September 2026

Institute for Energy Economics and Financial Analysis

Texas petrochemical expansion lacks rewards for host cities

A regional look at the recent wave of Texas Gulf Coast ethane cracking capacity growth

Trey Cowan, Energy Finance Analyst

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Key findings

Promises of boosted economic conditions and new jobs have failed to materialize for the Texas cities hosting the wave of petrochemical expansion the industry experienced over the last 15 years.

Lower median incomes, slower population growth, and less job growth coupled with higher city debt levels per person, higher unemployment, and higher poverty levels are characteristics of petrochemical cities during this time of industry expansion—contrary to industry claims of economic improvement.

Besides a lack of long-term economic gains, the Texas buildout has resulted in additional health costs associated with elevated levels of toxic pollutants affecting communities closest to petrochemical plants.

Petrochemical host cities were expecting prosperity but are getting blight, health issues, and devalued property in return for the industrial development they support.

Executive summary

Promises of boosted economic conditions and new jobs have failed to materialize for the Texas cities hosting the wave of petrochemical expansion the industry experienced over the last 15 years. This report will delve into the demographic, employment, and financial trends of cities along the Texas Gulf Coast where much of the state's petrochemical activity occurs. Benchmarking performance against statewide metrics casts the effects of the petrochemical industry in these towns in an unfavorable light.

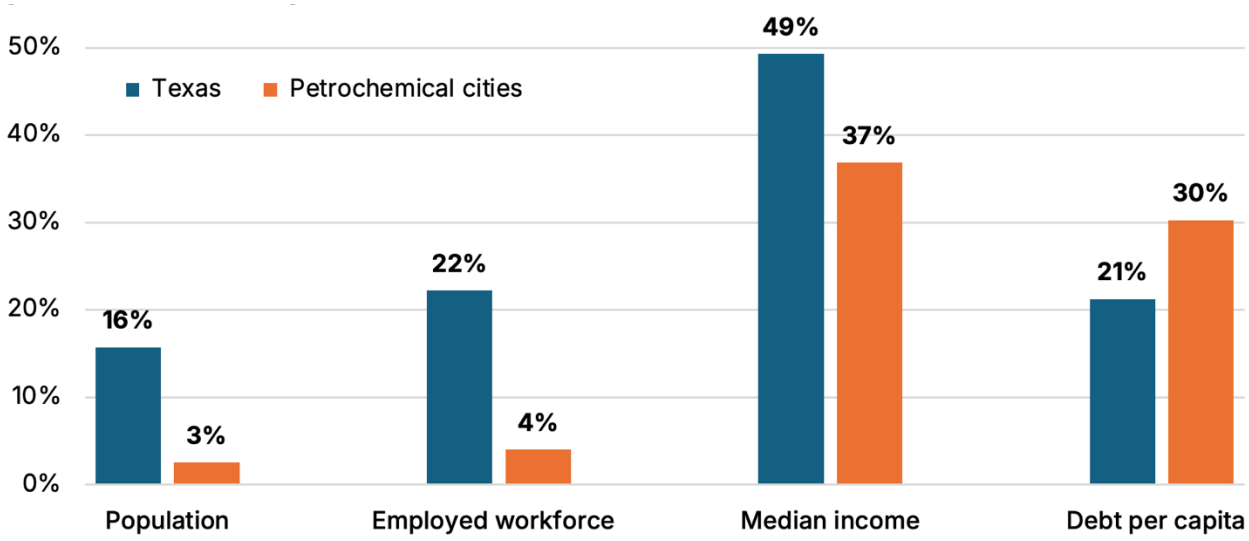
The focus of this report is on the relative economic underperformance occurring in the cities Port Arthur, Orange, Beaumont, Mont Belvieu, Channelview, Baytown, Deer Park, Pasadena, La Port, Freeport, Ingleside, Corpus Christi, and Gregory, compared to statewide measurements. Our conclusion is not one of causation—we are not suggesting these cities underperformed because they hosted petrochemical complexes. Instead, we observe no data supporting claims made by developers that these communities are better off economically because they hosted the petrochemical capacity expansion that has occurred since the shale revolution.[1]

We specifically identify companies operating ethane crackers within the listed cities because ethylene is a key petrochemical building block. Ethane, first cracked into ethylene, is then transformed into derivative chemicals that are used to produce a wide array of plastics, resins, and synthetic materials. Also, the capital intensity of building ethane steam crackers, in combination with how few permanent jobs are necessary once plants are operational, underscores the disconnect. Developers tend to ignore how few permanent jobs are created, and instead herald, with some liberty, the resulting temporary, indirect, and induced jobs involved. This causes a disconnect in the data—large project expenditures within a community don't necessarily translate into better economic conditions for communities near petrochemical expansions.

Executives have claimed that every one job at a petrochemical plant results in another seven jobs in the community, and the National Energy Technology Laboratory has suggested that $1 million in petrochemical investment leads to 13 jobs.[2,3] But any prosperity derived from the concentration of petrochemical complexes in the three key host regions—known as the Coastal Bend, the Houston Ship Channel, and the Golden Triangle—is not evident in the economic indicators for the communities where most of the buildout occurred, whether before or after the shale revolution.[4]

[1] The shale revolution refers to the widely adopted extraction and completion innovation that combined drilling horizontal wells with completion and stimulation through hydraulic fracturing. These practices were first proven by Mitchell Energy where the company proved that it could economically produce gas from shale rock formations that were previously thought to be impermeable.
[2] BIC Magazine. LyondellBasell begins construction on its PO/TBA plant. 2nd YouTube video at 2 minute mark. August 22, 2018.
[3] Department of Energy. U.S. Ethane: Market Issues and Opportunities – Report to Congress. September 2022.
[4] The term "petrochemical complexes host cities" includes Beaumont, Orange, Port Arthur, Baytown, Channelview, Deer Park, La Porte, Pasadena, Mont Belvieu, Freeport, Gregory, Ingleside, and Corpus Christi. Totals by city were weighted by their population to compute the aggregate totals compared as a weighted average.

Figure 1: Changes in key economic indicators between 2014 and 2024 for Texas and its petrochemical complex host cities



Source: U.S. Census Bureau, American Community Surveys (5-year averages)

The populations, employment trends, and median wages in these petrochemical complex host cities are all growing more slowly than statewide figures. At the same time, these communities are taking on more municipal debt per capita than the state averages at a faster pace.

Because the various streams that flow from a wellhead occur simultaneously, production volumes of oil, natural gas, and natural gas liquids (NGLs—of which ethane is one) all increased during the U.S. shale revolution. These excess supplies pushed the United States from a nascent player to the world's leading exporter of crude, liquified natural gas (LNG), and ethane, all in a relatively short time frame. Besides additional exports, greater ethane production has spurred downstream ethylene production capacity expansion.

Between 2014 and 2024, a wave of ethane steam cracking capacity expansion swept through the Houston Ship Channel, the Golden Triangle, and the Coastal Bend. But even prior to this buildout, these three key regions of concentrated petrochemical production were already host to the majority of the nation's steam cracking capacity.

The downstream sector's "gold rush" mentality, focused intently on expansion projects to maximize ethylene production, mirrored other responses like the 2015 revocation of the crude export ban, the 2016 kickoff of LNG exports via waterborne traffic, and the building of specialized ships for ethane export. In summary, domestic oversupplied hydrocarbon conditions were met with the relief valves of exports and expanded petrochemical plants to consume the excess.

The industry is at the end of the expansion cycle for developing additional ethylene production capacity domestically. Globally, the market has been oversupplied for several years, and the industry

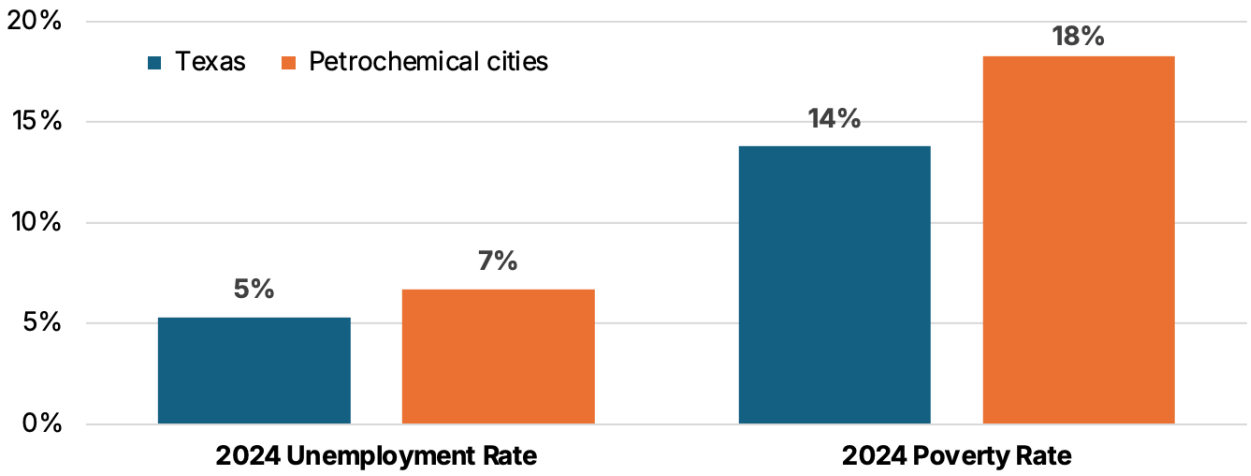
is now rationalizing assets (i.e., mothballing or repurposing underperforming facilities in Europe) and backing out of expansion plans.

