

# TOXIC FINANCE

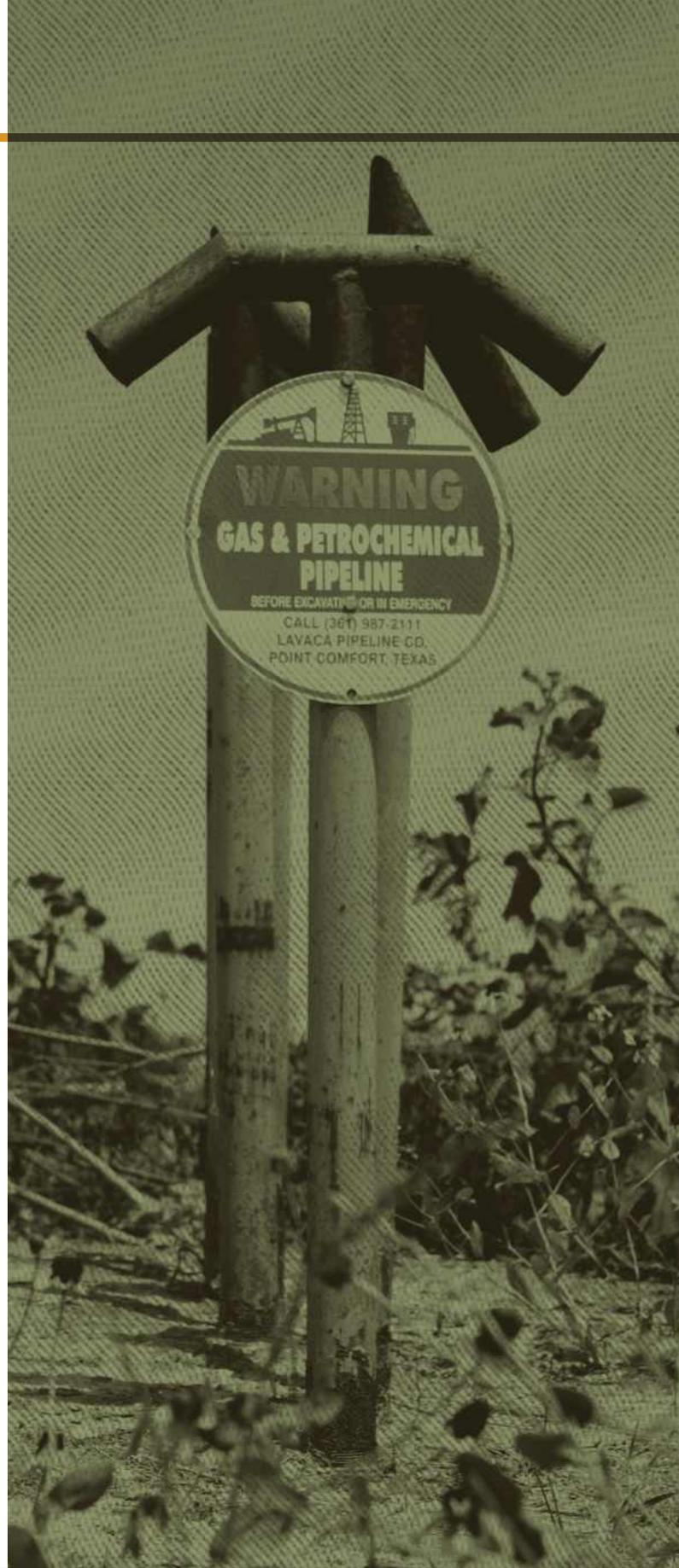
---

**The Banks and Investors Funding the  
Expansion of Petrochemicals in the US**

# TOXIC FINANCE

The Banks and Investors Funding the  
Expansion of Petrochemicals in the US

<b>Executive Summary</b>	<b>2</b>
<b>Introduction</b>	<b>3</b>
<b>The Petrochemical Problem</b>	<b>5</b>
What are Petrochemicals	5
The Human and Environmental Harms of Petrochemicals	7
Petrochemicals at Risk: Market, Legal, and Financial Headwinds	10
<b>Results</b>	<b>14</b>
Report Scope	15
Toxic Banks	21
Toxic Investors	29
Independent Project Developers	34
<b>Spotlights</b>	<b>35</b>
<b>Policy Review</b>	<b>41</b>
<b>Recommendations</b>	<b>43</b>



This report is intended for educational purposes only and should not be considered financial advice. This report is also not legal advice. In addition, the authors of this report do not seek collective decision-making or action by financial institutions or other entities, and nothing in this report should be construed as encouraging or requiring such collective decision-making or action.

# EXECUTIVE SUMMARY

Petrochemical companies turn coal, oil, and gas into plastics, fertilizers, and other chemical products. The production and use of petrochemicals harm human health, poison the environment, and fuel the climate crisis. The petrochemical industry also faces significant and growing market, legal, and financial risks.

Right now, the petrochemical industry is pushing for a rapid and unprecedented expansion of production. The United States (US) sits at the center of this buildout, fueled by access to fracked gas and billions in public subsidies. Across the country, companies are planning more than 100 projects to build new facilities, expand existing ones, or upgrade them.

Banks and investors provide the loans, bonds, and investments that make this expansion possible. It is now clear that **continued financing for the petrochemical sector is a financial, legal, and reputational liability no institution can afford to ignore.** This report identifies the banks and investors financing the companies with the most significant petrochemical expansion projects in the US.

Despite the clear and mounting harms and risks posed by the petrochemical industry, banks and investors continue to fund petrochemicals, plastics, fertilizers, and pesticides without meaningful policies to address their impacts. It is time for financial institutions to take responsibility.

## Key Findings:

- Banks poured \$133 billion into the United States petrochemical industry between 2019 and 2025.
- Four banks — **Citi**, **Bank of America**, **JPMorgan Chase**, and **Mizuho** — account for nearly one-third (32%) of that financing.
- Five companies — **Dow**, **Lyondell Basell**, **INEOS**, **Oxy**, and **Air Products** — received the majority (58%) of all financing for US petrochemicals.
- Institutional investors have more than \$1.6 trillion invested in the companies leading the US petrochemical expansion, as of September 2025.
- Just five investors control nearly one-third (31%) of that investment: **Vanguard**, **BlackRock**, **State Street**, **Capital Group**, and **Berkshire Hathaway**.

## Recommendations for Banks:

- Immediately prohibit all financing for petrochemical expansion.
- Adopt absolute greenhouse gas emissions reduction targets.
- Prohibit financing for repeat violators of environmental regulations, human rights, or Indigenous Peoples' sovereignty.
- End financing for any company with projects in communities already overburdened by pollution and cumulative environmental harm.

## Recommendations for Asset Managers and Investors:

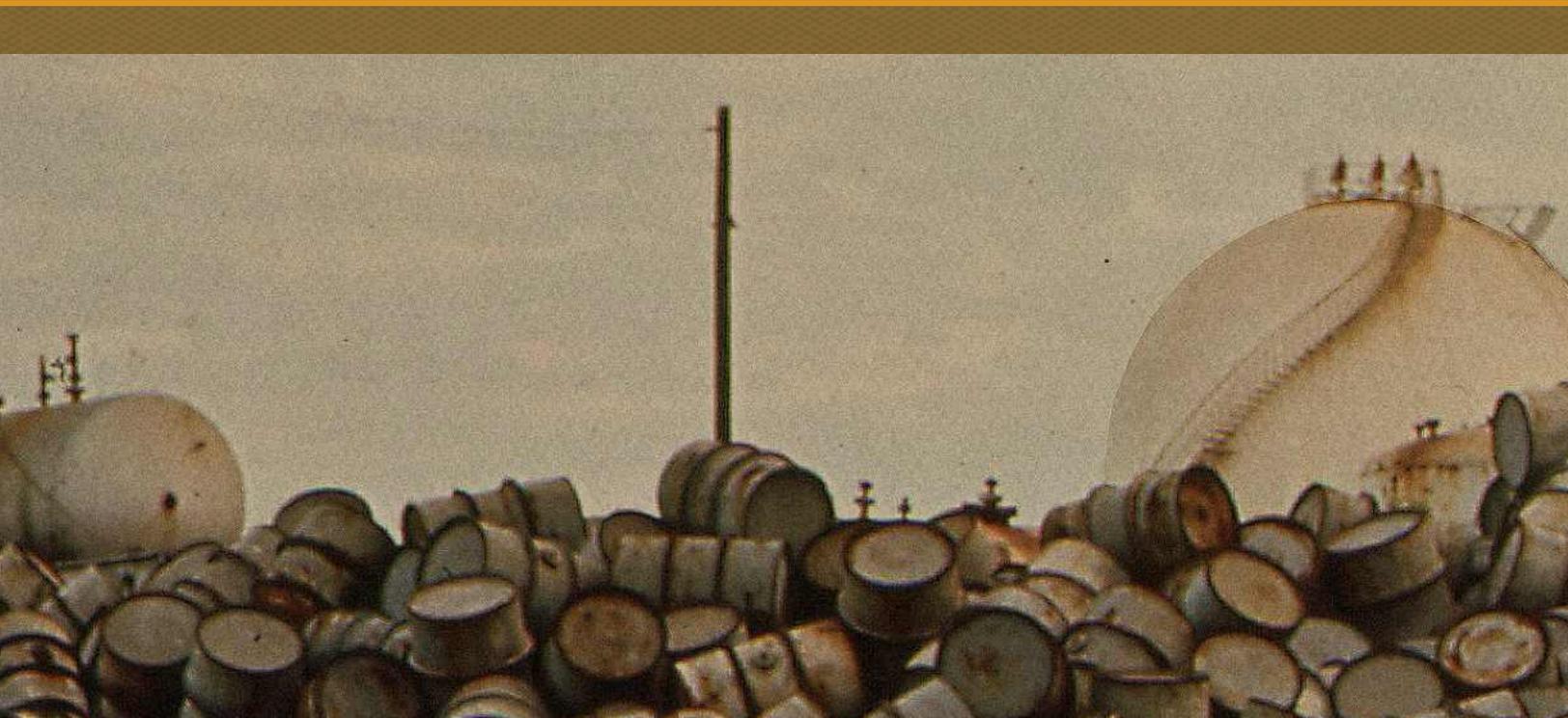
- Divest from companies proposing or advancing petrochemical expansion in the United States.
- Require all investee companies to develop and publicly disclose credible transition plans.

# INTRODUCTION

The petrochemical industry is expanding while the world confronts its harms. Petrochemicals pollute at every stage: from fossil fuel extraction at their origin, to the toxic emissions during production, and plastic pollution and agrochemical ecosystem destruction from their use.<sup>1</sup> While communities across the globe are demanding a new path forward, the industry is seeking to further entrench itself with ever more facilities to produce chemicals like plastics, pesticides, fertilizers, and ammonia. The United States (US) is a major epicenter of this expanding industry, with dozens of major expansions planned or in development,<sup>2</sup> primarily in Gulf Coast regions, which already face considerable pollution from existing fossil fuel infrastructure.<sup>3</sup>

The expansion of this toxic industry would not be possible without the enabling capital of the financial sector. Banks and investors facilitate the expansion of the petrochemicals sector with direct loans, underwriting, and investment. Though financiers have received limited scrutiny so far in the global outcry over petrochemical pollution, their role cannot be ignored.

This buildout is happening amidst significant financial uncertainty and structural pressures that threaten the long-term stability of the petrochemical sector. The global market for plastics is already facing an overcapacity crisis, as companies have expanded production at a rate that exceeds demand. This overcapacity has led to reduced operating rates and lower margins, despite closures of several old or uncompetitive facilities.<sup>4</sup> The potential growth in ammonia production is premised on speculative markets that do not, and may never, exist.<sup>5</sup> If projected ammonia production floods the markets, ammonia producers may face similar overcapacity issues. These market strains unfold as the global community confronts the mounting problems caused by unfettered plastic production and the significant harms of agrochemical use.<sup>6</sup>

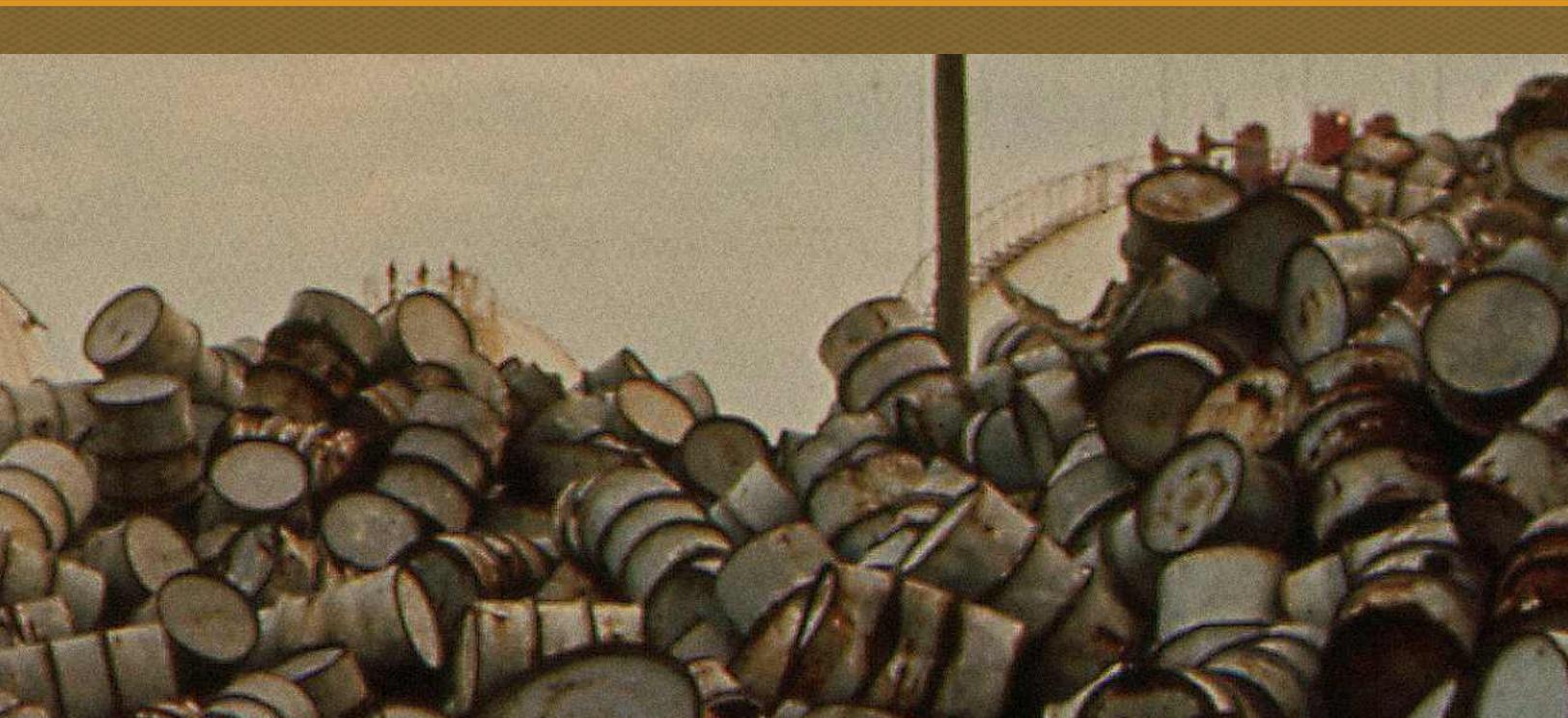


The financial sector is the engine behind petrochemical expansion, providing billions of dollars in bonds, loans, and investments that make these enormous, capital-intensive projects possible. Moreover, because petrochemicals are deeply entwined with fossil fuels, significant petrochemical financing is channeled through funding for major fossil fuel companies, highlighting the inextricable nature of these two industries.

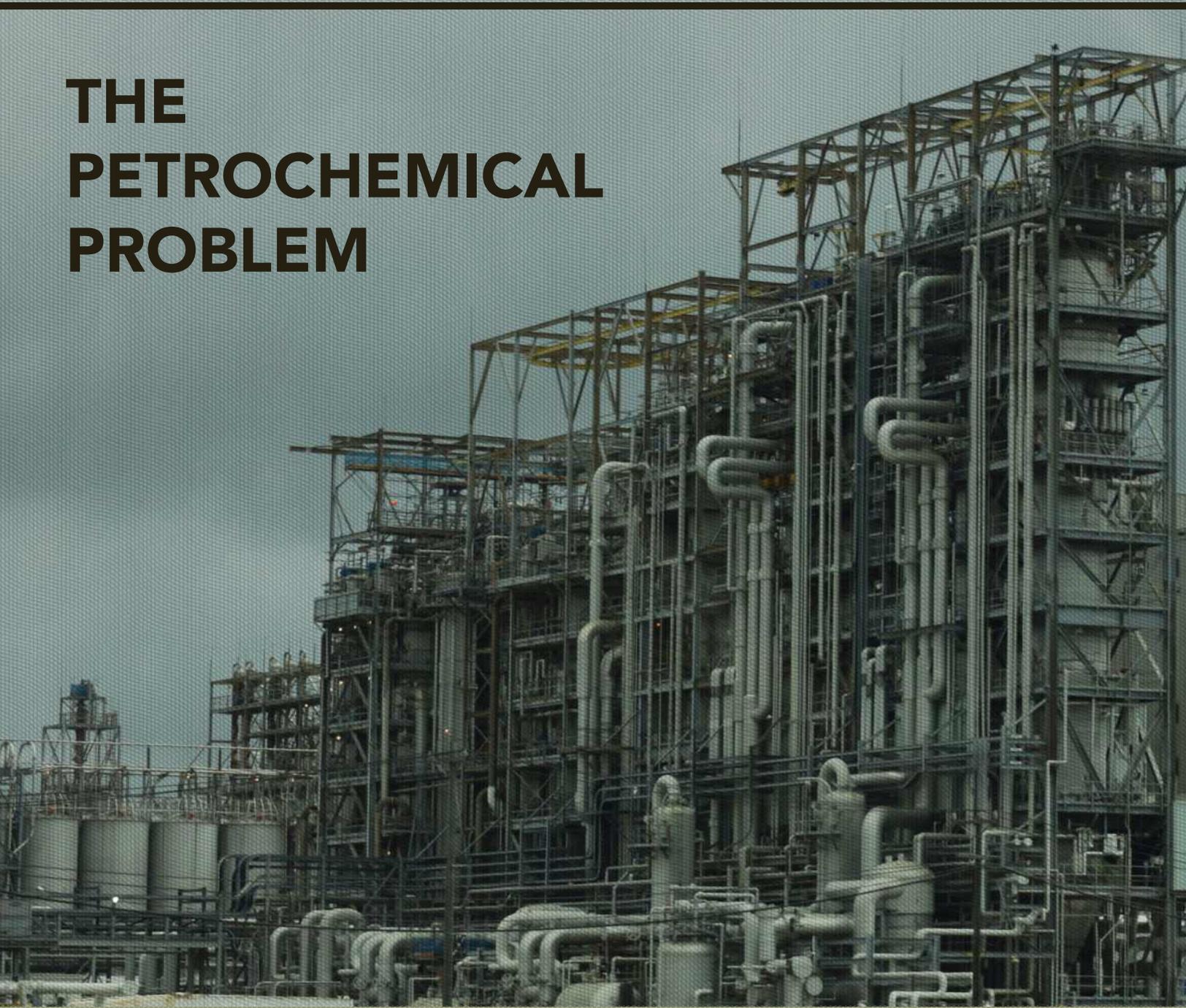
Despite the financial industry's claims of climate alignment, environmental policies, and human rights safeguards, most financial institutions lack meaningful policies to limit their support for this highly polluting, financially risky, and capital-intensive industry.

Regulators, affected communities, and other stakeholders in financial institutions have a clear role to play in aligning finance with a sustainable future. The actions of banks and investors will, in large part, determine the trajectory of the petrochemicals sector and its impacts on people and the planet. They can continue fueling petrochemical expansion, funding oversaturated and speculative industries that exacerbate climate change and environmental injustice. Or, they can redirect capital toward more sustainable industries that support communities, provide safe jobs, help tackle the climate crisis, and uphold human rights.

