

American Fuel & Petrochemical Manufacturers



AFPM

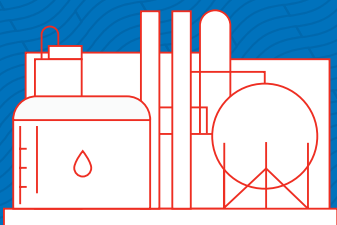
Driving Progress

2023 Annual Report

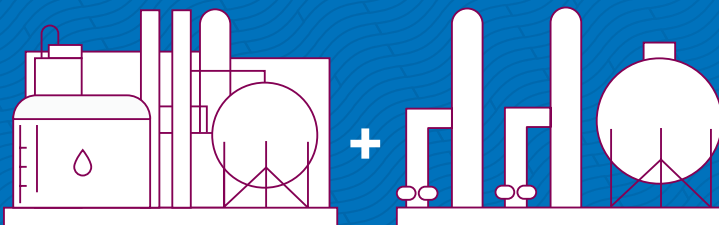


U.S. Refineries and Petrochemical Facilities

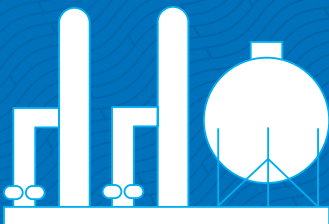
There are **130 operable refineries** and **366 petrochemical manufacturing units** in the United States.



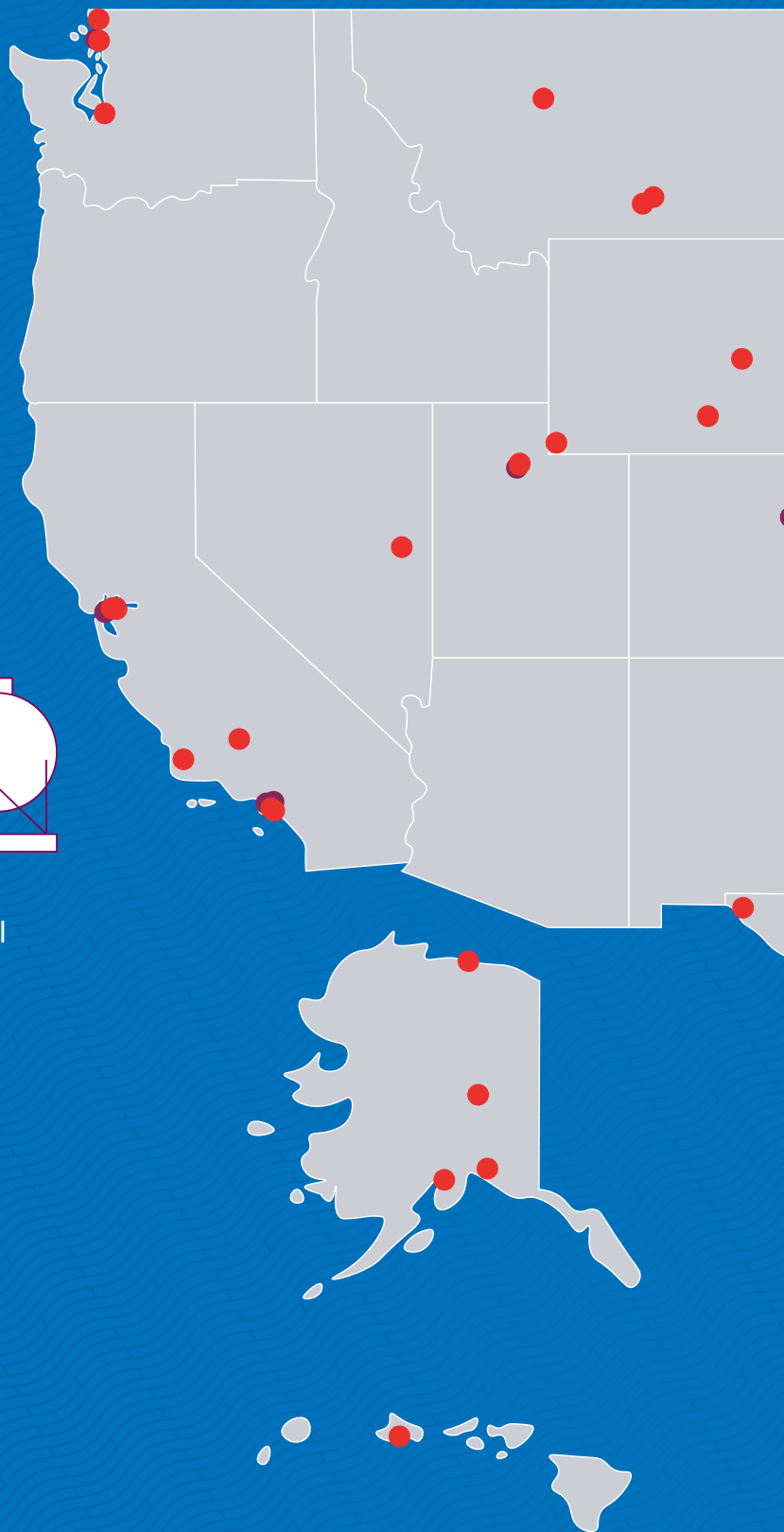
77 refineries produce gasoline, diesel, jet fuel and other products