We matched the petrochemical operators, which plant locations expanded, and the tax incentives granted by the school districts taxing the plants. These observations were collected to record the magnitude of gross tax savings allowed for petrochemical plants by local school districts to attract more industrial development.

As explained above, the data from the time the ethylene capacity expansion began until now (which corresponds to $40 billion invested in these projects in the Golden Triangle, Houston Ship Channel, and Coastal Bend) does not show that cities in these regions prospered from the buildout other than an expansion of their tax bases.

This is concerning given the greater poverty and higher unemployment rates that exist in these towns compared to statewide figures.

Figure 2: Texas cities surrounding petrochemical plants experience higher unemployment and poverty rates than the state as a whole



Source: U.S. Census Bureau, American Community Surveys (5-year averages) IEEFA

In summary, lower median incomes, slower population growth, and less job growth coupled with higher city debt levels per person, higher unemployment, and higher poverty levels are characteristics of petrochemical cities during this time of industry expansion. These characteristics are all quite contrary to industry claims of economic improvement created by petrochemical buildout for the communities hosting their expansion.

The petrochemical expansion built on ethane

Understanding why growing ethane supplies were a catalyst

Natural gas is less expensive than oil on an energy content basis. Energy content parity occurs at a ratio of 6 thousand cubic feet (mcf) to 1 barrel of crude oil. In 2025, the average spot price of West Texas Intermediate (WTI) crude was $65.39, and the average spot price of Henry Hub natural gas was $3.65 per mcf. Dividing the annual average prices (oil price/natural gas) results in a ratio of 17.9 mcf of natural gas to 1 barrel of crude. So, for the same amount of money, purchasing natural gas in 2025 provided nearly three times the heat content of oil. The relative valuation between the two commodities is the basis for our discussion about the economics of various feedstocks selected by petrochemical plant operators.[5]

Before we delve into the petrochemical industry's reaction to widening price differences, we need to discuss exactly what equipment was being affected by the growing excess of supply.

Applying extremely high temperatures in an oxygen-free environment to a hydrocarbon mixed with steam causes the hydrocarbon to break or "crack" into olefins, aromatics, and other byproducts. The various pieces of equipment that carry out this process at a petrochemical plant collectively form a unit that is called a steam cracker.

Steam crackers are typically classified by the feedstock they crack. Gas crackers that rely on ethane, propane, and butane (all natural gas liquids) are preferred in the U.S. because they offer the lowest construction costs (about half the cost of liquid crackers) and highest ethylene yields. The other types of steam crackers are liquid crackers, which rely on naphtha and other oil-based feedstocks, and very costly methanol-to-olefin (MTO) or coal-to-olefin (CTO) crackers.

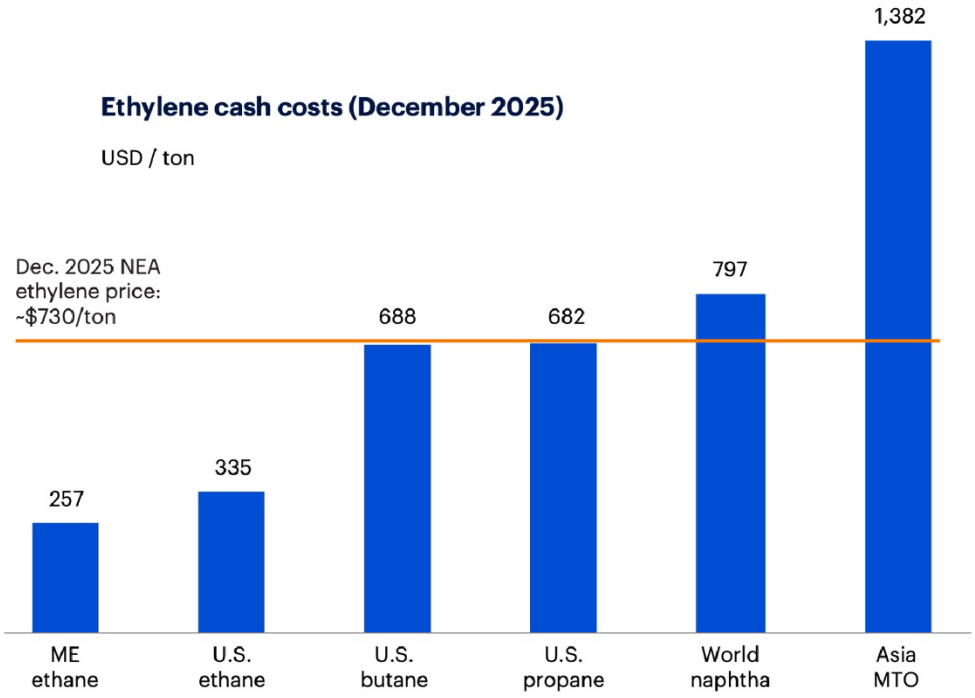
Ethane, being a natural gas liquid separated from natural gas, tends to track the pricing of natural gas. Naphtha, resulting from crude oil refining, tends to track oil prices. The general rule is that unless natural gas becomes comparatively expensive (i.e., by a gas-to-oil cost ratio of, for example, 10-to-1 or higher) refineries will prefer to run ethane through their steam crackers over naphtha, if they have the capability to make that choice.

Before the shale revolution, an overarching theme of the downstream industry (i.e., refining and petrochemicals) was integration and optimization between refining and petrochemical manufacturing. The rapid upstream production growth since then created a vastly greater supply of ethane, widened the ratio between oil-based and gas-based products, and changed the calculus downstream. The availability of low-cost ethane became a major catalyst for new investment and expansion of U.S. ethylene capacity.

[5] Prior to the shale revolution, less production and smaller natural gas supplies resulted in much smaller oil to gas pricing ratios. Between 2000 and 2010 the average oil to gas ratio was 9.3 to 1. Between 2011 to 2025 the ratio has averaged 21.5 to 1.

The following chart was taken from LyondellBasell's 2025 Investor Handbook. It depicts both ethylene cash costs for various cracker types and locations compared with Northeast Asia ethylene price on average for December 2025. The key point of the graphic is to show the strategic advantage and price disparity that prompted U.S. petrochemical producers to expand.

Figure 3: Steam cracking costs by feedstock



Note: ME stands for the Middle East; NEA stands for Northeast Asia.
Source: CMA, in LyondellBasell 2025 Investor Handbook

Pre-expansion levels and buildout

Prior to the shale revolution taking hold, U.S. ethane cracking capacity stood at about 29 million tons per annum (MTPA).[6] Of that 29 MTPA, about 20 MTPA, or 70% of all U.S. ethylene production capacity, was concentrated along the Texas Gulf Coast. The map below illustrates how most of the Texas cracking capacity is clustered in three distinct locations: the Golden Triangle ("Region A"), the Houston Ship Channel ("Region B"), and the Coastal Bend Region ("Region C").

Figure 4: U.S. ethane steam crackers by location

Source: Energy Information Administration map in Department of Energy report to Congress, *U.S. Ethane: Market Issues and Opportunities September 2022*

[6] Kampmann et. al. Global Ethylene Production Database: Assessing Committed Emissions from Current and Future Ethylene Production Capacity in the Global Petrochemical Industry. April 16, 2025.

Region A: The Golden Triangle

The Golden Triangle is a moniker for the cities of Port Arthur, Beaumont, and Orange. The region received the title because of the Spindletop gusher of 1901. The discovery of the massive amount of oil around Beaumont attracted several companies including Humble Oil, now known as ExxonMobil.