**This report identifies the banks and investors financing the companies behind the US petrochemical expansion, tracks the amount of money these institutions have already poured into them, and outlines why continued investment in the petrochemical sector is a financial, legal, and reputational liability that no institution can afford to ignore.**



# THE PETROCHEMICAL PROBLEM



## WHAT ARE PETROCHEMICALS?

Petrochemicals are chemicals derived from fossil fuels, primarily oil and gas.<sup>7</sup> Petrochemicals feed into a wide range of products, including tires, resin, adhesives, and detergents.<sup>8</sup> About three-quarters of petrochemical production is for plastics (including synthetic fibers) and nitrogen fertilizers.<sup>9</sup>

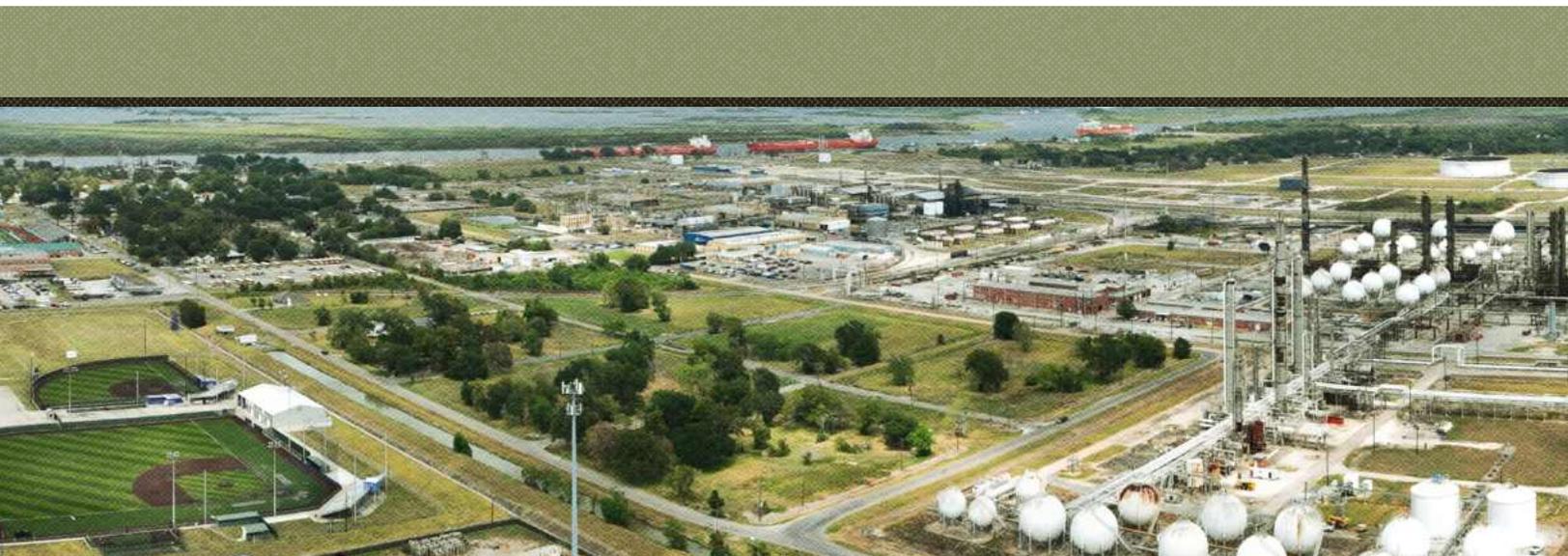
# PETROCHEMICALS IN THE UNITED STATES

The United States is in the midst of a petrochemical boom. Across the country, companies are planning more than 100 projects to build new facilities or expand or upgrade existing ones,<sup>10</sup> including the 42 major expansions identified in this report. This buildout is concentrated in the Gulf South, particularly Texas and Louisiana, where communities already face elevated rates of asthma, cancer, miscarriage, and other illnesses due to a high concentration of polluting industries.<sup>11</sup>

The proposed expansion of petrochemical production for plastics is tied to the development of fracking in the United States. The rapid expansion of fracking has created a glut of ethane, a fossil gas constituent used to make ethylene, the primary chemical building block of most plastics.<sup>12</sup> Companies racing to monetize this oversupply have already constructed several massive steam crackers and are proposing many more.<sup>13</sup>

The single most common expansion project is for ammonia production.<sup>14</sup> Though ammonia is primarily used to make synthetic nitrogen fertilizers, the bulk of proposed ammonia projects appear to be premised on ammonia's theoretical use as a low-carbon fuel and hydrogen carrier.<sup>15</sup> Such markets are speculative, making it likely that increased ammonia production will flow into existing markets, primarily fertilizers.<sup>16</sup> Either way, almost all proposed ammonia projects intend to rely on fossil gas as a feedstock and energy source,<sup>17</sup> with manufacturers claiming carbon capture and storage (CCS) would make the resulting blue ammonia low-carbon.<sup>18</sup>

In reality, blue ammonia is neither low-carbon nor a climate solution. CCS consistently underperforms industry claims, capturing less carbon than projected.<sup>19</sup> CCS does nothing to address the emissions from the upstream fossil fuel production, which — in the case of fossil gas — includes enormous methane emissions.<sup>20</sup> Finally, CCS presents significant risks to the communities through which carbon dioxide is transported and under which it is injected, as leaks can present significant hazards to surrounding populations.<sup>21</sup>



# THE HUMAN AND ENVIRONMENTAL HARMS OF PETROCHEMICALS

**Petrochemicals pollute at every stage of their supply chain.** This includes pollution from fossil fuel extraction; pollution released during refining and manufacturing; toxic additives in plastic consumer products, pesticides, or fertilizers;<sup>22</sup> and waste disposal or escape into the environment.<sup>23</sup> These harms are also not isolated, but compound and exacerbate each other, especially in the Gulf South, where a combination of intense industrial clustering, climate impacts, and water pollution converges.<sup>24</sup>

## **Petrochemical Production Burdens Fenceline Communities with Toxic Emissions.**

Communities living near petrochemical facilities face daily exposure to toxic, hazardous pollutants linked to nervous system impairment, reproductive and developmental harm, cancer, leukemia, diabetes, respiratory disease, and low birth weight.<sup>25</sup> Moreover, exposure to chemical emissions is correlated with pre-term birth and pregnancy loss.<sup>26</sup> The most polluted census tracts in Louisiana have a 25% higher incidence of pre-term birth,<sup>27</sup> and research suggests that up to one-in-three pre-term birth incidents in Louisiana are linked to pollution exposure.<sup>28</sup> Furthermore, evidence demonstrates that in the United States, exposures to hazardous chemicals are greater than official figures indicate,<sup>29</sup> and that risk assessment models discount the cumulative impacts of exposures to multiple chemicals.<sup>30</sup>

## **Petrochemical Production Contributes to Environmental Racism.**

The petrochemical industry, and the fossil fuel economy more broadly, have been central to the creation of 'sacrifice zones' — communities where concentrated industrial activity causes extreme levels of pollution and exposes local populations to significant health risks.<sup>31</sup> In the United States, these sacrifice zones often follow, and reinforce, a pattern of racial discrimination known as environmental racism.<sup>32</sup> The Gulf region of Texas and Louisiana are extreme hotspots of environmental racism. This includes the greater Houston area in Texas, which is 90% Latino,<sup>33</sup> and Louisiana's Cancer Alley — an 85-mile stretch from Baton Rouge through New Orleans containing approximately 200 fossil fuel and petrochemical facilities, where Black residents are disproportionately exposed to industrial pollution.<sup>34</sup> Most of the planned petrochemical facilities are located in these Gulf South regions, and would perpetuate environmental racism by further impacting communities already overburdened by pollution.



## **Petrochemical Products Pose Direct Toxic Risks to People.**

Petrochemicals — including plastics, pesticides, and fertilizers — are a significant source of hazardous chemical exposure. Toxic, intentionally added chemicals, as well as unintentionally added contaminants, in packaging, cosmetics, and consumer products can contaminate human bodies through direct contact as well as migration through food, water, and air. **Petrochemicals are associated with health impacts that amount to hundreds of thousands of deaths annually — and billions, if not trillions, of dollars in health costs.**<sup>35</sup>

Pesticides, which are toxic by design, pose persistent risks to farmworkers. The majority of US farmworkers, 78% of whom self-identify as Hispanic, face disproportionate exposure to chemicals linked with cancer, asthma, diabetes, Parkinson's disease, leukemia, and cognitive impairment.<sup>36</sup>

## **Petrochemical Pollution Threatens Human and Environmental Health.**

Chemicals released into the environment often cycle back to harm humans through air, water, food, and consumer products. Among the most concerning classes of pollutants are per- and polyfluoroalkyl substances (PFAS), known as 'forever chemicals,' which persist in the environment for generations and are known endocrine disruptors linked to cancer and reproductive harm.<sup>37</sup> The overuse of petrochemical-derived nitrogen fertilizers further degrades ecosystems, driving nitrogen pollution that fuels destructive algal blooms and contributes to air and water pollution.<sup>38</sup> Microplastics now pervade nearly every ecosystem and human body.<sup>39</sup> Tiny plastic particles have been found in blood, lungs, hearts, brain tissue,<sup>40</sup> reproductive organs, breast milk, human placenta, and semen samples — creating a legacy of toxicity passed down from one generation to the next.<sup>41</sup>

## The Prevalence of Petrochemical Incidents Compounds Petrochemical Risks.

In 2025 alone, the US experienced at least 215 chemical spills, fires, and explosions, with an incident occurring multiple times per week, on average.<sup>42</sup> These incidents endanger workers and surrounding communities, further exacerbating the impacts of the petrochemical industry.

## Petrochemicals Fuel the Climate Crisis.

The petrochemical life cycle is extremely carbon-intensive, from fossil fuel extraction to the enormous heat and energy required for manufacturing. Petrochemical production, including production of upstream inputs, accounts for up to 10% of global greenhouse gas emissions.<sup>43</sup> In the US alone, petrochemical production and use generate more than 300 million metric tons of CO<sub>2</sub>-equivalent emissions each year — more than Spain's annual emissions, and roughly 5% of the US' total greenhouse gas emissions.<sup>44</sup>



# PETROCHEMICALS AT RISK: MARKET, LEGAL, AND FINANCIAL HEADWINDS

**The petrochemical sector faces significant market, legal, and financial risks that threaten both the near-term viability of individual projects and the long-term stability of the industry. These risks raise serious concerns about the economic viability of continued sector expansion. Financiers and investors should be wary: the headwinds facing petrochemicals are structural, accelerating, and in many cases irreversible.**

## **Plastic Production is in a Persistent State of Overcapacity.**

More than a decade of building new facilities faster than demand has grown has led to a widening gap between global production capacity and global demand.<sup>45</sup> This rapid growth has squeezed margins, lowered capacity utilization rates across the industry,<sup>46</sup> and led to several plant closures.<sup>47</sup> The structural imbalance has worsened in the past several years, and is expected to continue.<sup>48</sup> New plastic production projects will enter a market that is already saturated and financially strained.

## **The Rapid Expansion of Ammonia Production is Premised on Markets That Do Not Exist.**

In the US, companies are pursuing more than thirty-six ammonia projects,<sup>49</sup> potentially quadrupling domestic ammonia production capacity.<sup>50</sup> The market for ammonia as a shipping fuel or power source is speculative, so owners of new projects will likely have to find buyers in existing ammonia markets — primarily fertilizer, plastics, or fibers.<sup>51</sup> As such, the ammonia market, like the plastics market, may be heading for significant structural overcapacity with limited buyers to absorb additional production.

## **Public and Political Resistance to Plastics is Rising Worldwide.**

Consumer preferences and public policy are shifting away from reliance on single-use plastics and plastic packaging. While the current US administration is undertaking industry-friendly and deregulatory action,<sup>52</sup> the overall trend remains one of growing concern and action. Policies enacted at the local, national, or regional level — including the European Union's Single Use Plastic Directive<sup>53</sup> — are spreading globally, with one estimate of global plastic laws cataloging more than 1,450 such laws already enacted.<sup>54</sup> Nearly ninety investors with more than \$7 trillion in assets under management have further called for petrochemical companies to shift their production

to reduce reliance on fossil fuels and eliminate toxic chemicals in plastics.<sup>55</sup> Nearly 100 countries have also aligned within the United Nations (UN) process to negotiate a plastics treaty to demand meaningful action.<sup>56</sup> Despite opposition from the petrochemical and fossil fuel industries, as well as aligned governments, global sentiment is turning against unchecked production and use of plastics.

### **Growing Global Concern Over Industrial Agriculture and Chemical inputs puts additional pressure on petrochemical markets.**

Organizations, including the UN Environment Program<sup>57</sup> and the Food and Agriculture Organization,<sup>58</sup> have identified pesticides and fertilizers, many of which are derived from petrochemicals, as critical and urgent global issues. Policies aimed at reducing or phasing out nine chemical inputs in farming practices threaten to shrink petrochemical markets,<sup>59</sup> adding further uncertainty to the prospects for new fertilizer and ammonia projects.

### **The Petrochemical Sector Faces Significant and Escalating Litigation Risks.**

Lawsuits over the impacts of petrochemicals are accelerating and diversifying, exposing the sector to growing liability and its financiers to growing losses.<sup>60</sup> Legal action over toxic exposures from ethylene oxide,<sup>61</sup> pesticides,<sup>62</sup> and PFAS has already led to significant verdicts and settlements — including a staggering \$10 billion settlement related to PFAS in municipal water systems<sup>63</sup> and a \$2 billion settlement with the state of New Jersey.<sup>64</sup>



New waves of litigation over plastic are also emerging.<sup>65</sup> Recent lawsuits challenge industry claims about recycling and recyclability,<sup>66</sup> the presence of microplastics or contaminants in consumer products,<sup>67</sup> and plastic pollution in public waterways (e.g., packaging and cigarette butts).<sup>68</sup> As scientific evidence and public awareness of petrochemical harms continue to grow, liability exposure for the sector will only increase.

## **Petrochemicals are Exposed to Escalating Climate-Related Financial Risk.**

When emissions from upstream fossil fuels and other inputs are accounted for, petrochemical production accounts for approximately 10% of global greenhouse gas (GHG) emissions.<sup>69</sup> International efforts to address climate change, along with increasing trade restrictions tied to GHG emissions, pose a growing threat to this emissions-intensive and exports-driven sector. Most imminently, the European Union's Carbon Border Adjustment Mechanism (CBAM) will increase the costs of US fertilizers and ammonia,<sup>70</sup> and may be followed by emerging climate-aligned trade mechanisms in other countries.<sup>71</sup>

Because petrochemicals rely on fossil fuels as feedstock, climate policies and markets aimed at phasing out fossil fuels pose a direct threat to their viability. The growing number of policies and proposals calling for "defossilized" chemicals<sup>72</sup> signals that markets for fossil-based chemicals — including petrochemicals — are likely to become increasingly constrained.



## PETROCHEMICAL PROJECTS IN PERIL: Cancellations, Delays, and Financial Strain

---

While several major petrochemical facilities have been built in the past decade, the current wave of projects is facing significant political, legal, and financial headwinds, outlined above. Approximately forty-four petrochemical projects have now been canceled, with another forty-three on hold, according to the Oil and Gas Watch database, which has tracked projects since 2012.<sup>73</sup> This may be a result of oversupply, weak demand, low prices, unproven markets, rising costs, regulatory uncertainty, or growing local opposition. Even projects that have managed to come online are showing signs of financial and operational distress. Banks and investors should be wary of committing additional capital to an industry that is already struggling to deliver.

Examples that illustrate the economic instability of the sector:

- **Yara** and **BASF** canceled their blue ammonia project on the US Gulf Coast, citing a commitment to focus on projects with better financial return (August 2025).<sup>74</sup>
- **Shell** is reportedly exploring the sale of its newly constructed plastics plant in Beaver County, Pennsylvania, after the project ran \$8 billion over budget, despite receiving hefty public subsidies (August 2025).<sup>75</sup>
- **ExxonMobil** delayed its plastic plant in Calhoun County, Texas, citing market conditions (October 2025).<sup>76</sup>
- **Air Products** delayed its multibillion-dollar Louisiana Clean Energy Complex, framing the move as part of a broader “derisking strategy” (January 2025).<sup>77</sup>
- **Mitsubishi** canceled its methyl methacrylate (MMA) plant in Geismar, Louisiana, citing demand being met by existing plants and failure to secure long-term commitments (January 2025).<sup>78</sup>
- **Nutrien** canceled its \$2 billion blue ammonia project in Geismar, Louisiana, citing uncertainty about emerging uses and prioritization of alternatives (June 2024).<sup>79</sup>
- **Alpek, Far Eastern, and Indorama** paused construction of Corpus Christi Polymers, a joint venture plastics project, despite the facility being 80% complete, citing costs that exceeded estimates (September 2023).<sup>80</sup>

These examples underscore that continuing to invest in petrochemical expansion leaves funders increasingly exposed to delays, cost overruns, and stranded assets.

---



# RESULTS

## TYPES OF FINANCE

**This report examines two pillars of petrochemical finance: banks and investors. Both supply companies with the capital they need today in exchange for the promise of profit tomorrow. Banks lend money and underwrite the sale of stocks and bonds; investors buy those stocks and bonds. Together, banks and investors provide the steady flow of funding that keeps petrochemical expansion alive.**

### Banks

Banks provide companies with the capital they need to operate and expand in two primary ways:

#### Loans:

Banks lend companies money that must be repaid over time with interest, similar to a car loan or a mortgage.<sup>81</sup> Banks also offer companies revolving loans or lines of credit that companies can draw from as needed, functioning more like a credit card.<sup>82</sup>

#### Underwriting:

Banks also help companies raise money by facilitating the sale of stocks and bonds to investors. In these transactions, banks purchase newly issued stocks and bonds directly from companies and then resell them to investors. In this way, the companies get the capital they need, and the banks earn a fee or profit for their service.<sup>83</sup>

### Investors

Investors then purchase the stocks and bonds that companies issue, often with banks acting as an intermediary.

#### Stocks:

Companies sell a percentage of ownership or control in their business (shares or stocks) to investors in exchange for money. Unlike loans, stocks are not repaid. Instead, investors benefit as the company's value increases. Stock ownership can also entitle an investor to a share of profits and influence over decision-making.<sup>84</sup>

#### Bonds:

Bonds are loans that are divided into small pieces and then sold to investors. Similar to a loan, the company issuing a bond agrees to repay the original amount on a specific date and to make regular interest payments.<sup>85</sup> Similar to stocks, investors can buy and sell bonds after the initial purchase.

## REPORT SCOPE

**This report examines how capital flows from banks and investors to the companies building and expanding petrochemical facilities across the US, revealing who is financing the next generation of polluting infrastructure and how much is at stake.**

### Companies

This report explores the financing for the fifty-three companies behind the forty-two most significant proposed expansions of petrochemical production in the US, as of October 1, 2025. The report focuses on projects that would emit at least 1 million metric tons (MMT) of carbon dioxide equivalent (CO<sub>2</sub>e) or, if no emissions estimate is available, cost at least \$1 billion.\*

### Financial Transactions

Financial research conducted for this report considers financing from both banks and investors. The research on banks encompasses lending and underwriting, bond and share issuance, project and corporate financing, as well as bilateral and syndicated finance. The research on investors covers the ownership of both stocks and bonds. All dollar amounts are in US dollars (USD).

### Dates Covered

The bank data covers the period from January 2019 to June 2025. The investor data is a snapshot of stock and bond ownership as of September 2025.

### Sources

Financial data for this report was compiled by **Profundo**, using information from Dealogic, FactSet, IJGlobal, and a proprietary pension fund portfolio disclosure database, as well as company publications, regulatory filings, and relevant analyst and media reports.

**See the methodology at [www.toxicfinance.org](http://www.toxicfinance.org) for more details.**

---

\* We included any company with an emissions or cost estimate that rounded up to meet the thresholds.



## Largest Proposed Petrochemical Expansion Projects in the US (October 2025)

	PROJECT	LOCATION	COMPANY	STATUS *	EMISSIONS	COST
1	Formosa Sunshine Project	St. James Parish, LA	Formosa Plastics	On Hold	12.1 MMT	\$9.4 B
2	PCC Ammonia Facility	Nueces County, TX	Lotte Holdings, Mitsubishi, RWE	Proposed	9.7 MMT	N/A
3	Ascension Clean Energy Project	Ascension Parish, LA	Clean Hydrogen Works, Exxon-Mobil, Hafnia, Mitsui OSK Lines	Proposed	7.6 MMT	\$7.5 B
4	Golden Triangle Polymers Plant	Orange County, TX	Chevron Phillips Chemical, QatarEnergy	Under Construction	6.5 MMT	\$8.5 B
5	Shintech Plaquemine – SPP4 Expansion Project	Iberville Parish, LA	Shintech	Proposed	6.5 MMT	N/A
6	Project Jumbo – M&G PET & Desal Plants	Nueces County, TX	Alpek, Far Eastern, Indorama	On Hold	6.3 MMT	\$1.1 B
7	Woodside Beaumont Clean Ammonia Complex	Jefferson County, TX	Woodside	Under Construction	5.5 MMT	\$2.4 B
8	Grand Forks Blue Ammonia Plant	Grand Forks County, ND	Northern Plains Nitrogen	Proposed	5.2 MMT	\$3 B
9	Nederland Ethylene Cracker	Jefferson County, TX	Energy Transfer	Proposed	5.1 MMT <sup>87</sup>	\$1.8 B
10	PTTGCA Petrochemical Complex	Belmont County, OH	PTT	On Hold	5.1 MMT	\$20.8 B

\* Last updated on January 5, 2026.