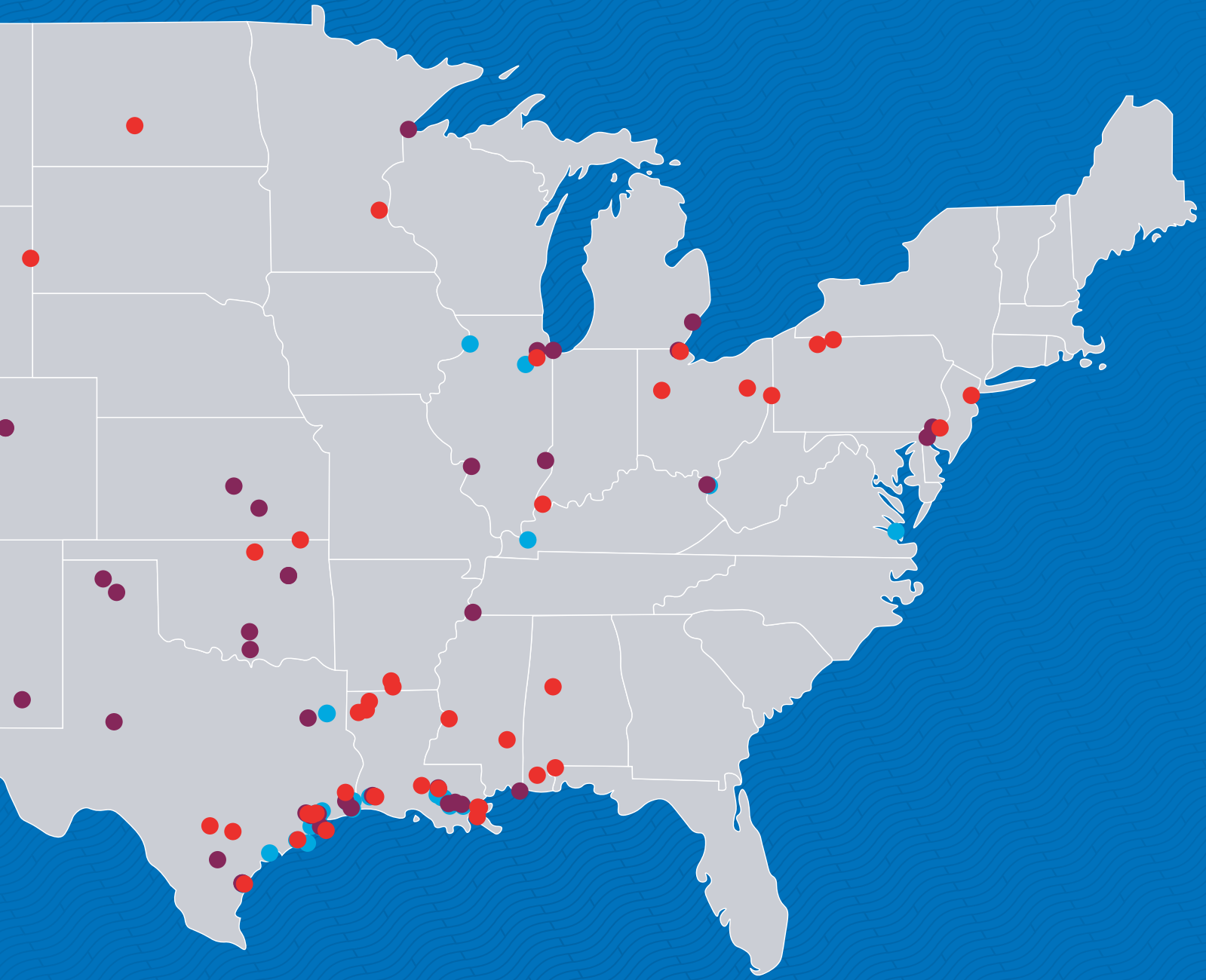


53 refineries produce gasoline and other fuels, and produce base petrochemicals at **214** petrochemical units colocated with the refineries



152 standalone petrochemical units produce base petrochemicals







The American Fuel & Petrochemical Manufacturers (AFPM) is the leading trade association representing the makers of the fuels that keep us moving, the petrochemicals that are the essential building blocks for modern life and the midstream

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The U.S. refining industry is the most complex and efficient in the world, making the gasoline, diesel and refined products that continue to be essential for fueling our nation and the world.



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Petrochemicals are the building blocks of virtually every part of the global economy. They are foundational to healthcare, to technology, to energy, to agriculture and beyond, and are difference-makers in products we use throughout our days.



27 Midstream

The midstream sector includes the companies that transport feedstock — oil and natural gas products — into refining and petrochemical facilities and end products — like gasoline, diesel, jet fuel, home heating oil, resins, plastic pellets and many other products — out to the market.



35 Environmental Stewardship

The U.S. refining, petrochemical and midstream sectors are actively working to reduce emissions, conserve water and energy, reduce waste and preserve the lands and ecosystems that surround them.



45 Health and Safety

AFPM members' commitment to safety goes beyond upholding codes and standards that guide operations, it is embedded in their cultures and instilled in every employee from day one.

companies that get our feedstocks and products where they need to go. We make the products that make life better, safer and more sustainable — we make progress.



55 Security

The refining and petrochemical industries plan and prepare 365 days a year for a variety of events, from extreme weather to cybersecurity to physical threats to our facilities, to be prepared to protect our employees and facilities.



63 Economic Development

The U.S. refining and petrochemical sectors are foundational to the communities in which they operate as drivers of the U.S. economy, significant taxpayers and providers of highpaying, family-supporting jobs.



71 Community Engagement

Refining and petrochemical companies contribute in many ways to provide the best standard of living not just to our workers and their families, but also to our surrounding communities.



75 Policies that Power Progress

AFPM works to advance public policies that address our most pressing challenges.



81 Board, Members and Resources

Listings of AFPM Board of Directors, Executive Committee, Committees, Subcommittees and Working Groups that are comprised of representatives from our member companies who offer advice and support to carry out our mission.

A Message from the Chairman of the Board and President and CEO of AFPM

The turbulence of the last two years continued into 2022 as the world came out of COVID lockdowns and economies re-opened, only to be met with the impact of war as Russia's attack on Ukraine sent already delicate markets out of balance yet again and devastated the lives of millions. As the list of unprecedented events grew, the U.S. refining and petrochemical industries continued their steadfast commitment to safely and sustainably provide the fuel and petrochemical products that our country, our allies and growing global populations need to thrive.

To meet critical demand for liquid fuel, U.S. refiners ran their facilities full out — pushing utilization over 90 percent for most of the year, supplying about 280 billion gallons to fuel our fellow Americans and our allies abroad.

Meanwhile, the U.S. petrochemical industry continued to boost its production of products critical to nearly every sector of the global economy. As demand for petrochemicals — like ethylene and propylene — is expected to grow, AFPM members increased their capacity to meet those needs while continuing to invest in partnerships, processes and technologies, like advanced recycling, to create a more circular economy for their products.

Our commitment to the health and safety of workers, our communities, and the environment stands out among our peer industries as we continue to be ranked among the safest of more than 500 manufacturing industries tracked by the U.S. government. Our members' commitment to improve environmental stewardship is just as strong, as they commit billions of dollars and the ingenuity of their world-class workforce to reducing emissions and becoming more efficient, conserving energy and water, reducing waste and preserving and restoring the land and ecosystems around them.

Our industries are also foundational to the economy. Last year they contributed more than \$133 billion in taxes and added hundreds of billions of dollars more to the U.S. Gross Domestic Product. And the jobs we offer are high-paying, family-supporting jobs for people of all types of backgrounds, education levels and skill sets.

