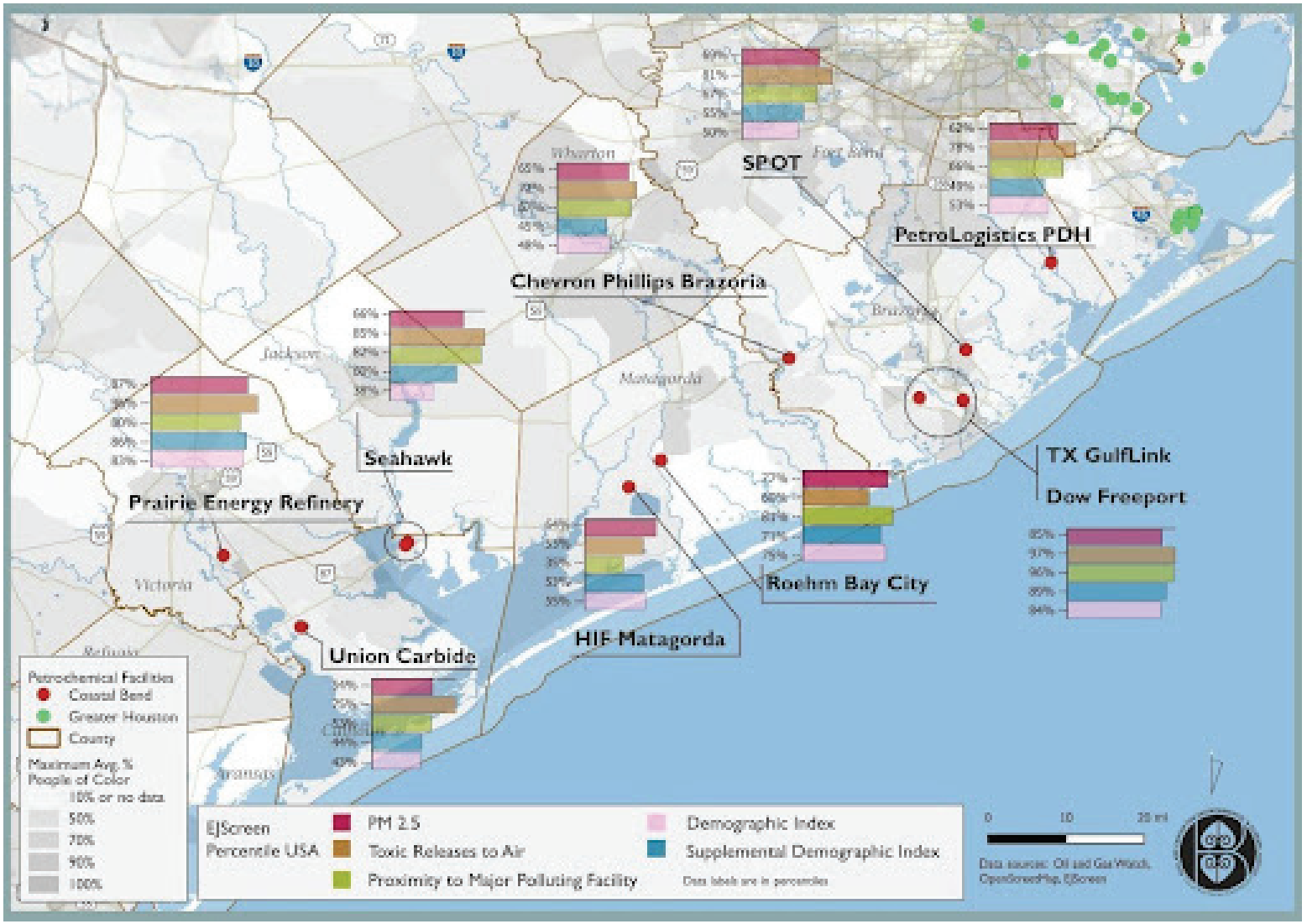
The EJScreen index rankings are generally lower for the Coastal Bend region sites than for some of the other regions. Prairie Energy Partners Refinery in Victoria County has the highest PM2.5 index ranking in the region (87th percentile nationally, Map 10), whereas the top-ranked sites for PM2.5 in all other geographic clusters are above the 90th percentile nationally. Overall, sites in the Coastal Bend areas rank lower for the toxic releases to air index compared with other regions, but two sites rank at the 97th percentile, the Dow Freeport Polyethylene Plant and the Jones Creek Crude Storage Terminal, owned by Texas GulfLink. Although some smaller socially vulnerable communities are located in the Coastal Bend region, the county is more rural than are the other industrial corridors examined in this study, which may explain the relatively lower environmental burdens compared with other regions (Ratcliffe, 2022).

Map 9. Coastal Bend Area Proposed Petrochemical Sites



Upper Coastal Bend (Brazoria County, Matagorda County, and others) area demographics and three-mile buffers (dotted line circles) of proposed petrochemical facilities. Almost all buffer areas in this map overlap places where the persons of color and/or poverty population rates are higher than the national average.

Map 10. Coastal Bend EJScreen Results



For ease of viewing, where two or more facilities are listed for one bar chart, the value percentiles displayed are for the first facility in the list. For full EJScreen results, see the appendix.

By land area, Dow Freeport is one of the largest petrochemical complexes in the world. Dow was one of the first chemical plants to arrive in Freeport, built specifically to manufacture magnesium during World War II (Lake Jackson Historical Museum, 1976). The Dow company and the Freeport facility flourished after the war, and other petrochemical facilities moved in. The East End in Freeport was established in the 1930s with a Jim Crow-era segregation ordinance that initiated the town's redlining (City of Freeport, 1930). Despite its vibrant community life with active churches and thriving businesses, the East End community struggled to survive as fossil fuel industrial facilities and the Port of Freeport encroached. By 2010, the Port of Freeport had launched a full campaign to acquire land in the East End with the goal of enlarging the canal (Ahmed, 2020; Port Freeport, 2018). This land acquisition campaign displaced many East End residents (U.S. Army Corps of Engineers, 2024).

In 2023, Dow Chemical proposed a "Polyethylene Plant no. 7" (Texas Commission for Environmental Quality & Dow Chemical, 2023), an expansion to manufacture plastic pellets—the precursor to final plastic products. Also in 2023, Dow Chemical applied to amend its air permit to authorize burning hydrogen for fuel instead of fossil gas.

The Prairie Energy Refinery was proposed for southern Victoria County near San Antonio Bay (Maps 11 and 12). Prairie Energy has since announced plans to abandon pursuit of the facility site in Texas, focusing instead on Cushing, Oklahoma, which is located about midway between Oklahoma City and Tulsa, and has a disproportionate percentage of low-income residents (Brelsford, 2023).

4. Southern Coast

The Southern Coast region (Map 11) contains the Southern Coastal Bend area, including greater Corpus Christi and the Rio Grande Valley, which is greater Brownsville. In this region, 15 of 17 total sites (88%) have fenceline communities that are either high percentages of people of color, high percentages of people in poverty (according to EJScreen), or both (Map 11). The Inner Harbor Desalination facility is proposed for a site on the Corpus Christi Ship Channel, which lies just west of downtown Corpus Christi (Map 12).

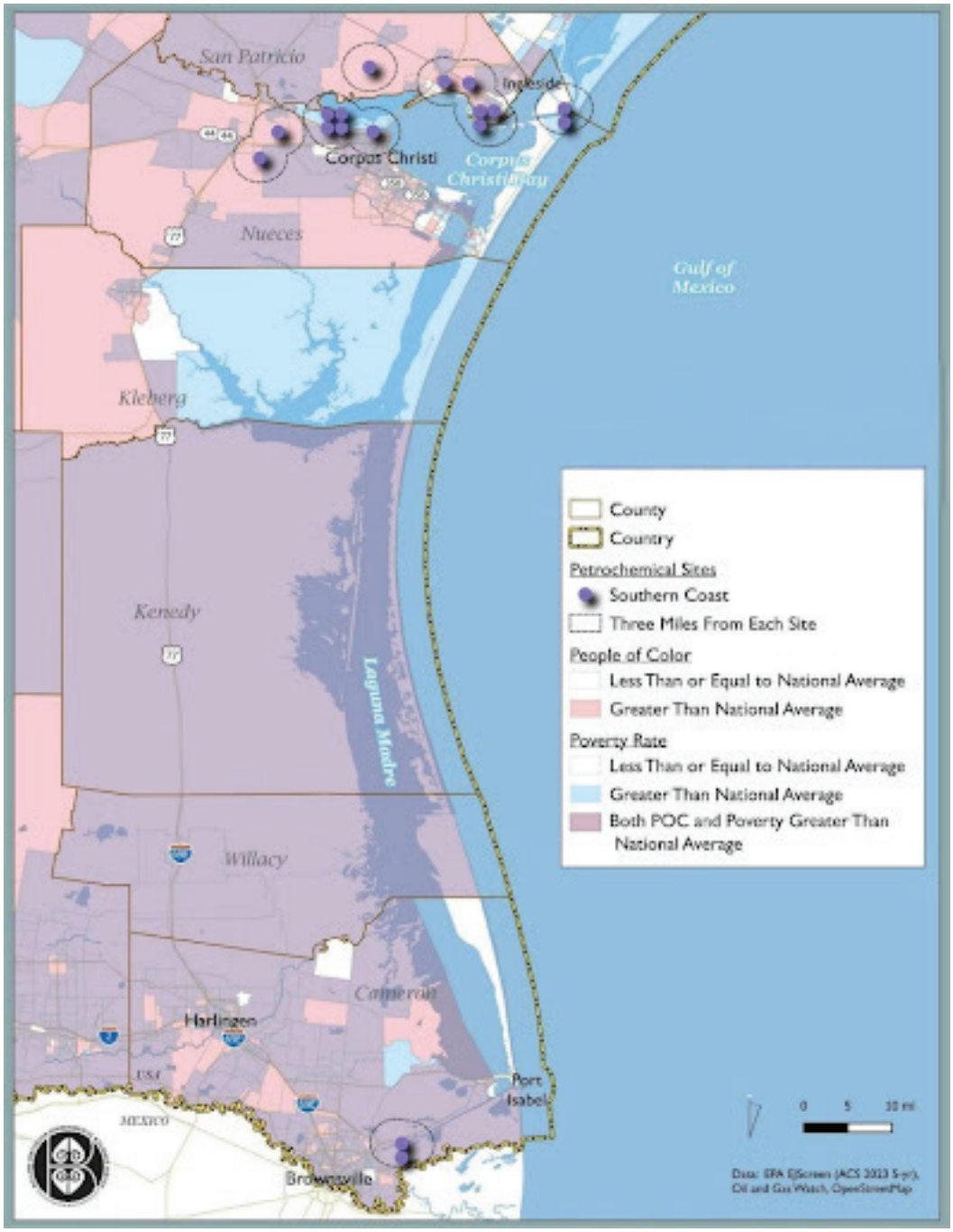
Both facility sites in Brownsville have EJScreen rankings at the 90th percentile or above. In fact, the Jupiter Brownsville Condensate Splitter Upgrade site has the highest ranking among all sites in Texas for the EJScreen PM2.5 index (98th percentile; see the appendix). The Jupiter Brownsville Condensate Splitter Upgrade also ranks highest in the region for both DI (98th percentile) and SDI (93rd percentile).The Inner Harbor Desalination Plant ranks high for both the toxic releases to air index and the proximity to polluting facilities index (98th and 97th percentiles, respectively).

Desalination plants are clustered in the Southern Coast (Davies, 2024). Inner Harbor Desalination is yet another example of facility siting that follows a long-established pattern of environmental racism. The facility is proposed as a project sited within the historically Black Hillcrest neighborhood (Beeler et al., 2015; Environmental Integrity Project, 2024) and adjacent to

another historically Black neighborhood, Washington-Coles (Figure 6). Hillcrest and Washington-Coles once had a vibrant community fabric comprising people who made the best of the circumstances—but the fabric has been eviscerated, largely because of the Texas Department of Transportation's new Harbor Bridge project (Figure 6; Beeler et al., 2015).