	PROJECT	LOCATION	COMPANY	STATUS	EMISSIONS	COST
11	Exxon Coastal Plain Project	Calhoun County, TX	ExxonMobil	On Hold	4.4 MMT	\$8.6 B
12	Midwest Fertilizer	Posey County, IN	Midwest Fertilizer Company	Proposed	4.3 MMT	\$2.4 B
13	Shell Geismar – MEG Capacity Expansion	Ascension Parish, LA	Shell	Under Construction	3.8 MMT	\$1.2 B
14	Nutrien Kenai Nitrogen Operations – Restart Project	Kenai Peninsula Borough, AK	Nutrien	Proposed	3.2 MMT	\$0.1 B
15	Blue Bayou Ammonia	Galveston County, TX	Blue Bayou Ammonia	On Hold	2.9 MMT	\$0.2 B
16	Enbridge/Yara Ingleside Blue Ammonia Plant (Project YaREN)	San Patricio County, TX	Enbridge, Yara	Proposed	2.7 MMT	\$5.2 B
17	St. Rose Blue Ammonia Facility	St. Charles Parish, LA	St. Charles Clean Fuels	Proposed	2.4 MMT	\$4.6 B
18	CF Industries Blue Ammonia Plant	Ascension Parish, LA	CF Industries	On Hold	2.4 MMT	\$2.0 B
19	Lake Charles Methanol II	Calcasieu Parish, LA	Lake Charles Methanol II	Proposed	2.0 MMT	\$3.2 B
20	ERA/Uniper/Conoco Phillips Gulf Coast Ammonia	Unknown	Conoco-Phillips, JERA	On Hold	1.9 MMT	N/A
21	Sabco Petrochemical Facility	Jefferson County, TX	Saudi Aramco	Proposed	1.9 MMT	N/A
22	Lake Charles Blue Ammonia Plant	Calcasieu Parish, LA	Idemitsu Kosan, Mitsubishi, Proman	Proposed	1.8 MMT	N/A

	PROJECT	LOCATION	COMPANY	STATUS	EMISSIONS	COST
23	Blue Point Complex	Ascension Parish, LA	CF Industries, JERA, Mitsui	Proposed	1.5 MMT	\$4.0 B
24	Cronus Ammonia Plant	Douglas County, IL	Cronus Chemicals	Proposed	1.4 MMT	\$2 B
25	American Plant Food Ammonium Sulfate Production Facility	Jefferson Parish, LA	American Plant Food	On Hold	1.4 MMT	\$0.2 B
26	Ten08 Clean Ammonia Plant	Texas	Ten08 Energy	Proposed	1.4 MMT	N/A
27	Westlake Calvert City PVC Plant – 2020 Expansion Project	Marshall County, KY	Westlake	Under Construction	1.3 MMT	N/A
28	Enterprise Mont Belvieu – Ethylene Dimerization and Metathesis Unit	Chambers County, TX	Enterprise Products	Proposed	1.2 MMT	\$1.1 B
29	Crescent Bayou – Project Labrador	Jefferson County, TX	Chevron	On Hold	1.2 MMT	\$5.0 B
30	Houston Ship Channel Low-Carbon Ammonia Plant	Harris County, TX	Air Liquide, Exolum, INPEX, LSB Industries, Royal Vopak	On Hold	1.1 MMT	N/A
31	Channelview New Propylene Plant	Harris County, TX	LyondellBasell	Proposed	1.0 MMT	\$0.4 B

	PROJECT	LOCATION	COMPANY	STATUS	EMISSIONS	COST
32	BASF Geismar – MDI Expansion	Ascension Parish, LA	BASF	Under Construction	1.0 MMT	\$0.8 B
33	Westlake Calvert City Vinyls Plant – 2020 Expansion Project	Marshall County, KY	Westlake	Under Construction	1.0 MMT	N/A
34	Hanwha/INEOS Low Carbon Ammonia Plant	Unknown	Hanwha, INEOS	Proposed	1.0 MMT	N/A
35	Grannus Alaska Blue Ammonia Project	Alaska	Grannus	On Hold	N/A	N/A <sup>88</sup>
36	Air Products Blue Energy	Ascension Parish, LA	Air Products	Proposed	N/A	\$4.5 B
37	Dow Freeport – EC/DMC Expansion Project	Brazoria County, TX	Dow	Proposed	N/A	\$2.7 B
38	Indorama Blue Ammonia Plant	Louisiana	Indorama	Proposed	N/A	\$2.0 B
39	Linde Nederland Facility	Jefferson County, TX	Linde	Under Construction	N/A	\$1.8 B
40	Shell Geismar – Linear Alpha Olefin Plant	Ascension Parish, LA	Shell	Proposed	N/A	\$1.4 B
41	Oxychem Battleground – Project Redstone	Harris County, TX	Oxy	Under Construction	N/A	\$1.1 B
42	Shell Norco Chemical Plant Expansion	St. Charles Parish, LA	Shell	Proposed	N/A	\$1.0 B

# TOXIC BANKS

Between January 2019 and June 2025, more than \$1 trillion in bank financing flowed to the companies driving the expansion of US petrochemical production. Of the \$1 trillion, we estimate \$298 billion went to the global operations of petrochemicals, and \$133 billion flowed specifically to petrochemicals in the US.\*

Four banks — **Citi**, **Bank of America**, **JPMorgan Chase**, and **Mizuho** — account for nearly one-third (32%) of US petrochemical financing. Together, just twenty banks provide more than three-quarters (78%) of that financing.

Most financing for US petrochemicals took the form of debt. Loans accounted for 64% of the total, while underwriting made up 36%, primarily through the issuance of bonds (98%) rather than stocks (2%). This highlights the vital role banks play in the process of financing expansion projects through issuing loans and underwriting bonds — two primary sources of capital for the sector.

The vast majority of bank funding occurred at the corporate level, with only a small portion (6%) tied to specific projects.† This dynamic provides companies with broad discretion over how and where they deploy capital, underscoring the need for banks to adopt environmental and social policies that apply to corporate-level financing, not just to individual projects.

Looking ahead, the expansion projects in this report are estimated to cost at least \$110 billion.<sup>89</sup> Because many of these projects were only recently announced, the companies behind them will likely turn to banks to raise billions more in financing to move these projects forward.

## HOW ADJUSTERS WORK

To arrive at these figures, we applied adjusters. Specifically, we weighted each company's total financing by the share of its capital expenditures, assets, or revenue devoted to petrochemicals, and then again by the share occurring within the US.

**For example:** if **Bank A** lends **Company B** \$100 and **Company B** spends 40% of its capital expenditure on US petrochemicals, we attribute **\$40** of that loan to US petrochemicals.

\* This only reflects financing for the companies currently leading the expansion of petrochemicals production in the US. It does not include financing for all global petrochemicals companies nor all petrochemicals companies operating in the US. Therefore, these figures underestimate total bank financing for petrochemicals both globally and in the US.

† Project-level finance includes the total deal value of any deal that mentions project financing or capital expenditure. This includes deals that mention multiple uses for the proceeds. As a result, this figure likely overestimates the amount of project financing.

*Banks poured \$133 billion into the US petrochemical industry between 2019 and 2025, financing the buildout of fossil infrastructure that will pollute for decades to come.*

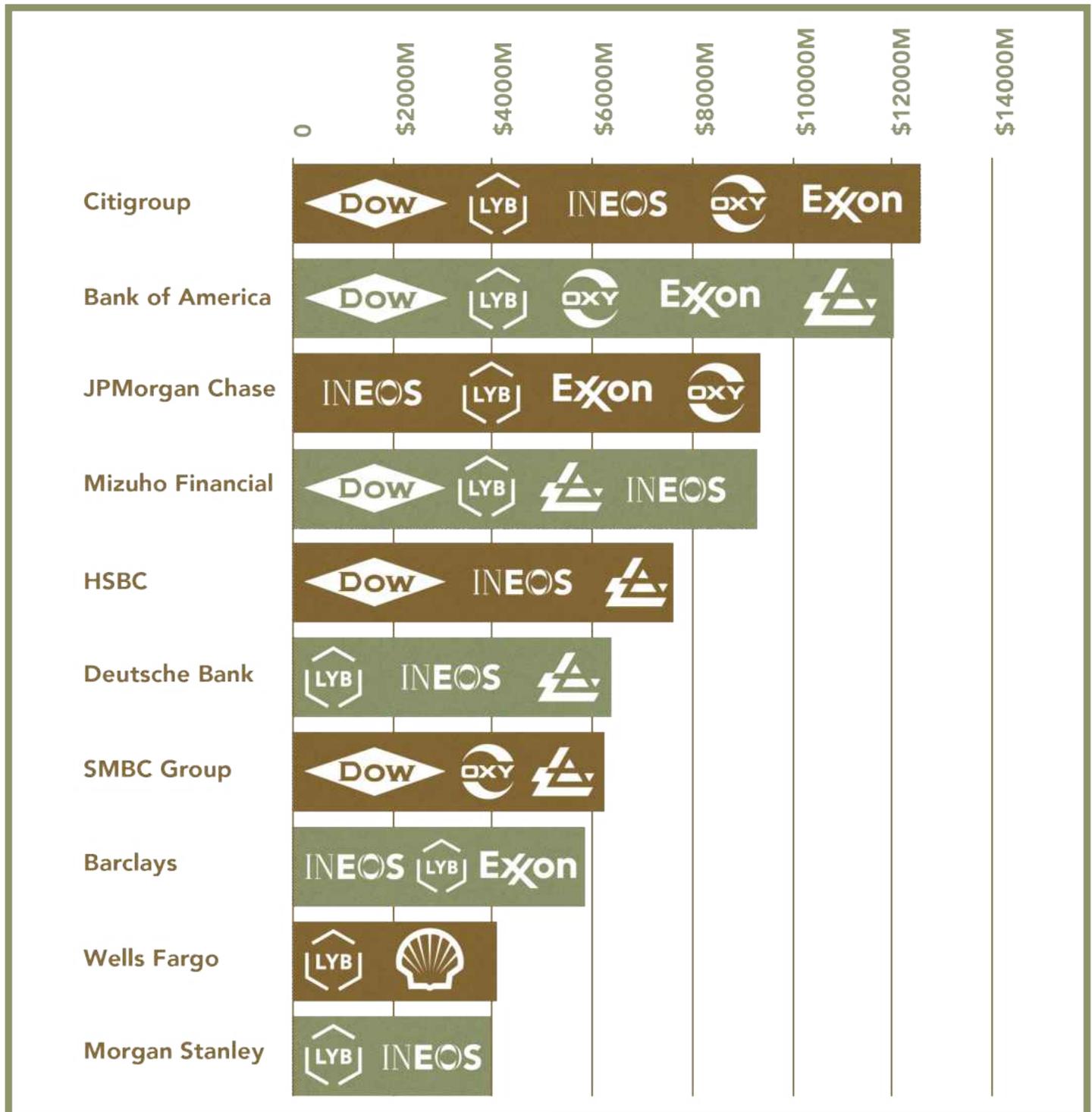
## 20 MOST TOXIC BANKS

These banks provided more than 2/3 of financing for the expansion, maintenance, and operation of petrochemicals in the US between January 2019 and June 2025.

	BANK	COUNTRY	LOANS	UNDERWRITING	TOTAL
1	Citigroup	United States	\$8.5 B	\$4.1 B	\$12.6 B
2	Bank of America	United States	\$7.2 B	\$4.9 B	\$12.1 B
3	JPMorgan Chase	United States	\$5.3 B	\$4.1 B	\$9.3 B
4	Mizuho Financial	Japan	\$6.9 B	\$2.4 B	\$9.3 B
5	HSBC	United Kingdom	\$5.5 B	\$2.1 B	\$7.6 B
6	Deutsche Bank	Germany	\$3.2 B	\$1.1 B	\$6.3 B
7	SMBC Group	Japan	\$4.4 B	\$1.8 B	\$6.3 B
8	Barclays	United Kingdom	\$3.1 B	\$2.8 B	\$5.9 B
9	Wells Fargo	United States	\$2.0 B	\$2.0 B	\$4.1 B
10	Morgan Stanley	United States	\$2.2 B	\$1.8 B	\$4.0 B
11	BNP Paribas	France	\$2.6 B	\$1.3 B	\$3.9 B
12	Mitsubishi UFJ Financial	Japan	\$2.3 B	\$1.6 B	\$3.9 B
13	ING Group	Netherlands	\$1.9 B	\$1.0 B	\$2.9 B
14	Scotiabank	Canada	\$1.9 B	\$0.8 B	\$2.7 B
15	Goldman Sachs	United States	\$1.0 B	\$1.6 B	\$2.6 B
16	Société Générale	France	\$1.9 B	\$0.6 B	\$2.5 B
17	Toronto-Dominion Bank	Canada	\$1.8 B	\$0.6 B	\$2.4 B
18	Royal Bank of Canada	Canada	\$1.2 B	\$0.8 B	\$2.1 B
19	Crédit Agricole	France	\$1.5 B	\$0.5 B	\$2.0 B
20	Santander	Spain	\$1.2 B	\$0.6 B	\$1.8 B

# MOST TOXIC BANKS

Bank financing for US petrochemicals, January 2019 - June 2025.\*



\*Logos represent the top clients for each bank. The size of the logo does not correspond to the amount of the financing.

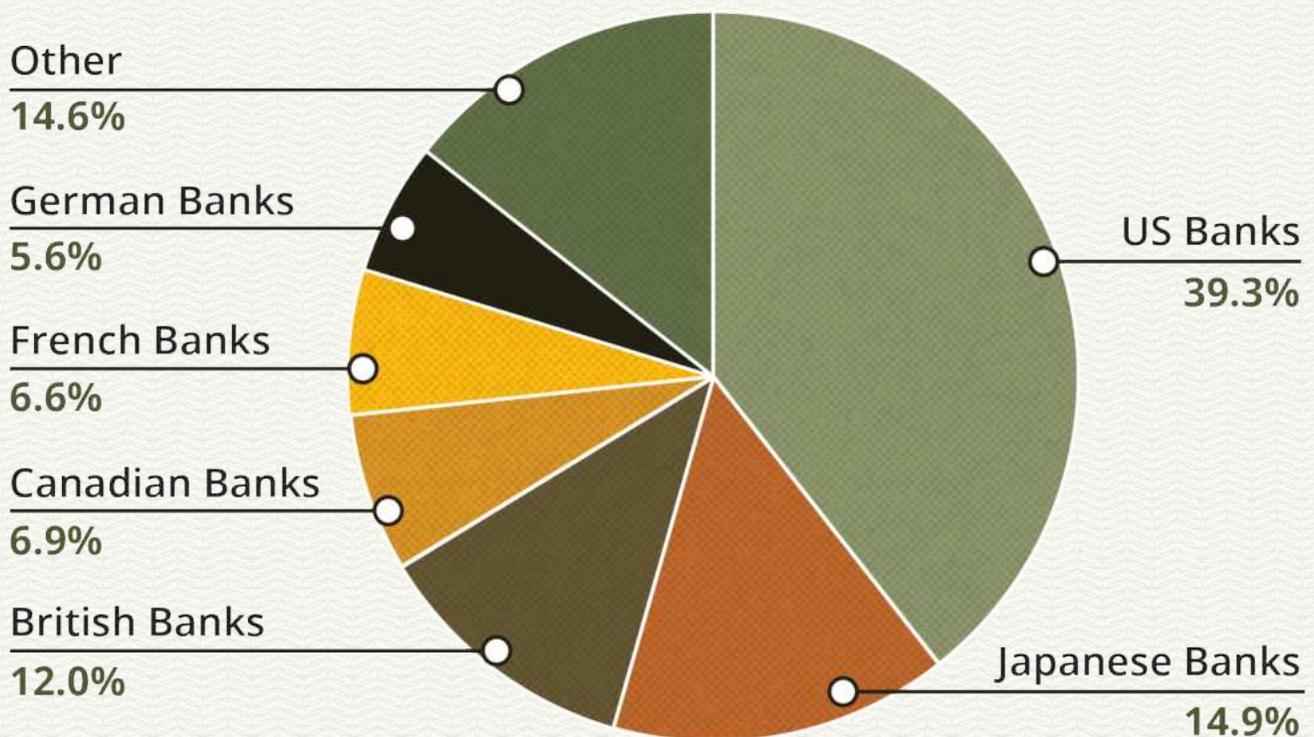
## FINANCING BY BANK COUNTRY

Banks headquartered in just six countries provided 85% of all financing for US petrochemicals. Banks headquartered in the US provided the single largest share, accounting for 39% of the funding.

The remaining **61% of financing came from banks headquartered outside the US**, underscoring the central role international capital plays in driving US petrochemical expansion. The most significant foreign contributions came from banks in Japan (15%), the United Kingdom (UK) (12%), Canada (7%), France (7%), and Germany (6%). No other country had banks that accounted for more than 3% of financing, highlighting how the vast majority of funding is concentrated among banks in a small number of countries.

## FINANCING BY BANK COUNTRY

(January 2019 - June 2025)



# COMPANIES RECEIVING MOST BANK FINANCING

(January 2019 - June 2025)

	Company	Country	Financing	Top Banks	Largest US Petrochemicals Expansion Projects
1	Dow	US	\$25.7 B	Citigroup Mizuho Financial Bank of America	Dow Freeport - EC/DMC Expansion Project, Brazoria County, TX
2	Lyondell-Basell	US	\$18.0 B	Bank of America JPMorgan Chase Citigroup	Channelview New Propylene Plant, Harris County, TX
3	INEOS	UK	\$17.8 B	JPMorgan Chase Citigroup Barclays	Hanwha/INEOS Low Carbon Ammonia Plant, Location Unknown
4	Oxy	US	\$9.3 B	Bank of America Citigroup JPMorgan Chase	Oxychem Battleground - Project Redstone, Harris County, TX
5	Air Products	US	\$7.2 B	Citigroup Deutsche Bank BNP Paribas	Air Products Blue Energy, Ascension Parish, LA
6	ExxonMobil	US	\$6.0 B	JPMorgan Chase Citigroup Bank of America	Ascension Clean Energy, Project Ascension Parish, LA Exxon Coastal Plain Project, Calhoun County, TX
7	Nutrien	CA	\$5.7 B	Royal Bank of CAN Toronto- Dominion Bank CIBC	Nutrien Kenai Nitrogen Operations - Restart Project, Kenai Peninsula Borough, AK
8	Golden Triangle Polymers*	US	\$5.1 B	HSBC Mitsubishi UFJ Financial Scotiabank †	Golden Triangle Polymers Plant, Orange County, TX
9	BASF	DE	\$4.5 B	Deutsche Bank Soci�t� G�n�rale BNP Paribas	BASF Geismar - MDI Expansion, Ascension Parish, LA
10	Shell	UK	\$3.5 B	Wells Fargo Goldman Sachs Deutsche Bank	Shell Geismar - MEG Capacity Expansion and Linear Olefin Plant, Ascension Parish, LA Shell Norco Chemical Plant Expansion, St. Charles Parish, LA

Legacy fossil fuel and petrochemical companies with a large US footprint received the majority of US petrochemical financing over the last five years. **Just five companies — Dow, Lyondell-Basell, INEOS, Oxy, and Air Products — received 58% of all US petrochemical financing.**

Looking ahead, however, the landscape is shifting. Many of the most significant planned expansion projects in the US are driven by international chemical and energy companies, including Formosa Plastics and Far Eastern (Taiwan); Lotte Holdings, Mitsubishi, Mitsui OSK Lines, and Shintech (Japan); Indorama Ventures and PTT (Thailand); RWE (Germany); Hafnia (Singapore); Alpek (Mexico); Enbridge (Canada); and Yara (Norway). As many of these projects have not yet reached a final investment decision, their financing does not yet appear in our overall figures.

**This wave of petrochemical expansion poses a serious risk** — not only to the communities living near the proposed expansions, but also to the banks and investors financing them. As market uncertainty, regulatory scrutiny, litigation, and community opposition intensify, financiers face growing reputational, financial, and potentially legal exposure tied to continued investment in petrochemical expansion.

---

\*Golden Triangle Polymers is a joint venture of Chevron Phillips Chemical and QatarEnergy.

† Six banks provided the same amount of financing to Golden Triangle Polymers: BNP Paribas, Bank of China, HSBC, Mizuho Financial, Mitsubishi UFJ Financial, Scotiabank, Société Générale.



# MOST TOXIC BANK: CITI

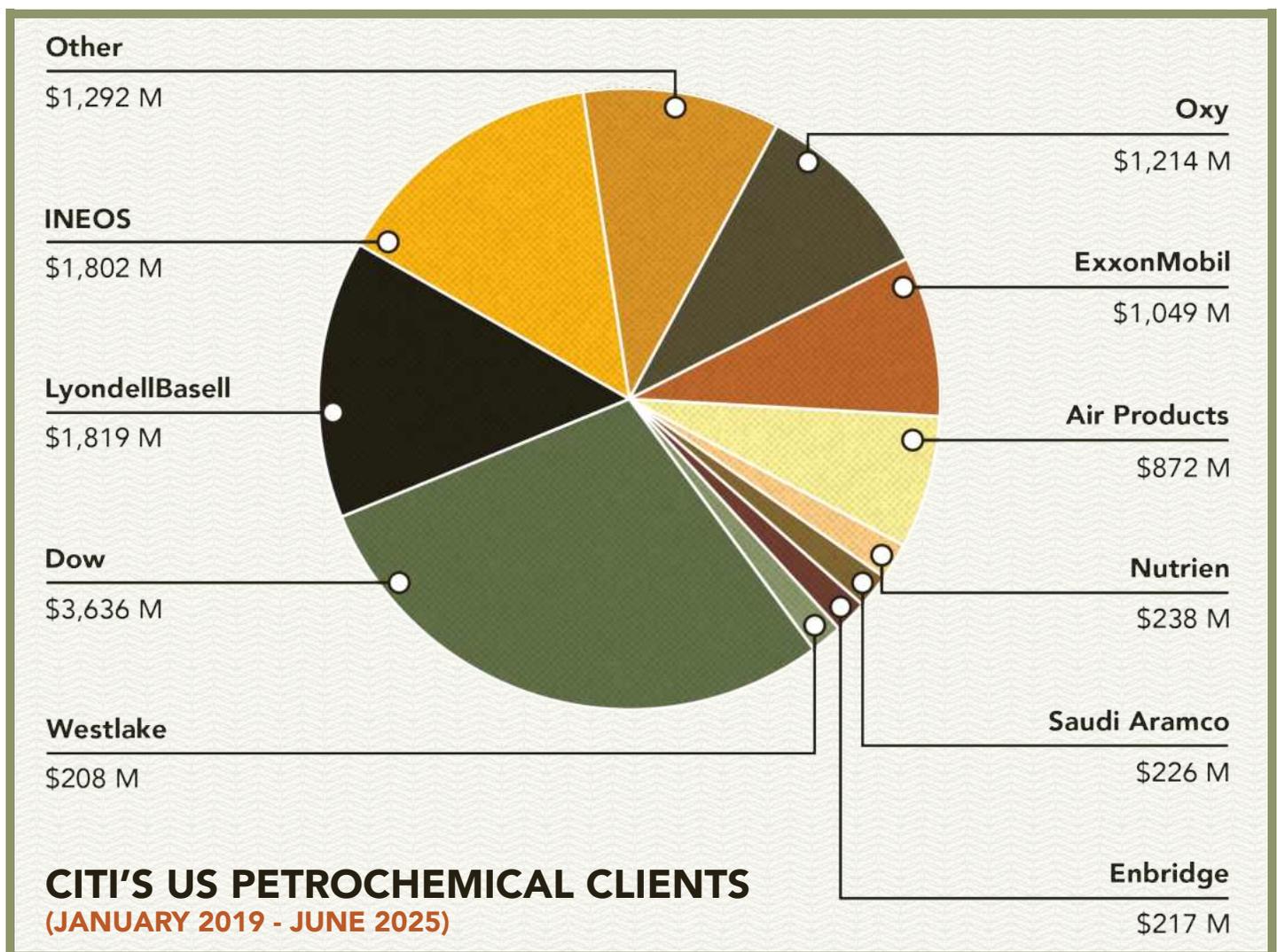
**Citi's billions are underwriting the next wave of petrochemical pollution — locking in harm from Texas and Louisiana to Appalachia.**

In just over five years, Citi has funneled more money into companies driving US petrochemical expansion than any other bank — a total of \$83 billion. Of that amount, we estimate \$23 billion went to global petrochemicals, and \$13 billion was specifically tied to petrochemicals in the US.