Table 1: Golden Triangle ethane cracking capacity (ktpa)

Company	Facility Name	Base	Additions	Total Ethylene Capacity
CPChem / QatarEnergy	Golden Triangle Polymers	0	2080	**2080**
BASF / TotalEnergies	BTP Joint Cracker	800	250	**1050**
TotalEnergies / Borealis	Baystar Cracker	900	100	**1000**
ExxonMobil	Beaumont Chemical Plant	816	0	**816**
CPChem	Port Arthur Cracker	807	0	**807**
Dow	Sabine River Works	590	91	**681**
Motiva	Port Arthur Cracker	620	0	**620**
Indorama Ventures	Port Neches Cracker	236	0	**236**
Total		**4769**	**2521**	**7290**

Note: Orange type denotes newly constructed cracker
Sources: Texas Comptroller of Public Accounts – Chapter 313 school value limitation agreement documents; company expansion press releases.

The newest entrant into the region is a joint venture between Chevron Phillips Chemicals (aka CPChem) and QatarEnergy. Golden Triangle Polymers (GTP) recently started the commissioning process and expects to start full operations in 2027, with a construction cost estimated at $8.5 billion.[7]

[7] BIC Magazine. CPChem's $8.5B Golden Triangle Polymers facility begins commissioning phase in Orange, Texas. May 14, 2026.

The site will likely mark the end of this steam cracking complex buildout wave along the Texas Gulf Coast, considering that:

- ExxonMobil withdrew its JETI application for building a cracker in Calhoun County;
- Motiva discarded its plans for a cracker in Port Arthur;
- Energy Transfer withdrew its air permit application for a cracker in Nederland; and
- Enterprise Products no longer appears to be pursuing construction of a cracker in Mont Belvieu.[8,9,10,11]

Orange, the city hosting the GTP project, experienced a 2% decline in its employed workforce while the town's population grew 4% over the 10 years ending 2024. West-Orange Cove CISD (WOCCISD), the school district granting tax abatements for GTP, allowed the project a $241.6 million-dollar gross tax savings between years 2024 and 2033 in exchange for the company siting its operations in their community.[12]

Contrast GTP's avowal that the company will generate $50 billion in economic output over a 20-year period "in the area" with the underperforming trends for population and employment the city of Orange has sustained.[13,14]

Besides the 2.1 MTPA ethane cracking capacity stemming from the new Golden Triangle Polymers plant, three other locations collectively expanded their ethylene output by 0.4 MTPA in the Golden Triangle:

- Baystar plant (owned by TotalEnergies and Borealis) in Port Arthur
- BASF TOTAL Petrochemicals (owned by BASF and TotalEnergies) in Port Arthur
- Sabine River Works plant (owned by Dow) in Orange

Port Arthur Independent School District granted $65.8 million in tax abatements spanning the years 2020 to 2034 for the Baystar plant's expansion. Tangentially, ExxonMobil in Beaumont was granted $140.1 million in tax abatements from several school districts with taxing authority over its petrochemical complex. But the Beaumont facility expansion increased capacity for handling ethylene production from its Baytown complex; it was not an ethane cracking capacity addition.

[8] Houston Chronicle. ExxonMobil scraps plans for $10 billion Texas plastics plant. October 7, 2025.
[9] Public Health Watch. Energy Transfer Backs Out of Texas Gulf Coast Plastics Plant. May 14, 2026.
[10] RBNEnergy. Enterprise Not Interested in Building a Cracker. April 11, 2024.
[11] S&P Global. Motiva puts Texas petrochemical projects on hold: documents. July 19, 2021.
[12] Texas Comptroller of Public Accounts. Cost Data Request – Project 1330 (see file 01330-CDR-2023-0801.xlsx under the section Report Phase). Posted February 6, 2026.
[13] U.S. Census Bureau. American Community Surveys – 5-year data (2009-2024). Accessed June 24, 2026.
[14] Golden Triangle Polymers. Project facts on company website. Accessed June 24, 2026.

The companies' total investment ($13.3 billion) and tax abatement ($447 million) dollars linked to the expansion of ethylene capacity in the Golden Triangle corresponds to an additional 2.5 MTPA of production capacity.

Once Golden Triangle Partners is operational, the region will host about 16% of the nation's ethane cracking capacity.

Despite the production capacity increases, however, the three host cities combined—Beaumont, Orange, and Port Arthur—have only modest population growth. Their poverty rates average 22.9%, and their unemployment averages 7.1%—both percentages higher than statewide levels. In summary, the returns for these communities from nearly $450 million in foregone taxes that school districts awarded in tax abatement associated with the expansion of steam cracking capacity are not evident in Census data.

Region B: The Houston Ship Channel extending down to Eastern Brazoria County

Like the Golden Triangle, much of the expansion of ethylene production capacity (3,000 out of 3,841 MTPA capacity built) in the Houston Ship Channel was due to new construction of steam crackers.

Table 2: Houston Ship Channel to Eastern Brazoria County ethane cracking capacity (ktpa)

Company	Facility Name	Base	Additions	Total Ethylene Capacity
ExxonMobil	Baytown Olefins Plant	2200	1500	**3700**
CPChem	Cedar Bayou Plant	1450	1500	**2950**
INEOS	Chocolate Bayou Works	1792	115	**1907**
Shell Chemical	Deer Park Chemicals	1297	0	**1297**
LyondellBasell	La Porte Complex	900	363	**1263**
LyondellBasell	Channelview Complex	726	363	**1089**
INEOS	La Porte Olefins	550	0	**550**
Total		**8915**	**3841**	**12756**

Note: Orange type denotes newly constructed cracker
Sources: Texas Comptroller of Public Accounts – Chapter 313 school value limitation agreement documents; company expansion press releases.

ExxonMobil and CPChem added new cracking units in this region, while LyondellBasell and INEOS expanded existing operations. The only company operating on the Houston Ship Channel that did not participate in the region's ethane cracking buildout was Shell.

Starting at a base of 8.9MTPA cracking capacity, Houston Ship Channel operators added 3.8 MTPA to bring the region's total capacity to 12.7 MTPA.

Both ExxonMobil Baytown and CPChem Cedar Bayou added 1.5 MTPA of new cracking capacity each to their complexes. Between ExxonMobil's Baytown plant and its Mont Belvieu facility, which

integrates with Baytown's output, the company was granted a total of $218 million by several school districts for its expansion investments of $3.9 billion. Exxon's gross tax savings span the years 2015 to 2031 for these projects.

CPChem Cedar Bayou also had multiple agreements with school districts and received $110 million in tax abatements covering tax years 2018 to 2033 for its $2.6 billion expansion project.

The remaining companies, LyondellBassel and INEOS, received $200 million for investments totaling $4.8 billion at their four petrochemical complexes in Region B.

The total investment in expansion of ethylene capacity in Region B tied to tax abatement, resulting in a 3.8MTPA increase in production capacity, was $11.4 billion.

The region hosts about 27% of the nation's ethane cracking capacity.

The cities of Baytown, Channelview, Deer Park, Pasadena, and Mont Belvieu are all in vicinity of the petrochemical plants. The collective population of these cities was nearly 360,000 (growing just 6% in a decade), with poverty rates averaging 17% and a high unemployment rate of 8.1%.[15] All three metrics are worse than statewide averages of 15.7% for population growth, 13.8% for poverty rate, and 5.3% for unemployment rate.

Like the Golden Triangle, it does not appear that residents of cities or towns near the Houston Ship Channel are prospering from the petrochemical expansion that was approved to take $529 million in gross tax savings from the school districts in the region in exchange for building more ethylene production capacity near them.

[15] U.S. Census Bureau. American Community Survey – 5-year data (2009-2024). Accessed June 24, 2026.

Region C: The Coastal Bend extending up to Freeport

The Coastal Bend region extending up to Freeport nearly doubled its ethane cracking capacity after the vast growth in ethane production generated primarily from the Permian Basin's oil and gas production growth.

Table 3: Coastal Bend to Freeport ethane cracking capacity (ktpa)

Company	Facility Name	Base	Additions	Total Ethylene Capacity
Dow Chemical	Freeport Complex	2700	2000	**4700**
Formosa Plastics	Point Comfort Complex	1760	1500	**3260**
CPChem	Sweeny Complex	1660	290	**1950**
ExxonMobil / SABIC	Gulf Coast Growth Ventures	0	1800	**1800**
LyondellBasell	Corpus Christi Complex	680	363	**1043**
OxyChem / Orbia	Ingleside Ethylene	0	550	**550**
Total		**6800**	**6503**	**13303**

Note: Orange type denotes newly constructed cracker
Sources: Texas Comptroller of Public Accounts – Chapter 313 school value limitation agreement documents; company expansion press releases.