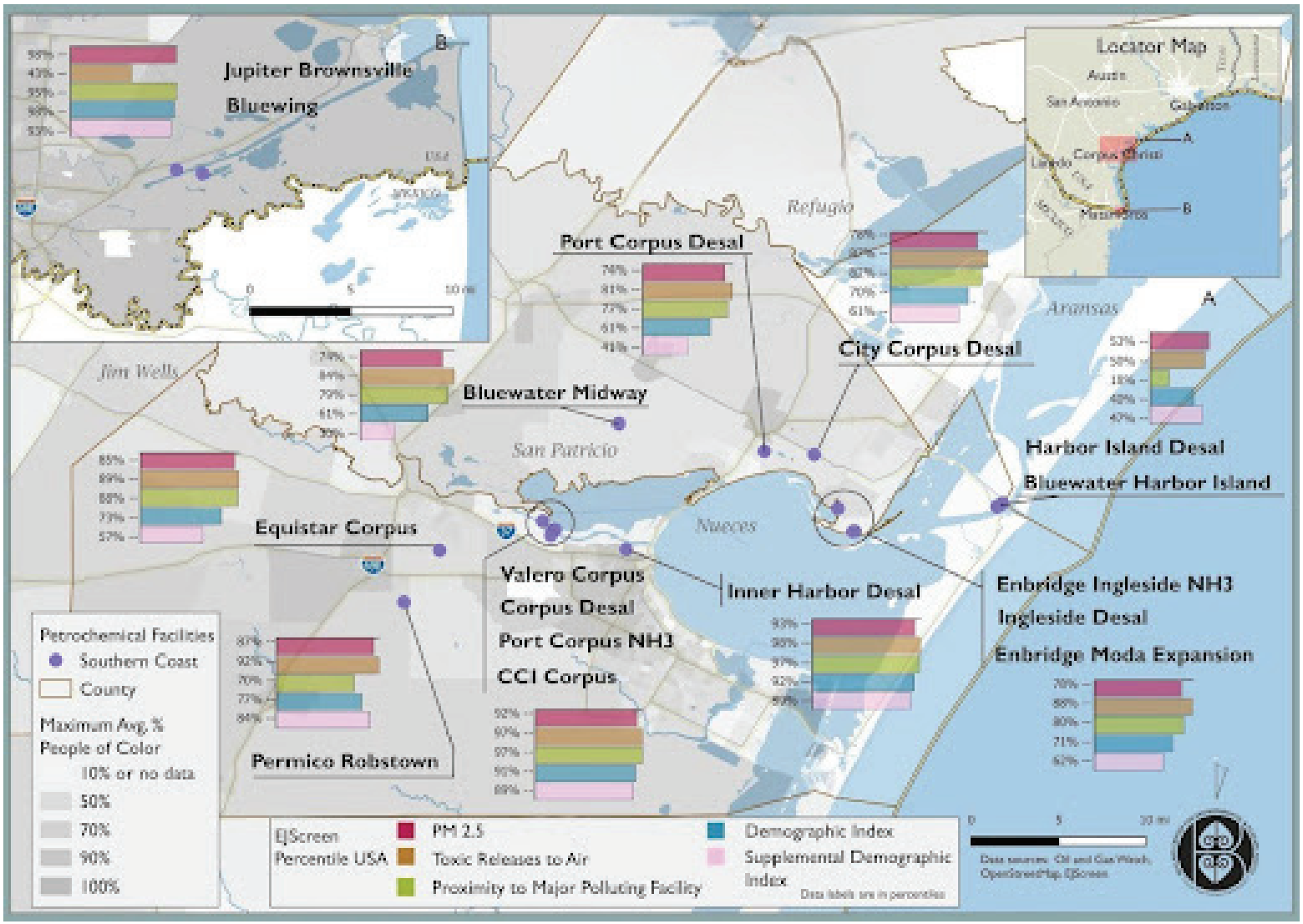
The Inner Harbor Desalination facility is planned for an already displaced block of the Hillcrest neighborhood (Figure 6), and is the only desalination plant proposed to be built directly in the Hillcrest neighborhood. The desalination facilities in the Corpus Christi area are purportedly for the municipal water supply, although some municipal clients are petrochemical plants requiring vast water supplies. These facilities not only discharge brine and pollutants, but also enable industrial expansion, compounding environmental burdens on nearby communities already impacted by pollution. Community members, including those from Hillcrest, oppose the facilities on the grounds of discrimination and environmental destruction (Davies, 2024).

Map 11. Southern Coastal Bend Area Proposed Petrochemical Sites.



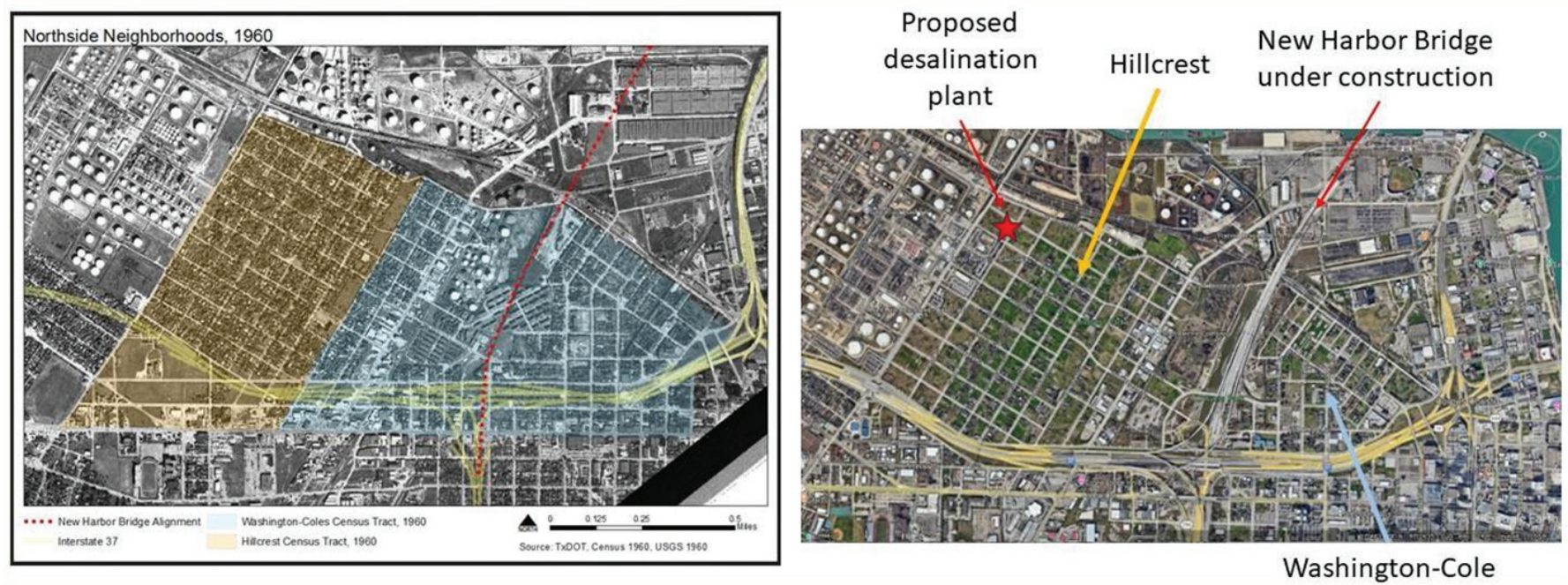
Area demographics and three-mile buffers (dotted line circles) of proposed petrochemical facilities. All buffer areas in this map overlap places where the persons of color and/or low-income population rates are higher than the national average.

Map 12. Southern Coast EJScreen Results



The map shows the southern Texas coast featuring Corpus Christi and Brownsville (inset). For ease of viewing, where two or more facilities are listed for one bar chart, the value percentiles displayed are for the first facility in the list. For full EJScreen results, see the appendix.

Figure 6. Redlining in Corpus Christi



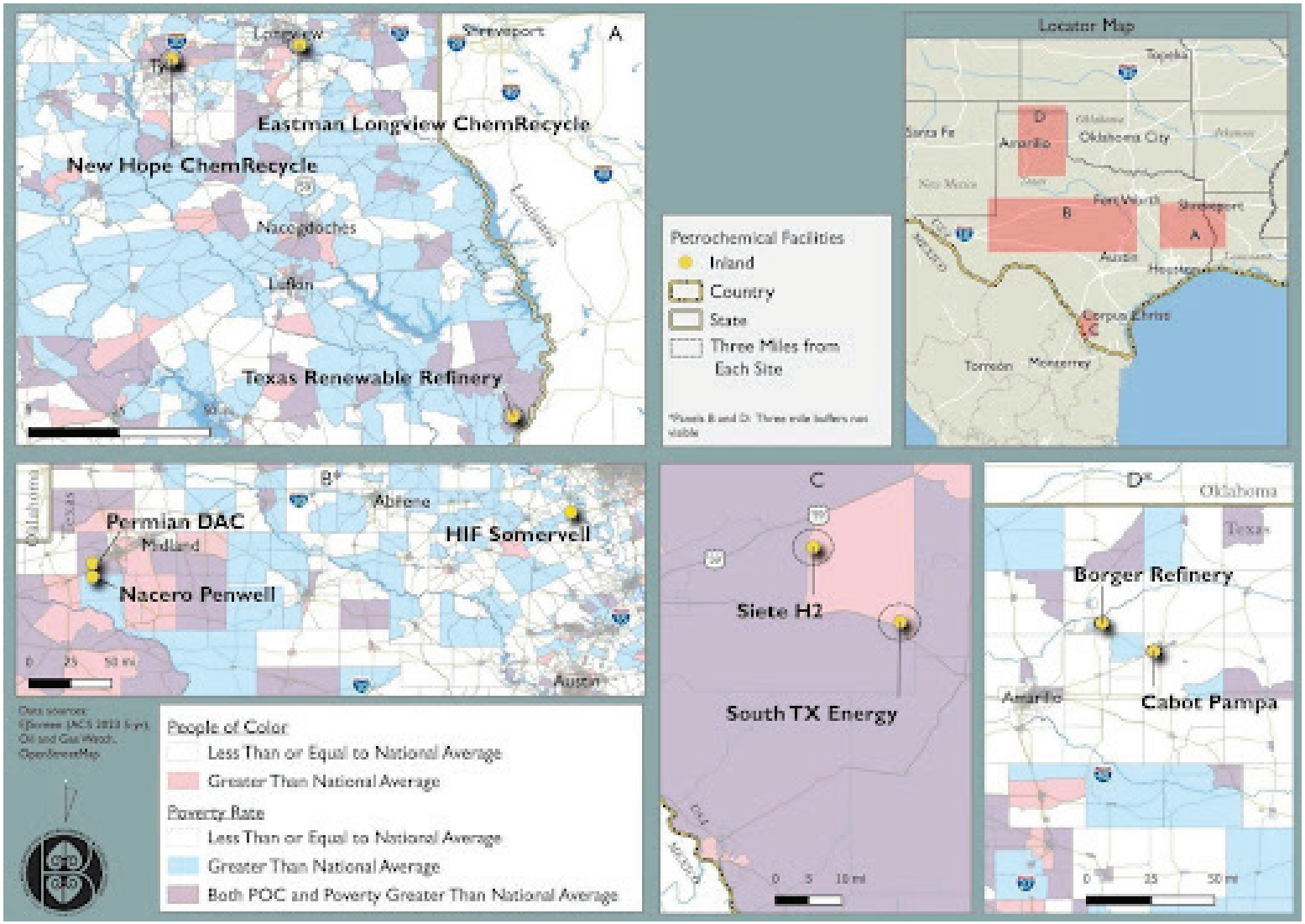
The Corpus Christi neighborhoods, Hillcrest and Washington-Coles, were racially segregated and redlined, thereby restricting lending and homeownership to Black residents. The left section shows the 1960s map of the two neighborhoods, with Highway 37 highlighted and the new Harbor Bridge route denoted by a red dotted line (Beeler et al., 2015). The map on the right (from Google Earth) shows the two neighborhoods in 2024, with construction of the new bridge underway and the Inner Harbor Desalination plant (red star) both visible. Both neighborhoods have fewer houses in the 2024 map compared with 1960, and what was left of the Washington-Coles neighborhood has been decimated to make way for the Harbor Bridge. Left figure reprinted with permission from Texas Housers.