While our operations and products were front and center on the global stage this year, some of the most impactful and meaningful work our members did was in their communities. Our members and their workforce care deeply about improving the well-being of their communities — donating their time and resources to help victims of weather events like Hurricane Ian, contributing to the improvement of children's health and education, improving access to resources for small businesses, volunteering to support our troops and first responders, and so much more.

This past year was undoubtedly full of challenges, but the U.S. refining and petrochemical industries continued to do what we have always done — provide the critical products that the world needs today, while evolving to meet society's needs for decades to come. In our first 100 years, our industries laid the groundwork that led humanity to the modern age. We intend to carry on that legacy for the next century.



Mike J. Hennigan

Mike Hennigan
AFPM Chairman of the Board

President and
Chief Executive Officer
Marathon Petroleum
Corporation



Chet M. Thompson

Chet M. Thompson
President and CEO

American
Fuel & Petrochemical
Manufacturers

Refinings

The background is a solid blue color with several wavy, horizontal bands of varying shades of blue. A light blue triangle is positioned on the left side, pointing towards the center. The overall design is modern and minimalist.

Refining

The U.S. refining industry is the most complex and efficient in the world, making the gasoline, diesel and refined products that continue to be essential for fueling our nation and the world. 2022 was a challenging year for the industry. Demand for gasoline, diesel, jet fuel and other refined products increased quickly as society emerged from the pandemic, while lower refining capacity in the United States and around the globe affected the supply of refined products, pushing refined product inventories lower and prices higher. The Russian invasion of Ukraine, extended COVID-related lockdowns in China, the global geopolitics of energy/oil and an often-unfavorable political environment at home added complications. Meeting the challenges, U.S. refiners increased production of gasoline, diesel, jet fuel and other petroleum products needed by consumers worldwide.



Refining

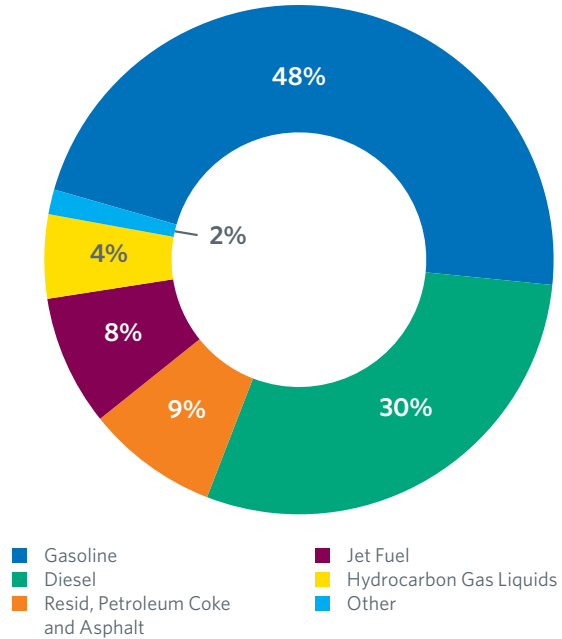
The Role of U.S. Refiners: Energy Suppliers to America and the World

Energy markets are global and crude oil and refined products are produced, transported and consumed globally. As the most complex and competitive in the world, the U.S. refining industry supports millions of jobs, narrows the U.S. trade balance and supplies products to U.S. consumers and to consumers in more than 100 countries. Our participation in this global energy market, a market that includes the United States, is critical. It allows U.S. refineries to optimize crude slates, maximize utilization and produce the wide range of products that the United States and the rest of the world needs.

AFPM member refiners operate complex facilities that are uniquely suited to handle a wide variety of crude oil ranging from light, sweet to heavy, sour. Our facilities are configured to handle difficult-to-refine, less costly crude oil and other petroleum feedstocks that refineries elsewhere cannot process, creating a competitive advantage. It is that advantage that allows U.S. refiners to supply gasoline, diesel and other petroleum products to the global market.

In addition to exporting refined products to supply the global market, the United States imports refined products as well, doing both to balance supply and demand. Products are imported into regions like the Northeast because there isn't sufficient local refining capacity to meet demand and products are exported from refining centers, like those along the U.S. Gulf Coast because they have more refining capacity than the region needs. Products are exported primarily from the refining centers along the Texas and Louisiana Gulf Coasts, supplying demand in more than 100 countries, and products, including gasoline, diesel, home heating oil and jet fuel, are imported primarily into the Northeast. Canada is the single largest supplier of imported refined products to the United States.

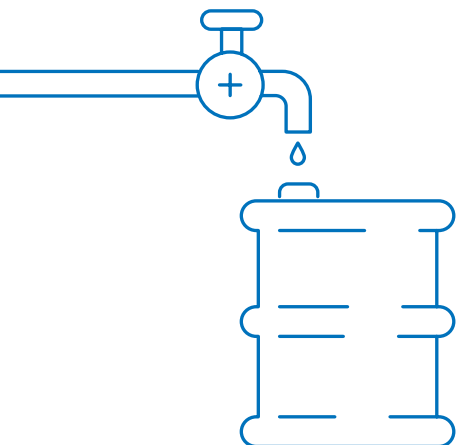
U.S. Refinery Yield (2021)¹



Source: Energy Information Administration (EIA) Refinery Yield

U.S. imports of petroleum products have remained stable at about 35 billion gallons per year, while U.S. exports of refined products have grown substantially. In 2006 the United States exported less than 20 billion gallons. In 2022 the U.S. exported more than 90 billion gallons, 43 percent of which was supplied to Mexico, the Caribbean and Central and South America. The growth in petroleum product exports has made the United States a critically important supplier of diesel, gasoline and other refined products to a global market that has been upended by Russia's invasion of Ukraine.

Our industry is dedicated to continuing to provide affordable, reliable and sustainable fuels and other petroleum products for Americans and our global allies for decades to come.