Citi financed thirty-three companies behind thirty-two major expansion projects with a combined projected cost of \$85 billion and expected annual emissions of 79.5 MMT CO<sub>2</sub>e — exceeding the national emissions of Chile or the Czech Republic.<sup>90</sup>

**Total Financing:** \$83 billion  
**Petrochemicals:** \$23 billion  
**US Petrochemicals:** \$13 billion

**Expansion Projects:** 32  
**Expected Emissions:** 79.5 MMT CO<sub>2</sub>e  
**Projected Cost:** \$85 billion



## CAMPAIGN HIGHLIGHT:

# youth CLIMATE FINANCE alliance

Citi is the world's second-largest funder of fossil fuels since 2021,<sup>91</sup> channeling capital to the very industry most responsible for global heating, toxic emissions, and environmental injustice. Citi has set a target to reduce financing for energy sector emissions, including oil and gas. Despite this commitment, Citi continues to bankroll fossil fuel expansion, with seemingly no restrictions on its funding for petrochemicals.<sup>92</sup>

**Youth Climate Finance Alliance** is leading calls for Citi to immediately and publicly end all financial services for companies engaged in fossil fuel expansion and to shift its financing toward clean energy, with a minimum ratio of 4-to-1 clean energy to fossil fuels.

Learn more at <https://www.ycfalliance.com/our-campaign>.



## TOXIC INVESTORS

Institutional investors hold more than \$1.6 trillion in shares and bonds across the companies planning major petrochemical expansion in the US. Nearly all of this investment (94%) is in the form of stock ownership, in part due to the limited reporting available on bond holdings.

Just twenty investors control more than half (54%) of all investments, while five alone account for nearly one-third (31%) on their own: **Vanguard, BlackRock, State Street, Capital Group, and Berkshire Hathaway**. More than two-thirds (71%) of this investment is held by financial institutions in the US.

Together, these twenty institutions — thirteen asset managers, five banks, and two pension funds — form the quiet engine behind the US petrochemical boom.\* They wield significant influence over corporate strategy through their power to vote on the election of boards of directors, major corporate actions, and shareholder resolutions, all of which can influence decisions to expand petrochemical production in the US. Yet, most large financial institutions have consistently failed to exercise these powers to hold companies accountable.<sup>93</sup>



### The Role of Asset Managers

Asset managers invest money on behalf of clients. Firms such as Vanguard and BlackRock design investment funds made up of stocks or bonds.<sup>94</sup> Pension funds, insurance companies, and individuals invest in those funds and pay a fee to the asset manager. While clients earn or lose money as the value of the fund fluctuates, asset managers typically own the underlying stocks and bonds that make up the fund.<sup>95</sup> As a result, asset managers largely retain voting power over shareholder resolutions and influence over corporate governance.<sup>96</sup> They also determine which companies to include in their funds in the first place.

\* The banks in this section are broad financial services companies with asset management divisions.

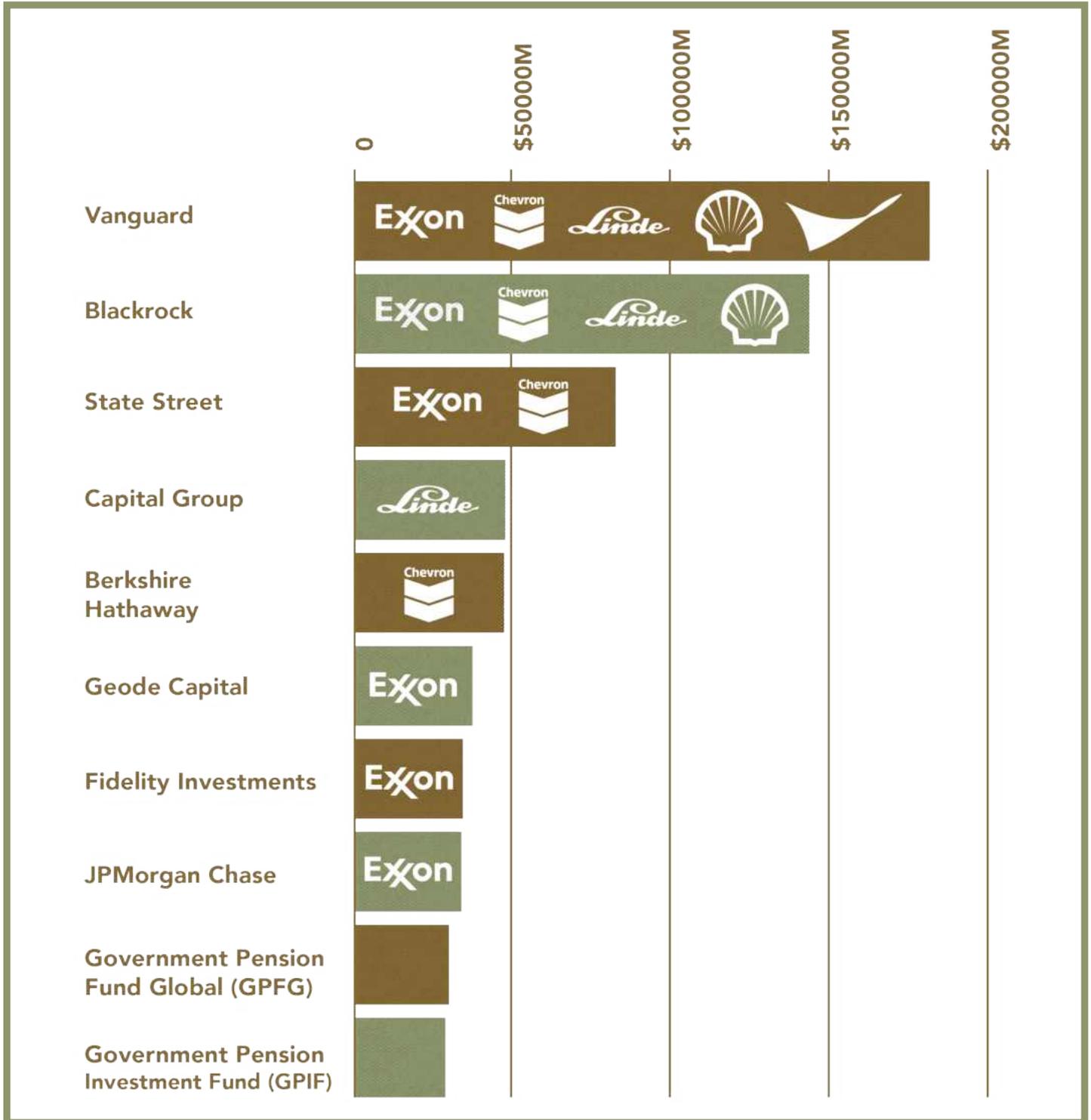
## 20 MOST TOXIC INVESTORS

These twenty investors controlled more than half of all investments in the companies leading the expansion of petrochemicals in the US, as of September 2025.

	INVESTOR	TYPE	COUNTRY	BONDS	EQUITY	TOTAL
1	Vanguard	Asset Manager	US	\$16.2 B	\$165.6 B	<b>\$181.8 B</b>
2	BlackRock	Asset Manager	US	\$10.1 B	\$133.8 B	<b>\$143.9 B</b>
3	State Street	Asset Manager	US	\$1.3 B	\$80.6 B	<b>\$81.9 B</b>
4	Capital Group	Asset Manager	US	\$3.0 B	\$44.5 B	<b>\$47.5 B</b>
5	Berkshire Hathaway	Asset Manager	US	\$0.0 B	\$47.4 B	<b>\$47.4 B</b>
6	Geode Capital Holdings	Asset Manager	US	\$0.1 B	\$37.5 B	<b>\$37.6 B</b>
7	Fidelity Investments	Asset Manager	US	\$4.4 B	\$30.0 B	<b>\$34.4 B</b>
8	JPMorgan Chase	Bank	US	\$1.5 B	\$31.9 B	<b>\$33.4 B</b>
9	Government Pension Fund Global (GPF)	Pension Fund	NO	\$2.5 B	\$27.4 B	<b>\$30.0 B</b>
10	Government Pension Investment Fund (GPIF)	Pension Fund	JP	\$1.0 B	\$28.0 B	<b>\$29.0 B</b>
11	Morgan Stanley	Bank	US	\$0.2 B	\$25.4 B	<b>\$25.6 B</b>
12	UBS	Bank	CH	\$1.1 B	\$21.6 B	<b>\$22.6 B</b>
13	Franklin Resources	Asset Manager	US	\$1.8 B	\$19.3 B	<b>\$21.1 B</b>
14	Bank of America	Bank	US	\$0.0 B	\$20.9 B	<b>\$20.9 B</b>
15	Charles Schwab	Asset Manager	US	\$0.5 B	\$20.1 B	<b>\$20.6 B</b>
16	Royal Bank of Canada	Bank	CA	\$0.9 B	\$18.1 B	<b>\$19.0 B</b>
17	T. Rowe Price	Asset Manager	US	\$0.3 B	\$18.2 B	<b>\$18.5 B</b>
18	Dimensional Fund Advisors	Asset Manager	US	\$1.3 B	\$15.3 B	<b>\$16.6 B</b>
19	Northern Trust	Asset Manager	US	\$0.2 B	\$16.3 B	<b>\$16.5 B</b>
20	Invesco	Asset Manager	US	\$1.7 B	\$14.2 B	<b>\$15.9 B</b>

# MOST TOXIC INVESTORS

Total investment in companies expanding US petrochemicals, September 2025.\*



\*Logos represent the top investments for each investor. The size of the logo does not correspond to the size of the investment.

# MOST TOXIC INVESTOR: VANGUARD

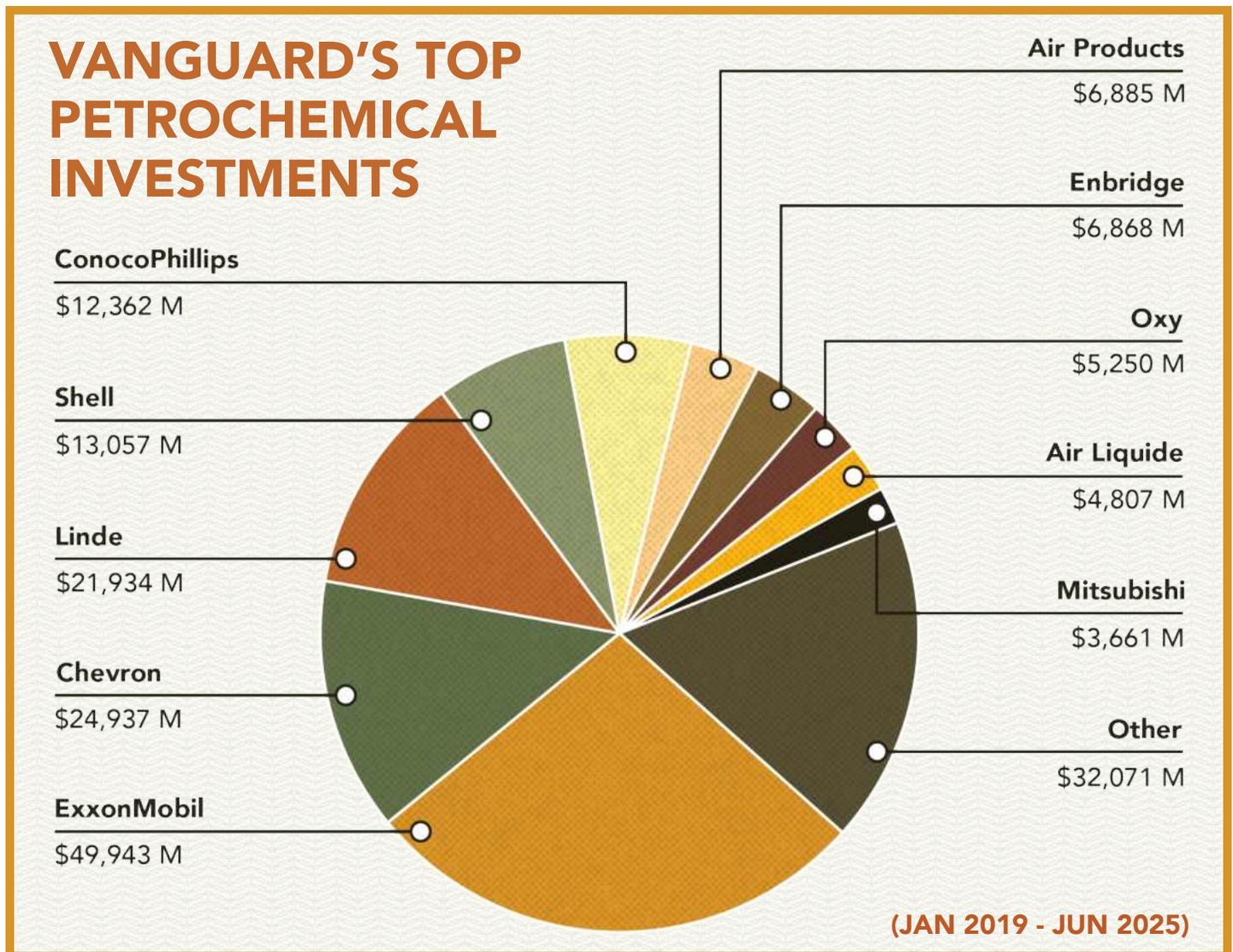
Vanguard holds \$182 billion in stocks and bonds — more than any other investor across the companies leading petrochemical expansion in the US as of September 2025.

Vanguard’s investments are tied to thirty-four major expansion projects,\* with combined projected costs of \$94 billion and expected annual emissions of 98.1 MMT CO<sub>2</sub>e — more than the national emissions of Colombia or Belgium.<sup>97</sup>

**Expansion Projects**  
34

**Expected Emissions**  
98.1 MMT CO<sub>2</sub>e

**Projected Cost**  
\$94 billion



\* This includes Golden Triangle Polymers Plant, which is co-owned by Chevron Phillips Chemical and QatarEnergy. Vanguard does not directly own shares or bonds in either company, but it is the largest shareholder in Chevron and Phillips 66—both of the parent companies of Chevron Phillips Chemical.

## CAMPAIGN HIGHLIGHT:

Vanguard is not only powering the next wave of petrochemical pollution; it is also the single largest investor in fossil fuels worldwide, with \$444 billion invested across the sector.<sup>98</sup> Through its 'passive' investment strategies, Vanguard channels enormous amounts of capital into some of the world's most polluting companies while demanding little to no accountability or credible transition plans.

Rather than strengthening its approach to environmentally responsible investment, Vanguard has moved in the opposite direction. Under political pressure from the Trump administration, the firm has reportedly retreated from its already limited "net-zero" commitment, failed to support environmental or sustainability-related shareholder proposals in 2025, and scaled back engagement on climate and diversity issues.<sup>99</sup>

**Vanguard S.O.S.** is leading calls on the asset manager to decarbonize its investment portfolio, step up its engagement and proxy voting with the worst corporate offenders, and integrate climate justice into its business decisions.

**Learn more at [www.vanguard-sos.com](http://www.vanguard-sos.com).**



## INDEPENDENT PROJECT DEVELOPERS

Independent project developers of varying sizes sponsor nine of the proposed petrochemical facilities reviewed in this report. Some projects are backed by large investment firms with multiple projects under development, while others exist primarily as names on permit applications.

Financial information on these independent developers is limited and largely absent from the data analyzed in previous sections. This section highlights the little information we do have on them. Across available databases, we identified bank financing data for only one developer and investor data for just two others. We supplemented this analysis with additional research and public reporting.

### Blue Bayou Ammonia

**Facility:** Blue Bayou Ammonia

**Investors:** Lotus Infrastructure Partners (formerly Starwood Energy),<sup>100</sup> the same firm behind the recently built Gulf Coast Ammonia.<sup>101</sup>

**Banks:** No bank financing found.

### Clean Hydrogen Works

**Facility:** Ascensions Clean Energy (ACE)

**Investors:** An undisclosed investor put in \$30 million in 2023, partnering with Exxon, Hafnia, and Mitsui OSK Lines are shareholders in the ACE project.<sup>102</sup>

**Banks:** No bank financing found.

### Cronus Chemicals

**Facility:** Cronus Ammonia Plant

**Investors:** Keytrade AG, a global fertilizer trading company.<sup>103</sup>

**Banks:** No bank financing found.

### Grannus

**Facility:** Grannus Alaska Blue Ammonia Project

**Investors:** Undisclosed investors put in \$2 million in 2015 and \$80,000 in 2024, including California-based co-op CALAMCO.<sup>104</sup>

**Banks:** No bank financing found.

### Lake Charles Methanol II

**Facility:** Lake Charles Methanol II

**Investors:** Clean Energy Resources LLC.<sup>105</sup>

**Banks:** Applied for a loan guarantee from the US Department of Energy; Morgan Stanley is managing the equity process.<sup>106</sup>

### Midwest Fertilizer Company

**Facility:** Midwest Fertilizer

**Investors:** The largest investor is the Fatima Group, a Pakistan-based conglomerate in the fertilizer business.<sup>107</sup>

**Banks:** No bank financing found.

### Northern Plains Nitrogen

**Facility:** Grand Forks Blue Ammonia Plant

**Investors:** 185 investors, including farmers and three co-ops.<sup>108</sup>

**Banks:** No bank financing found.

### St. Charles Clean Fuels

**Facility:** St. Rose Blue Ammonia Facility

**Investors:** Copenhagen Infrastructure Partners, a global energy investor, and Sustainable Fuels Group, a small project developer.<sup>109</sup>

**Banks:** No bank financing found.

### Ten08 Energy

**Facility:** Ten08 Clean Ammonia Plant

**Investors:** Received seed capital from Attis Clean Energy and Navigator Holdings, which also has an option to invest \$100 million in preferred equity during construction.<sup>110</sup>

**Banks:** Navigator raised \$1.7 billion, almost entirely in loans, across eighteen banks, with \$296 million going to US petrochemicals.

## ENVIRONMENT, SOCIAL, AND GOVERNANCE (ESG) FUNDING FOR PETROCHEMICALS

**ESG funds promise responsibility, but many are quietly bankrolling the companies fueling petrochemical pollution and climate harm.**

Environmental, social, and governance (ESG) funds market themselves as vehicles for socially responsible and sustainable investing. Yet in practice, many ESG products include and financially support the very companies driving toxic petrochemical expansion across the US.

We identified \$10.3 billion in ESG-linked investments in companies fueling US petrochemical expansion, including nearly two-thirds or thirty-three of the fifty-three companies driving the most significant planned expansions.<sup>111</sup>

**BlackRock** alone accounts for more than \$4 billion of these ESG investments, making it the largest single provider of ESG capital in the US petrochemical sector. Impax and Nordea Bank also emerged as major ESG asset managers, primarily due to significant holdings in Linde and Air Liquide, which top the list of ESG-funded companies, ahead of ExxonMobil, Shell, and Enbridge.