Several existing major petrochemical facilities in Corpus Christi, including Citgo, Valero, and Flint Hills, are just a short distance from Inner Harbor Desal along the industrial canal, near predominantly Latino neighborhoods. These facility sites comprise some of the new or expansion petrochemical projects, including CCI Corpus Christi, the Valero Corpus expansion, the Corpus Christi Desalination plant, and Port of Corpus Christi Ammonia. The Northwest neighborhood is one of the fenceline communities closest to those facilities. In 2020, Northwest was 80% Latino residents, and nearby Census block groups were between 50% and 75% Latino residents, so Corpus Christi's proposed new and expanding petrochemical facilities cluster near mostly Latino communities.

5. Inland

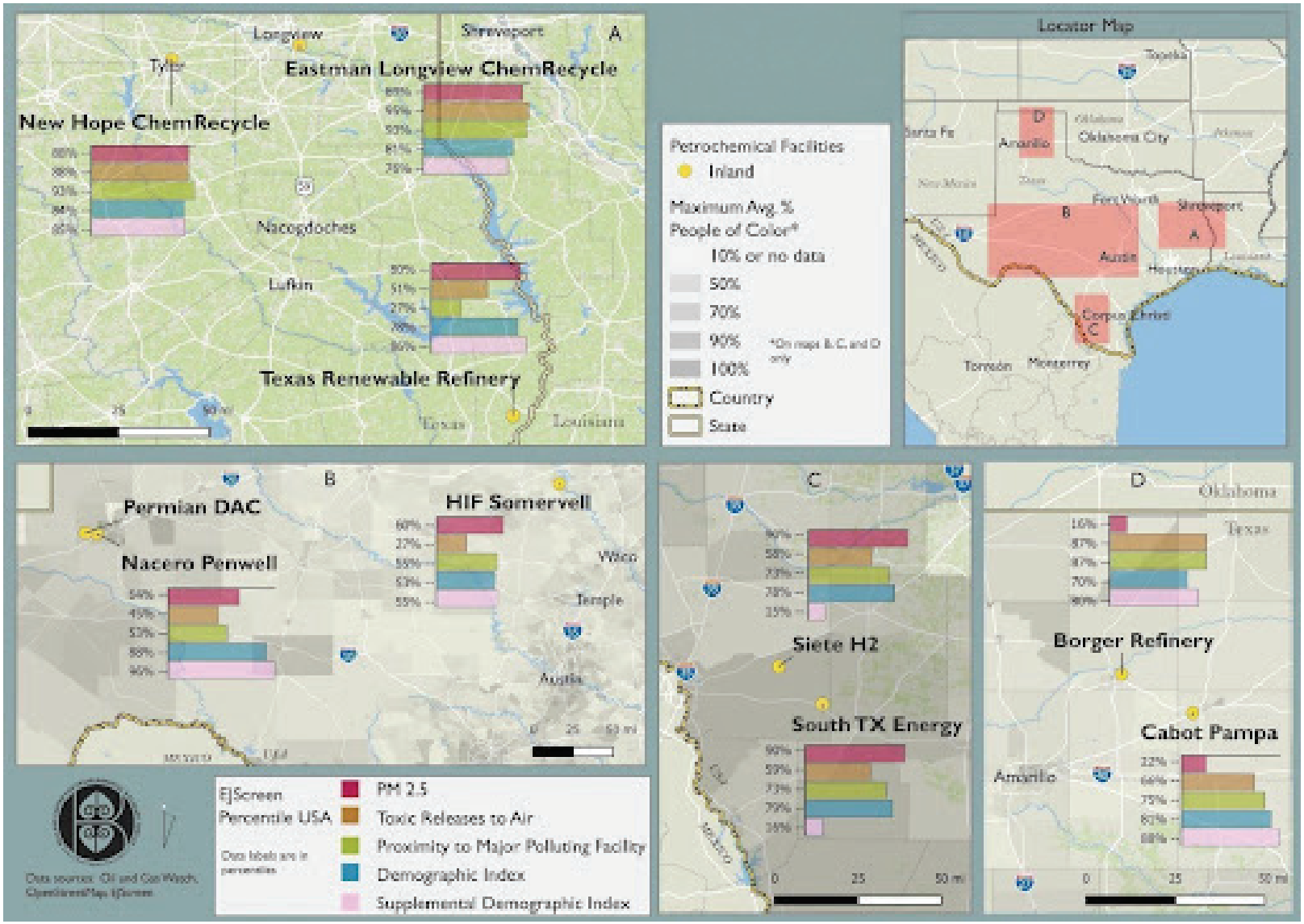
The inland region is a catchall, with sites scattered across the state. The proposed facilities are in four different areas of the state: the Panhandle, the Permian Basin, east Texas, and the borderlands (south Texas; see Map 1 for overview locations). All 10 inland region sites have fenceline communities with relatively high national percentiles for the DI (Map 13). Raven Petroleum's South Texas Energy Complex and Siete Hydrogen rank highest among inland region sites for the EJScreen PM2.5 index, with both at the 90th percentile nationally, but both rank low for the SDI (15th and 16th percentiles, respectively). The Eastman Longview Chemical Recycling facility leads in toxic releases to air, ranking at the 95th percentile, while both it and the New Hope Plastics Chemical Recycling plant are at the 93rd percentile for RMP proximity (see Map 14 and the appendix). The Nacero Penwell methanol gasoline plant ranks highest for the DI (88th percentile) and the SDI (96th percentile). In contrast, the Panhandle's Borger Refinery and Cabot Pampa "carbon black" expansion score low for PM2.5, at the 16th and 22nd percentiles, respectively.

Map 13. Inland Areas Proposed Petrochemical Sites



Area demographics and three-mile buffers (dotted line circles) of proposed petrochemical facilities. All buffer areas in this map overlap places where the persons of color and/or poverty population rates are higher than the national average.

Map 14. Inland EJScreen Results



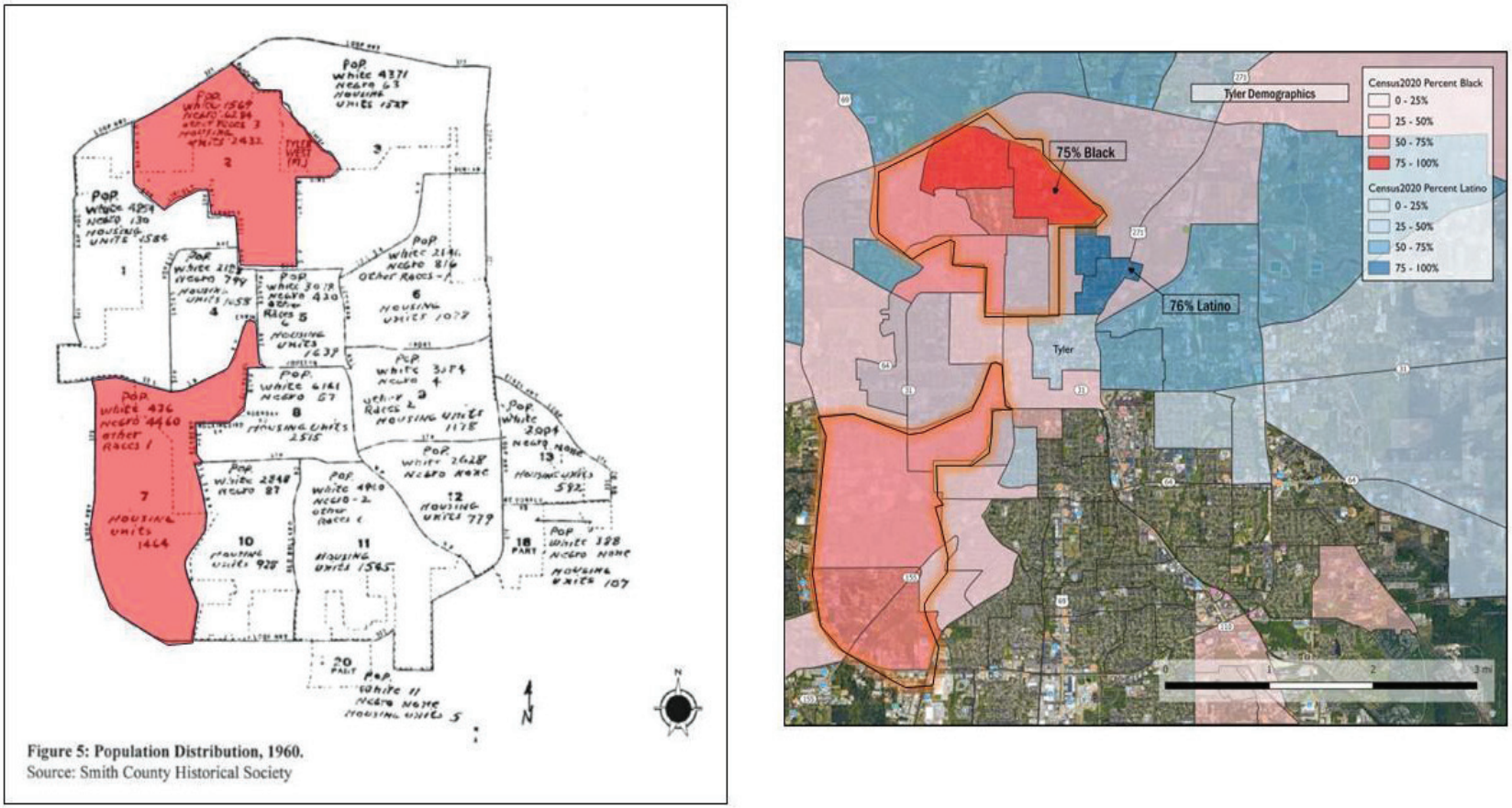
EJScreen results are shown for the inland geographic region of the study (four area sections). For ease of viewing, where two or more facilities are listed for one bar chart, the value percentiles displayed are for the first facility in the list. For full EJScreen results, see the appendix.

The inland area has chemical recycling facilities. The methods used for chemical recycling, also known as *advanced recycling*, differ from those of mechanical recycling; mechanical recycling breaks pieces of plastic apart, while chemical recycling thermally or chemically treats plastic to melt it into a new material (Ragaert et al., 2017; Singla, 2022). Chemical recycling creates more pollution, and results in reduced recycled material output compared with mechanical recycling (Singla, 2022). That the two highest ranked inland facilities are chemical recycling plants is striking in and of itself, but also striking because these are rural, isolated facilities that are not part of any industrial corridor cluster.

The New Hope Chemical Recycling plant in Tyler uses pyrolysis to process plastics and is one of the few operating chemical recycling facilities in the country. The proposed expansion is set to occur despite a history of fires and hazardous waste mishandling (Shaw & Green, 2023; Singla, 2022). The facility is located at the fence line of predominantly Latino and Black communities, which aligns with Tyler's long history of racial segregation, including redlined districts and county property deed covenants that once prohibited Black ownership—covenants that, though rendered illegal by the U.S. Supreme Court, remain on record as stark reminders of government-backed segregation (Guevara, 2016; Holland, 2020; Texas Historical Commission, 2001, p. 273; Figure 7). A close examination of historical covenants reveals that the New Hope facility's location is near historically Black neighborhoods where racial restrictions forced people of color to live (Texas Historical Commission, 2001, p. 273).