In 2022 U.S. refineries produced about **280 billion gallons** of product, more than enough to meet U.S. refined product demand of about **265 billion gallons.**

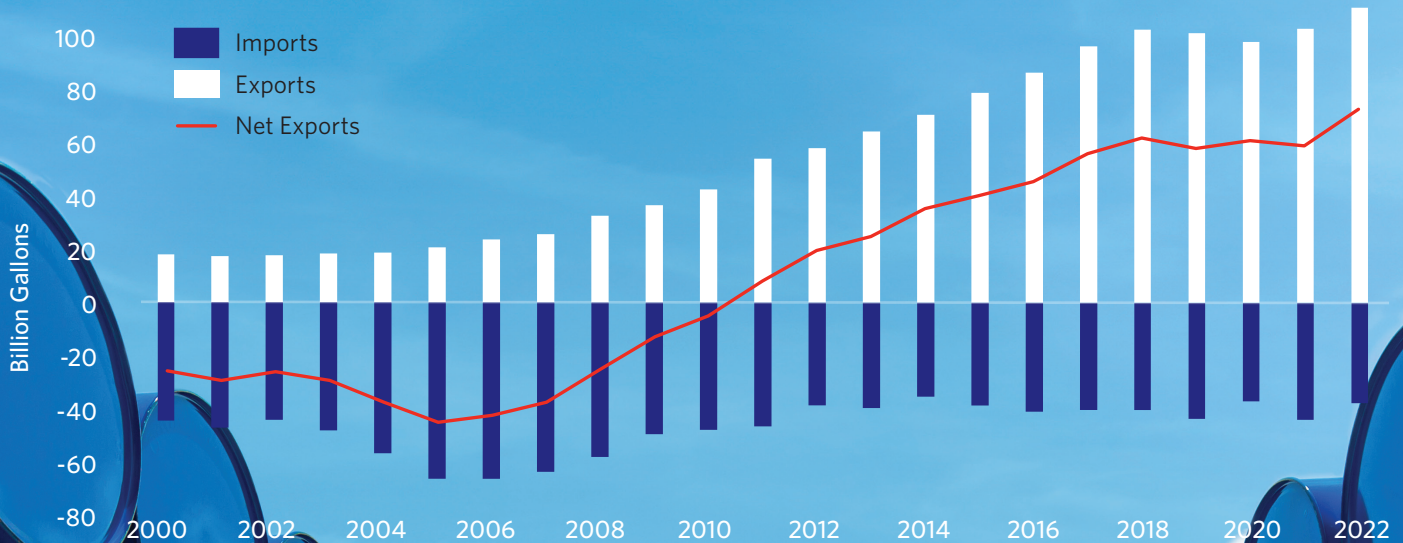


Export Bans Would Drive Up Costs

Increased crude oil prices left Americans paying more at the pump last year. But, instead of encouraging more domestic energy production and regulatory reforms that would reduce fuel manufacturing costs, some policymakers pushed for a ban on crude oil and U.S. refined product exports.

Participation in the global market benefits U.S. fuel consumers and fuel manufacturers, allowing U.S. refineries to optimize operations, operate at high utilization rates and provide needed fuels to consumers around the world, many of them America's allies. An export ban, aimed at U.S. refined products or crude oil, could destroy this benefit, threaten U.S. refining capacity and erode U.S. energy security and leadership. It could also decrease inventory levels of essential transportation fuels and fuels needed for heating in winter, drive up consumer fuel prices and alienate U.S. allies during a time of war.

U.S. Trade in Petroleum Products²



Did you know?

A barrel of oil — 42 gallons — produces just under 45 gallons of refined product. This increase is known as a refinery processing gain. This increase in volume is similar to what happens to popcorn when it is popped. A corn kernel is smaller and denser than a popped kernel.

As oil is refined, it is separated into different fractions that are further processed to produce a variety of refined products, including gasoline, diesel, jet fuel, naphtha, waxes and asphalt. In the United States refineries produce mostly gasoline — about 48 percent — and diesel fuel or heating oil — about 30 percent.



Meeting Demand for Energy

AFPM member refining companies are committed to reliably meeting the energy demands of our nation and keeping the market supplied for years to come. For most of 2022, they ran full-out to maximize their refining capacity to safely and responsibly produce fuels and meet demand — running on average at 92 percent of operable capacity and at times as high as 95 percent.

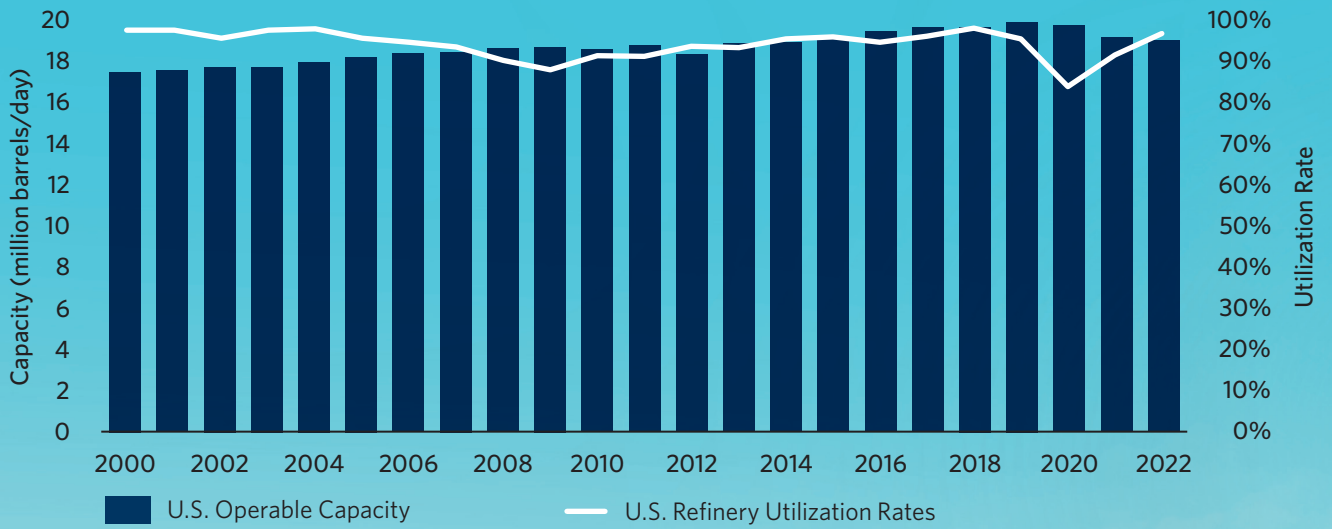
Although U.S. refineries maximized their capacity in 2022, the United States has fewer refineries than at the start of 2020. Political and financial pressure to move away from fossil fuels, increasing regulatory compliance costs and COVID-related loss of demand, resulted in the United States losing 1.1 million barrels per day of refining capacity between 2020 and 2022.

Despite these challenges, U.S. refiners are adding new refining capacity where it makes business sense. Refinery capacity expansion projects are underway in the United States, with additional capacity of about 400,000 barrels per day expected to come online in 2023. But, with planned closures of nearly the same capacity, total U.S. petroleum refining capacity is expected to remain at current levels. Outside the United States in Asia, Africa and the Middle East, petroleum refining capacity expanded by two million barrels per day in 2022 and is projected to expand by an additional two million barrels per day in 2023 as other parts of the world plan for expected increases in demand for petroleum products.