Our data shows that ESG funds routinely include some of the world's largest producers of plastics and fertilizers, as well as major oil and gas companies with long records of pollution, regulatory violations, and climate harm.<sup>112</sup> Hiding serial polluters in ESG funds, known as ESG-washing, misleads the public, undermines corporate accountability, shields misconduct from public scrutiny, and reduces pressure on investors to demand real corporate reform.<sup>113</sup>

Inclusion in ESG funds is typically based on assessments from ESG ratings agencies such as MSCI, FTSE Russell, and S&P Dow Jones. These ratings focus on financially material risks — those that could affect a company's bottom line — rather than on the real-world environmental, climate, or human rights impacts of its corporate operations.<sup>114</sup> As a result, companies with massive climate footprints and a history of opposing climate regulation can still receive good ESG ratings.<sup>115</sup> For example, ExxonMobil appears in various ESG funds managed by BlackRock, Fidelity, HSBC, and



JP Morgan, despite ExxonMobil's well-documented contribution to the climate crisis and long history of lobbying against climate regulations.<sup>116</sup>

## ESG FUNDS' TOP PETROCHEMICAL INVESTMENTS

	COMPANY	ESG FUNDS
1	Linde	\$3,444.7 M
2	Air Liquide	\$1,856.4 M
3	ExxonMobil	\$831.1 M
4	Shell	\$809.3 M
5	Enbridge	\$607.9 M
6	Shin-Etsu	\$375.9 M
7	Far Eastern	\$307.7 M
8	Chevron	\$292.2 M
9	Air Products	\$247.4 M
10	ConocoPhillips	\$245.5 M

## ESG FUNDS FINANCING PETROCHEMICAL EXPANSION

	FUND MANAGER	ESG FUNDS
1	Blackrock	\$4,028.5 M
2	Nordea	\$550.5 M
3	Impax	\$544.9 M
4	JPMorgan Chase	\$363.3 M
5	DWS Investment	\$324.5 M
6	Cathay Securities	\$283.7 M
7	UBS	\$255.3 M
8	Amundi	\$219.7 M
9	Royal London	\$208.7 M
10	Degroof Petercam	\$201.8 M

ESG ratings also systematically understate the risks associated with plastics, failing to fully account for the carbon emissions of plastic production and ignoring the environmental, social, and health harms that occur at every step of the plastics supply chain.<sup>117</sup>

**If ESG funds are to be genuinely sustainable, they must assess the real-world environmental and social impacts of corporate activity across entire supply chains — not merely the risks to a company's bottom line.**



# CHEMICAL RECYCLING: A TOXIC TECHNOLOGY

Chemical recycling, also marketed as ‘advanced recycling,’ ‘molecular recycling,’ ‘plastic circularity,’<sup>118</sup> and ‘solvolysis,’<sup>119</sup> is the plastics industry’s latest branding of a set of industrial processes that use heat, chemicals, or solvents to convert plastic waste into chemical products.<sup>120</sup>

Industry trade groups such as the American Chemistry Council (ACC) promote these technologies as innovative solutions to the plastics waste crisis.<sup>121</sup> In reality, these technologies remain inefficient, prohibitively expensive, and harmful to human health and the environment, according to analyses by Beyond Plastics, the International Pollutants Elimination Network, and the National Resources Defense Council.<sup>122</sup>

Dozens of chemical recycling facilities are now proposed across the US,<sup>123</sup> despite their significant barriers to commercialization — including immature technology,<sup>124</sup> high energy demands,<sup>125</sup> uncertain supply chains,<sup>126</sup> inconsistent feedstock,<sup>127</sup> low yield rates,<sup>128</sup> competitive end markets,<sup>129</sup> and legal risk.<sup>130</sup> The chemical recycling industry also has a history of facility failures and closures, financial instability, and staunch community opposition.<sup>131</sup>

## FINANCIAL BACKERS

This report examines the banks and investors financing three sample chemical recycling companies: Freepoint Eco-Systems, Alterra, and Nexus Circular. As privately held firms, information on these companies was limited.

We identified investor data for all three companies, but bank financing was available for only one, suggesting that chemical recycling companies rely more on equity investments than debt financing to fund new facilities. Where bank loans are available, backing from a larger, established parent company appears to play a role in securing funding.

Beyond private equity firms, investors frequently include companies operating in adjacent petrochemical, oil and gas, and packaging sectors. In one case, corporate investors committed to purchasing feedstock from the very facility financed by their investments. While some investors frame this involvement as contributing to sustainability goals, the extent to which these claims reflect genuine environmental benefits, rather than greenwashing, remains highly questionable.

### TOP BANKS FINANCING FREEPOINT ECO-SYSTEMS (JANUARY 2019 - JUNE 2025)

	BANK	COUNTRY	LOANS
1	Groupe BPCE	France	\$2,669 M
2	Mitsubishi UFJ Financial	Japan	\$2,628 M
3	BNP Paribas	France	\$1,688 M
4	ING Group	Netherlands	\$1,440 M
5	Société Générale	France	\$1,390 M
6	Rabobank	Netherlands	\$1,390 M
7	Wells Fargo	United States	\$971 M
8	UBS	Switzerland	\$719 M
9	Standard Chartered	United Kingdom	\$592 M
10	ABN Amro	Netherlands	\$592 M

## FREEPOINT ECO-SYSTEMS

**Investors:** Freepoint Eco-Systems is a subsidiary of Freepoint Commodities, a global commodities trader and financier located in Stamford, Connecticut.<sup>132</sup> In turn, Freepoint Commodities is owned by **Stone Point Capital**, a private equity firm that invests in the financial services industry.<sup>133</sup>

**Banks:** Freepoint received a total of \$15.7 billion in loans from seventeen banks between January 2019 and June 2025. We estimate that \$1.1 billion was allocated for the expansion and operation of pyrolysis and chemical recycling.

Freepoint received 63% of its financing from just five banks: **Groupe BPCE**, **Mitsubishi UFJ Financial**, **BNP Paribas**, **ING Group**, and **Société Générale**. The vast majority of funding came from banks located in France (38%), the Netherlands (22%), and Japan (20%).

Freepoint Eco-Systems received \$50 million from **ING Group** in project financing for its plastics pyrolysis facility in Hebron, Ohio, in March 2025.<sup>134</sup>

## ALTERRA

**Investors:** In October 2024, Alterra closed an investment round led by **Infinity Recycling** and joined by LyondellBasell, Chevron Phillips Chemical, Neste, and **Potenza Capital**.<sup>135</sup> Neste, a sustainable aviation fuel company, had already acquired a minority stake in Alterra in 2021,<sup>136</sup> and **Potenza Capital** is referred to as a 'long-term investor.'<sup>137</sup> Alterra has also agreed to license its process to Neste and Freepoint Eco-Systems to develop plants in Europe and the US.<sup>138</sup>

**Banks:** No bank financing was identified between January 2019 and June 2025.

## NEXUS CIRCULAR

**Investors:** In January 2023, Cox Enterprises became the majority owner of Nexus Circular after leading a \$150 million funding round.<sup>139</sup> Cox Enterprises is the parent company of Autotrader, Kelley Blue Book, and the Cox cable company. Other investors include Braskem, Chevron Phillips Chemical, and Printpack.<sup>140</sup> Braskem and CPChem are both petrochemical companies that signed offtake agreements with Nexus Circular for the output from its new facility.<sup>141</sup> Printpack is a packaging company serving 150 consumer brands, including Hershey's, Doritos, Tostitos, Cheetos, Lays, Goldfish, Skittles, Purina, and Kleenex.<sup>142</sup>

**Banks:** No bank financing was identified between January 2019 and June 2025.



## PUBLIC SUBSIDIES AND TAX BREAKS

Petrochemical expansion is not only driven by private financing — it is also propped up by billions of dollars in public subsidies, tax incentives, and government-backed funding. Public support — ranging from federal subsidies to local incentives — masks the actual cost of petrochemical projects, leaving communities to pay twice: first through public spending and again through the environmental, health, and climate harms that corporations leave behind in their pursuit of profit.

**Governments routinely offer tax exemptions, infrastructure grants, low-interest loans, loan guarantees, and direct subsidies to petrochemical producers.<sup>143</sup> These incentives often comprise a substantial share of a project's total cost, fundamentally shaping whether a project can move forward.**

Petrochemical expansion in the US, particularly in Louisiana and Texas, has benefited from billions of dollars in public support over the past decade.<sup>144</sup> For example, Shintech's Plaquemine complex in Iberville Parish, Louisiana, saved \$533 million between 2013 and 2023, mainly through property tax exemptions granted under Louisiana's Industrial Tax Exemption Program (ITEP).<sup>145</sup>

Public financing also plays a significant role. State-backed investment banks and export credit agencies are a significant source of petrochemical financing globally, and US expansion projects are no exception.<sup>146</sup> For instance, the **Japan Bank for International Cooperation (JBIC)** is providing \$626 million in financing to Mitsui for its Blue Point complex in Louisiana.<sup>147</sup>

Public subsidies distort markets, obscure the actual risks of petrochemical investment, and encourage companies to pursue facilities that may never be economically viable without continued public support. Subsidies may help push forward projects that communities have resisted, or that markets would otherwise reject.

**Public incentives for the petrochemical sector, including tax breaks and subsidies, socialize the risks but privatize the profits: communities absorb the construction costs, pollution, health harms, and long-term costs, while corporations and financiers capture the benefits.**

## POLICY REVIEW

Despite the numerous harms and risks posed by the petrochemical industry, banks and investors have largely failed to adopt public policies on petrochemicals, plastics, fertilizers, or pesticides. **Failure to acknowledge or act on these harms and risks does not make them go away.**

We reviewed public policies at the top ten most toxic banks and investors listed in this report.<sup>148</sup> Here's what we found:

- Zero banks have exclusion policies that limit or end financing for the expansion of the petrochemical industry.
- Two banks, **HSBC** and **Barclays**, acknowledge the harms and risks associated with petrochemicals and plastics, but neither has policies to address them.<sup>149</sup>
- Zero banks have regional exclusion policies to end financing for petrochemical projects in frontline communities already overburdened by pollution.
- Nine of the ten banks — all except **Wells Fargo** — have set 2050 "net-zero" greenhouse gas emissions reduction targets, yet none are consistent with a 1.5°C pathway.
- One bank, **Deutsche Bank**, would limit financing to some "high-emitting" clients that fail to engage in emissions reduction, but no explicit requirements applying to petrochemical, plastics, or fertilizer producers have been made public.<sup>150</sup>
- Two banks, **Mizuho** and **Deutsche Bank**, participate in grievance mechanisms accessible to affected communities and acknowledge their role in remediation.<sup>151</sup>
- All ten banks publicly stated their commitment to human rights and formally acknowledged the principles of Free, Prior, and Informed Consent (FPIC) for Indigenous Peoples; yet, these commitments are inconsistently applied and weakened by exclusions or loopholes.<sup>152</sup>
- Eight of the ten most toxic investors are asset managers or have an asset management division, and none of them have public policy frameworks that require portfolio-level **greenhouse gas emissions reductions, client transition plans, regional exclusions, human rights and FPIC, or grievance mechanisms.**
- Two public investors — Japan's **Government Pension Investment Fund (GPIF)** and Norway's **Government Pension Fund Global (GPF)** — appear in our ten most toxic investors. These institutions have more established sustainability and ethics policies<sup>153</sup> and engagement frameworks,<sup>154</sup> however, these are not specifically tailored to petrochemicals, plastics, or fertilizers.



In short, banks and investors fall short in addressing petrochemical expansion in line with their stated commitments to climate and human rights. While most major banks maintain long-term "net-zero" pledges, these commitments sit in direct contradiction to their continued financing of petrochemical expansion and their failure to address downstream emissions and harms associated with petrochemicals, plastics, and fertilizers. Limited racial equity commitments made in response to shareholder pressure have likewise failed to result in meaningful accountability or redress for petrochemical-related harms.

Asset managers are even less responsive to the social, environmental, and climate risks of petrochemical expansion. Firms such as **BlackRock** have asserted that the fiduciary role of asset managers entails deference to client preferences, perhaps as a justification for their lack of meaningful action.<sup>155</sup> Asset managers hold significant power — and fiduciary responsibility<sup>156</sup> — to ensure investee companies align with climate goals, address environmental racism, and protect human rights. Instead, they appear to have scaled back their already weak engagement on these critical topics, potentially in response to political pressure from the Trump administration.<sup>157</sup>

The two public investors surveyed, Japan's **GPIF** and Norway's **GPFG**, demonstrate that stronger approaches are possible. **GPFG**, for example, maintains a robust exclusion list, which prohibits it from investing in companies implicated in serious human rights abuses, severe environmental damage, or excessive greenhouse gas emissions.<sup>158</sup> It has updated its investment and engagement strategy to encourage investee companies to transition towards "net zero" emissions by 2050.<sup>159</sup> While it remains far from divestment, **GPFG** also cut billions of investments in the world's largest oil and gas companies in 2025 — including those invested in US petrochemical expansion, such as ExxonMobil and Shell.<sup>160</sup> Similarly, **GPIF** revised its Sustainability Investment policies in 2025 to better factor social and environmental impact in its decisions, though without explicit treatment of petrochemicals or fossil fuels.<sup>161</sup>

These examples demonstrate that policy tools exist, but banks and investors have chosen not to use them. **Ending the financing of petrochemical expansion will require financial institutions to close the gap between rhetoric and action by adopting binding exclusions, aligning portfolios with climate science, and centering the rights and health of frontline communities.**

## RECOMMENDATIONS

The expansion of petrochemicals in the US and globally would have devastating consequences for the environment, the climate, and human health. Yet this toxic buildout is only possible because of the billions of dollars in loans, bonds, and investments provided by the financial sector. **Banks, investors, governments, and regulators hold the power and the responsibility to stop petrochemical expansion and prevent its harms.**

---

### THE FINDINGS IN THIS REPORT MAKE CLEAR THAT CONTINUED PETROCHEMICAL EXPANSION IS A CHOICE, NOT A NECESSITY.

Financial institutions, policymakers, and regulators can withdraw support from a dangerous and declining industry and redirect capital toward solutions that protect human health, uphold human rights, and secure a livable climate.

#### Recommendations for Banks

- **Immediately prohibit all financing for petrochemical expansion**, including for any company with plans for new or expanded facilities for plastics, fertilizers, pesticides, and chemical feedstocks.
- **Adopt absolute greenhouse gas emissions reduction targets** with short-, medium-, and long-term sectoral benchmarks that include indirect emissions (scope 3) and account for the full petrochemical supply chain.
- **Adopt environmental and social policies** that prohibit the financing of any petrochemical company with repeated violations of environmental regulations, human rights, or Indigenous Peoples' sovereignty.
- **End financing for any company with petrochemical projects in communities of color and low-income communities** that are already overburdened by pollution and cumulative environmental harm.

#### Recommendations for Asset Managers and Investors

- **Divest from companies proposing or advancing petrochemical expansion in the US.**
- **Require all petrochemical investee companies to develop and publicly disclose credible and 1.5°C-aligned just transition plans** that prioritize immediate fossil fuel phase-out and exclude reliance on unproven technologies to prevent irreversible biodiversity loss and climate injustice.



## Recommendations for Local and State Governments

- **Deny and revoke tax breaks, subsidies, and other public incentives for petrochemical companies.**
- **Initiate litigation to recoup damages caused by petrochemical companies**, including pollution, climate impacts, and public health harms.
- **Pressure banks and asset managers entrusted with public funds to divest** from companies expanding petrochemical production, or move public money to financial institutions with stronger climate, environmental, and human rights policies and practices.
- **Divest public pension funds from asset managers that fail to address the climate, environmental, and social risks of petrochemical expansion** or that do not require clients to align with a 1.5°C climate pathway.

## Recommendations for Federal Government

- **Eliminate federal funding for fossil fuels and petrochemicals**, including
  - removing subsidies and tax breaks for polluting industries,
  - prohibiting export credit and development financing for fossil fuel and petrochemical projects.
- **Adopt laws and regulations that restrict financing for fossil fuels and petrochemicals**, including finance regulations that establish:
  - mandatory, standardized climate-related disclosures,
  - expanded investor and fiduciary rights to manage climate and environmental risk,
  - green credit policies, capital requirements, and prudential regulations that set firm limits on petrochemical financing.

## Recommendations for the Public

- **Move savings and investments out of banks and asset managers** that continue to finance petrochemical expansion.
- **Support campaigns, policies, financial institutions, and companies** that prioritize health, climate, stability, environmental justice, and human rights over profit and growth.

## AUTHORS / CONTRIBUTORS

# #BreakFreeFromPlastic

**Break Free From Plastic** is a global movement of 2,900+ member organizations that advocates for a future free from plastic pollution. Break Free and its members work for environmental justice and an end to the plastic pollution crisis by fighting for systemic change across the whole petrochemical value chain, from fossil fuel extraction to plastic waste disposal.



Founded in 1989, the **Center for International Environmental Law (CIEL)** uses the power of law to protect the environment, promote human rights, and ensure a just and sustainable society. CIEL is dedicated to advocacy in the global public interest through legal counsel, policy research, analysis, education, training, and capacity building.



**Friends of the Earth US** fights for a more healthy and just world. Together, we speak truth to power and expose those who endanger the health of people and the planet for corporate profit. We organize to build long-term political power and campaign to change the rules of our economic and political systems that create injustice and destroy nature.





**The Gulf South Fossil Finance Hub** is a hub of frontline community groups and their partner organizations fighting the financial underpinnings of fossil fuel, petrochemical, and false solution infrastructure. We are educating, training, assisting, and surviving within Gulf South communities demanding the right to clean air and water. We are creating a future where financial practices align with environmental justice, prioritize renewable energy, and support marginalized communities that have historically been affected by fossil fuel extraction and pollution.



**Texas Campaign for the Environment (TCE)** works towards a Texas free from pollution. Since 1991, we have empowered everyday Texans who are doing whatever it takes to fight for clean air and water in their communities. TCE is organizing to push back on oil, gas, petrochemical and plastic polluters—and their political and financial enablers—who are profiting from climate destruction.



**The People Over Petro Coalition (POPCO)** is a regionally united front of more than 50 organizations working across the Ohio River Valley (OH, PA, WV) and beyond. Founded in 2019, POPCO supports our communities in creating a world that puts people's health and well-being over fossil-fueled corporate profits.

## GLOSSARY

**Agrochemicals:** Agrochemicals are chemicals used in agriculture, including synthetic fertilizers and pesticides.

**Ammonia:** Ammonia is a colorless and toxic gas that is used in the production of synthetic fertilizers.

**Banks:** Banks provide companies loans and underwrite the sale of new shares and bonds.

**Bonds:** A bond is a small piece of a large loan. Similar to a loan, the company issuing a bond agrees to repay the original amount on a specific date and to make regular interest payments. Similar to stocks, investors can buy and sell bonds after the initial purchase.

**Bond issuances:** Corporations and governments issue new bonds and then sell them to investors. Banks typically underwrite or facilitate the bond issuing process.

**Corporate financing:** Banks provide companies with corporate or general purpose financing that can be used for a wide variety of purposes across the company.

**Debt financing:** Companies can raise capital by borrowing money. Two common types of debt financing are loans and bonds. Debt financing must be paid back with interest.

**Equity financing:** Companies can raise capital by selling a piece (or share) of the company to investors. Equity financing is not paid back.

**Feedstocks:** Feedstocks are the raw materials used for manufacturing plastics, other chemical products, or fuels.

**Fertilizer:** Fertilizer is a substance (either organic or synthetic) that is added to land or soil to increase its productivity. Synthetic fertilizers are derived from mineral or fossil fuel extraction.

**Investors:** Investors purchase the stocks and bonds that companies issue, often with banks acting as an intermediary.

**Loans:** Banks lend companies money that must be repaid over time with interest, similar to a car loan or a mortgage. Banks also offer companies revolving loans or lines of credit that companies can draw from as needed, functioning more like a credit card.

**Petrochemicals:** Petrochemicals are chemicals derived from fossil fuels, primarily oil and gas, which are then used to produce plastics, synthetic fertilizer, and other chemical products.

**Project financing:** Banks provide companies with project financing that is earmarked for use on a specific project.

**Shares:** Shares or stocks represent a percent of equity ownership or control in a business. Companies sell shares to investors in exchange for money. In return, stocks can entitle an investor to a share of profits and influence over decision-making.

**Share issuances:** Corporations issue new shares and then sell them to investors. Banks typically underwrite or facilitate the share issuing process.

**Underwriting:** Through underwriting, banks help companies raise money by facilitating the sale of new stocks and bonds to investors.

## PHOTO CREDITS

**Front page, left:** © Wikicommons, Digital Public Library of America - No Known Copyright determination made by Science History Institute (Q5090408) using RightsStatements.org - Notes: Photo was edited from and in no way endorsed by original source.

**Front page, right:** © Wikicommons, Michael Zanussi - CC-BY-SA-3.0. Notes: Photo was edited from and in no way endorsed by original source.

**Page 1:** © Kyle James McCoy, Texas Campaign for the Environment.

**Pages 3-4:** © Wikicommons, Environmental Protection Agency. Notes: Photo was edited from and in no way endorsed by original source.

**Page 5:** © Kyle James McCoy, Texas Campaign for the Environment.

**Page 6:** © Ted Auch, FrackTracker Alliance - 2023.

**Page 7, 13, 17, 18, 19, 20, 37, 38, 40:** © Wikicommons, US federal government. Notes: Photo was edited from and in no way endorsed by original source.