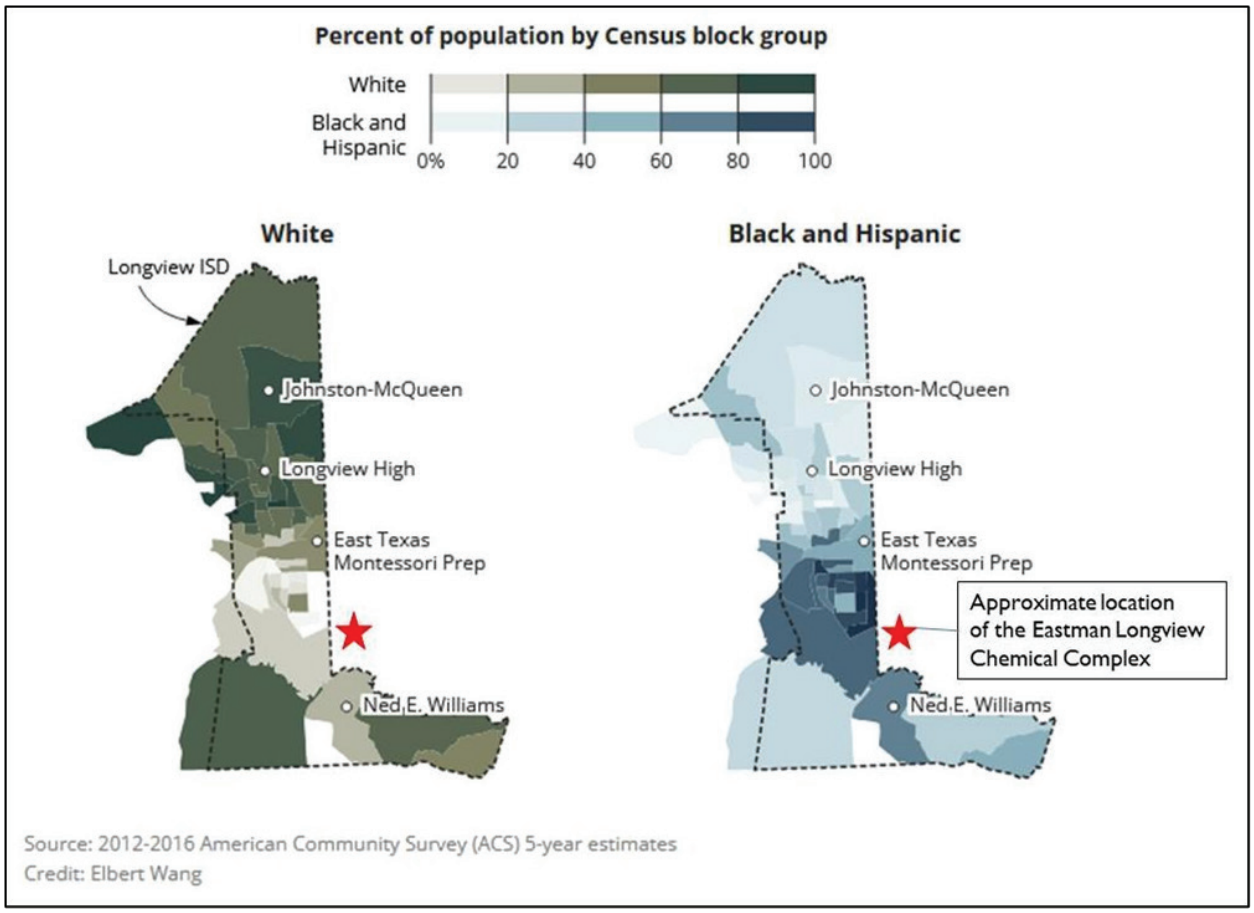
Another east Texas city, Longview, has a population of 83,236 people—53% White and 47% people of color (U.S. Census Bureau, 2023c). Census block groups in Longview are still segregated by race (Figure 8) and schools remain inequitable despite decades of requirements, including a federal court order to afford equal opportunities to people of color (Swaby & Ura, 2018). Longview is home to the Eastman Chemical Longview complex, a massive chemical facility that includes units for breaking down hydrocarbons such as ethane and propane, into smaller molecules such as ethylene and propylene, which serve as key building blocks for plastics and chemicals.

Figure 7. Tyler, Texas



Population in the Tyler, Texas, area in 1960 (left) and in 2020 (right). Red shading on the left indicates redlined areas where Black residents were allowed to own property (source: Texas Historical Commission, 2001, p. 273). As in many other cities with redlining, the redlined areas correspond with current-day Black majority zones, visualized by the same areas from the left figure superimposed on the right in orange outline. The Tyler New Hope Chemical Recycling facility and expansion is within one mile of the Black and Latino neighborhoods' fencelines.

Figure 8. Longview, Texas



Census block group plurality reveals that Longview society is segregated by race. Schools are disproportionately located in White communities, despite that most students are people of color (Swaby & Ura, 2018). Longview Eastman Chemical Recycling facility and the chemical complex are at the fence line of Black and Latino neighborhoods. (Source: Figure reprinted from the Texas Tribune in accordance with their licensing policy.[22])

At the Longview plant, ethylene oxide pollution alone accounts for 61% of the facility's contribution to the worst polluter list (Political Economy Research Institute, 2024b). Figure 9 shows that the Longview plant is located next to Census block groups that have the highest percentages of Black and Latino residents (Environmental Integrity Project, 2024).

The Permian Basin, located in west Texas and southeastern New Mexico, is a leading region for global oil and gas production. However, recent rapid growth of oil and gas extraction following an oil and gas boom has sparked significant environmental justice concerns for low-income, Latino, and Indigenous communities (Johnston et al., 2020; Proville et al., 2022; Zhang et al., 2020). The Nacero facility in Penwell is part of the region's evolving energy infrastructure. Although these sites may have relatively low EJScreen rankings, they exist within an already overburdened landscape where communities face cumulative environmental and health

22 - The licensing policy is accessible here: https://www.texastribune.org/republishing-guidelines/

impacts from extensive oil and gas development. Gas flaring and oil and gas drilling in the Permian Basin release harmful pollutants, including nitrogen oxides, particulate matter, sulfur dioxide, and volatile organic compounds—posing health threats to nearby residents (Johnston et al., 2020). The largely rural Permian Basin communities face serious environmental and health challenges, such as increased exposure to air and water contamination, hazardous flaring, and earthquakes, as well as limited access to health care facilities (Concerned Health Professionals of New York et al., 2023, p. 637; Ratcliffe, 2022; Whitworth et al., 2017). Lax oversight by the state has allowed pollution to go largely unchecked in the region (McDonald & Wilson, 2021, p. 33; Public Citizen, 2016). Extraction and injection activities and the pipeline infrastructure in the Permian Basin have degraded the environment, turning parts of the Permian Basin into an industrial wasteland, with severe public health consequences.

The inland region's facility rankings vary widely and have the most variation in EJScreen scores (Table 4), reflecting the region's geographic diversity. Some expansions target already industrialized areas with high people of color populations (e.g., Tyler and Longview), while greenfield sites show lower environmental EJScreen index scores due to fewer preexisting hazards. Despite this variability, the inland region's average DI and SDI are above the overall average, highlighting disproportionate impacts on historically marginalized communities.

C. Summary of Key Findings

1. Facility Siting Reflects Historic Pattern of Environmental Injustice

The siting of petrochemical facilities in Texas is not an isolated phenomenon. It reflects a decades-old pattern of disproportionately locating facilities following the path of least resistance, which has historically targeted communities inhabited largely by low-income, disadvantaged, and people of color residents (Bullard, 2000; Gonzalez et al., 2023). This study finds that 92% of proposed facilities rank above the 66th percentile in at least one EJScreen index, meaning they are more socially or environmentally vulnerable than two-thirds of U.S. communities (EPA, 2023).

This trend aligns with a long legacy of environmental injustice in Texas, where redlining, segregation ordinances, and targeted infrastructure projects displaced and disenfranchised communities of color (Ahmed, 2020; Beeler et al., 2015; Bullard, 1994). In places like Port Arthur, Corpus Christi, and Freeport, these legacies have continued to shape the geography of risk and vulnerability (Azhar, 2021; Bruggers, 2024; Bruno & Jepson, 2018).

Rather than reversing these harms, recent permitting practices continue to entrench them. Industry and state regulators often fail to incorporate cumulative impact assessments into permitting decisions, despite widespread access to data from tools like EJScreen and the EPA's Risk Management Program database (EPA, 2024d; Pacheco et al., 2024; Saha et al., 2024). Instead of serving as a mechanism for mitigation, screening tools are routinely bypassed in favor of economic development objectives that prioritize fossil fuel and petrochemical infrastructure over public health (Amnesty International, 2024).

2. Fenceline Communities Are Already Overburdened

The new wave of petrochemical expansion in Texas is concentrated in communities already facing high levels of environmental stress. These fenceline neighborhoods are not only socially and economically marginalized—they are also physically overexposed to toxic emissions and industrial hazards. This study found that 96% of proposed facilities exceed the national median for either PM2.5 or toxic air releases, with 78% ranking at or above the 66th percentile for PM2.5, and 84% at or above the 66th percentile nationally for toxic air, underscoring the severity of existing pollution burdens.

In addition to elevated air pollution, many of these communities are located in areas where industrial operations are densely clustered. Ninety-three percent (93%) of proposed sites are situated close to other major point-source polluters, and 42% fall within the 90th percentile for proximity to hazardous facilities. This spatial overlap of multiple polluting sources significantly increases the cumulative environmental risks residents face, often without adequate government mitigation or oversight.

The health consequences are well documented in the literature. Exposure to fine particulate matter and air toxics is linked to respiratory illness, cardiovascular disease, and premature mortality, particularly among children, older adults, and individuals with preexisting health conditions (Di et al., 2017; Woodruff, 2024). Yet, state agencies continue to permit new fossil fuel and petrochemical facilities without conducting cumulative impact assessments, despite having access to screening tools (Saha et al., 2024).

3. Intersecting Inequities: Race and Poverty at the Petrochemical Fence Line

Across Texas, petrochemical development continues to cluster in neighborhoods where race, poverty, and health vulnerability intersect, reinforcing patterns of environmental and social injustice (Saha et al., 2024). These fenceline communities comprise residents who are overwhelmingly low income and people of color. This study found that 93% of fenceline communities have poverty rates higher than the national average, and 91% exceed the state poverty threshold. Additionally, 93% exceed the national average for residents of color, and 84% exceed the state average.

The combined burden of race and class contributes to what scholars and advocates have long described as "double jeopardy"—layered vulnerabilities that result from historical segregation and economic exclusion (Bullard, 2000; Union of Concerned Scientists & Texas Environmental Justice Advocacy Services, 2016). These vulnerable communities were not chosen at random. They are the result of generations of structural discrimination, racial and economic redlining, and infrastructure neglect (Bullard, 1994; Bullard et al., 2007; Roberts et al., 2022). Despite decades of public awareness and federal policies to address environmental injustice embedded in industrial facility siting and permitting, these same communities are now disproportionately targeted for further petrochemical development buildout, extending the sorry environmental legacy and health risks associated with sacrifice zones (Bullard, 2011; Lerner, 2012; Saha et al., 2024).

This pattern is especially pronounced in historically Black and Latino neighborhoods like Hillcrest in Corpus Christi, the East End of Freeport, and Port Arthur—areas with rich cultural histories that are now hemmed in by industrial hazards (Ahmed, 2020; Azhar, 2021; Bruggers, 2024). These communities have long contended with disinvestment and exclusion and now face intensified risks from petrochemical expansion under a regulatory framework that continues to prioritize industry over public health (Amnesty International, 2024; Baddour et al., 2024).