Refinery capacity utilization: the amount of crude oil a refinery or group of refineries actually process into gasoline, diesel, jet fuel and other products compared to the maximum amount of crude oil the refinery/refineries could process. U.S. refinery utilization rates continue to be among the highest in the world, at more than 92 percent in 2022, and at times as high as 95 percent. While refinery capacity in other regions of the world is expanding, refinery utilization in those regions continues to be well below U.S. utilization rates.

U.S. Operable Refinery Capacity and Refinery Utilization Rate³



U.S. Refinery Utilization⁴

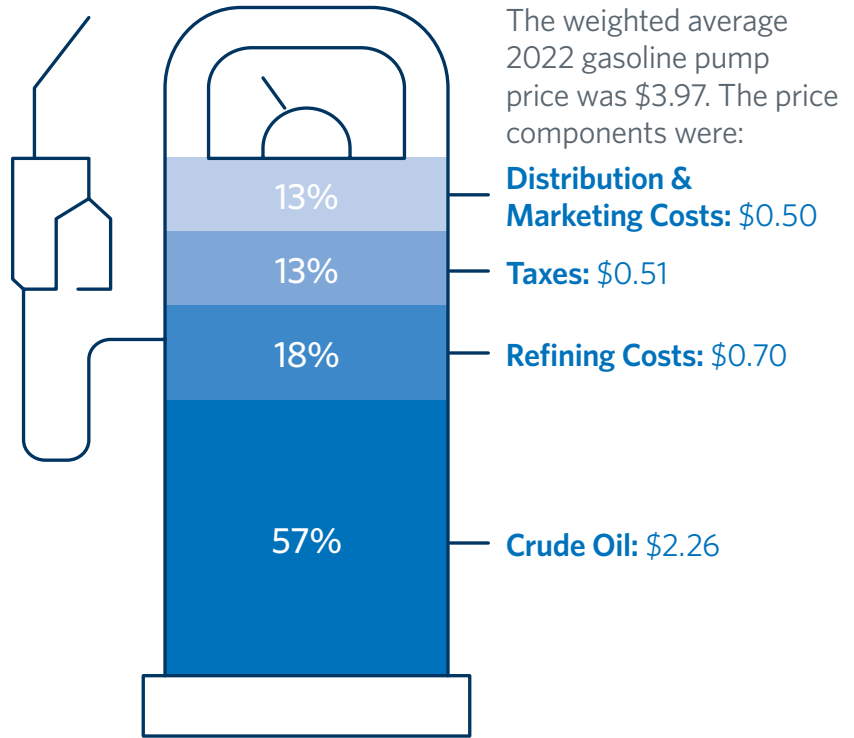


Factors Impacting Fuel Prices

Retail gasoline prices are influenced by several factors and supply chain issues, including the cost for refineries to acquire and refine crude oil, the cost to move crude oil to refineries and move gasoline to retail outlets, as well as marketing costs and state, local and federal fuel taxes. Crude oil accounts for more than half of the price of gasoline.

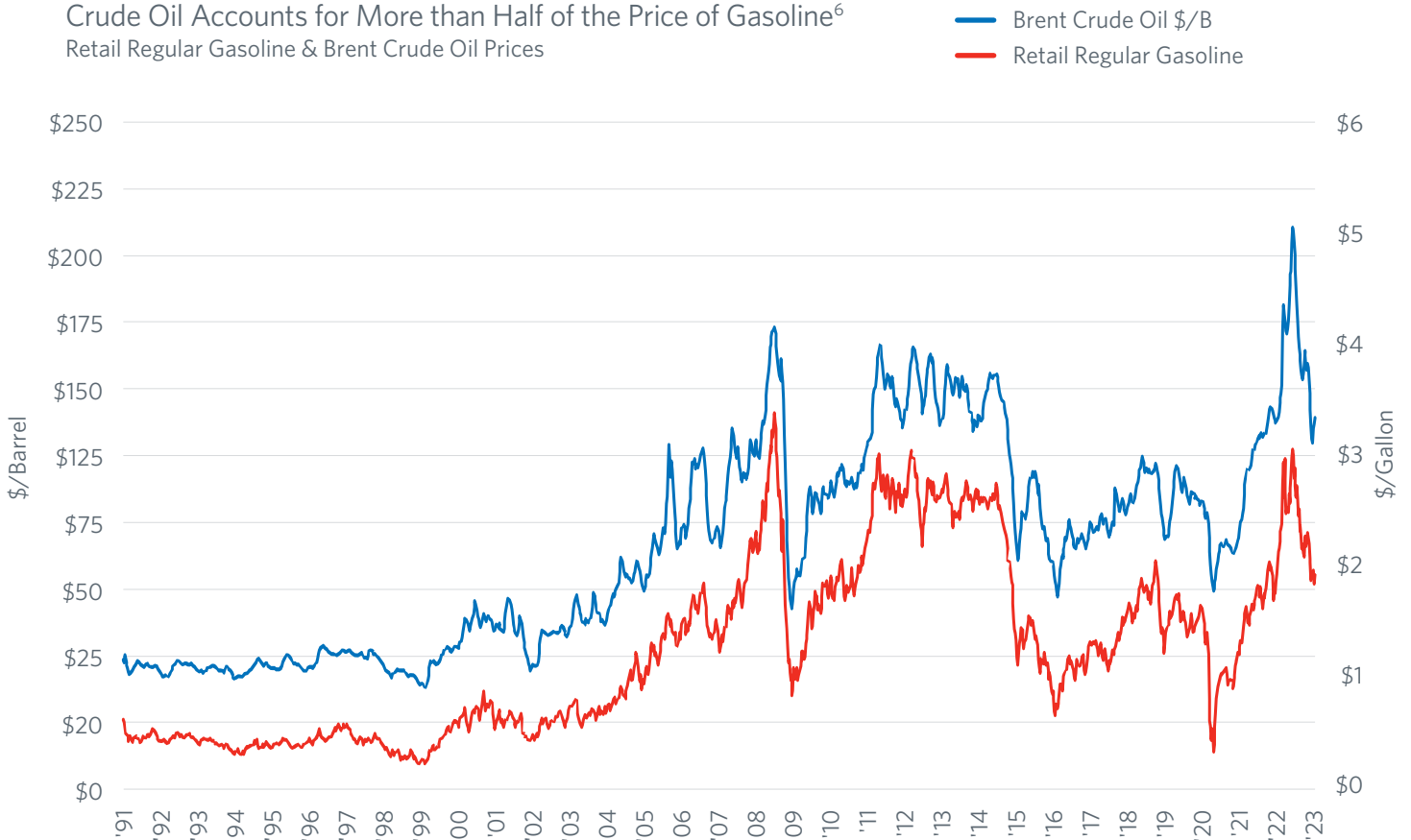
Energy analysts agree that global energy needs are expected to rise significantly in the decades to come, as global population increases and as more nations progress out of poverty, expanding the global middle class, and as transportation and technology systems expand worldwide. Products derived from crude oil are expected to continue satisfying a significant share of this growing demand.