**Page 8:** © Kyle James McCoy, Texas Campaign for the Environment.

**Page 9:** © Ted Auch, FrackTracker Alliance, 2023.

**Page 11,12:** © Ted Auch, FrackTracker Alliance, 2022.

**Page 14, 48:** © Ted Auch, FrackTracker Alliance.

**Page 26:** © Ted Auch, FrackTracker Alliance, 2019.

**Page 28:** © Luis Yanez.

**Page 33:** © Luis Yanez.

**Page 35, 36:** © Ted Auch, FrackTracker Alliance, 2019.

**Page 39:** © Ted Auch, FrackTracker Alliance, 2024.

**Page 42:** © Ted Auch, FrackTracker Alliance, 2020.

**Page 45:** © Ted Auch, FracTracker Alliance, 2019.

**Page 46:** © Ted Auch, FrackTracker Alliance, 2023.

**Page 66:** © Ted Auch, FrackTracker Alliance, 2024.

**Money Textures:** © Texturelabs.com.



## ENDNOTES

- 1 Center for International Environmental Law (CIEL) et al., *Plastic & Health: The Hidden Costs of a Plastic Planet* (CIEL, 2019), <https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>; CIEL, *Fossils, Fertilizers, and False Solutions: How Laundering Fossil Fuels in Agrochemicals Puts the Climate and the Planet at Risk* (CIEL, 2022), <https://www.ciel.org/wp-content/uploads/2022/10/Fossils-Fertilizers-and-False-Solutions.pdf>.
- 2 CIEL, *Emissions Unleashed: The Climate Crisis and America's Petrochemical Boom* (CIEL, 2024), [https://www.ciel.org/wp-content/uploads/2024/09/Emissioned-Unleashed\\_The-Climate-Crisis-and-Americas-Petrochemical-Boom.pdf](https://www.ciel.org/wp-content/uploads/2024/09/Emissioned-Unleashed_The-Climate-Crisis-and-Americas-Petrochemical-Boom.pdf); "Home," Oil and Gas Watch, accessed February 1, 2026, <https://oilandgaswatch.org/>.
- 3 Amnesty International, *The Cost of Doing Business? The Petrochemical Industry's Toxic Pollution in the USA* (2024), <https://www.amnesty.org/en/documents/AMR51/7566/2024/en/>; Human Rights Watch, "We're Dying Here": *The Fight for Life in a Louisiana Fossil Fuel Sacrifice Zone*, (2024) [https://www.hrw.org/sites/default/files/media\\_2024/01/us\\_louisiana0124web.pdf](https://www.hrw.org/sites/default/files/media_2024/01/us_louisiana0124web.pdf).
- 4 Alexander H. Tullo, "Chemical Firms Are Shutting Plants After Tough Second Quarter," *Chemical & Engineering News*, August 9, 2023, <https://cen.acs.org/business/finance/Chemical-firms-shutting-plants-tough/101/i26>; Reuters, "Closures, Disposals Reshaping the Global Petrochemical Sector," July 21, 2025, <https://www.reuters.com/business/energy/closures-disposals-reshaping-global-petrochemical-sector-2025-07-21/>. See also Ximena Banegas, "Propping Up a Failing Industry: How Overcapacity, Tariffs, and Subsidies Are Masking the Plastics and Petrochemical Crisis," *CIEL*, July 24, 2025, <https://www.ciel.org/plastics-petrochemical-crisis/>.
- 5 Zane Gustafson et al., *The Uncertain Ammonia Industry, Present & Future* (Ohio River Valley Institute (ORVI), 2025), [https://ohiorivervalleyinstitute.org/wp-content/uploads/2025/02/Ammonia\\_v5.3-FINAL-1.pdf](https://ohiorivervalleyinstitute.org/wp-content/uploads/2025/02/Ammonia_v5.3-FINAL-1.pdf).
- 6 Rosie Frost, "Nearly 100 Countries Call for Ambitious Global Treaty to End Plastic Pollution at UN Ocean Summit" *Euronews*, November 6, 2025, <https://www.euronews.com/green/2025/06/11/nearly-100-countries-call-for-ambitious-global-treaty-to-end-plastic-pollution-at-un-ocean>; UN Environment Programme (UNEP), "Global Framework Agreed in Bonn Sets Targets to Address Harm from Chemicals and Waste," press release, September 30, 2023, <https://www.unep.org/news-and-stories/press-release/global-framework-agreed-bonn-sets-targets-address-harm-chemicals-and>; "Beat Nitrogen Pollution," UNEP, accessed February 1, 2026, <https://www.unep.org/beatpollution/nitrogen>; Food and Agriculture Organization (FAO), "Nitrogen Use Efficiency Must Be Improved to Reduce Harm to Human and Environmental Health: FAO Publishes Comprehensive Report on Sustainable Nitrogen Management in Agrifood Systems," news detail, January 20, 2025, <https://www.fao.org/newsroom/detail/FAO-nitrogen-use-efficiency-report/en>.
- 7 International Energy Agency (IEA), *The Future of Petrochemicals: Towards More Sustainable Plastics and Fertilisers* (OECD/IEA, 2018), [https://iea.blob.core.windows.net/assets/bee4ef3a-8876-4566-98cf-7a130c013805/The\\_Future\\_of\\_Petrochemicals.pdf](https://iea.blob.core.windows.net/assets/bee4ef3a-8876-4566-98cf-7a130c013805/The_Future_of_Petrochemicals.pdf).
- 8 IEA, 11, 58, 59.

- 9** IEA, 30. Figure 2.3 reproduces a graph from Peter G. Levi and Jonathan M. Cullen, "Mapping Global Flows of Chemicals: From Fossil Fuel Feedstocks to Chemical Products," *Environmental Science & Technology* 52, no. 4, (2018), 1729, <https://pubs.acs.org/doi/10.1021/acs.est.7b04573>.
- 10** "Home," Oil and Gas Watch, accessed January 9, 2026, <https://oilandgaswatch.org/>. Go to "search the database," select project types "Ammonia or Fertilizer," "Ethane Cracker," "Methanol Plant," "Plastic Resin Manufacturing," "Propylene Plant," "Other Organic Chemicals," and Project Status "Proposed," "Under Construction," and "On Hold." As of January 9, 2026, search returns 110 results.
- 11** Amnesty International, *The Cost of Doing Business? The Petrochemical Industry's Toxic Pollution in the USA* (2024), 25, <https://www.amnesty.org/en/documents/AMR51/7566/2024/en>; Human Rights Watch, "We're Dying Here."
- 12** American Chemistry Council (ACC), "U.S. Chemical Industry Investment Linked to Shale Gas Reaches \$200 Billion," press release, September 11, 2018, <https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2018/us-chemical-industry-investment-linked-to-shale-gas-reaches-200-billion>; Reid Frazier, "The U.S. Natural Gas Boom Is Fueling A Global Plastics Boom," *NPR*, November 15, 2019, <https://www.npr.org/2019/11/15/778665357/the-u-s-natural-gas-boom-is-fueling-a-global-plastics-boom>; US Department of Energy (DOE), *Energy and Environmental Profile of the U.S. Chemical Industry* (2000), 51, [https://www.energy.gov/sites/prod/files/2013/11/f4/profile\\_full.pdf](https://www.energy.gov/sites/prod/files/2013/11/f4/profile_full.pdf); "The Journey of Petrochemicals Explained: From Raw Materials to 95% of All Manufactured Goods," The European Chemical Industry Council (Cefic), March 16, 2023, <https://cefic.org/news/the-journey-of-petrochemicals-explained-from-raw-materials-to-95-of-all-manufactured-goods/>.
- 13** US Energy Information Administration (EIA), "U.S. Ethane Production to Grow, Along with Expanding Domestic Consumption and Exports," May 21, 2021, <https://www.eia.gov/todayinenergy/detail.php?id=48056>; Courtney Bernhardt, "Plastics Industry Boom Brings Flood of New Ethylene "Cracker" Plants, Despite Frequent Environmental Violations," *Oil and Gas Watch*, September 20, 2022, <https://news.oilandgaswatch.org/post/plastics-boom-brings-flood-of-new-ethylene-cracker-chemical-plants-despite-frequent-environmental-violations>; Courtney Bernhardt, "With 14 Ethane Cracker Projects Looming, Analysts Wonder Whether Companies are Overbuilding," *Oil and Gas Watch*, July 24, 2025, <https://news.oilandgaswatch.org/post/with-14-ethane-cracker-projects-looming-analysts-wonder-whether-companies-are-overbuilding>.
- 14** "Home," Oil and Gas Watch; CIEL, *Emissions Unleashed*.
- 15** Gustafson et al., *Uncertain Ammonia Industry*, 14.
- 16** Gustafson et al., 15.
- 17** CIEL, *Emissions Unleashed*, 33.
- 18** "Adams Fork Energy," Adams Fork Energy, accessed January 30, 2026, <https://adamsforkenergy.com/>; "The Ace Project," Ascension Clean Energy, accessed January 30, 2026, <https://www.cleanhydrogenworks.com/the-ace-project/>; "Home - project YarEN," Project YarEN, accessed January 30, 2026, <https://projectyaren.com/>; Bryan Gottlieb, "Chevron Plans \$5B Blue Hydrogen and Ammonia Project in Texas," *ENR Texas & Southeast*, July 14, 2025, <https://www.enr.com/articles/61038-chevron-plans-5b-blue-hydrogen-and-ammonia-project-in-texas>.

- 19** Institute for Energy Economics and Financial Analysis, *The Carbon Capture Crux: Lessons Learned* (2022), <https://ieefa.org/sites/default/files/2022-09/The%20Carbon%20Capture%20Crux.pdf>.
- 20** IEA, "Methane From Oil & Gas," *Methane Tracker 2020*, (2020), <https://www.iea.org/reports/methane-tracker-2020/methane-from-oil-gas>; Evan D. Sherwin et al., "US Oil and Gas System Emissions from Nearly One Million Aerial Site Measurements," *Nature* 627 (2024): 328 <https://doi.org/10.1038/s41586-024-07117-5>. One assessment of the climate impact of blue hydrogen (from which blue ammonia is produced) found that overall greenhouse gas emissions from burning blue hydrogen would be greater than merely using the underlying fossil gas itself due to the significant upstream emissions from gas production. Robert Howarth and Mark Jacobson, "How green is blue hydrogen?," *Energy Science & Engineering* 9 (2021): 1676, <https://doi.org/10.1002/ese3.956>.
- 21** Richard B. Kuprewicz, Accufacts Inc., *Accufacts' Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations as it Relates to Carbon Capture, Utilization, and Sequestration within the U.S.* (2022), 8, <https://pstrust.org/wp-content/uploads/2022/03/3-23-22-Final-Accufacts-CO2-Pipeline-Report2.pdf>.
- 22** CIEL, *Fossils, Fertilizers, and False Solutions*, 14, 18.
- 23** CIEL et al., *Plastic & Health*, 1-3; "Plastics and Human Rights," Geneva Environment Network, last updated August 7, 2025, <https://www.genevaenvironmentnetwork.org/resources/updates/plastics-and-human-rights/>.
- 24** Amnesty International, *The Cost of Doing Business?*; "Protecting the Texas Coast from Plastic Pellet Pollution," *Environment America*, accessed January 9, 2026, <https://environmentamerica.org/texas/articles/protecting-the-texas-coast-from-plastic-pellet-pollution>; National Oceanic and Atmospheric Administration (NOAA), "Gulf of Mexico 'Dead Zone' Larger than Average, Scientists Find," August 1, 2024, <https://www.noaa.gov/news-release/gulf-of-mexico-dead-zone-larger-than-average-scientists-find>; "Explaining the Gulf of Mexico Dead Zone," Restore the Mississippi River Delta, accessed January 30, 2026, <https://mississippiriverdelta.org/learning/explaining-the-gulf-of-mexico-dead-zone/>; Craig Welch, "How Climate Change Likely Strengthened Recent Hurricanes," National Geographic, September 20, 2017, <https://www.nationalgeographic.com/science/article/hurricane-harvey-climate-change-global-warming-weather>.
- 25** CIEL et al., *Plastic & Health*, 2.
- 26** Kimberly A. Terrell et al., "Toxic Air Pollution and Concentrated Social Deprivation Are Associated with Low Birthweight and Preterm Birth in Louisiana," *Environmental Research: Health* 2, no. 2 (2024): 021002, <https://doi.org/10.1088/2752-5309/ad3084>; X Xu et al., "Association of Petrochemical Exposure with Spontaneous Abortion," *Occupational & Environmental Medicine* 55, no. 1 (1998): 31-6, <https://doi.org/10.1136/oem.55.1.31>; Anne Marie Z. Jukic et al., "Ambient Air Pollution in Critical Windows of Exposure and Spontaneous Miscarriage in a Preconception Cohort," *Environmental Research* 281 (2025), <https://doi.org/10.1016/j.envres.2025.121965>; Stephanie M. Eick et al., "Prenatal Exposure to Persistent and Non-Persistent Chemical Mixtures and Associations with Adverse Birth Outcomes in the Atlanta African American Maternal-Child Cohort," *Journal of Exposure Science & Environmental Epidemiology* 34, no. 4 (2024): 570, <https://doi.org/10.1038/s41370-023-00530-4>.

- 27** Terrell et al., "Toxic Air Pollution," 5.
- 28** Terrell et al., 5.
- 29** Ellis S. Robinson et al., "Total Cancer Risk Estimates from Measured Concentrations of Volatile Organic Compounds in Industrialized Southeastern Louisiana," *PNAS* 122, no. 41 (2025): 5, fig. 2, <https://www.pnas.org/doi/pdf/10.1073/pnas.2504770122>.
- 30** Andrea A. Chiger et al., "Improving Methodologies for Cumulative Risk Assessment: A Case Study of Noncarcinogenic Health Risks from Volatile Organic Compounds in Fenceline Communities in Southeastern Pennsylvania," *Environmental Health Perspectives* 133, no. 5 (2025): 057004, fig. 5, <https://doi.org/10.1289/EHP14696>.
- 31** Steve Lerner, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States* (MIT Press, 2010), 3, <https://doi.org/10.7551/mitpress/8157.001.0001>.
- 32** Peter Beech, "What Is Environmental Racism and How Can We Fight It?," *World Economic Forum*, July 31, 2020, <https://www.weforum.org/stories/2020/07/what-is-environmental-racism-pollution-covid-systemic/>.
- 33** Amnesty International, *The Cost of Doing Business?*, 29; Gary Puckrein and MaryLisabeth Rich, *The Cancer Moonshot, Public Policy, and Medically Underserved Cancer Care Communities: Report to the White House Office of Science & Technology Policy* (2024), 30, [https://shiftcancer.org/wp-content/uploads/2024/01/NMQF\\_WhiteHouseReport\\_Final.012224.pdf](https://shiftcancer.org/wp-content/uploads/2024/01/NMQF_WhiteHouseReport_Final.012224.pdf).
- 34** Human Rights Watch, "We're Dying Here"; Puckrein and Rich, *The Cancer Moonshot*, 30.
- 35** Nancy Lauer et al., *The Social Cost of Plastic to the United States* (Nicholas Institute for Energy, Environment, & Sustainability, 2025), <https://nicholasinstitute.duke.edu/sites/default/files/publications/the-social-cost-of-plastic-united-states.pdf>.
- 36** National Center for Farmworker Health, *Facts About Agricultural Workers* (2022), <https://www.ncfh.org/facts-about-agricultural-workers-fact-sheet.html>; Tudi, M. et al., "Exposure Routes and Health Risks Associated with Pesticide Application," *Toxics* 10, no. 6 (2022): 335, 5-6, <https://doi.org/10.3390/toxics10060335>.
- 37** Hubertus Brunn et al., "Pfas: Forever Chemicals — Persistent, Bioaccumulative and Mobile: Reviewing the Status and the Need for Their Phase Out and Remediation of Contaminated Sites," *Environmental Sciences Europe* 35, no.1 (2023): 20, <https://doi.org/10.1186/s12302-023-00721-8>.
- 38** UNEP, "Four Reasons Why the World Needs to Limit Nitrogen Pollution," January 16, 2023, <https://www.unep.org/news-and-stories/story/four-reasons-why-world-needs-limit-nitrogen-pollution>.
- 39** Steve Allen et al., "Micro(Nano)Plastics Sources, Fate, and Effects: What We Know After Ten Years of Research," *Journal of Hazardous Materials Advances*, 6 (2022): 100057, <https://doi.org/10.1016/j.hazadv.2022.100057>; Landrigan et al., "The Minderoo-Monaco Commission on Plastics and Human Health," *Annals of Global Health* 89, no. 1 (2023): 1, <https://annalsof-globalhealth.org/articles/4056/files/65268b66bea4c.pdf>; Maxine Swee-Li Yee et al., "Impact of Microplastics and Nanoplastics on Human Health," *Nanomaterials*, 11 (2021): 496, <https://doi.org/10.3390/nano11020496>.

- 40** Heather A. Leslie et al., "Discovery and Quantification of Plastic Particle Pollution in Human Blood," *Environment International* 163 (2022): 107199, <https://doi.org/10.1016/j.envint.2022.107199>; Yunxiao Yang et al. "Detection of Various Microplastics in Patients Undergoing Cardiac Surgery," *Environmental Science & Technology* 57, no. 30 (2023): 10911, <https://doi.org/10.1021/acs.est.2c07179>; Luís Fernando Amato-Lourenço et al., "Presence of Airborne Microplastics in Human Lung Tissue," *Journal of Hazardous Materials* 416 (2021): 126124, <https://doi.org/10.1016/j.jhazmat.2021.126124>; Matthew Campen et al., "Bioaccumulation of Microplastics in Decedent Human Brains Assessed by Pyrolysis Gas Chromatography-Mass Spectrometry," *Research Square* [preprint] (2024), <https://doi.org/10.21203/rs.3.rs-4345687/v1>.
- 41** Xunsi Qin et al., "Features, Potential Invasion Pathways, and Reproductive Health Risks of Microplastics Detected in Human Uterus," *Environmental Science & Technology* 58, no. 24 (2024): 10482, <https://doi.org/10.1021/acs.est.4c01541> ; Chelin Jamie Hu et al., "Microplastic Presence in Dog and Human Testis and Its Potential Association with Sperm Count and Weights of Testis and Epididymis," *Toxicological Sciences* 200, no. 2 (2024): 235, <https://doi.org/10.1093/toxsci/kfae060>; Jason Codrington et al., "Detection of Microplastics in the Human Penis," *International Journal of Impotence Research* 37 (2024): 377, <https://doi.org/10.1038/s41443-024-00930-6>; Antonio Ragusa et al., "Microspectroscopy Detection and Characterisation of Microplastics in Human Breastmilk," *Polymers* 14, no. 13 (2022): 2700, <https://doi.org/10.3390/polym14132700>; Marcus A. Garcia et al., "Quantitation and Identification of Microplastics Accumulation in Human Placental Specimens Using Pyrolysis Gas Chromatography Mass Spectrometry," *Toxicological Sciences*, 199, no. 1 (2024): 81, <https://doi.org/10.1093/toxsci/kfae021>; Ning Li et al., "Prevalence and Implications of Microplastic Contaminants in General Human Seminal Fluid: A Raman Spectroscopic Study," *Science of the Total Environment* 937 (2024): 173522, <https://www.sciencedirect.com/science/article/abs/pii/S0048969724036696?via%3Dihub>.
- 42** "Spill Tracker," *SpillTracker.org*, accessed February 2, 2026, <https://www.spilltracker.org/>; "Chemical Incidents," Coalition to Prevent Chemical Disasters, accessed February 2, 2026, <https://experience.arcgis.com/experience/35ae976fd98e45da842ca2c6b5596c81>; Environmental Justice Health Alliance for Chemical Policy Reform, "Chemical Incident Tracker Updated After EPA Deletes Data," press release, September 18, 2025, <https://ej4all.org/news-and-media/news-item/938>.
- 43** Fredric Bauer et al., *Petrochemicals and Climate Change: Tracing Globally Growing Emissions and Key Blind Spots in a Fossil-Based Industry* (Lund University, 2022), 2, [https://lucris.lub.lu.se/ws/portalfiles/portal/117494791/Petrochemicals\\_climate\\_change\\_review\\_web.pdf](https://lucris.lub.lu.se/ws/portalfiles/portal/117494791/Petrochemicals_climate_change_review_web.pdf).
- 44** CIEL, *Emissions Unleashed*, 1; Galen Bower et al., "Assessing the Greenhouse Gas Emissions of the US Petrochemical Industry," *Rhodium Group*, February 12, 2025, <https://rhg.com/research/petrochemicals-emissions/>.
- 45** Lee Andrew Fagg, "Petrochemicals In Peril: Oversupply Crisis and Energy Transition Threaten Industry Survival," *Wood Mackenzie*, September 19, 2025, <https://www.woodmac.com/news/opinion/petrochemicals-in-peril-oversupply-crisis-and-energy-transition-threaten-industry-survival/>.
- 46** Independent Commodity Intelligence Services (ICIS), "Chemical Market Overcapacity and Weakening Demand: A Perfect Storm (2024 Update)," *ICIS*, 2024, <https://www.icis.com/explore/resources/chemical-market-overcapacity/>.