Two greenfield projects, ExxonMobil/SABIC's Gulf Coast Growth Ventures and OxyChem/Orbia's Ingleside Ethylene plants, were built with investments totaling $7 billion. Large additions of new cracking capacity at Dow and Formosa complexes resulted in another $6.5 billion in investments. And expansion and debottlenecking at CPChem Sweeny and LyondellBassel's Corpus Christi Olefins accounted for $2.2 billion in investments.[16] The total invested in Coastal Bend ethane cracking expansion projects was $15.8 billion, or 40% of all ethylene expansion investment across Texas during this wave of investment.

With 13.3 MTPA total cracking capacity, the Coastal Bend region is now the largest hub for ethylene production in Texas.

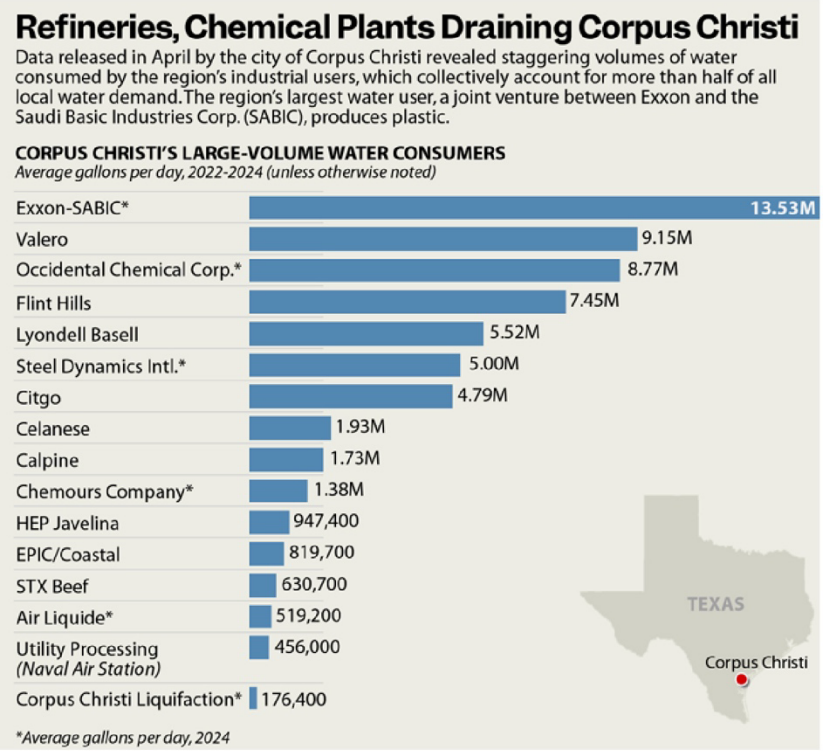
While the Coastal Bend cities are collectively tracking slightly better than Texas for unemployment rates, the region is suffering from a water crisis that appears to be linked to the overbuilding of industry and its water consumption needs.

[16] Audubon. Debottlenecking: What It Is and How It Can Help Optimize Downstream Processes. Website viewed July 2, 2026.

The situation has gotten bad enough for credit rating agencies to downgrade the ratings of Corpus Christi Utility System Bonds and put other surrounding utilities on notice.[17,18,19]

While a drought has occurred, water demand has expanded rapidly, with 16 industrial customers consuming a majority of the region's daily demand (see chart below).[20] San Patricio and Nueces counties consumed 45.9 billion gallons of water in 2023, an increase of six billion gallons or 15% growth from 2013.[21] But the change in population for the two counties, over the preceding decade, was just +1% or 5,901 people. The ultimate cost this region will have to pay for the industry-made (albeit assisted by drought) crisis will be great, but the amount currently is unknown.

Figure 5: Water hogs in Corpus Christi



Source: Inside Climate News/Paul Horn

The cities of Ingleside, Gregory, Corpus Christi, and Freeport hosted much of the ethylene capacity expansion just discussed. The collective population of these cities was 340,000 in 2024, and like the

[17] S&P Global Ratings. Corpus Christi, TX Utility System Bond Ratings Lowered To 'A' From 'AA-', On CreditWatch With Negative Implications. May 4, 2026.
[18] City of Corpus Christi. City of Corpus Christi Responds to Moody's Rating Action. December 12, 2025.
[19] S&P Global Ratings. Various Texas Water Utility Rating Outlooks Revised To Negative After Corpus Christi, TX Utility System Rating Action. May 6, 2026.
[20] Inside Climate News. Corpus Christi Plans to Declare a 'Water Emergency.' What Does That Mean? April 23, 2026.
[21] Texas Water Development Board. Water Use Survey Historical Summary Estimates (Includes Reuse)- County Report. Survey Years 2013 and 2023.

counties, little growth occurred between 2014 and 2024. The population growth rate, at just 1.1%, was much lower than the 15.7% statewide growth.[22]

In similar fashion, the Coastal Bend's poverty rate at 16.9% is much higher than the 13.8% statewide poverty rate.[23]

And unfortunately for the Coastal Bend region, the industrial buildout, which included more industries than just the petrochemical expansion we discussed, has overwhelmed the region's water supply.

Petrochemical cities underperform on key economic indicators

Among all three regions where petrochemical expansion occurred rapidly, the pattern is clear: more industry does not log positive outcomes for surrounding communities.

Slower population trends

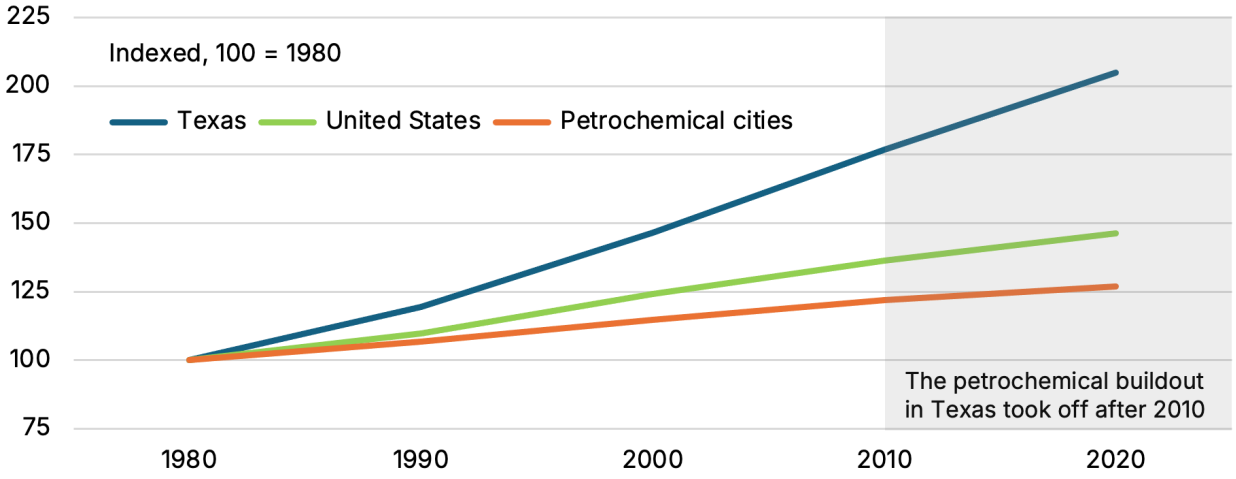
The Texas cities hosting the majority of the nation's ethane cracking capacity experienced little population growth compared to state and national trends, both before and after the shale revolution, significantly underperforming over the duration.

In the thirty years preceding the widespread adoption of hydraulic fracturing—the unconventional drilling and completion technique that dramatically increased well recovery rates and, in turn, created abundant petrochemical feedstock supplies—municipalities surrounding Texas Gulf Coast petrochemical complexes grew at an average rate of 0.67% per year.[24] Over the same period, Texas grew at three times that pace, averaging 1.9% annually, while the national average was 1.0% per year.

Between 2010 and 2020, when a large wave of ethane cracking capacity came online, these petrochemical towns continued to lag the state and national paces. Three cities saw their population base shrink—Beaumont, Gregory, and Freeport—while only two cities—Baytown and Mont Belvieu—exceeded or kept pace with the state's growth.

[22] U.S. Census Bureau. American Community Survey – 5-year data (2009-2024). Accessed June 24, 2026.
[23] *Ibid*.
[24] Petrochemical cities included for this population comparison were Baytown, Beaumont, Corpus Christi, Deer Park, Gregory, Freeport, Ingleside, La Porte, Mont Belvieu, Orange, Pasadena, and Port Arthur, from Texas Almanac consolidation of Census Bureau data.