2022 Gasoline Pump Price Components⁵



Crude Oil Accounts for More than Half of the Price of Gasoline⁶

Retail Regular Gasoline & Brent Crude Oil Prices





Did you know?

Gasoline and diesel fuel prices are primarily driven by the cost of crude oil, which increased by more than 60 percent in the first half of 2022. The cost of crude oil accounted for close to 60 percent of the retail price at the gasoline pump in 2022, according to the EIA.

Crude oil is a globally traded commodity and crude oil prices are a function of current and expected market supply and demand. Prices rise when demand outstrips supply, and fall when supply overwhelms demand.



Refinery Earnings Explained

Refinery earnings, like earnings for most commodity-based industries, are cyclical in nature. After experiencing major financial losses during the COVID-19 pandemic, as demand for gasoline, diesel and jet fuel plummeted, U.S. refinery earnings increased in 2022 as demand for refined products grew faster than supply and prices for refined products moved higher.

Refinery earnings are a function of what refiners pay for crude oil and the price at which they can sell the gasoline, diesel and other products they produce. Refiners do not set these prices. They pay market prices for crude oil, and they receive market prices for what they sell. Refinery earnings rose in 2022 because the prices of gasoline and diesel fuel increased more than the price of crude oil.

This difference between the price that refiners pay for crude oil and the prices they receive for products is called the crack spread. Refined products are made by “cracking” the crude oil molecule apart and turning it into gasoline, diesel, jet fuel and other products, so the crack spread is a measure of the value of refining crude oil. But it’s not the same as a refinery’s profit margin. Every refinery input cost, not just the cost of crude oil, needs to be deducted from product revenues to arrive at actual profit. So do labor costs, energy costs, transportation costs and costs related to complying with regulatory requirements as well as general business expenses.





The refining industry must make decisions based on long-term consequences to survive. When politicians are actively working to slow the nation's use of oil in the next few years, it makes the future less certain for industry growth.

Refinery earnings do not simply go to the company. Many U.S. refineries are publicly owned and have a legal obligation to invest their earnings in the best interest of their shareholders, who include public employees and service workers, as well as anyone with a 401K.

Refineries can use their earnings to pay direct dividends to shareholders, repurchase shares of stock they have issued — or stock "buy backs," a common practice among many industries that increases the value of shares for investors — and retire or pay down debt.

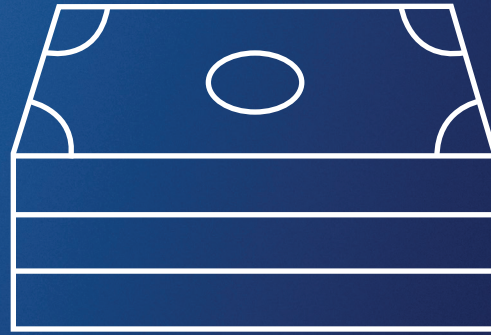
Companies can also re-invest profits into new manufacturing units, improved operations, building projects, acquisitions and hiring. But the current political rhetoric toward fossil fuels makes it risky to invest in expansion. Building a new process unit can cost billions of dollars and, even after construction, can take 15-20 years for a project to become profitable. The refining industry must make decisions based on long-term consequences to survive. When politicians are actively working to slow the nation's use of oil in the next few years, it makes the future less certain for industry growth.

Using earnings to buy back stock doesn't mean refineries aren't making every effort to support U.S. fuel production and the rebuilding of our liquid fuel stockpiles. Refiners are, in fact, meeting their fiduciary obligations to shareholders while also amply supplying both our country's and our allies' energy needs.

Investing in our Companies and Nation

Ongoing investments to maintain and improve their manufacturing facilities have made U.S. refineries among the most advanced and efficient in the world. Although the current political rhetoric against fossil fuels makes it risky to invest, our companies regularly upgrade, expand and modernize to increase their efficiency and complexity to meet the changing demand for their products.

In 2022, the U.S. petroleum refining industry invested \$13.0 billion to maintain and upgrade their facilities, an increase of 23 percent compared to 2021. Over the next five years the industry is expected to invest more than \$62 billion in their operations.



\$62 Billion⁷

Over the next five years the industry is expected to invest more than **\$62 billion** in their operations.



Petrochemical Manufacturing

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Petrochemical Manufacturing

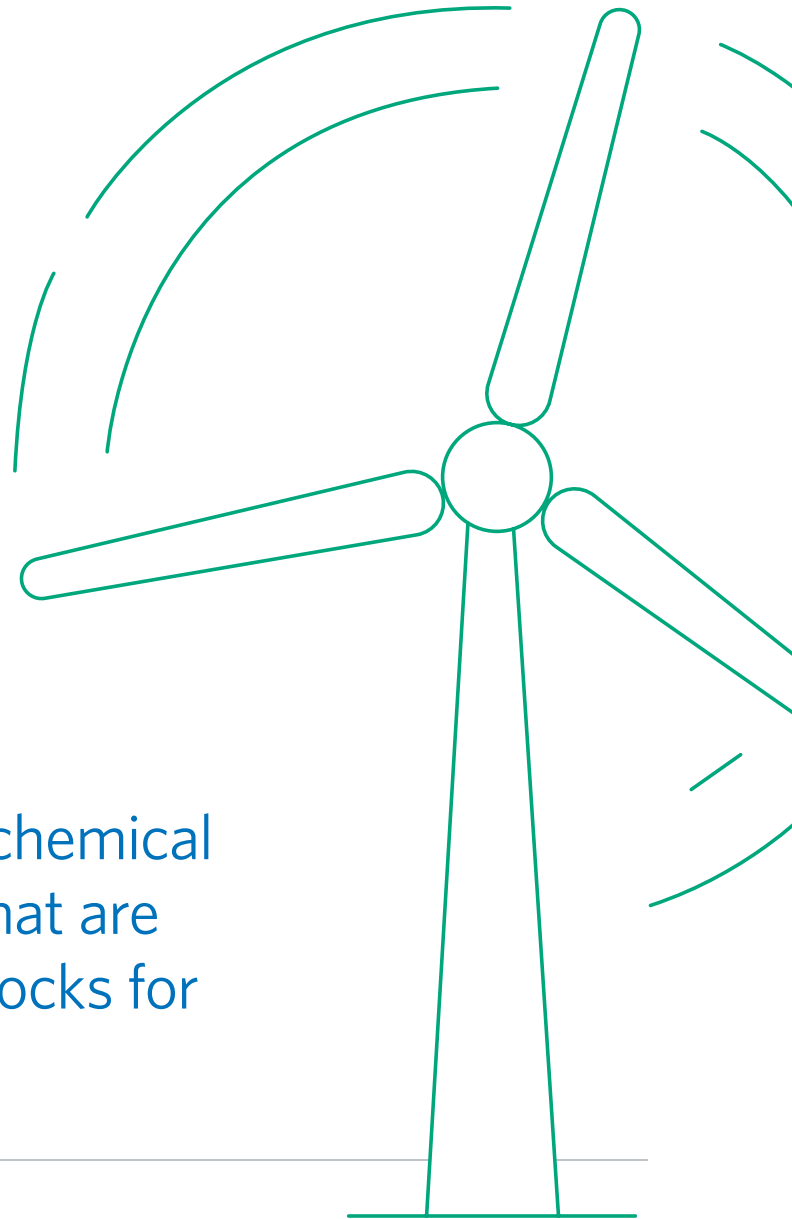
Petrochemicals are the building blocks of virtually every part of the global economy. They are foundational to healthcare, to technology, to energy, to agriculture and beyond, and are difference-makers in products we use throughout our days. As the global population continues to grow, so too will demand for these critical products. As such, petrochemical manufacturers are investing billions of dollars to scale capacity and to do so while continuing to improve the environmental performance of both their facilities and their products.