4. Race Versus Poverty in Predicting Industrial Siting Patterns

While both poverty and race correlate with industrial facility siting, race remains the more potent predictor of where petrochemical facilities are located and proposed. Just under a third (30%) of proposed facility sites are in areas where poverty exceeds the national average. By contrast, over half (51%) are located and being proposed in areas with above-average concentrations of people of color, even when measuring only the point location of the facility.

When expanding the analysis to surrounding fenceline communities, both race and poverty metrics increase. However, race remains slightly more pronounced across all regions. This trend supports the findings of Mohai and Saha (2007, 2015), who found that racial composition is a more significant predictor of facility siting than income, even after controlling for other variables. These patterns also mirror national assessments showing that people of color are disproportionately exposed to multiple pollutants and sources of risk, even in wealthier communities (Berberian et al., 2024; Mikati et al., 2018; Tessum et al., 2019).

In Texas, the cumulative targeting of racially segregated communities is especially evident along the Gulf Coast, where permitting decisions often ignore the implications of layering new risks on top of existing burdens (Pacheco et al., 2024). Rather than using environmental justice screening tools like EJScreen to avoid compounding harm, fossil fuel and petrochemical companies and state regulators continue to treat disadvantaged and marginalized communities as acceptable zones for concentrating their operations (Shaykevich et al., 2024).

5. Regional and County-Level Concentration

Although Texas spans 254 counties, petrochemical development is tightly clustered in a small subset of counties in the state. Just 22 counties host all 89 proposed facilities, with eight counties accounting for the majority of activity. Jefferson and Harris Counties are the most heavily impacted. In Jefferson County, 90% of all project EJScreen index values exceed the 75th percentile. Harris County, home to Houston and the Ship Channel corridor, hosts the largest number of proposed projects, though its per capita burden is lower than that of Jefferson County due to population size (EPA, 2023; U.S. Census Bureau, 2023b).

Jefferson County, however, stands out for its disproportionate burden relative to its size. With a population of just over 250,000, the per capita petrochemical footprint in the county far exceeds that of any other region in the state. Long characterized as a sacrifice zone, Port Arthur stands out

because it continues to suffer from cumulative risk exposure, public health disparities, chronic underinvestment, high unemployment, and poverty (Bruggers, 2024; Genoways, 2014).

Even in rural areas, the impact is significant. In Cameron, Harrison, and Smith Counties, single projects are enough to elevate entire regions into high-risk designations. In Cameron County, eight of 10 EJScreen categories for new projects exceed the 90th percentile. These trends highlight the unequal distribution of industrial risk in Texas, where both urban density and rural invisibility contribute to systemic environmental injustice.

6. Environmental Justice Facility Siting Concerns Occur in All Regions in Texas

Environmental justice concerns appear in every region studied, with distinct local dynamics but a consistent pattern of vulnerability and overburdening:

- Port Arthur/Beaumont: Every EJScreen index category averaged above the 75th percentile. Communities experience chronic exposure to industrial emissions and lack any meaningful policy redress (Bruggers, 2024).
- Greater Houston: With 34 proposed facilities, this region is the most saturated. Black and Latino neighborhoods, including Manchester, Pasadena, and Baytown, are already enveloped by chemical infrastructure and are experiencing expanding industrial borders (Martinez & Perez, 2024; Pacheco et al., 2024).
- Coastal Bend: The Dow Freeport complex ranks in the 97th percentile for toxic air emissions, placing communities at high risk (Ahmed, 2020).
- Southern Coast: In Corpus Christi, the Hillcrest and Washington-Coles neighborhoods are bordered by multiple refineries, highways, and stormwater runoff systems (Azhar, 2021; Beeler et al., 2015). Brownsville and Cameron Park, already facing language access and health infrastructure barriers, are also at risk from petrochemical buildout (Baddour et al., 2024).
- Inland Texas: In areas such as Tyler, Longview, and Borger, petrochemical proposals continue the practice of siting in racially segregated and economically marginalized communities (Guevara, 2016; Shaw & Green, 2024; Whitworth et al., 2008). Despite their geographic distance from the Gulf Coast, these areas reflect the same logic of environmental expendability.

V. Assessing Early Impacts of the Second Trump Administration

We began this study in 2024 when Joseph R. Biden Jr. was president. The federal environmental protection and regulatory landscape changed dramatically with the election of Donald J. Trump as the 47th President of the United States. Elections have consequences. This section of the report provides a summary of major changes implemented by the second Trump administration and their implications for underserved and disadvantaged communities in the Gulf Coast region. The second election of President Trump ushered in a wave of policy shifts, environmental safeguards removal, regulatory reversals, and administrative decisions that collectively reshaped the federal approach to environmental protection and public health and safety in the United States (Gomez & Bryson, 2025).

1. Signed Record Number of Executive Orders

In the first 100 days of his second term, President Trump issued executive orders, more than any other president, that aggressively reshaped the federal environmental, climate, energy, public health and safety, and civil rights policies through executive authority (Gomez & Bryson, 2025; Popli, 2025). The Partnership for Public Service (2025) report, Trump's 100 Days, 100 Harms Tracker, chronicled dramatic stories from frontline communities detailing the president's "onslaught of executive orders, personnel directives, and funding freezes" and described harms caused by the "slash-and-burn attacks" on government operations during his second term. The executive orders

- used executive power to reshape federal policy and funding by redirecting departments and agencies missions, embedding new priorities, and altering regulatory frameworks that will be difficult to fully reverse (Lowande & Poznansky, 2024; Popli, 2025);
- overhauled environmental, climate, energy, public health and safety, and civil rights policies with 142 executive orders at an unprecedented pace (Popli, 2025);
- issued nearly 100 executive actions that eviscerated environmental and public health and safety protections, and weakened clean air, water, wildlife, and environmental justice protections (Southern Environmental Law Center, 2025); and
- weakened, rolled back, revoked, and eliminated decades-old policies, practices, and principles—and some relatively new ones—that protect people and places from harmful pollution (Ramirez-Franco, 2025).

2. Assaulted Environmental Protection

The Trump administration launched a sweeping attack on environmental protections, targeting foundational laws for rollbacks and weakening, such as the National Environmental Protection Act (McGrath et al., 2025), the Clean Air Act, and the Clean Water Act (Bense et al., 2025). These regulatory rollbacks disproportionately benefited fossil energy industries while weakening

oversight, enforcement, and public health and safety protections (Southern Environmental Law Center, 2025). The attacks on environmental protection

- proposed to overhaul federal National Environmental Policy Act procedures and roll back environmental reviews and public input by allowing only a 30-day public comment period, which affected several departments and agencies, including the Department of Interior, Department of Transportation, Department of Agriculture, Forest Service, Army Corp of Engineers, Department of Energy, Department of Commerce, and NOAA (McGrath et al., 2025; Tuck, et al., 2025);
- eliminated limits on toxic air pollutants, including lead and mercury (Daly, 2025a);
- delayed rules on methane and hazardous air emissions (Conley, 2025; Daly, 2025a);
- used regulatory process generally reserved for emergencies to suspend methane limits without public input (Chemnick, 2025);
- terminated the Hazardous Organic National Emission Standards for Hazardous Air Pollutants Rule issued by the Biden administration to target carcinogens, and exempted 49 Louisiana chemical manufacturing plants from complying with updated pollution standards under this rule (Jouppi, 2025a);
- rolled back limits on toxic PFAS (forever chemicals) in drinking water (Gustin, 2025); and
- promoted the narrative that regulations burden industry, despite evidence showing air pollution controls yield large economic and health benefits (Borenstein et al., 2025; McGartland et al., 2017; Sullivan et al., 2018).

3. Dismantled Environmental Justice and Civil Rights

Decades of environmental justice and civil rights protections were stripped away through executive orders, budget cuts, and the closure of key federal offices (Frank & Chemnick, 2025), severely limiting the federal government's ability to address disproportionate harm in frontline communities and undermining tools to fight environmental racism (Strott, 2025). Experts warn that the imposed limits will deepen environmental health disparities and weaken communities' ability to resist pollution and seek justice (Meiburg & McCabe, 2025). These actions

- revoked Executive Order 12898 and closed Environmental Justice offices for the EPA and Department of Justice (Frank & Chemnick, 2025; Strott, 2025);
- banned the use of disparate impact analysis across federal policy via Executive Order 14281 (Bellware, 2025);
- dropped the landmark environmental justice lawsuit in the heart of Louisiana's Cancer Alley that the Biden administration filed to curb emissions of cancer-causing chloroprene at the Denka synthetic rubber plant formerly owned by DuPont—dealing a major blow to environmental justice, clean air, and public health protections (Laughland, 2025);
- voided settlements addressing discrimination, such as terminating the civil rights settlement agreement in Lowndes County, Alabama, which required action to address raw sewage contamination in Black neighborhoods (Ramirez-Franco, 2025);

- issued a series of proclamations that allow coal-fired power plants, chemical manufacturers, and other polluting industries to ignore for two years Biden-era regulations deemed too burdensome (Daly, 2025c);
- canceled over $2.4 billion in environmental justice grants, including Inflation Reduction Act funded programs (Alexander, 2025; Lavelle & Aldhous, 2025);
- terminated programs on disadvantaged communities and equity, air monitoring, clean water, and climate resilience in overburdened communities (Volcovici et al., 2025); and
- removed access to the EPA's EJScreen Environmental Justice Index tool and the Climate, Economic Justice Screening tool (Beamer, 2025; Strott, 2025).

4. Rolled Back Climate Policies and Climate Progress

Amid intensifying climate disasters, the Trump administration systematically reversed the nation's core climate policies and removed critical assessment tools (Gelles & Brown, 2025), narrowing the scope of environmental reviews and halting climate science efforts that supported planning and preparedness (Daly & Borenstein, 2025). By eliminating these tools, federal agencies are left without reliable data to forecast risks or develop mitigation strategies, leaving vulnerable communities increasingly exposed to extreme weather and long-term climate threats (Friedman, 2025b). The reversals

- withdrew the United States from the Paris Agreement, signaling that climate is no longer a priority of the administration (Daly & Borenstein, 2025);
- drafted plans to repeal the "endangerment finding," a scientific rule that gives the U.S. government its authority to fight climate change and regulate greenhouse gas emissions like carbon dioxide and methane that threaten human life and the environment (Brady, 2025; Friedman, 2025a);
- halted the Methane Emissions Reduction Program (Conley, 2025);
- canceled 21 EPA climate justice projects designed to improve climate, farming, and food resilience in underserved communities (Ramirez, 2025);
- revoked National Environmental Policy Act climate reviews and greenhouse gas assessment requirements (Brady, 2025; McGrath et al., 2025);
- suspended the EPA's Social Cost of Carbon estimating tool (Showalter, 2025);
- stopped publishing the National Climate Assessment, a Congressionally mandated peer-reviewed report produced every five years to guide planning, thereby removing the country's most authoritative source of climate projections, which will hamper local, state, and federal governments trying to plan for flooding, rising sea level, and heat waves (Borenstein, 2025a, 2025b);
- stopped hosting the National Climate Assessment reports on the NASA website, deleted archived data, and reassigned staff to other agencies (Borenstein, 2025b);
- revoked FEMA flood risk climate standards and canceled $73M in climate grants to Texas alone (Frank, 2025; Strott, 2025); and

- proposed phasing out and eliminating FEMA after the 2025 hurricane season and shifting responsibility for disasters onto state governments; however, after the devastating Central Texas flood, the wholesale elimination of FEMA is being reconsidered, with some degree of federal presence to be determined (Angueira, 2025; Scripps News Group, 2025).