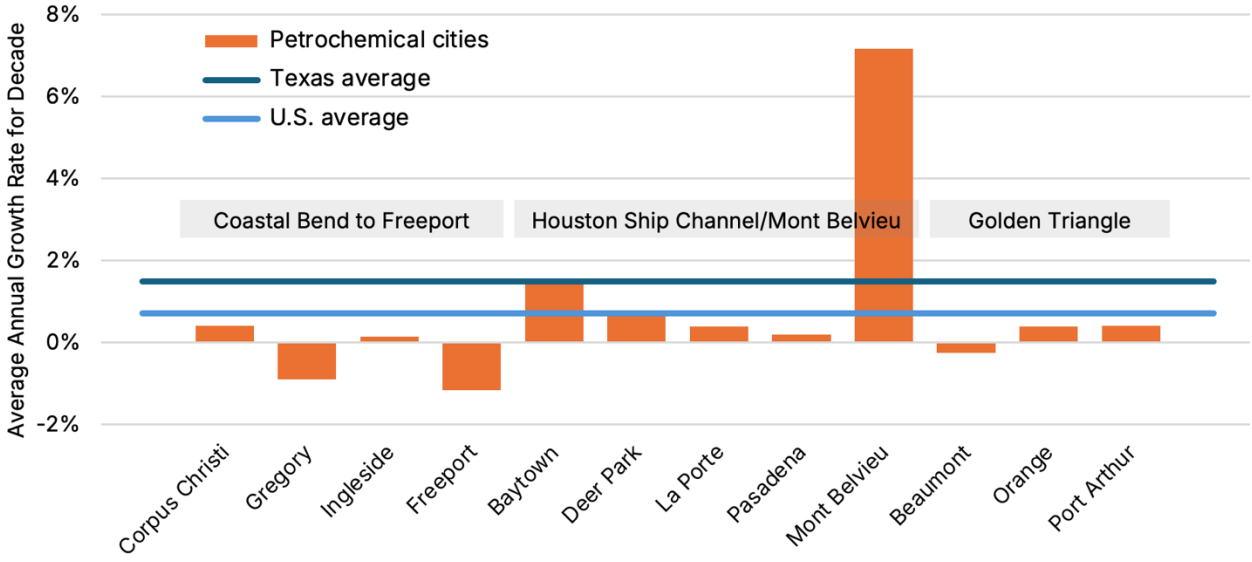
Figure 6: Population growth in Texas petrochemical complex host cities has severely lagged both state and national growth



Source: U.S. Census Bureau – Historical Population Change Data (1910 to 2020)

Collectively, petrochemical complex host cities saw their population growth slow to 0.4% per year over the last decennial. Although part of the trend can be attributed to slowing state (1.5% per annum) and national (0.71% per annum) population trends, the point remains that most petrochemical host cities experienced slower growth even though they experienced tremendous plant expansion over this timeframe.

Figure 7: Average annual population growth between 2010 and 2020



Sources: U.S. Census Bureau, Historical Population Change Data 1910 to 2020; Texas Census (2010, 2020)

Specifically, the average annual growth rates for the 12 petrochemical cities we tracked ranged from -0.9% per annum (Gregory, Texas) to +7.2% per annum (Mont Belvieu) over the decade ending 2020.[25, 26] Collectively, these cities only experienced a population increase of 33,630, rising from a base of 809,757 to 843,387 from 2010 to 2020 (or just +0.4% per annum). And as a group their average annual rate of growth was much lower than the nation's +0.7% per annum (from 309 million to 331 million) and the state's pace of +1.5% per annum (from 25.1 million to 29.1 million).[27]

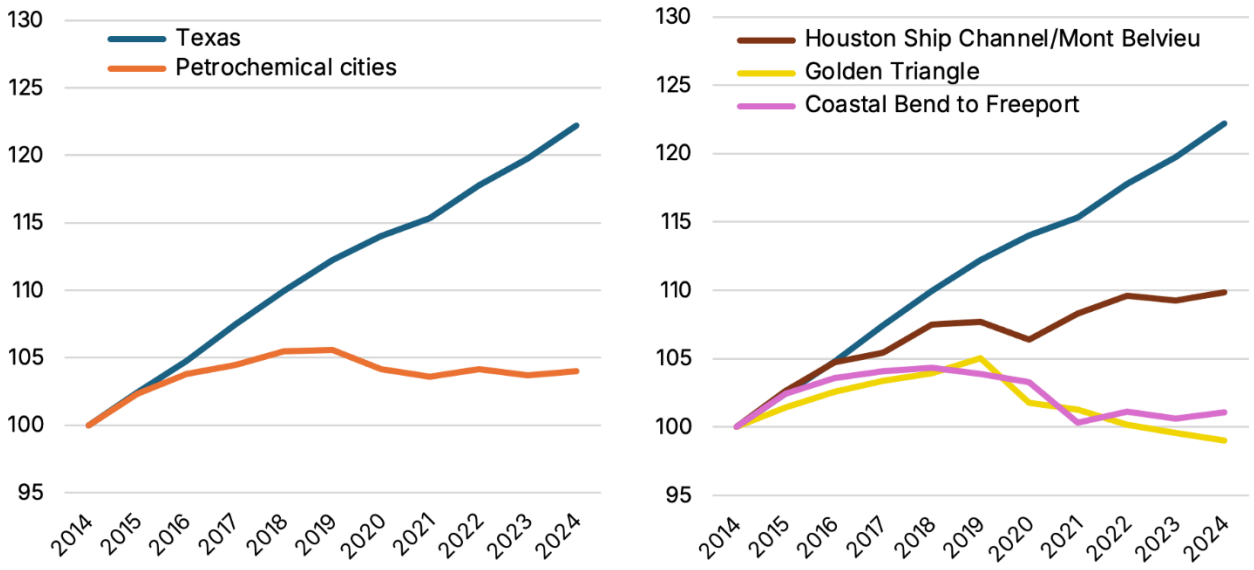
Petrochemical cities' employed workforce trends ~80% slower than statewide

In aggregate, the petrochemical cities of Baytown, Beaumont, Corpus Christi, Deer Park, Freeport, Gregory, Ingleside, La Porte, Mont Belvieu, Orange, Pasadena, and Port Arthur saw their employed workforce flatline during the period in which most of the expansion in ethane capacity occurred.

Collectively, these cities grew the employed workforce by just 4% over the ten-year period ending 2024, or at one-fifth the pace of Texas as a whole. This may suggest that much of the labor needed for construction of these expansion projects was transient and not locally sourced, as we would have expected these cities to grow their employed base to accompany the industrial expansion in these towns. Again, the results contradict industry claims that their presence creates large numbers of jobs for surrounding communities.[28]

[25] Texas Comptroller of Public Accounts. Census 2020. Accessed August 20, 2026.
[26] Texas State. 2010 Census: Population of Texas Cities. Accessed August 20, 2026.
[27] US Census Bureau. Historical Population Change Data (1910 to 2020). April 26, 2021.
[28] BIC Magazine interview of Stephen Goff, LyondellBasell Bayport Complex Site Manager. Goff said regarding the project, "for every [direct] job we create would create, let's say potentially, seven jobs for the community as well." The comments were made after the announcement of its project at Bayport/Pasadena. Found at 2 minute 9 second mark of video interview. August 22, 2018.

Figure 8: Employment growth, indexed to 2014 = 100



Source: U.S. Census Bureau, American Community Survey (5-year vintages 2014 to 2024)

Viewed as separate regions, the Coastal Bend, Golden Triangle, and Houston Ship Channel grew their employed workforces at a slower pace than Texas. Among the three, however, the growth of the Houston Ship Channel's employed workforce was much stronger than the other two regions. The Houston Ship Channel cities appear to benefit from being a part of a more urban geography.