- 47** Reuters, "Closures, Disposals Reshaping the Global Petrochemical Sector," July 21, 2025, <https://www.reuters.com/business/energy/closures-disposals-reshaping-global-petrochemical-sector-2025-07-21/>; Valona, "Recent Plant Closures in the Global Chemicals Industry," December 16, 2025, <https://valonaintelligence.com/resources/blog/recent-plant-closures-in-the-global-chemicals-industry>; Michael McCoy, "In Europe, the Chemical Plant Closures Keep Coming," *Chemical & Engineering News*, October 6, 2025, <https://cen.acs.org/business/economy/Europe-chemical-plant-closures-keep/103/web/2025/10>.
- 48** Lilli Manolis Sherman, "Polyolefins Outlook is for Continued Slow Growth," *Plastics Technology*, March 15, 2023, <https://www.ptonline.com/blog/post/polyolefins-outlook-is-for-continued-slowed-growth->; John Richardson, "Five Forcecasts for Global Chemical Markets in 2026," *ICIS*, January 14, 2026, <https://www.icis.com/asian-chemical-connections/2026/01/five-forecasts-for-global-chemical-markets-in-2026/>.
- 49** "Home," Oil and Gas Watch, accessed January 9, 2026, <https://oilandgaswatch.org/>. Go to "search the database," select project types "Ammonia or Fertilizer," and Project Status "Proposed," "Under Construction." As of Jan. 9, 2026, search returns 36 results.
- 50** CIEL, *Emissions Unleashed*, 23.
- 51** Gustafson et al., *Uncertain Ammonia Industry*, 15.
- 52** Environmental Protection Agency (EPA), "EPA Launches Biggest Deregulatory Action in U.S. History," press release, March 12, 2025, <https://www.epa.gov/newsreleases/epa-launches-biggest-deregulatory-action-us-history>.
- 53** "Single-Use Plastics," European Commission, accessed February 2, 2026, [https://environment.ec.europa.eu/topics/plastics/single-use-plastics\\_en](https://environment.ec.europa.eu/topics/plastics/single-use-plastics_en).
- 54** "Map the Laws," Global Plastic Laws, accessed February 2, 2026, <https://www.globalplasticlaws.org/map>.
- 55** "Major Investors Sign Up to Address Plastic Pollution," *Planet Tracker*, July 2, 2025, <https://planet-tracker.org/major-investors-sign-up-to-address-plastic-pollution-2/>; "Signatories and Supporting Statements," *Planet Tracker*, July 2024, <https://planet-tracker.org/wp-content/uploads/2025/07/Signatories-and-Supporting-Statements.pdf>.
- 56** Rosie Frost, "Nearly 100 Countries Call for Ambitious Global Treaty to End Plastic Pollution at UN Ocean Summit," *Euronews*, June 11, 2025, <https://www.euronews.com/green/2025/06/11/nearly-100-countries-call-for-ambitious-global-treaty-to-end-plastic-pollution-at-un-ocean>.
- 57** UNEP, "Global Framework Agreed in Bonn Sets Targets to Address Harm from Chemicals and Waste," press release, September 30, 2023, <https://www.unep.org/news-and-stories/press-release/global-framework-agreed-bonn-sets-targets-address-harm-chemicals-and>; "Beat Nitrogen Pollution," UNEP, accessed February 1, 2026, <https://www.unep.org/beatpollution/nitrogen>.
- 58** FAO, "Nitrogen Use Efficiency."

- 59** European Commission, *Fertilisers in the EU: Prices, Trade and Use* (European Commission, 2019), 8, fig. 13, [https://agriculture.ec.europa.eu/system/files/2019-07/market-brief-fertilisers\\_june2019\\_en\\_0.pdf](https://agriculture.ec.europa.eu/system/files/2019-07/market-brief-fertilisers_june2019_en_0.pdf); C.F.A. van Wesenbeeck et al., “Can China’s Overuse of Fertilizer Be Reduced Without Threatening Food Security and Farm Incomes?,” *Agricultural Systems* 190 (2021): 103093, 1, <https://doi.org/10.1016/j.agsy.2021.103093>; Yurong Yang et al., “How Do Chemical Fertilizer Reduction Policies Work? —Empirical Evidence from Rural China,” *Frontiers in Environmental Science* 10 (2022), 1, <https://doi.org/10.3389/fenvs.2022.955278>.
- 60** “Unpacking the Plastic Value Chain: Litigation Risks and Legal Implications,” Planet Tracker, May 19, 2025, <https://planet-tracker.org/unpacking-the-plastic-value-chain-litigation-risks-and-legal-implications/>.
- 61** Michelle Gallardo, “Sterigenics Trial Jury Reaches \$363M Verdict in Favor of Woman Who Sued Willowbrook Company,” *ABC7 Chicago*, September 19, 2022, <https://abc7chicago.com/post/sterigenics-lawsuit-willowbrook-verdict-locations/12240473/>; Jessica D’Onofrio, “Sterigenics Reaches \$408M Agreement to Settle 800+ Cases, Parent Company Says,” *ABC7 Chicago*, January 10, 2023, <https://abc7chicago.com/post/sterigenics-lawsuit-willowbrook-il-sotera-health/12682627/>; David A. Goldman, “Ethylene Oxide Verdict in Georgia – \$20 Million,” *National Law Review*, May 25, 2025, <https://natlawreview.com/article/ethylene-oxide-verdict-georgia-20-million>.
- 62** Emily Sullivan, “Groundskeeper Accepts Reduced \$78 Million Award In Monsanto Cancer Suit,” *NPR*, November 1, 2018, <https://www.npr.org/2018/11/01/662812333/groundskeeper-accepts-reduced-78-million-in-monsanto-cancer-suit>.
- 63** Associated Press, “3M Reaches \$10.3 Billion Settlement over Contamination of Water Systems,” *NPR*, June 22, 2023, <https://www.npr.org/2023/06/22/1183922303/3m-reaches-10-3-billion-settlement-over-contamination-of-water-systems>.
- 64** New Jersey Office of the Attorney General, “AG Platkin, DEP Commissioner LaTourette: Landmark Settlement with DuPont Valued at Over \$2 Billion,” press release, August 4, 2025, <https://www.njoag.gov/ag-platkin-dep-commissioner-latourette-landmark-settlement-with-dupont-valued-at-over-2-billion/>.
- 65** “Plastics Litigation Tracker,” *Plastics Litigation Tracker*, accessed February 1, 2026, <https://plasticlitigationtracker.org/>.
- 66** See, e.g., *The People of the State of California, ex rel. v. Exxon Mobil Corporation et al.*, No. CGC-24-618323 (Cal. Super. Ct. filed 2024)
- 67** See *Plastic Pollution Coalition v. Pepsico, Inc.*, No. 2025-CAB-002131 (D.C. Super. Ct. filed 2025); *Plastic Pollution Coalition v. Danone Waters of America, LLC*, No. 2024-CAB-004562 (D.C. Super. Ct. filed 2024); “PepsiCo, Inc., FIJI Water, and Danone Face “False and Deceptive Marketing” Lawsuits in D.C.,” *Plastic Pollution Coalition*, April 7, 2025, <https://www.plasticpollutioncoalition.org/blog/2025/4/7/pepsico-inc-fiji-water-and-danone-face-false-and-deceptive-marketing-lawsuits-in-d-c>.

**68** City of Baltimore, “City of Baltimore Files a First of its Kind Lawsuit Against Tobacco Companies for Cigarette Filter Waste,” press release, November 21, 2022, <https://mayor.baltimorecity.gov/news/press-releases/2022-11-21-city-baltimore-files-first-its-kind-lawsuit-against-tobacco-companies>; Kanner & Whitely, LLC, “Court Rules City of Baltimore’s Cigarette Waste Claims Will Proceed Forward,” news item, July 23, 2025, <https://www.kanner-law.com/court-rules-city-of-baltimores-cigarette-waste-claims-will-proceed-forward/>.

**69** Bauer et al., *Petrochemicals and Climate Change*, 2.

**70** “Carbon Border Adjustment Mechanism: The EU’s Environmental Policy Tool for Fair Carbon Emissions Pricing,” European Commission, accessed February 2, 2026, [https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism\\_en](https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en).

**71** James Burgess, “EU’s CBAM to Cbam to Spur Other Countries to Introduce Carbon Border Levies: Ieta: IETA,” *S&P Global*, April 18, 2024, <https://www.spglobal.com/commodity-insights/en/news-research/latest-news/energy-transition/041824-eus-cbam-to-spur-other-countries-to-introduce-carbon-border-levies-ieta>; Andrii Glushchenko, “How Countries Around the World Are Responding to the EU CBAM (June 2025),” *GMK Center*, June 19, 2025, <https://gmk.center/en/infographic/how-countries-around-the-world-are-responding-to-the-eu-cbam-june-2025/>.

**72** See, e.g., Government of the Netherlands, “The Netherlands, France, the Czech Republic and Ireland call for a European policy package on sustainable carbon in the chemical industry,” news item, April 16, 2024, <https://www.government.nl/latest/news/2024/04/16/the-netherlands-france-the-czech-republic-and-ireland-call-for-a-european-policy-package-on-sustainable-carbon-in-the-chemical-industry>; Royal Society, *Catalysing Change: Defossilising the Chemical Industry – Policy Briefing* (Royal Society, 2024), <https://royalsociety.org/-/media/policy/projects/defossilising-chemicals/defossilising-chemical-industry-report.pdf>.

**73** Home,” Oil and Gas Watch, accessed January 28, 2026, <https://oilandgaswatch.org/>. Go to “search the database,” select sectors “Ammonia and Synthetic Fertilizers” and “Petrochemicals and Plastics” and project status “Canceled” or “On Hold.” As of January 28, 2026, search returns forty-four results for canceled and forty-three results for on hold.

**74** BASF, “BASF and Yara End Joint Project for Low-Carbon Ammonia at U.S. Gulf Coast,” press release, August 25, 2025, <https://www.basf.com/global/en/media/news-releases/2025/08/p-25-164>.

**75** Kiley Bense, “Pennsylvania Lured Shell to the State With a \$1.65 Billion Tax Break. Now the Company Wants to Sell Its Plant,” *InsideClimate News*, August 22, 2025, <https://insideclimate-news.org/news/22082025/shell-wants-to-sell-pennsylvania-ethane-cracker-plant/>; Ben Dummett et al., “Shell Explores Sale of Chemicals Assets in U.S. and Europe,” *Wall Street Journal*, March 2, 2025, <https://www.wsj.com/business/deals/shell-explores-sale-of-chemicals-assets-in-u-s-and-europe-170b6d02>.

**76** Dylan Baddour, “Exxon Steps Back From Texas Gulf Coast Plastics Plant,” *InsideClimate News*, October 6, 2025, <https://insideclimatenews.org/news/06102025/exxon-postpones-texas-gulf-coast-plastics-plant/>.

- 77** "Earnings Call Transcript: Air Products Q2 2025 Misses EPS Forecast, Shares Dip," Investing.com, May 1, 2025, <https://uk.investing.com/news/transcripts/earnings-call-transcript-air-products-q2-2025-misses-eps-forecast-shares-dip-93CH-4060016>; Air Products, "Air Products and Yara in Advanced Negotiations to Partner on Low-Emission Ammonia Projects," press release, December 8, 2025, <https://www.airproducts.com/company/news-center/2025/12/1208-air-products-and-yara-advanced-negotiations-on-low-emission-ammonia-projects>; WBRZ, "Air Products Halts Spending on Controversial 'Blue Hydrogen' Plant in Ascension Parish," May 4, 2025, <https://www.wbrz.com/news/air-products-halts-spending-on-controversial-blue-hydrogen-plant-in-ascension-parish>.
- 78** Mitsubishi Chemical Group Corporation, "Notice Concerning Discontinuation of Consideration of New MMA Monomer Plant in Louisiana (US)," press release, January 7, 2025, <https://www.mcgc.com/english/ir/pdf/02170/02474.pdf>.
- 79** Nick Georgiou and Stefan Krumpelmann, "Nutrien Suspends Work on Us Low-Carbon Ammonia Plant," *Argus*, August 3, 2023, <https://www.argusmedia.com/en/news-and-insights/latest-market-news/2475833-nutrien-suspends-work-on-us-low-carbon-ammonia-plant>; Reuters, "Nutrien to Pause Potash Ramp Up, Ammonia Project on Falling Prices," August 2, 2023, <https://www.reuters.com/markets/commodities/fertilizer-maker-nutrien-misses-profit-estimates-weak-prices-2023-08-02>; Nutrien, "Nutrien to Highlight Strategic Priorities and 2026 Targets at Investor Day," press release, June 12, 2024, <https://www.nutrien.com/news/press-releases/nutrien-to-highlight-strategic-priorities-and-2026-targets-at-investor-day-1707>.
- 80** Alpek, "Corpus Christi Polymers Pauses Construction," press release, September 27, 2023, <https://www.apek.com/ccp-pauses-construction>; "Corpus Christi Polymers: Acquisition of the PTA/PET complex of M&G in Texas," *Plastiker*, April 10, 2018, [https://plasticker.de/Plastics-News\\_32445\\_Corpus\\_Christi\\_Polymers\\_Acquisition\\_of\\_the\\_PTA\\_PET\\_complex\\_of\\_M+G\\_in\\_Texas](https://plasticker.de/Plastics-News_32445_Corpus_Christi_Polymers_Acquisition_of_the_PTA_PET_complex_of_M+G_in_Texas).
- 81** Julia Kagan, "What Is a Loan, How Does It Work, Types, and Tips on Getting One," *Investopedia*, May 20, 2025, <https://www.investopedia.com/terms/l/loan.asp>.
- 82** Julia Kagan, "Revolving Loan Facility Explained: How Does It Work?," *Investopedia*, August 2, 2025, <https://www.investopedia.com/terms/r/revolving-loan-facility.asp>.
- 83** Caroline Banton, "Underwriting Explained: Types, Processes, and Benefits," *Investopedia*, December 15, 2025, <https://www.investopedia.com/terms/u/underwriting.asp>.
- 84** Adam Hayes, "Stocks: What They Are, Main Types, and How They Differ From Bonds," *Investopedia*, July 16, 2025, <http://investopedia.com/terms/s/stock.asp>.
- 85** Jason Fernando, "Bonds: How They Work and How to Invest," *Investopedia*, November 17, 2025, <https://www.investopedia.com/terms/b/bond.asp>.
- 86** "Home," Oil and Gas Watch; CIEL, *Emissions Unleashed*. Project names, location, and status come from Oil and Gas Watch. Emissions estimates come from CIEL unless otherwise noted. Parent companies were identified by Profundo. Cost comes from Oil and Gas Watch, press releases, and news reports.

**87** We are unable to independently calculate an emissions estimate for the proposed Nederland Ethylene Cracker without projected capacity. In this case, the emissions estimate comes from the Texas Commission of Environmental Quality (TCEQ). TCEQ, *Preliminary Determination Summary, Energy Transfer Petrochemical Holdings, LLC, Permit Numbers 170854, PSDTX227, HAP81, and GHGPSDTX1614* (TCEQ, 2023), 1, <https://us-east-1.storage.xata.sh/1udl8f6q8570fbjm-na7hre6dks>.

**88** Grannus announced the project would capture 4 million tons of CO<sub>2</sub> annually. We are unable to independently calculate an emissions estimate without projected capacity. Given historical capture rates for carbon capture systems in practice for either blue hydrogen or fertilizer production, it is likely that the project's emissions, if built, would meet the emissions threshold. For analysis of historical capture rates see IEEFA, 2023, "Blue hydrogen: Not clean, not low carbon, not a solution," <https://ieefa.org/resources/blue-hydrogen-not-clean-not-low-carbon-not-solution>.

**89** Project cost estimates come from Oil and Gas Watch, corporate press releases, and news reports.

**90** Data for *Annual CO<sub>2</sub> Emissions*, Global Carbon Budget (2025), accessed January 10, 2026, <https://archive.ourworldindata.org/20251204-133459/co2-emissions.html>. With major processing by Our World in Data.

**91** Rainforest Action Network (RAN) et al., *Banking on Climate Chaos: Fossil Fuel Finance Report 2025* (RAN et al., 2025), 4, [https://www.bankingonclimatechaos.org/wp-content/uploads/2025/06/BOCC\\_2025\\_FINAL4.pdf](https://www.bankingonclimatechaos.org/wp-content/uploads/2025/06/BOCC_2025_FINAL4.pdf).

**92** Citi, Net Zero Metrics Methodology (Citi, 2025), 8-9, <https://www.citigroup.com/rcs/citigpa/storage/public/Net-Zero-Metrics-Methodology.pdf>; Sierra Club, "Citigroup Surpasses Peers With Absolute Emissions Reduction Target for Energy Finance, Still Fails to Rule Out Support for Fossil Fuel Expansion," press release, January 19, 2022, <https://www.sierraclub.org/press-releases/2022/01/citigroup-surpasses-peers-absolute-emissions-reduction-target-for-energy>.

**93** ShareAction, *Voting Matters 2024: Are Asset Managers Using Their Proxy Votes for Action on Environmental and Social Issues?* (ShareAction, 2025), <https://shareaction.org/reports/voting-matters-2024>.

**94** "What is an Index Fund," Vanguard, accessed February 5, 2026, <https://investor.vanguard.com/investor-resources-education/understanding-investment-types/what-is-an-index-fund>.

**95** US Securities and Exchange Commission (SEC) Office of Investor Education and Advocacy, *Mutual Funds and ETFs: A Guide for Investors* (SEC), 4-6, <https://www.sec.gov/investor/pubs/sec-guide-to-mutual-funds.pdf>.

**96** Jan Krahn et al., "The Controversy Over Proxy Voting: The Role of Asset Managers and Proxy Advisors," *Harvard Law School Forum on Corporate Governance*, January 30, 2023, <https://corpgov.law.harvard.edu/2023/01/30/the-controversy-over-proxy-voting-the-role-of-asset-managers-and-proxy-advisors/>.

**97** *Annual CO<sub>2</sub> Emissions*, data.

**98** Data for *Investing in Climate Chaos*, updated 2024, Urgewald, accessed January 11, 2026, <https://investinginclimatechaos.org/data?org=Vanguard>.

- 99** Abhijay Sood et al., *Point of No Returns 2025: A Responsible Investment Benchmark of 76 of the World's Largest Asset Managers* (ShareAction, 2025), 46, [https://shareaction-api.files.svd-cdn.com/production/resources/reports/ShareAction\\_PONR2025\\_OCT25.pdf?dm=1759917797](https://shareaction-api.files.svd-cdn.com/production/resources/reports/ShareAction_PONR2025_OCT25.pdf?dm=1759917797); Responsible Investor, "ESG Round-up: Vanguard Supported No E&S Proposals at US Firms in 2025 Proxy Year," August 28, 2025, <https://www.responsible-investor.com/esg-round-up-vanguard-supported-no-es-proposals-at-us-firms-in-2025-proxy-year/>; Ross Kerber, "BlackRock, Vanguard Scale Back Company Talks As New Guidance Bites," Reuters, September 19, 2025, <https://www.reuters.com/sustainability/boards-policy-regulation/blackrock-vanguard-scale-back-company-talks-new-guidance-bites-2025-09-19>.
- 100** Lotus Infrastructure Partners, "Introducing Lotus Infrastructure Partners," press release, January 2, 2023, <https://www.lotusinfrastructure.com/news/introducing-lotus-infrastructure-partners/>.
- 101** Blue Bayou Ammonia, L.L.C. Chapter 313 Application to Texas City ISD, 2 (PDF 21), <https://assets.comptroller.texas.gov/ch313/2067/2067-texas-blue-agmt.pdf>; Lotus Infrastructure Partners, "Lotus invests in Gulf Coast Ammonia," press release, August 1, 2020, <https://www.lotusinfrastructure.com/news/lotus-invests-in-gulf-coast-ammonia/>.
- 102** Clean Hydrogen Works, "Mitsui O.S.K. Lines, Ltd. (MOL) Makes Strategic Investment in Ascension Clean Energy," press release, June 15, 2023, <https://www.cleanhydrogenworks.com/news/-mitsui-osk-lines-ltd-mol-makes-strategic-investment-in-ascension-clean-energy.html>.
- 103** Business Wire, "Cronus Chemicals Receives EPA Construction and Air Permit, Paving the Way for Its Ammonia Production Plant in the US Corn Belt," September 12, 2024, <https://www.businesswire.com/news/home/20240912870871/en/Cronus-Chemicals-Receives-EPA-Construction-and-Air-Permit-Paving-the-way-for-its-Ammonia-Production-Plant-in-the-US-Corn-Belt>.
- 104** Cal. Alternative Energy and Advanced Transportation Financing Authority, Request to Approve a Time Extension of the 15% Purchase Requirement Timeframe and the Initial Term of the Regulatory Agreement of STE Award: Taft Ammonia Company, LLC, Application No. 19-SM026, November 17, 2020, 3, <https://www.treasurer.ca.gov/caeatfa/meeting/2020/20201117/staff/4c1.pdf>.
- 105** Methanol Institute, "Methanol Institute Welcomes Clean Energy Resources as Association's Newest Member," news release, February 19, 2021, <https://www.einpresswire.com/article/535399663/methanol-institute-welcomes-clean-energy-resources-as-association-s-newest-member?r=paq6k7oqYCDKREhvlj>.
- 106** "Frequently Asked Questions," Lake Charles Methanol II, accessed January 12, 2026, <https://www.lakecharlesmethanol.com/faqs>.
- 107** John Martin, "With Tax Issue Settled, Midwest Fertilizer Eyes Nearly \$3 Billion Posey County Plant?," *Courier & Press* (Evansville, IN), March 22, 2019, <https://www.courierpress.com/story/news/local/2019/03/22/midwest-fertilizer-plant-posey-county-still-tack/3238470002>.
- 108** "Frequently Asked Questions," Northern Plains Nitrogen, accessed January 31, 2026, <https://northernplainsnitrogen.com/faq>.
- 109** Copenhagen Infrastructure Partners, "Copenhagen Infrastructure Partners Acquires Majority Stake in Blue Ammonia Project in the Gulf Coast," press release, February 23, 2023, <https://www.stccf.com/press-releases/copenhagen-infrastructure-partners-acquires-majority-stake-in-blue-ammonia-project-in-the-gulf-coast>.