5. Prioritized Fossil Energy Development and Expansion

The administration made fossil energy development a national priority, using emergency authorities to dismantle environmental safeguards (Cunningham, 2025; Gibbs et al., 2025), expand leasing, slash oversight, and promote fossil fuel exports, thereby accelerating long-term emissions and community health risks (Shapiro & Walker, 2018; Meiburg & McCabe, 2025). The new fossil energy priority

- declared a "national energy emergency" with Executive Order 14156 to override environmental laws (Cunningham, 2025);
- directed agencies to suspend rules slowing drilling or pipeline approvals (Cunningham, 2025);
- invoked emergency powers to fast-track fossil energy infrastructure and offered step-by-step instructions for companies to apply for exemptions (Cunningham, 2025; Jouppi, 2025b);
- introduced a 28-day fast-track permit process eliminating meaningful review (Cunningham, 2025);
- opened 625 million acres of federal waters and 19 million acres of public land to leasing (Edwards, 2025);
- rolled back methane oversight and imposed "10-to-1" deregulatory rule (Conley, 2025; Medicherla, 2025; Washko, 2025); and
- mandated in a March 12 EPA memo that enforcement actions should not disrupt any stage of energy production, effectively granting leniency to fossil energy polluters (Perkins, 2025).

6. Slowed Clean Energy Transition

In contrast to fossil energy support, the administration employed executive orders, directives, and the One Big Beautiful Bill Act (OBBA) to slow and obstruct clean energy deployment through project freezes, funding and grant cancellations, and legislative repeals (Eisenson, 2025). The administration

- used the OBBA to repeal targeted provisions of the Inflation Reduction Act that addressed climate risks, including tax credits and subsidies for wind and solar (Cavanaugh et al., 2025; Krawczyk, 2025);
- delayed climate progress, raised energy costs, and hampered jobs, health equity, and emissions reduction (Energy Innovation, 2025);
- slashed tax credits that will cut annual clean energy installations by 41% after 2027 (Adams, 2025; Chediak, 2025);
- stalled clean energy investments, risking job losses and higher utility bills (Copley, 2025; Orvis

et al., 2025), such as annual household energy bill increases for Texans of $220 by 2030 and $480 by 2035, because of the OBBA (Adams, 2025; Energy Innovation, 2025), as well as 94,000 lost jobs for Texans that might have been generated by 2035 (Adams, 2025);
- froze permits for solar, wind, geothermal, and battery storage (Eisenson, 2025; Strupp, 2025); and
- canceled rural solar and resilience hubs (Strott, 2025).

7. Endangered Public Health and Safety

The mission of the EPA has always been to "protect the environment and public health" (EPA, 2025). Experts caution that straying from this core mission and abandoning its enforcement norms could lead to more disasters, petrochemical incidents, oil spills, and toxic discharges, especially as EPA's regulatory staff and oversight mechanisms are rapidly downsized (Cunningham, 2025). The administration has loosened pollution standards, dismantled environmental justice programs, and scrapped targeted enforcement initiatives around dangerous industrial facilities concentrated in environmental sacrifice zones (Ramirez-Franco, 2025). These actions

- decreased protection and increased risks to public health, especially in already overburdened communities (Ramirez-Franco, 2025);
- proposed weaker standards for hazardous pollutants and eliminated oversight mechanisms, exposing communities to toxic emissions (Baurick, 2025; Jouppi, 2025b), undermining proven public health strategies, and increasing long-term risks to vulnerable populations (McGartland et al., 2017; Wang et al., 2024);
- suspended protections against carcinogens and air toxins (Drugmand, 2025; Jouppi, 2025b);
- proposed weaker mercury and particulate matter standards for coal plants (Daly, 2025b; Zhao et al., 2025);
- exempted more than 100 chemical manufacturers, oil refineries, coal plants, medical device sterilizers, and other industrial polluters from Clean Air Act requirements (Frazin, 2025b).
- implemented policies that provide a way for industrial polluters, including nearly 70 coal-fired power plants, to avoid clean air rules by sending an email to EPA for an exemption from the Clean Air Act—critics call this email box the "polluters' portal" (Banks & Marquez, 2025; Daly, 2025a;Tabuchi, 2025b);
- exempted over 200 chemical plants from fenceline monitoring for hazardous pollutants (Borenstein et al., 2025);
- rolled back safeguards against catastrophic explosions and toxic releases and reconsidering safety rules for chemical facilities (Strott, 2025);[23]
- moved to close the U.S. Chemical Safety and Hazards Investigation Board and early-warning systems (Baurick, 2025; Tabuchi, 2025a);
- reduced civil and criminal enforcement actions (Perkins, 2025);
- implemented policies that weaken OSHA worker health and safety standards by calling for a

23 - Over 177 million Americans, half of the U.S. population, live in harm's way of fatal or life-threatening chemical incidents that occur every 2.5 days on average (Fitzgerald, 2025). This is troubling for Texans and especially people of color, since "Texas has more chemical emergencies than any other state and they're disproportionately affecting Latino communities" (Ferrell, 2024).

smaller federal workforce, fewer inspections, and lower fines (Gross, 2025);
- announced plans to reapprove a herbicide that has been banned twice by the federal courts (Douglas & Polansek, 2025);
- proposed more than 60 rule changes in the U.S. Department of Labor regulations, including standards governing exposure to harmful substances (Bussewitz, 2025);
- signed three executive orders seeking to fast-track artificial intelligence data center construction (Shapiro, 2025); and
- shut down seven U.S. Department of Housing and Urban Development housing discrimination investigations, including those examining the siting of industrial plants and polluting facilities in poor and people of color neighborhoods (Coburn, 2025).

8. Attacked Science and Research Infrastructure

The administration offered sweeping policy directives that targeted and slated for termination core programs supporting science, resilience planning, pollution prevention, and public health and safety. Antiscience rhetoric has caused many senior researchers to leave the federal government and has driven some of them to take jobs abroad. This loss will take years to reverse, weakening U.S. capacity to respond to threats and compete globally in environmental science and technology (Jacobo, 2025). Sadly, science, environmental data infrastructure, research labs, and centers are under siege in government and at universities. EPA scientists face spending restrictions, uncertainty, and stalled projects at research labs (Clark, 2025). Federal researchers report loss of capacity, delayed studies, and concerns about the long-term ability to conduct science that is needed to inform policy (Clark, 2025). These antiscience policy directives

- sidelined experts and evidence, gutted weather science, dismantled the research infrastructure, and reduced our nation's ability to prepare for, respond to, and recover from catastrophic flooding, droughts, hurricanes, tornadoes, heatwaves, winter freezes, and other severe weather events (Friedman et al., 2025);
- developed an artificial intelligence tool to target 100,000 federal regulations, including those that tackle the climate crisis, with a stated goal of eliminating 50% of these federal rules by the first anniversary of President Trump's second inauguration (Castro, 2025);
- allowed science to be politicized by granting political appointees power to define scientific integrity and control the evidence federal agencies use in policymaking (Michaels & Wagner, 2025);
- shifted focus away from science-based environmental governance in favor of deregulation, industry accommodation, and reduced federal accountability—actions which are especially problematic in that they increase population exposure to dangerous levels of pollution, particularly in disadvantaged and vulnerable communities (Drugmand, 2025);
- closed the EPA Office of Research and Development—which some experts believe is the "heart and brain" of the EPA and essential to protecting the environment and public health (Stimson, 2025)—and fired its staff (Friedman & Joselow, 2025);

- dismantled EPA's gold standard scientific research arm that fulfilled a key chemical industry goal of limiting use of the agency's assessments of the health risks of chemicals (Lavelle, 2025);
- deleted over 2,000 datasets on environmental and climate-related resources from federal agency websites, such as the EPA, CEQ, DOE, DOT, NIH, and CDC, and halted public access to environmental justice and climate tools, such as the EJScreen, Climate and Economic Justice Screening Tool, and Environmental Justice Index (Santarsiero, 2025); and
- instructed NASA to develop plans to end major satellite missions, including those designed to monitor planet-warming greenhouse gases, which scientists, oil and gas companies, and farmers rely on for data (Hersher, 2025).

9. Slashed Budgets and Fired Federal Workers

Cutting the federal budget and shrinking the federal workforce were two top priorities of the president. Both priorities were implemented by executive directives and by the passage of the OBBA, signed by President Trump on July 4, 2025. The OBBA laid waste to federal budgets and programs. The federal government is undertaking mass firings, layoffs and downsizing of its workforce—workers who supported and were responsible for environmental protection, predicting changes in weather, climate, coasts and oceans, disaster response and recovery, chemical safety and investigation of chemical incidents, scientific research, and public health (Meiburg & McCabe, 2025). These cuts were not incremental adjustments to spending priorities but were wholesale dismantling of essential programs built over half a century (Lavelle & Aldhous, 2025). This dismantling

- reduced the EPA's budget to $7 billion, the lowest since the 1980s, and reduced its workforce from 16,155 in January to 12,448 in July, a 23% reduction, (Frazin, 2025a; Meiburg & McCabe, 2025; Stimson, 2025);
- targeted environmental justice, climate science research, and environmental monitoring by slashing budgets, closing offices, and firing staff (Bense et al., 2025);
- reduced the number of federal workers in the first six months of the second Trump administration by 134,856 (58,566 cuts and 76,290 buyouts), across various departments, including thousands of scientists at the EPA, FEMA, and NOAA, while gutting the nation's capacity to forecast and respond to climate change and other disasters (Canon et al., 2025; Dance, 2025; Grist, 2025; Shao & Wu, 2025); and
- imposed hiring freezes and initiated buyout programs that encouraged early retirements and voluntary departures, accelerating the loss of experienced personnel (Canon et al., 2025; Jacobo, 2025).

10. Canceled Federal Grants

One of the administration's most far-reaching impacts came through the systematic freezing and cancellation of federal grants for environmental protection, climate and resilience planning, clean energy, and public health and safety—many of the funds for which were made possible

by Congress passing and President Biden signing the historic $369 billion Inflation Reduction Act, the largest climate program in history, and the $1.2 trillion Bipartisan Infrastructure Law. Unlike regulatory rollbacks, which often take months or years to finalize, grant cancellations happen overnight, leaving communities, universities, and nonprofits with no warning and limited recourse or options to replace the funding (Lavelle & Aldhous, 2025). The Inflation Reduction Act and the Bipartisan Infrastructure Law funded thousands of projects designed to deliver cleaner air, safer drinking water, urban and rural infrastructure enhancements, and climate adaptation—particularly in underserved regions (Eisenson, 2025). A significant portion of grant funding was clawed back during the first six months of the administration. Some grantees fought the cancellations—with a few winning their appeal to get their grants reinstated (Guillen, 2025)—while other coalitions of nonprofits joined forces in a class-action lawsuit against the EPA to restore $3 billion in climate and environmental justice grant funding (Green, 2025). The freezing and canceling of federal grants

- withdrew hundreds of grants in the Gulf Coast regions—grants that would have supported solar installations on homes, schools, churches and community centers, flood resilience upgrades, and community-based monitoring of oil and gas and petrochemical emissions (Lavelle & Aldhous, 2025; Strott, 2025);
- terminated billions in federal grants critical for climate, energy, health, and environmental justice (Lavelle & Aldhous, 2025), undermining local resilience, scientific research, and frontline community protection, eroding years of progress, and disregarding strong evidence that investments in environmental protection deliver significant public health and economic returns (Wang et al., 2024; Williams, 2025);
- cut NASA and NOAA climate science funding (Borenstein, 2025b; Temple, 2025), reflecting a sharp pivot away from science-based decision-making and long-term resilience planning (Dance, 2025);
- targeted more than 4,000 grants for cancellation at more than 600 universities, valued between $6.9 billion and $8.2 billion, with Texas among the top 15 states losing the most federal funding based on population (Center for American Progress, 2025);
- terminated over 900 grants and subawards, including large multiyear research efforts at universities, technical assistance programs for economically disadvantaged communities and tribal nations, and public health initiatives targeting pollution-linked diseases (Reardon, 2025);
- revoked or froze over $23 billion in grants across energy, health, climate, and research (Lavelle & Aldhous, 2025; Lea, 2025);
- canceled congressionally appropriated PFAS research grants, then reversed a few terminations while leaving others in limbo (Clark, 2025);
- eliminated 1,600 NSF and 2,500 NIH grants, many of which focused on equity and health (Williams, 2025; Reardon, 2025); and
- ignored evidence of long-term public health and economic returns from environmental investment (EPA, 2011; Wang et al., 2024).