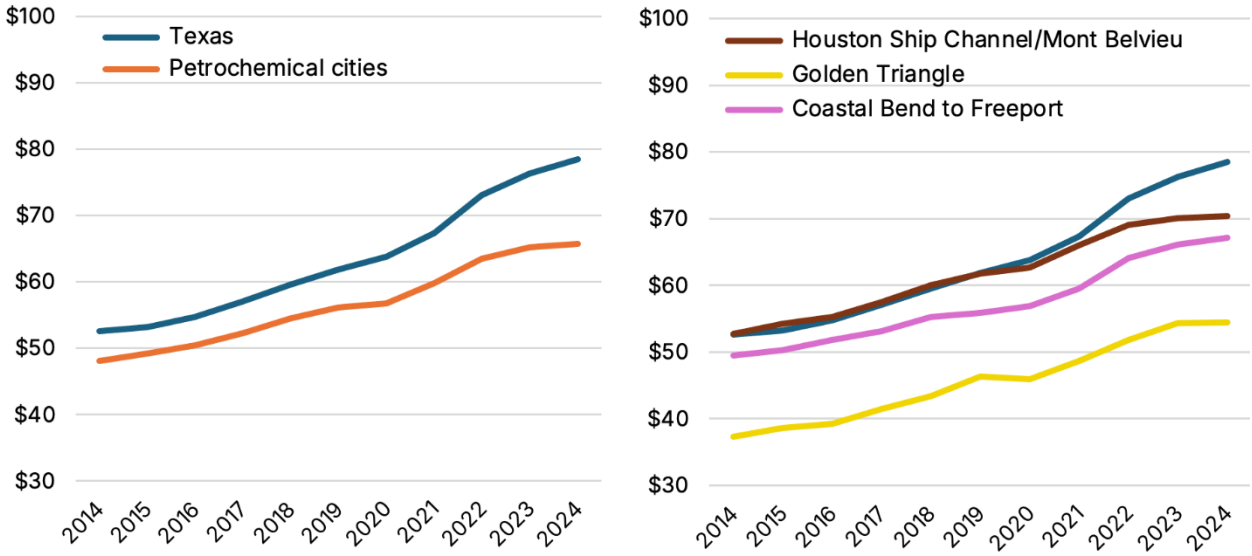
From 2014 to 2024, the Texas workforce grew from 11.6 million to 14.4 million employed, marking a 22% increase.[29] The employed workforce living in Houston Ship Channel cities grew by 10% to 159,000 workers; the Coastal Bend workforce only grew 1% to 156,000; and the smaller Golden Triangle employed workforce fell by 1% to 77,000 workers. Figure 8 provides a look at how unfavorably each of these regions trended compared to employed levels across Texas.

[29] The Bureau of Labor Statistics Quarterly Census Employment and Wages data provides employment estimates based on where the jobs occur. The U.S. Census Bureau American Community Survey data makes the distinction of counting workers by where they live. We are using the latter metric to understand how the people who live in the communities surrounding petrochemical complexes are faring.

Depressed median household incomes across the communities

The Texas cities hosting the majority of the nation's ethane cracking capacity have depressed median household incomes that have lagged statewide levels over time. Collectively, the gap in median household incomes, coinciding with the buildout of ethane capacity coming online, has widened compared with statewide numbers, with the spread doubling to $13,000.

Figure 9: Median household income, $000s



Source: U.S. Census Bureau, American Community Survey (5-year vintages 2014 to 2024)

Between 2014 and 2024, the Texas median household income rose from $53,000 to $79,000, a 49% increase unadjusted for inflation. That compares to petrochemical cities recording a 37% increase, from $47,000 to $66,000, over the ten-year period.

The median household income for Houston Ship Channel residents started higher at $53,200 per year—$700 more than the statewide average. But by 2024 these cities' (Baytown, Deer Park, La Porte, Pasadena, and Mont Belvieu) average had fallen behind to a median of $71,200—$7,300 less than the Texas median.

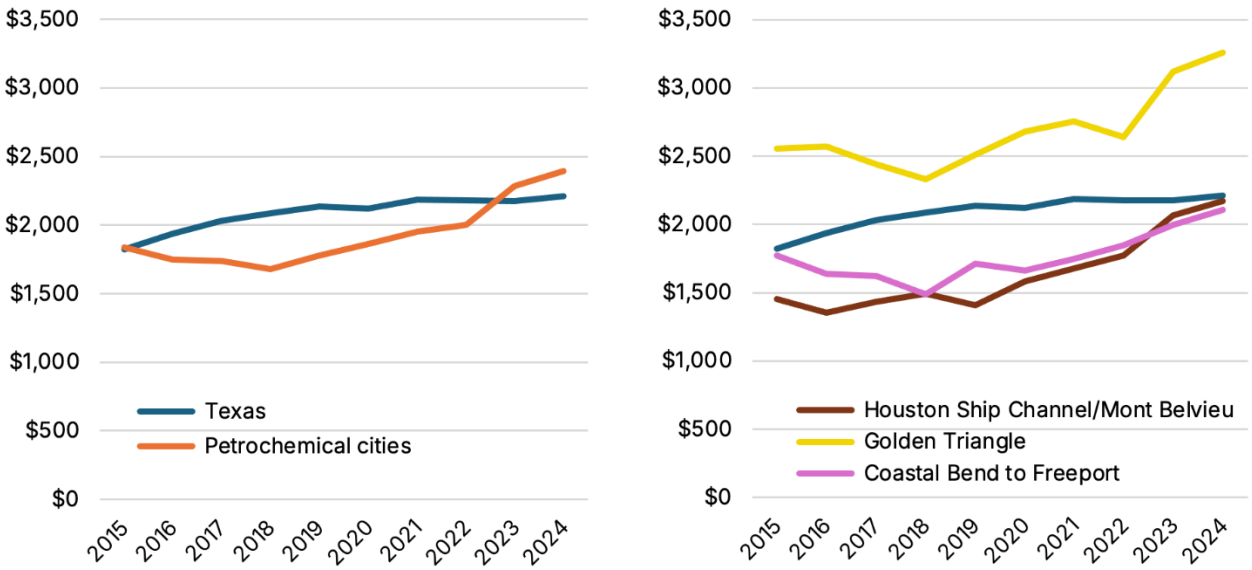
The Coastal Bend median household income for residents of Corpus Christi, Freeport, Gregory, and Ingleside averaged $49,500 in 2014 and grew 36% to $67,100 in 2024.

The less dense Golden Triangle was last in median household income in absolute terms starting at $37,300 and ending at $54,400 ten years later for the combined city averages of Beaumont, Orange, and Port Arthur. It is a fact that wages within petrochemical complexes tend to be well above overall averages. But there are so few direct local jobs associated with petrochemical expansion that those higher-wage jobs are not meaningfully moving the needle at a regional level.

Debt per capita

The chart below shows that, in aggregate, the amount of debt per capita these cities have undertaken to finance their capital outlays grew by $560—44% more than the $390 per capita added to the state's books—with most of the liabilities taken on in recent years.

Figure 10: Debt per capita



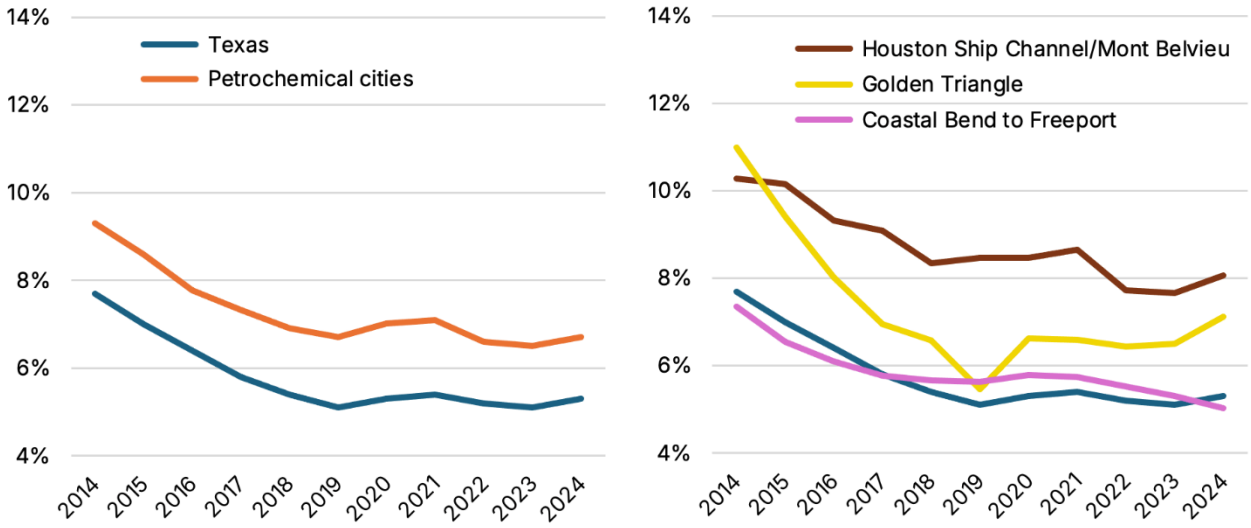
Source: Weighted average of Annual Financial Comprehensive Reports (AFCR) for Orange, Beaumont, Port Arthur, Pasadena, Deer Park, La Porte, Baytown, Corpus Christi, and Ingleside, Texas AFCR

Of the three regions, the Golden Triangle is performing the worst. Given its relatively small population, its shrinking employed workforce, and its high poverty levels, the Golden Triangle region's municipalities are at greater risk of seeing their debt quality deteriorate, implying their costs for future borrowing could rise.