Petrochemical Manufacturing

The Science of Petrochemicals

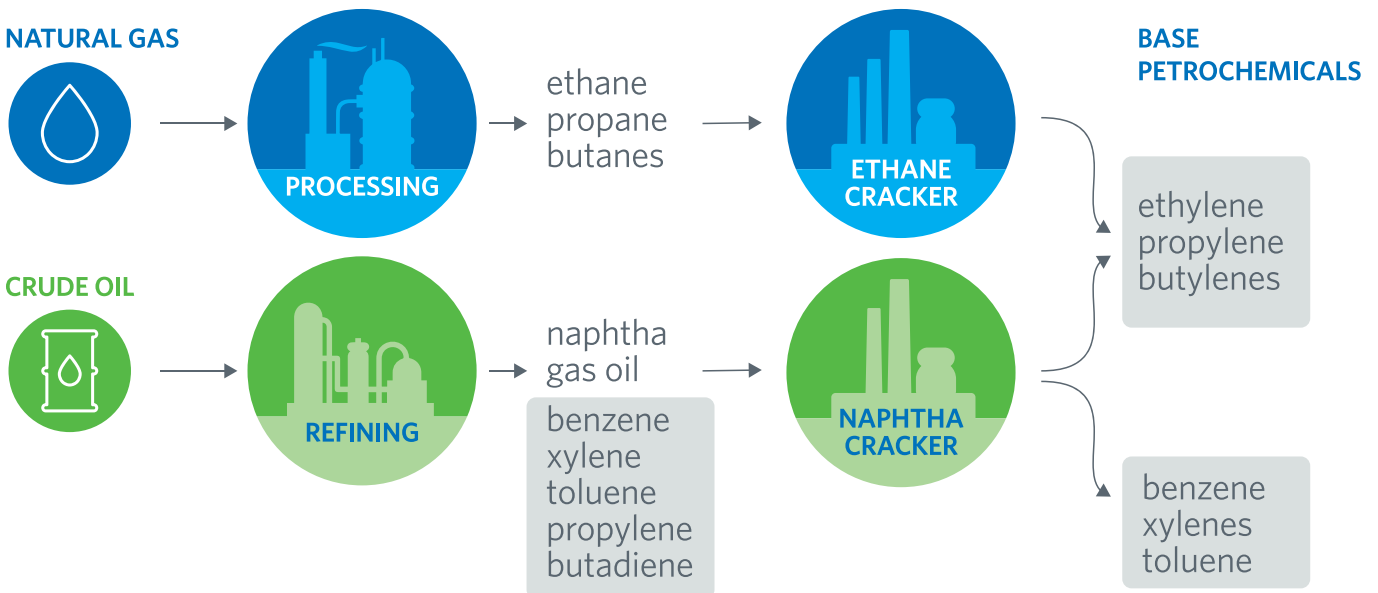
The transformation of crude oil or natural gas to petrochemicals is a matter of chemistry — they are simply chemical products from fossil fuels that are the foundational building blocks for organic chemistry. The six basic petrochemicals are ethylene, propylene, butadiene, benzene, toluene and xylene. They can be made into plastics, nylons, polyesters and many other products that are then transformed into items like bicycle helmets, lightweight car parts, medical devices and wind turbines.

Petrochemicals are simply chemical products from fossil fuels that are the foundational building blocks for organic chemistry.



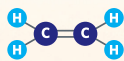
How Do We Make Petrochemicals?

Petrochemical Manufacturing

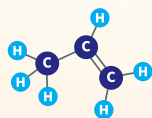


Essential to Modern Life

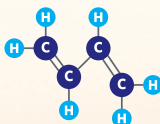
Petrochemicals are the essential building blocks used to manufacture countless products that we use daily, from the moment we wake up until we go to bed. They help to make our daily lives easier and healthier. Toothbrushes, shampoo, medications, appliances, phones, tennis shoes, clothing, bikes and cosmetics are just a few of the items that we rely on daily that petrochemicals make possible and affordable.