VI. Conclusions

Across the six Texas regions, the data reflect persistent environmental justice challenges: the overwhelming majority of 89 petrochemical facilities are proposed to be sited in communities already burdened by pollution, poverty, and racial inequity. This geographic concentration of risk reinforces the need for stronger petrochemical siting protections, meaningful public engagement, and environmental justice accountability in Texas.

Petrochemical facilities in Texas are being proposed and planned, and if built will disproportionately and adversely impact the most vulnerable people and neighborhoods in communities that are already overburdened with industrial pollution and environmental hazards (Amnesty International, 2024; Shaykevich et al., 2024). Many of the existing environmental, social, and health burdens resulted from decades of discriminatory land uses, biased planning, racial redlining, and rubber-stamp facility permitting by the state government (Baddour et al., 2024; Bullard et al., 2007; Roberts et al., 2022).

The buildout and expansion of petrochemical facilities in Texas are proposed for fenceline communities with poverty rates and people of color percentages that are higher than average state and national rates. The new petrochemical industry buildout in Texas follows the pattern set in motion decades ago—it sends new petrochemical facilities to communities with high percentages of people of color and disproportionately high poverty rates (Bullard, 2000; Bullard et al., 2007).

The petrochemical expansion in Texas mirrors decades-old patterns of environmental racism and sacrifice zone creation (Bullard, 2000; Lerner, 2012). Fenceline communities, composed of predominantly low-income people and people of color, face cumulative threats from chemical emissions, explosions, flaring, and climate disasters (Flores et al., 2021; Robinson, 2024). These communities receive few direct economic benefits, but bear the brunt of long-term environmental and health costs (Morello-Frosch & Obasogie, 2023; Terrell et al., 2024). Without intervention, the proposed petrochemical buildout will reinforce and deepen existing environmental, economic, and health disparities and vulnerabilities. Mitigating harm in these communities requires more than pollution controls. It requires dismantling systems and structures that allow and encourage low-income and people of color communities to bear the burden of polluting industries while allowing the economic benefits to accrue elsewhere (Amnesty International, 2024; Bullard & Wright, 2023; Malin, 2020; Saha et al., 2024).

The study clearly shows that having a petrochemical plant as a next door neighbor does not create an economic renaissance or bring economic prosperity to residents who live on the fence line with these polluting facilities. Conversely, residents who live closest to these facilities face elevated health threats from both pollution and poverty compared with the general population.

Current evidence convincingly shows that the federal environmental protection and regulatory landscape shifted dramatically under the second Trump administration. Using rapid-fire executive

orders and directives, the administration tilted federal policies toward less protection, less federal regulatory oversight, less environmental and health impact assessment, less science-based decision-making, less clean energy, and more fast-tracking, more streamlined permitting, more oil and gas and petrochemical facility siting, more exemptions and licenses to pollute, and more fossil energy. Nowhere are these dynamics clearer than in Texas, where the petrochemical buildout is concentrated in already overburdened and economically marginalized communities (Amnesty International, 2024; Saha et al., 2024; Shaykevich et al., 2024).

Many of the administration's executive orders and policy changes have placed people and places at risk from human-made and natural disasters (Bense et al., 2025; Canon et al., 2025). Public health and safety goals are not enhanced when vital federal programs, such as the EPA, NOAA, FEMA, OSHA, and NIH are weakened, gutted, and dismantled, with their budgets cut and staff fired. Slashing protections and providing waivers that allow petrochemical, fossil energy, and vehicle manufacturers to ignore the federal Clean Air Act rules will not make Americans healthier, safer, or more economically secure. And ignoring the endangerment finding and decades of science and facts will not wipe away the known causes and the harmful impacts of climate change. Returning to a sense of normalcy will require sustained action by people who care about building a just, healthy, livable, and sustainable future for all. It is imperative that the federal government live up to its responsibility to protect both the environment and public health and safety.

The vast majority of environmental and health and safety policies emanating from the current federal government give a green light to the buildout of petrochemical and fossil energy facilities with little or no input or accountability for the path this buildout takes or the potential harms, pollution, and health burdens on communities already saturated with petrochemical plants and other polluting industries (Bullard, 2000; Flores et al., 2021; Pacheco et al., 2024; Saha et al., 2024).

Climate Justice. The proposed buildout of new petrochemical plants in Texas has impacts beyond state boundaries. This proliferation will increase emissions and lessen any U.S. ability to meet Paris Agreement climate goals. Climate change alleviation must prioritize environmental justice in Texas and beyond (Saha et al., 2024; Tilsted et al., 2023).

Protection for Fenceline Communities. The continued buildout of petrochemical facilities disproportionately harms low-income communities and communities of color living near polluting industries. These fenceline communities—long treated as sacrifice zones—are calling on all levels of government to reject new petrochemical and plastics plants (Bruggers, 2024; Food and Water Watch, 2018). Community leaders emphasize that a just transition must go beyond job replacement to address broader goals of health, racial equity, and economic and environmental justice (Azhar, 2021; Genoways, 2014; Gilio-Whitaker, 2019; Robinson, 2024). Because petrochemical production is deeply tied to fossil fuels, its expansion worsens the global crises of plastics, toxic emissions, and climate change—requiring urgent action to phase out unsustainable production and drastically cut emissions (Center for International Environmental Law, 2019; Shaykevich et al., 2024).

Transition to Clean Energy. Texas must accelerate a just transition away from petrochemicals and fossil fuel dependency. This includes ending subsidies for polluting industries and investing in clean energy jobs and infrastructure (Center for International Environmental Law, 2019; Tilsted et al., 2023).

Public Health Protections. Proposed projects must be evaluated for cumulative health and cumulative harm impacts. Communities already facing elevated asthma, cancer, and chronic disease from petrochemical exposure should not face additional burdens (Flores et al., 2021; Randolph, 2021). Pollution mitigation must include mitigating the mental stress of historical, current, and future pollution threats and health burdens. Policymakers, regulators, and industry leaders must not allow profits to eclipse public health and safety.

Economic Justice and Accountability. Fenceline residents deserve not only environmental protection but also equitable access to economic opportunity. Job creation and investment must be transparent and accountable, and must benefit those most affected by the petrochemical industry (Jones, 2024; Tomaskovic-Devey, 2016). Texas and other states must end decades-long industrial facility siting where economically disadvantaged fenceline communities serve as dumping grounds and environmental sacrifice zones for petrochemical plants and other polluting industries. An overwhelming majority of residents who live in disadvantaged fenceline communities and are disproportionately harmed by industrial operations have made their preferences to government and industry loud and clear; they urge all levels of government to reject new petrochemical and plastics plants in their communities. They say no to more pollution, more illnesses, more deteriorating infrastructure, and more falling property values (Bruggers, 2024; Food and Water Watch, 2018).

Policymakers, regulators, and industry leaders need to consider the public health, safety, and environmental consequences of petrochemical and fossil energy projects and work together to create solutions that prioritize the well-being of all Texans. This analysis and its findings summarize an array of issues surrounding petrochemical development in overburdened communities. The impact to local fenceline communities in Texas is also felt in ripple effects around the world. Globally, the inequity present in the Texas petrochemical buildout is present for poor people, people of color, and people in the Global South, who are disproportionately affected by pollution and the climate crisis (Dauvergne, 2023; Geyer et al., 2017).

Texas has a social responsibility and a moral imperative to do more to protect people's health and well-being both in the state and beyond. Addressing these issues requires urgent attention to the environmental and social factors that contribute to vulnerability, and concerted effort to prevent further environmental injustice and threats to public health (Bullard, 1994, 2000; Bullard & Wright, 2023; Gonzalez et al., 2023).

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Appendix

EJScreen Results Table

Table A1. EJScreen Results.

The table shows the percentiles for each facility site for the five EJScreen categories employed in this study.

Notes: EJS = EJScreen; PM = particulate matter 2.5; ToxAir = Toxic Releases to Air; RMP = Proximity to Major Polluter; DI = Demographic Index; SDI = Supplemental Demographic Index; Percentiles are national (as opposed to state), and in the table they use the symbol "%"; The table is sorted and color coded by geographic cluster.

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
Dow Freeport	Coastal Bend	Brazoria	1	Dow Freeport - Polyethylene Plant No. 7	85%	97%	96%	89%	84%	CB-844
Prairie Energy Refinery	Coastal Bend	Victoria	1	Prairie Energy Partners Refinery	87%	96%	80%	86%	83%	CB-5336
TX GulfLink	Coastal Bend	Brazoria	1	Jones Creek Crude Storage Terminal	85%	97%	96%	89%	84%	CB-920
Roehm Bay City	Coastal Bend	Matagorda	1	Roehm Bay City MMA Plant	77%	60%	81%	71%	75%	CB-757
SPOT	Coastal Bend	Brazoria	1	Oyster Creek Terminal	69%	81%	67%	55%	50%	CB-4052
Formosa	Coastal Bend	Calhoun	2	Point Comfort 1-Hexene Unit; Point Comfort EDC/VCM Reactor	66%	85%	82%	60%	38%	CB-1015
Seahawk	Coastal Bend	Calhoun	1	Seahawk Terminal Expansion	66%	85%	82%	60%	38%	CB-1056
Chevron Phillips Brazoria	Coastal Bend	Brazoria	3	CP Chem Sweeny/Old Ocean - Fractionation Train 5; New 1 -Hexene Unit; Polyethylene Unit No. 40 Upgrade	65%	72%	67%	45%	48%	CB-1086
Union Carbide	Coastal Bend	Calhoun	1	Seadrift Alkoxylation Plant	54%	75%	53%	44%	43%	CB-5351
PetroLogistics PDH	Coastal Bend	Brazoria	1	PetroLogistics PDH Plant	62%	78%	66%	49%	53%	CB-1007
HIF Matagorda	Coastal Bend	Matagorda	1	Project Helix	64%	53%	35%	53%	55%	CB-4788

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
TPC	Greater Houston	Harris	2	TPC Group - BD Expansion Project; DH2 Heat Recovery Boiler Project	96%	98%	97%	91%	93%	HOU-911
Houston Foam	Greater Houston	Harris	1	Houston Foam Plastics Plant - Expansion	92%	93%	87%	78%	74%	HOU-5608
INEOS	Greater Houston	Galveston	1	INEOS Texas City Boiler Project	78%	94%	92%	79%	80%	HOU-1095
Blue Bayou NH3	Greater Houston	Galveston	4	Blue Bayou Ammonia - Phase 1; Phase 2; Phase 3; Phase 4	80%	95%	94%	83%	82%	HOU-5367
Air Products TX City	Greater Houston	Galveston	1	Air Products Syngas Texas City	77%	93%	91%	77%	78%	HOU-5348
Galveston Refinery	Greater Houston	Galveston	1	Galveston Bay Refinery - PS3B Revamp/ RHU Revamp/New DHT Project	77%	93%	91%	77%	76%	HOU-873
Air Products NH3	Greater Houston	Galveston	1	Gulf Coast Ammonia SMR	76%	92%	90%	76%	74%	HOU-4035
Sandpiper Methanol/ Eastman Chem. Recycle	Greater Houston	Galveston	2	Sandpiper Texas City Methanol Plant; Eastman Texas City - Advanced Plastics Recycling Facility	76%	92%	91%	76%	73%	HOU-5208_5272
TX City Methanol	Greater Houston	Galveston	1	Texas City Methanol Plant	76%	92%	91%	76%	73%	HOU-4466
Eastman NH3	Greater Houston	Galveston	1	Gulf Coast Ammonia Plant	76%	92%	90%	75%	72%	HOU-890
Gulf Access Storage	Greater Houston	Harris	1	Gulf Access Storage Terminal	95%	98%	97%	89%	92%	HOU-889