Unemployment trending higher near petrochemical complexes

While the aggregate unemployment rate across the three petrochemical hub regions has fallen in tandem with statewide improvements in unemployment, the bottom line is these petrochemical cities have consistently maintained higher unemployment levels over the decade than Texas.

Figure 11: Unemployment rate



Source: U.S. Census Bureau, American Community Survey (5-year vintages 2014 to 2024)

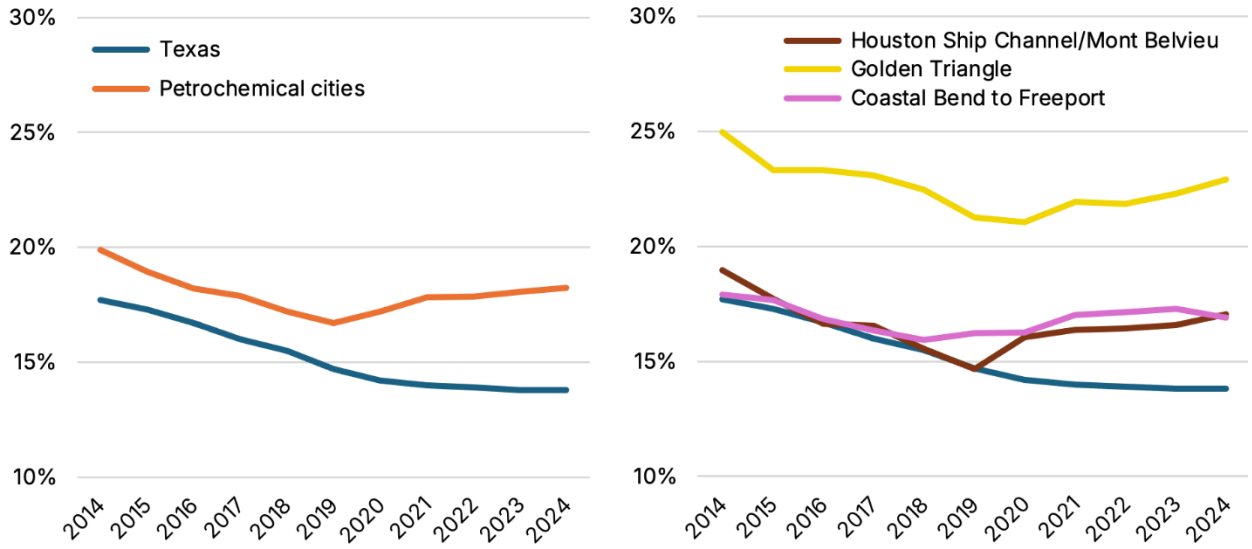
While starting in last place with the highest unemployment rate of 11%, the Golden Triangle's 2024 unemployment rate of 7.1% was stronger than the Houston Ship Channel, whose unemployment stalled around 8.0% to 9.0% for much of the decade.

The Coastal Bend region's unemployment resembled Texas for the ten-year period, and in 2024, the region's 5.0% average was 30 basis points lower than statewide unemployment rates. We do not have an explanation for the disconnect between favorable unemployment rates for the Coastal Bend region and the fact that its employed workforce grew at such a slow pace over the last 10 years (+1% compared to +22% statewide).

Higher poverty rates

Much higher poverty rates than the statewide average, for both aggregate and regional views, are reminders of the reality facing petrochemical cities. We will discuss this more as we cover the external costs of the buildout on the communities. In short, the negative attributes of living close to a petrochemical complex negatively affect the wealth of the people living in these communities.

Figure 12: Poverty rate



Source: U.S. Census Bureau, American Community Survey (5-year vintages 2014 to 2024)

Furthermore, because the petrochemical complexes are cyclical, the community is more likely to encounter greater economic pressure during industry slump than communities with more diverse industry components.

Unaccounted economic cost and outlook

Petrochemical costs and strains on communities

Promises of economic rewards underpinned the decisions that these communities made to allow petrochemical companies to operate nearby. They were willing to accept the risks with hopes that the projected economic benefits and job growth would outweigh the potential negative environmental and health consequences. But promises of economic growth have not come to fruition—instead, these communities experienced underperforming growth compared to statewide levels.

Residential proximity to industrial pollution in Beaumont and Port Arthur in The Golden Triangle was found to increase odds of asthma, COPD, and other respiratory diseases.[30] Similarly, short residential distance from refineries poses increased risk for cancer, with a statistically significant higher risk of metastatic disease and greater chance of cancer diagnosis for those living within 10 miles of a refinery.[31] Specific to the Houston Ship Channel, a University of Texas School of Public Health study found that that children living within two miles of the Houston Ship Channel had a 56% greater chance of contracting leukemia than children living 10 or more miles away.[32] Collectively, the research points to additional health costs associated with these elevated levels of toxic pollutants affecting communities closest to petrochemical plants.

We previously showed that cities near the expansion of petrochemical plants have experienced an uptick in debt-per-capita. These plants, especially during expansion waves, place stress on cities' infrastructure, emergency services, and social services. In the cities we identified, their populations and employed workforces are relatively stagnant, which indicates that the rising costs of the additional stress caused by the petrochemical buildout are not matched by growth in the tax-paying community.[33] The situation increases the risk that the residential debt load may eventually give way to higher refinancing costs for municipalities floating bonds, because the cities' tax revenues may not keep pace.

Other research has found diminished property valuations and a greater percentage of vacant homes.[34] Of note, the impact of more than one petrochemical facility near a home compounds the impact on home values. Specifically, homes close to three or more facilities were discounted three times greater than the discount if a home was close to just one facility. [35]

Furthermore, air and water pollution degrade quality of life. Various models can provide some sense of the economic cost. For example, the U.S. Environmental Protection Agency (EPA) has made use of the Benefits Mapping and Analysis Program (BenMAP) tool, which can provide the per ton savings by sector for fine particulate matter (PM2.5) and Ozone.

A simplified approach to establish a floor for the cost of increased climate-changing emissionsis to multiply the number of tons of carbon dioxide equivalent (CO_2e) that the petrochemical industry emits by the current 45Q tax credit awarded for sequestering carbon. The U.S. chemicals sector generated 185 MTPA of CO_2e in 2023. Assuming the Texas Gulf Coast was 70% of that total, the

[30] Iyanda et al. Environmental exposure and respiratory health in industrial gulf coast communities: a mixed method study. BMC Public Health. 2026.
[31] Williams et al. Proximity to Oil Refineries and Risk of Cancer: A Population-Based Analysis. JNCI Cancer Spectrum. October 7, 2020.
[32] Linder et al. Cumulative Cancer Risk from Air Pollution in Houston: Disparities in Risk Burden and Social Disadvantage. Environmental Science & Technology Vol 42/Issue 12. May 8, 2008.
[33] American Planning Association. Impact of Large Industries on Small Communities. PAS Report 31. 1951. Taking such an old piece of research was intentional because we wanted to illustrate how long this knowledge has existed.
[34] Johnson et al. Steam cracker facilities in the United States: operations, emissions, and sociodemographic patterns of surrounding populations. Environmental Research Health. Vol 1 No 3. July 3, 2023.
[35] Guignet et al. The property value impacts of industrial chemical accidents. Journal of Environmental Economics and Management. Volume 120. July 21, 2023.

petrochemical industry represented in our report generated 129.5 MTPA of CO_2e that year. Multiplying that figure by the $85 tax credit yields a cost estimate of $11 billion annually just for CO_2e emissions—meaning the price tag for all harmful emissions is much higher.