- 110** Mark Milam, “Navigator Holdings Invests into Ten08 Energy Who is Developing Texas Clean Ammonia Project,” *Independent Commodity Intelligence Services*, August 8, 2024, <https://www.icis.com/explore/resources/news/2024/08/08/11024462/navigator-holdings-invests-into-ten08-energy-who-is-developing-texas-clean-ammonia-project>.
- 111** ESG-focused data courtesy of Inclusive Development International (IDI). “ESG funds” include all funds listed in the LSEG Eikon database that include “ESG,” “environmental,” or “sustainable” in their names. Data was extracted in November 2025. In the absence of consistent guidance on what constitutes ESG funding — especially in the US, where the US Securities and Exchange Commission (SEC) withdrew proposed guidance on ESG disclosures in June 2025 — this should be considered a snapshot of all ESG-related funding.
- 112** Yann Quilcaille et al., “Systematic Attribution of Heatwaves to the Emissions of Carbon Majors,” *Nature* 645 (2025): 392–398, <https://doi.org/10.1038/s41586-025-09450-9>; Christopher Callahan and Justin Mankin, “Carbon Majors and the Scientific Case for Climate Liability,” *Nature* 640 (2025): 893–901, <https://doi.org/10.1038/s41586-025-08751-3>; Pollution violations of the companies listed in the Top Petrochemical Investments table are documented at <https://violationtrackerglobal.goodjobsfirst.org>.
- 113** Inclusive Development International, “Inclusive Development International Submission to UN Working Group Call for Input,” submission to UN Working Group on Business and Human Rights Call for Input on Investors, ESG and Human Rights, October 13, 2023, <https://www.inclusivedevelopment.net/wp-content/uploads/2023/10/IDI-Submission-to-UN-Working-Group-Call-for-Input.pdf>.
- 114** Inclusive Development International, submission; Organization for Economic Co-operation and Development (OECD), *Behind ESG Ratings: Unpacking Sustainability Metrics*, (OECD, 2025), 23, [https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/02/behind-esg-ratings\\_4591b8bb/3f055f0c-en.pdf](https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/02/behind-esg-ratings_4591b8bb/3f055f0c-en.pdf).
- 115** James Mackintosh, “Is Tesla or Exxon More Sustainable? It Depends Whom You Ask,” *Wall Street Journal*, September 17, 2018, <https://www.wsj.com/articles/is-tesla-or-exxon-more-sustainable-it-depends-whom-you-ask-1537199931>; *ESG Scores*, S&P Global, accessed January 28, 2026, <https://www.spglobal.com/sustainable1/en/solutions/esg-scores-data>. S&P Global gives Linde, Far Eastern, and Enbridge — three companies driving the US petrochemical buildout — ESG scores of 79, 75, and 63 on a scale from 0 to 100.
- 116** “ExxonMobil,” LobbyMap, accessed January 31, 2026, <https://lobbymap.org/company/Exxon-Mobil/projectlink/Exxon-Mobil-In-Climate-Change>; “Exxon: The Road Not Taken,” *Inside Climate News*, accessed January 31, 2026, <https://insideclimatenews.org/project/exxon-the-road-not-taken>.
- 117** Facing Finance, *Beneath the Surface: Do ESG Ratings Capture the Risks and Impacts of Plastics?* (Facing Finance, 2024), 34, [https://www.facing-finance.org/files/2024/04/Facing\\_Finance\\_Beneath\\_The\\_Surface\\_2024.pdf](https://www.facing-finance.org/files/2024/04/Facing_Finance_Beneath_The_Surface_2024.pdf).
- 118** “Plastic Circularity,” Shell, accessed January 31, 2026, <https://www.shell.com/business-customers/catalysts-technologies/decarbonisation-solutions-portfolio/plastic-circularity.html>.

- 119** "Solutions Explained: Chemical Recycling," Cefic, accessed January 31, 2026, <https://cefic.org/solutions-explained/chemical-recycling-making-plastics-circular/>.
- 120** "Solutions Explained: Chemical Recycling."
- 121** "Advanced Recycling," American Chemistry Council, accessed January 31, 2026, <https://www.americanchemistry.com/better-policy-regulation/plastics/advanced-recycling>.
- 122** Beyond Plastics and International Pollutants Elimination Network (IPEN), *Chemical Recycling: A Dangerous Deception* (Beyond Plastics and IPEN, 2023), [https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/674f56482360216cb1c253c0/1733252686279/10-30-23\\_Chemical-Recycling-Report\\_web.pdf](https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/674f56482360216cb1c253c0/1733252686279/10-30-23_Chemical-Recycling-Report_web.pdf); Renee Sharp et al, *More Recycling Lies: What the Plastics Industry Isn't Telling You About "Chemical Recycling"* (Natural Resources Defense Council, 2024), [https://www.nrdc.org/sites/default/files/2025-03/More\\_Recycling\\_Lies\\_IB\\_25-02-A\\_07\\_locked.pdf](https://www.nrdc.org/sites/default/files/2025-03/More_Recycling_Lies_IB_25-02-A_07_locked.pdf).
- 123** "Search the Oil & Gas Watch Database," Oil and Gas Watch, accessed February 1, 2026, <https://oilandgaswatch.org/search?projectType=Chemical+Recycling+Plant&operatingStatus=Proposed>. Environmental Integrity Project's Oil and Gas Watch Database shows twenty-nine proposed chemical recycling projects as of February 1, 2026.
- 124** Zero Waste Europe, *Fifty Years: Chemical Recycling's Fading Promise* (Zero Waste Europe, 2024), [https://zerowasteurope.eu/wp-content/uploads/2024/11/ZWE\\_Nov24\\_FiftyYearsChemicalRecycling\\_FullOverview.pdf](https://zerowasteurope.eu/wp-content/uploads/2024/11/ZWE_Nov24_FiftyYearsChemicalRecycling_FullOverview.pdf).
- 125** Iker Ayuso-Díaz et al., "Progress on Waste Plastics Gasification Process: A Review of Operating Conditions, Reactors and Catalysts for Clean Syngas Production and Tar Abatement," *International Journal of Hydrogen Energy* 148 (2025), <https://doi.org/10.1016/j.ijhydene.2025.06.190>.
- 126** Peter Quicker, *Status, Potentials and Risks of Chemical Recycling of Waste Plastics: Study on the Evaluation of Approaches for the Feedstock Recycling of Plastic Waste* (Swiss Federal Office for the Environment, 2023), <https://www.aramis.admin.ch/Default?DocumentID=71779>.
- 127** Christoph Stallkamp et al., "Pyrolysis of Mixed Engineering Plastics: Economic Challenges for Automotive Plastic Waste," *Waste Management* 176 (2024), 105-116, <https://doi.org/10.1016/j.wasman.2024.01.035>.
- 128** Taylor Uekert et al., "Technical, Economic, and Environmental Comparison of Closed-Loop Recycling Technologies for Common Plastics," *ACS Sustainable Chemistry & Engineering* 11, no. 3 (2023): 965-978, <https://pubs.acs.org/doi/10.1021/acssuschemeng.2c05497>.
- 129** "Chemical Market Overcapacity and Weakening Demand: A Perfect Storm (2024 Update)," ICIS, accessed February 1, 2026, <https://www.icis.com/explore/resources/chemical-market-overcapacity>; Mohi Narayan and Joyce Lee, "Global Petrochemical Firms Shape Up in Oversupply Crisis," Reuters, August 8, 2024, <https://www.reuters.com/markets/commodities/global-petrochemical-firms-shape-up-oversupply-crisis-2024-08-09>.
- 130** See, e.g., *California v. Exxon Mobil*, 77.

**131** Ben Seal, "Latest Chemical Recycling Plant Closing Spurs Concern Over The Industry's Viability," *Environmental Health News*, Apr 08, 2024, <https://www.ehn.org/chemical-recycling-plant-closing>; Valerie Volcovici, "Brightmark, Georgia County Cancel \$680 mln Plastic-to-Fuel Project," Reuters, April 12, 2022, <https://www.reuters.com/world/us/brightmark-georgia-county-cancel-680-mln-plastic-to-fuel-project-2022-04-11/>; Stephen Landry, "Measure Passed By Templeton Residents Opposes Proposed Plastics Recycling Facility," *The Gardner News* (Gardner, MA), Dec 6, 2024, <https://www.thegardnernews.com/story/news/local/2024/12/06/templeton-ma-town-meeting-plastics-recycling-landfill-toxic-waste/76822259007>.

**132** "Merchant Finance," Freepoint Commodities, accessed February 1, 2026, <https://www.freepoint.com/what-we-do/merchant-finance/>.

**133** "Freepoint Commodities," Stone Point Capital, accessed February 1, 2026, <https://www.stonepoint.com/company/freepoint-commodities/>; Freepoint Ecosystems, "Unsolicited Proposal for MSW Processing Services Prince William County, Virginia," 5, May 6, 2022, [https://www.pwcva.gov/assets/2022-08/Prince%20William%20Unsolicited%20Proposal%20Final%2005062022\\_Redacted.pdf](https://www.pwcva.gov/assets/2022-08/Prince%20William%20Unsolicited%20Proposal%20Final%2005062022_Redacted.pdf).

**134** Chris Voloschuk, "Freepoint Eco-Systems Receives \$50m Loan for Plastics Recycling Facility," *Recycling Today*, March 18, 2025, <https://www.recyclingtoday.com/news/freepoint-eco-systems-receives-50-million-dollar-loan-for-plastics-recycling-facility/>.

**135** LyondellBasell, "Infinity Recycling, Lyondellbasell and CPChem Invest In Alterra to Accelerate the Commercial Development of Advanced Recycling," press release, October 24, 2024, <https://investors.lyondellbasell.com/news/news-details/2024/Infinity-Recycling-Lyondell-Basell-and-CPChem-invest-in-Alterra-to-accelerate-the-commercial-development-of-advanced-recycling/default.aspx>.

**136** Deanne Toto, "Neste Acquires Minority Stake in Alterra Energy," *Recycling Today*, January 4, 2021, <https://www.recyclingtoday.com/news/neste-acquires-stake-ohio-plastics-chemical-recycler/>.

**137** LyondellBasell, "Invest in Alterra."

**138** Alexander Tullo, "Petchem Firms Invest in Recycler Alterra," *Chemical and Engineering News*, October 27, 2024, <https://cen.acs.org/environment/recycling/Petchem-firms-invest-recycler-Alterra/102/i34>.

**139** Nexus Circular, "Nexus Circular Secures \$150 Million to Accelerate Momentum of Advanced Recycling Solution for Plastics," press release, January 3, 2023, <https://nexuscircular.com/nexus-circular-secures-150-million-to-accelerate-momentum-of-advanced-recycling-solution-for-plastics/>.

**140** Braskem, "Braskem Invests in Nexus Circular to Accelerate Advanced Recycling of Plastics," press release, February 1, 2022, <https://www.braskem.com.br/usa/news-detail/braskem-invests-in-nexus-circular-to-accelerate-advanced-recycling-of-plastics>.

- 141** Chevron Phillips Chemical, "Chevron Phillips Chemical Deepens Collaboration with Nexus Circular, Securing Contracted Long-Term Supply of Advanced Recycled Plastic Feedstocks from New Facility," news release, February 7, 2023, <https://www.cpchem.com/media-events/news/news-release/chevron-phillips-chemical-deepens-collaboration-with-nexus-circular>; Nexus Circular, "Braskem and Nexus Circular Strengthen Relationship Through a Long-Term Contract for Circular Plastic Feedstocks From New Advanced Recycling Facility," press release, January 23, 2023, <https://nexuscircular.com/braskem-and-nexus-circular-strengthen-relationship-through-a-long-term-contract-for-circular-plastic-feedstocks-from-new-advanced-recycling-facility/>.
- 142** "About Us," Printpack, accessed February 1, 2026, <https://www.printpack.com/about-printpack/>; *Printpack Leads the 2025 Flexible Packaging Achievement Awards with Six Wins*, Printpack, March 11, 2025, <https://www.printpack.com/printpack-leads-the-2025-flexible-packaging-achievement-awards-with-six-wins/>; *Printpack Mexico Earns Three Awards For The Liquid Soap Stand-up Pouch During the Envase Estelar 2023 Competition*, Printpack, July 5, 2023, <https://www.printpack.com/printpack-mexico-earns-three-awards-for-the-liquid-soap-stand-up-pouch-during-the-envase-estelar-2023-competition/>; Keren Sookne, "2022 FPA Awards Highlight User Experience, Shelf Impact," *Packaging World*, May 24, 2022, <https://www.packworld.com/flexibles/article/22131851/innovations-in-flexible-packaging-from-popcornopolis-tyson-brand-nestl-hershey-fritolay>; *Behind the Bag: How Printpack Helped Bring Sustainable Packaging to the Super Bowl*, Printpack, May 14, 2025, <https://www.printpack.com/compostable-package-fpa-winner/>.
- 143** Environmental Integrity Project (EIP), *Feeding the Plastics Industrial Complex: Taking Public Subsidies, Breaking Pollution Laws* (EIP, 2024), 14-17 <https://environmentalintegrity.org/wp-content/uploads/2024/03/Feeding-the-Plastics-Industrial-Complex-3.14.24.pdf>; Quaker United Nations Office (QUNO) and Eumomia, *Plastic Money: Turning Off the Subsidies Tap* (QUNO and Eumomia, 2024), 9, <https://eumomia.eco/reports/plastic-money-turning-off-the-subsides-tap-phase-2-summary-report/>.
- 144** EIP, *Feeding the Plastics Industrial Complex*, 14-17.
- 145** EIP, 11; Data for *Shin-Etsu Chemical*, Subsidy Tracker, Good Jobs First, accessed February 1, 2026, <https://subsidytracker.goodjobsfirst.org/parent/shin-etsu-chemical>.
- 146** Fredric Bauer et al., "Petrochemicals and Climate Change: Powerful Fossil Fuel Lock-Ins and Interventions For Transformative Change," *Lund University Department of Environmental and Energy Systems Studies* 130 (2023), [https://lucris.lub.lu.se/ws/portalfiles/portal/146757003/LU\\_IVL\\_2023\\_petrochem\\_web.pdf](https://lucris.lub.lu.se/ws/portalfiles/portal/146757003/LU_IVL_2023_petrochem_web.pdf).
- 147** Japan Bank for International Cooperation (JBIC), "Loan for Low-Carbon Ammonia Production and Sales Business in United States," press release, July 1, 2025, [https://www.jbic.go.jp/en/information/press/press-2025/press\\_00043.html](https://www.jbic.go.jp/en/information/press/press-2025/press_00043.html).

- 148** We reviewed the public policy statements of the Top 10 Toxic Banks and Top 10 Toxic Investors (see pp.23 and 31 above) against the core policies recommended in Break Free From Plastic et al., *Exiting Petrochemicals: A Policy Guide for Financial Institutions* (BFFP, 2024), <https://www.breakfreefromplastic.org/wp-content/uploads/2024/10/Exiting-Petrochemicals-Policy-Guide.pdf>. The analyses of climate, environmental and human rights commitments draw upon and update surveys conducted by: “Plastic Banks Tracker,” Plastic Banks Tracker, accessed February 2, 2026, <https://www.plasticbankstracker.org>; “Policy Scores,” Forests & Finance, accessed February 2, 2026, <https://forestsandfinance.org/bank-policies/>; BankTrack, *The BankTrack Global Human Rights Benchmark 2024* (BankTrack, 2024), [https://www.banktrack.org/download/the\\_banktrack\\_global\\_human\\_rights\\_benchmark\\_2024/banktrack\\_human\\_rights\\_benchmark\\_2024\\_1.pdf](https://www.banktrack.org/download/the_banktrack_global_human_rights_benchmark_2024/banktrack_human_rights_benchmark_2024_1.pdf).
- 149** “How Circularity Can Make the Plastics Value Chain More Sustainable,” HSBC, November 1, 2023, <https://www.business.hsbc.com/en-gb/insights/sustainability/how-circularity-can-make-the-plastics-value-chain-more-sustainable>; “Barclays,” Plastic Banks Tracker, accessed February 1, 2026, <https://www.plasticbankstracker.org/bank-scores/barclays/>.
- 150** Deutsche Bank, *Transition Plan: Update and the Way Forward* (Deutsche Bank, 2025), 11, <https://www.db.com/what-we-do/responsibility/sustainability/transition-plan/documents/transition-plan-2025.pdf>.
- 151** “Human Rights Policy,” Mizuho, accessed February 1, 2026, <https://www.mizuhogroup.com/sustainability/social/human-rights>; “Membership Information,” Japan Center for Engagement and Remedy on Business and Human Rights (JaCER), accessed February 1, 2026, <https://jacer-bhr.org/en/member/index.html>; “Report a Grievance,” JaCER, accessed February 1, 2026, <https://jacer-bhr.org/en/application/index.html>; Deutsche Bank, *Complaints Procedure Under the German Supply Chain Due Diligence Act* (Deutsche Bank, 2021), [https://www.db.com/files/documents/csr/sustainability/External-Complaints-Procedure-Human-Rights.pdf?language\\_id=1](https://www.db.com/files/documents/csr/sustainability/External-Complaints-Procedure-Human-Rights.pdf?language_id=1).
- 152** BankTrack, *The BankTrack Global Human Rights Benchmark 2024* (BankTrack, 2024), 42, 56 [https://www.banktrack.org/download/the\\_banktrack\\_global\\_human\\_rights\\_benchmark\\_2024/banktrack\\_human\\_rights\\_benchmark\\_2024\\_1.pdf](https://www.banktrack.org/download/the_banktrack_global_human_rights_benchmark_2024/banktrack_human_rights_benchmark_2024_1.pdf). See benchmark 5.2 at pg 42 and Appendix I.; Investor Advocates for Social Justice, “Investors and JPMorgan Chase Reach Agreement to Uphold Indigenous Peoples’ Rights,” press release, April 16, 2025, <https://iasj.org/elementor-8900/>.
- 153** Norway Ministry of Finance, “Ethical Guidelines: Responsible Investing,” updated January 27, 2022, <https://www.regjeringen.no/en/topics/the-economy/the-government-pension-fund/responsible-management/ethical-guidelines/id447009/>; Norway Ministry of Finance, “Interim Ethical Guidelines for the Government Pension Fund Global,” January 21, 2026, <https://www.regjeringen.no/en/documents/interim-ethical-guidelines-for-the-government-pension-fund-global/id3138527/>; “Sustainability Investment Policies,” Government Pension Investment Fund, updated March 31, 2025, [https://www.gpif.go.jp/en/investment/sustainability\\_investment\\_policy\\_en\\_2.pdf](https://www.gpif.go.jp/en/investment/sustainability_investment_policy_en_2.pdf).
- 154** NBIM, “Annual Overview of Company Dialogues,” accessed February 1, 2026, <https://www.nbim.no/en/responsible-investment/engaging-with-companies/annual-overview-of-company-dialogues/>; GPIF, “Policy to Fulfill Stewardship Responsibilities,” revised December 8, 2025, [https://www.gpif.go.jp/en/investment/20251208\\_Policy%20to%20Fulfill%20Stewardship%20Responsibilities.pdf](https://www.gpif.go.jp/en/investment/20251208_Policy%20to%20Fulfill%20Stewardship%20Responsibilities.pdf).

- 155** “BlackRock’s 2030 Net Zero Statement,” BlackRock, April 2022, <https://www.blackrock.com/corporate/sustainability/2030-net-zero-statement>.
- 156** CIEL, *Trillion Dollar Transformation: Fiduciary Duty, Divestment, and Fossil Fuels in an Era of Climate Risk* (CIEL, 2016), <https://www.ciel.org/wp-content/uploads/2016/12/Trillion-Dollar-Transformation-CIEL.pdf>; BlackRock Investment Institute, *Adapting Portfolios to Climate Change: Implications and Strategies for All Investors* (BlackRock, 2016), <https://static1.squarespace.com/static/569da6479cadb6436a8fecc8/t/581bebf06a4963089371f53b/1478224884205/bii-climate-change-2016-us.pdf>.
- 157** Ross Kerber, “BlackRock, Vanguard Scale Back Company Talks as New Guidance Bites,” Reuters, September 19, 2025, <https://www.reuters.com/sustainability/boards-policy-regulation/blackrock-vanguard-scale-back-company-talks-new-guidance-bites-2025-09-19/>; Mona Dohle and Atharva Deshmukh, “The Silence Score: How Active Are the World’s Biggest Investors on Climate Stewardship?,” *Net Zero Investor*, August 7, 2025, <https://www.netzeroinvestor.net/news-and-views/the-silence-score-how-active-are-the-worlds-biggest-investors-on-climate-stewardship>.
- 158** Norway Ministry of Finance, “The Government Follows Up on the Parliament’s Decision Regarding the Ethical Framework for the Pension Fund,” press release, November 7, 2025, <https://www.regjeringen.no/en/whats-new/the-government-follows-up-on-the-parliaments-decision-regarding-the-ethical-framework-for-the-pension-fund/id3136331/>. The ethical framework was recently suspended pending a review.
- 159** Norges Bank Investment Management (NBIM), *2030 Climate Action Plan* (NBIM, 2025), [https://www.nbim.no/contentassets/0f8094e511f74651974787fdf3a87c8a/gpfg\\_2030-climate-action-plan\\_web.pdf](https://www.nbim.no/contentassets/0f8094e511f74651974787fdf3a87c8a/gpfg_2030-climate-action-plan_web.pdf).
- 160** Illuminem, “Norway’s \$1.9 Trillion Oil Fund Cuts Stakes in Energy Supermajors,” August 13, 2025, <https://illuminem.com/illuminemvoices/norways-19-trillion-oil-fund-cuts-stakes-in-energy-supermajors>; Reclaim Finance, “Norwegian Oil Fund’s Billions for Oil and Gas Developers Undermines Climate Promises,” press release, February 6, 2025, <https://reclaimfinance.org/site/en/2025/02/06/norwegian-oil-funds-billions-for-oil-and-gas-developers-undermines-climate-promises/>. However, Norges Bank, which manages the GPF, has been criticized for continued oil and gas investments that undercut its climate promises, see Reclaim Finance.
- 161** “Sustainability Investment Policies,” Government Pension Investment Fund, updated March 31, 2025, [https://www.gpif.go.jp/en/investment/sustainable\\_policies.html](https://www.gpif.go.jp/en/investment/sustainable_policies.html).