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
ExxonMobil Baytown	Greater Houston	Harris	2	ExxonMobil Chemical Baytown Olefins Plant - Ethylene Unit Expansion; Blue Hydrogen Blue Ammonia Plant	89%	95%	93%	82%	84%	HOU-759
Equistar/ Lyondell	Greater Houston	Harris	1	Channelview PO/TBA Units	91%	95%	93%	81%	79%	HOU-799_ 3598
Equistar	Greater Houston	Harris	2	Channelview New Propylene Plant; Channelview PHD/PP Units	92%	96%	93%	84%	81%	HOU-799
SPOT ECHO	Greater Houston	Harris	1	ECHO Terminal - SPOT DWP Expansion Project	89%	94%	79%	79%	72%	HOU-4283
Covestro	Greater Houston	Chambers	1	Covestro Baytown Plant Expansion	84%	93%	90%	75%	80%	HOU-832
Chevron Phillips Houston	Greater Houston	Harris	1	Cedar Bayou - C3 Splitter	71%	83%	79%	57%	43%	HOU-794
Targa Mt Belvieu	Greater Houston	Chambers	1	Targa Fractionation Train 10	59%	72%	69%	40%	30%	HOU-971
Harris Co H2	Greater Houston	Harris	1	Harris County CO and H2 Manufacturing Facility	71%	79%	76%	50%	40%	HOU-3736
INPEX NH3	Greater Houston	Harris	1	INPEX Ammonia Plant	71%	78%	75%	49%	38%	HOU-6994
Brightmark ChemRecycle	Greater Houston	Liberty	1	Dayton Yard Plastics Renewal Facility	75%	86%	60%	62%	76%	HOU-778
Honeywell Waller ChemRecycle	Greater Houston	Harris	1	Honeywell Upcycle Plant	84%	78%	46%	69%	60%	HOU-5867

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
Air Products H2	Greater Houston	Harris	1	Cedar Bayou Hydrogen Plant	84%	84%	78%	59%	41%	HOU-5257
Ethox Pasadena	Greater Houston	Harris	1	Ethox Pasadena Alkoxylation Plant	74%	82%	78%	54%	38%	HOU-5331
Baystar Bayport	Greater Houston	Harris	1	Bay 3 Polyethylene Unit	60%	71%	67%	37%	32%	HOU-3576
Oxy Battleground	Greater Houston	Harris	1	Oxychem Battleground - Project Orca	69%	76%	73%	45%	48%	HOU-5205
Kuraray	Greater Houston	Harris	1	Kuraray Pasadena - Expansion	67%	78%	74%	47%	39%	HOU-7230
Lone Star	Greater Houston	Chambers	1	Lone Star Alkylate Production Facility	68%	80%	75%	52%	35%	HOU-4480
Targa Fraction.	Greater Houston	Chambers	1	Targa Frac 9	65%	79%	75%	50%	38%	HOU-4966
Celanese	Greater Houston	Harris	3	Clear Lake 2021 Methanol Project; Clear Lake Methanol Expansion and CO2 Capture Project; Linde Clear Lake Plant	68%	77%	74%	47%	32%	HOU-806_ 1022
Trinity Biorefinery	Greater Houston	Chambers	1	Trinity Fuels Biorefinery	55%	70%	56%	37%	37%	HOU-6615
Gulf Coast Fraction.	Greater Houston	Chambers	1	Gulf Coast Fractionator Restart	59%	71%	66%	38%	26%	HOU-6119
Enterprise Mt Belvieu	Greater Houston	Chambers	5	Enterprise Mont Belvieu - Ethane Cracker; Ethylene Dimerization and Metathesis Unit; Frac XIV and DIB III; MTBV Splitter V; PDH II	51%	63%	59%	27%	19%	HOU-970

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
ONEOK NGL	Greater Houston	Chambers	1	ONEOK Mont Belvieu - Fractionation Trains 5 & 6	49%	62%	59%	26%	24%	HOU-973
New Hope ChemRecycle	Inland	Smith	1	New Hope Plastics Chemical Recycling Plant - Expansion	88%	88%	93%	84%	85%	INLAND-5057
Eastman Longview ChemRecycle	Inland	Harrison	1	Eastman Longview - Advanced Plastics Recycling Facility	89%	95%	93%	81%	76%	INLAND- 849
Cabot Pampa	Inland	Gray	1	Pampa Plant - Manufacturing Expansion	22%	66%	75%	81%	88%	INLAND-4883
Borger Refinery	Inland	Hutchinson	1	Borger Refinery, Crude Flexibility and Modernization Project	16%	87%	87%	70%	80%	INLAND- 775
South TX Energy	Inland	Duval	1	South Texas Energy Complex	90%	59%	73%	79%	16%	INLAND-4120
Siete H2	Inland	Webb	1	Webb Green Hydrogen Plant	90%	58%	73%	78%	15%	INLAND-5324
Texas Renewable Refinery	Inland	Newton	2	Texas Renewable Fuels - Phase I; Phase II	80%	51%	27%	78%	86%	INLAND-4647
Nacero Penwell	Inland	Ector	1	Nacero Penwell Facility	64%	45%	53%	88%	96%	INLAND- 982
HIF Somervell	Inland	Somervell	1	Project Motion	60%	27%	55%	53%	55%	INLAND-5180
Chevron Phillips Port Arthur	Port Arthur/ Beaumont	Jefferson	1	CP Chem Port Arthur Plant - Unit 1544 Expansion	89%	99%	98%	94%	86%	PAB-6023

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
ExxonMobil Beaumont	Port Arthur/ Beaumont	Jefferson	2	Beaumont Refinery Expansion Project; Light Ends Enhanced Distillation (LEED) Project	92%	98%	96%	91%	86%	PAB-761
Arkema Beaumont	Port Arthur/ Beaumont	Jefferson	1	Arkema Beaumont - Project Strawberry	91%	98%	97%	90%	85%	PAB-760
Motiva PET	Port Arthur/ Beaumont	Jefferson	1	Motiva Polyethylene Complex - New LLDPE and HDPE Units	88%	98%	97%	91%	85%	PAB-977
Motiva Cracker	Port Arthur/ Beaumont	Jefferson	1	Port Arthur Ethane Cracker	87%	98%	97%	91%	86%	PAB-3230
Diamond Green	Port Arthur/ Beaumont	Jefferson	1	Diamond Green Diesel Renewable Fuels Plant	89%	99%	99%	95%	87%	PAB-4667
Motiva	Port Arthur/ Beaumont	Jefferson	1	Port Arthur Refinery - Naphtha Growth and C9 Splitter Project	87%	98%	97%	90%	86%	PAB-1020
Valero Port Arthur	Port Arthur/ Beaumont	Jefferson	1	Valero Port Arthur Refinery Expansion Project	89%	99%	98%	94%	86%	PAB-1110
Sabic	Port Arthur/ Beaumont	Jefferson	1	Sabic Petrochemical Facility	87%	98%	96%	89%	85%	PAB-7255

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
Enterprise Beaumont	Port Arthur/ Beaumont	Jefferson	1	Beaumont Marine West - Ethylene Plant	91%	98%	97%	91%	88%	PAB-5198
Enterprise Beaumont E Cracker	Port Arthur/ Beaumont	Jefferson	2	Enterprise Beaumont Marine EAST - Ethane Manufacturing and Export Terminal; Ethylene Cracker	88%	96%	94%	84%	82%	PAB-5489
Spindletop Renewable	Port Arthur/ Beaumont	Jefferson	1	Spindletop Renewable Gasoline Refinery	87%	95%	94%	83%	84%	PAB-4527
OCI Beaumont	Port Arthur/ Beaumont	Jefferson	1	OCI Beaumont Blue Ammonia Project	86%	95%	93%	81%	83%	PAB-4977
OCI Methanol	Port Arthur/ Beaumont	Jefferson	1	OCI Methanol-to-Gasoline Facility	86%	95%	93%	81%	83%	PAB-4961
Linde Nederland	Port Arthur/ Beaumont	Jefferson	2	Linde Nederland Beaumont Plant ; CCS Project	83%	93%	91%	76%	79%	PAB-5411
Orange Chem.	Port Arthur/ Beaumont	Orange	1	Chemical Orange Polyethylene Plant Expansion	61%	78%	74%	48%	61%	PAB-802
Energy Transfer Cracker	Port Arthur/ Beaumont	Jefferson	1	Energy Transfer Nederland Ethylene Cracker	60%	73%	70%	41%	45%	PAB-5485

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
Sabine Pass NGL	Port Arthur/ Beaumont	Jefferson	1	TXGC Sabine Pass NGL	42%	64%	32%	29%	53%	PAB-6966
Inner Harbor Diesel	Southern Coast	Nueces	1	Inner Harbor Desalination Plant	93%	98%	97%	92%	89%	SC-3667
CCI Corpus	Southern Coast	Nueces	1	CCI Corpus Christi Condensate Splitter Facility	92%	97%	97%	91%	89%	SC-826
Valero Corpus	Southern Coast	Nueces	1	Valero Corpus Christi West Refinery - HOC Reconfiguration Project	92%	97%	97%	91%	89%	SC-5142
Port Corpus NH3	Southern Coast	Nueces	1	PCC Ammonia Facility	92%	97%	97%	90%	88%	SC-6091
Corpus Desal	Southern Coast	Nueces	2	Project Jumbo M&G PET & Desal Plants; Project Jumbo M&G Utilities Plant	92%	97%	97%	90%	86%	SC-829
Permico Robstown	Southern Coast	Nueces	3	Permico Robstown - Fractionation Trains 1 & 2; Train 3; Train 4	87%	92%	70%	77%	84%	SC-1043
Equistar Corpus	Southern Coast	Nueces	1	Equistar Corpus Christi - Polyethylene Plant Initial Construction	85%	89%	88%	73%	57%	SC-998
Ingleside Desal	Southern Coast	San Patricio	2	Poseidon Regional Seawater Desalination Project, City of Ingleside La Quinta Channel Seawater Desalination Plant	77%	86%	80%	69%	60%	SC-4486
Bluewing	Southern Coast	Cameron	1	Bluewing Phase III Terminal Expansion	96%	55%	96%	94%	91%	SC-774
Jupiter Brownsville	Southern Coast	Cameron	1	Jupiter Brownsville - Heavy Condensate Upgrader Project	98%	43%	95%	98%	93%	SC-798
City Corpus Desal	Southern Coast	San Patricio	1	La Quinta Channel Desalination Plant	78%	87%	82%	70%	61%	SC-3672

Facility	Cluster	County	# Proj. at Site	Projects	EJS PM	EJS ToxAir	EJS RMP	EJS DI	EJS SDI	Index ID
Enbridge Ingleside Crude Export Terminal	Southern Coast	San Patricio	1	Enbridge Ingleside Blue Hydrogen & Ammonia Production Facility	78%	88%	80%	71%	62%	SC-4347
Enbridge Ingleside NH3	Southern Coast	San Patricio	1	Enbridge Ingleside Blue Hydrogen & Ammonia Production Facility	78%	88%	80%	71%	62%	SC-7077
Bluewater	Southern Coast	San Patricio	1	Midway Terminal	74%	84%	79%	61%	30%	SC-4178
Port Corpus Desal	Southern Coast	San Patricio	1	Port of Corpus Christi La Quinta Channel Seawater Desalination Plant	74%	81%	77%	61%	41%	SC-4485
Harbor Island Desal	Southern Coast	Nueces	1	Harbor Island Seawater Desalination Plant	53%	50%	18%	40%	47%	SC-4484
Harbor Island Booster	Southern Coast	Nueces	1	Harbor Island Booster Station	53%	49%	17%	39%	47%	SC-4174

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