Allocating the $11 billion cost proportionally over the three primary petrochemical producing regions provides a starting point for the annual costs of hosting petrochemical facilities, as follows:

Minimum annual pollution cost exposure for petrochemical regions:

- *Golden Triangle* *$2.4* billion
- *Houston Ship Channel* *$4.2* billion
- *Coastal Bend* *$4.4* billion

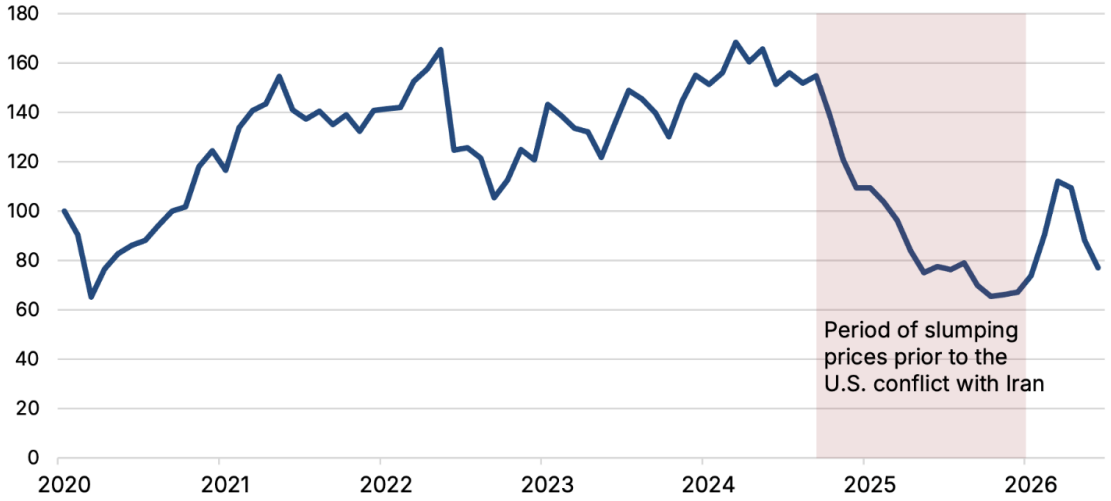
One cost that is no longer tracked by the EPA for cost-benefit analysis is the value of public health benefits in rulemaking related to air pollution.[36] By ceasing to track this parameter, the agency is crippling its ability to conduct reasonable cost-benefit analysis.[37] Since the known adverse health impacts sometimes lead to premature death associated with petrochemical pollutants, this is a huge cost that will no longer be evaluated or estimated under the current rules of the agency.

Outlook for ethylene

Prior to the recent military conflict with Iran, share prices of petrochemical producers slumped to levels not seen since the COVID-19 recession. At the beginning of 2026, like oil and gas companies and other commodity-driven sectors, shares of petrochemical companies reversed course and saw their valuations improve as the market responded to the conflict with Iran and possible corresponding supply shortages.

[36] EPA. Economic Impact Analysis for the New Source Performance Standards Review for Stationary Combustion Turbines: Final Rule. January 2026.
[37] Teherani et al. When Health Costs No Longer Count – Air Pollution and EPA Rulemaking. New England Journal of Medicine. June 20, 2026.

Figure 13: Share price index of petrochemical companies, January 2020 = 100



Source: Using S&P Global Capital IQ for share prices, IEEFA compiled an index including Celanese, Dow, LyondellBasell, and Westlake's monthly average share prices

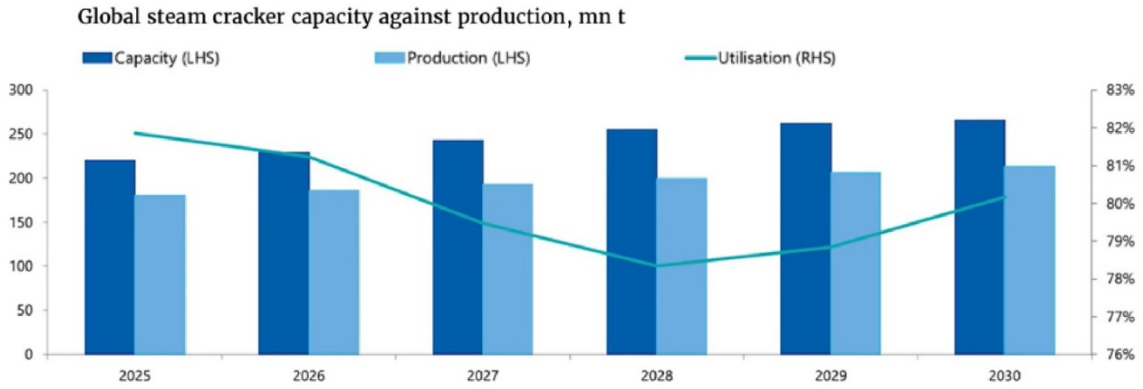
The slump in prices in 2025 was due to oversupplied conditions both domestically and internationally. An industry-wide credit report released in January 2026 detailed why its outlook for petrochemicals was so dire. Specifically, in a discussion about why so many investment-grade chemical companies were given a negative outlook, S&P Global Ratings succinctly said that "…U.S. petrochemical companies… are grappling with unprecedented oversupply." S&P also pointed out the petrochemical companies experienced four consecutive years of sequential Earnings Before Interest Taxes Depreciation and Amortization (EBITDA) declines with no expectations of recovery before 2028, due to excess new capacity, subdued demand, and weak operating rates and margins.[38]

The abrupt swings in petrochemical companies' share prices paint an unstable picture for their economic outlook. First, demand for ethylene and its derivative chemicals are tied to global economic conditions that have moderated compared to historical levels. Second, weaker-than-average demand tends to put pressure on petrochemical companies' operating rates and margins. Finally, the volatility seen across the past six years tends not to be reflected in economic benefit analysis conducted either by, or for, public officials as they consider backing the development of petrochemical projects with public funds.

The performance of U.S. petrochemical plants focused on ethylene markets depends on when and to what extent Middle East supplies resume. A recent webinar by Argus[39] suggested that the utilization of global cracking capacity would moderate and not trough until 2028.

[38] S&P Global Ratings. Industry Credit Outlook 2026: Chemicals. January 2026.
[39] Argus. Refining Under Strain – Supply Disruptions & Rising Global Oil Market Risk.

Figure 14: Argus expects oversupplied ethylene conditions will persist



Source: Argus Media - Consulting Services

Conclusion

The buildout of ethane cracking capacity in the Golden Triangle, Houston Ship Channel, and Coastal Bend regions was supported locally by the school districts, who offered nearly $2 billion in tax abatement to secure siting of expansion projects within their taxing jurisdictions. State and local officials, along with industry proponents, tended to focus on the initial investment (that totaled over $40 billion for these projects) and construction that would follow. They should have looked beyond the temporary stimulus to the cities. Given the size and number of expansion projects undertaken and the fact that all regions are underperforming the state on all economic metrics presented (except for unemployment rates in the Coastal Bend), there is a clear disconnect between the economic benefits promised and what has happened.

The ethylene capacity expansion investments we discussed for these three key regions were predicated on the excess supply of ethane flowing from the Permian Basin. But the allocation of the petrochemical value chain's economic benefits is asymmetrical. The concentration of benefits occurs at the two ends leaving the middle processing stage garnering lower amounts. Localized wealth occurs at the well site (i.e., the starting point of the value chain) due to royalties paid and sales tax revenue. The petrochemical cities, where feedstocks are processed (i.e., refined and cracked) into raw materials used for manufacturing plastics, resins, and other synthetic materials, are isolated from much of the initial wealth generation. And since these raw materials are then generally exported to other regions for final manufacturing, it is the destination point that captures a greater portion of the economic value created by selling the finished product. So, while Texas is capturing the extraction and export benefits, the petrochemical plants are just an intermediate step in a much larger supply chain where the bulk of wealth from manufacturing and likely job multipliers flow outward to the ultimate destination and not downward to the communities where the petrochemical complexes reside.

The cities we tracked (Baytown, Beaumont, Channelview, Corpus Christi, Deer Park, Freeport, Gregory, Ingleside, La Porte, Mont Belvieu, Orange, and Port Arthur) were expecting prosperity, but

are instead getting stagnation, health issues, and devalued property in return for the industrial development they support. A continued lack of acknowledgement perpetuates this cycle.

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

About the author

Trey Cowan

Trey Cowan is an oil and gas energy analyst focused on U.S. upstream and global energy markets with a keen interest in Texas activities. At IEEFA, Trey contributes to research, commentary, and independent analyses assessing the energy industry's transition to cleaner, more affordable and sustainable solutions. As a finance professional for over 20 years, he is skilled at presenting thought-provoking data in formats that are persuasive and easily grasped. His work and insights have been featured by Reuters, NPR, Forbes, and Investor's Business Daily, as well as national, broadcast, and local news outlets. Trey holds a bachelor of science in accounting from University of Houston-Clear Lake, an MBA from Vanderbilt University, and is a Texas-licensed certified public accountant.

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