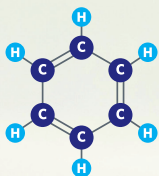
ethylene



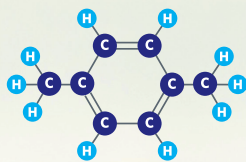
propylene



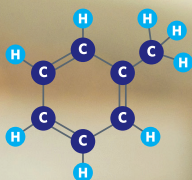
butadiene



benzene



toluene



xylene



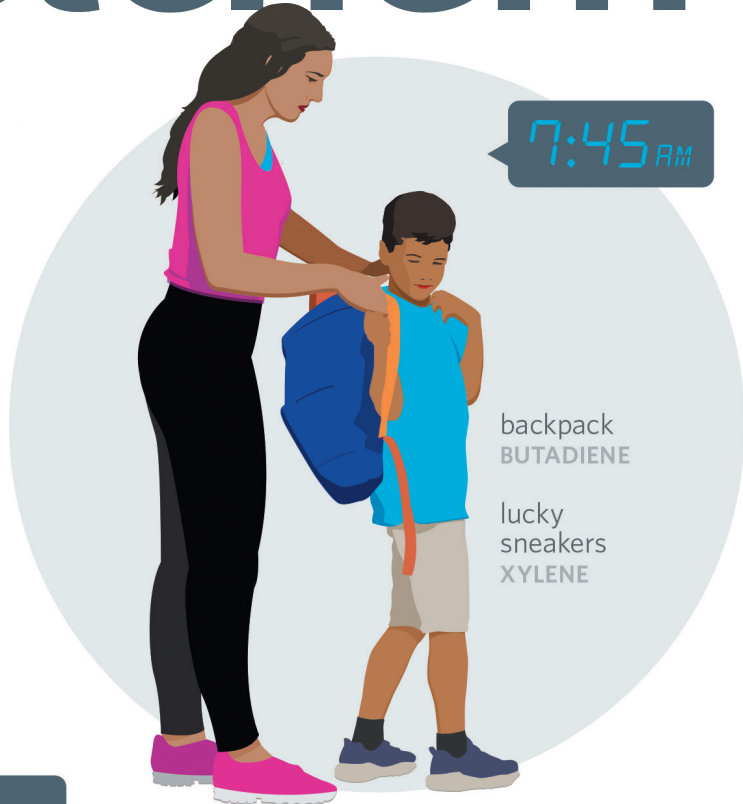
your petchem-



poop bag
ETHYLENE

leash
BUTADIENE

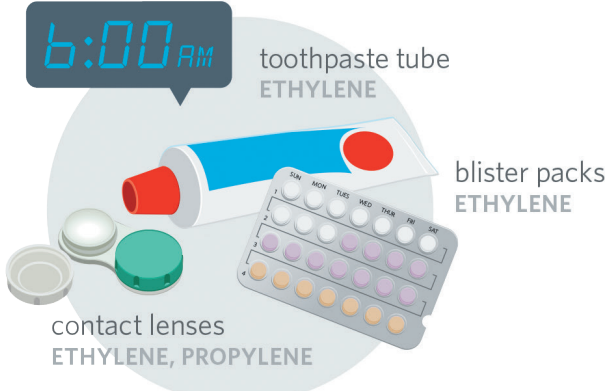
6:45 AM



7:45 AM

backpack
BUTADIENE

lucky sneakers
XYLENE



6:00 AM

toothpaste tube
ETHYLENE

blister packs
ETHYLENE

contact lenses
ETHYLENE, PROPYLENE



7:15 AM

milk jug
ETHYLENE

spill-proof tablecloth ... just in case
ETHYLENE

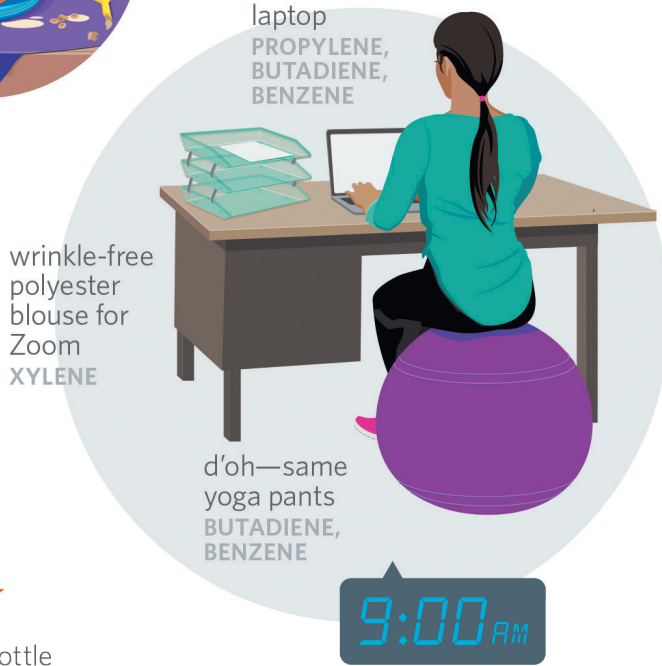


6:15 AM

yoga pants
BUTADIENE, BENZENE

yoga mat
ETHYLENE

reusable water bottle
XYLENE



laptop
PROPYLENE, BUTADIENE, BENZENE

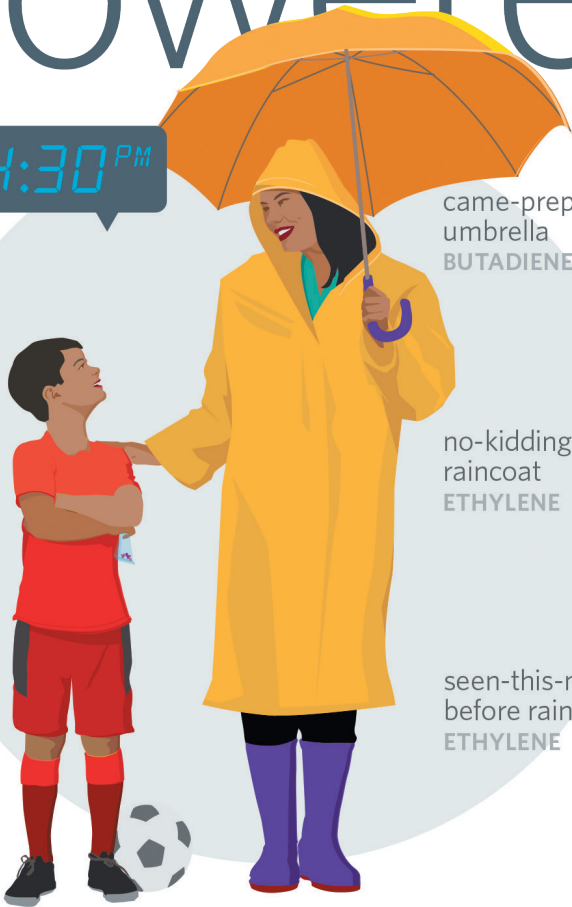
wrinkle-free polyester blouse for Zoom
XYLENE

d'oh—same yoga pants
BUTADIENE, BENZENE

9:00 AM

powered day

4:30 PM



came-prepared umbrella
BUTADIENE

no-kidding-around raincoat
ETHYLENE

seen-this-movie-before rain boots
ETHYLENE

remote control
PROPYLENE, BUTADIENE, BENZENE



shatter-proof wine tumbler
PROPYLENE

9:00 PM

7:00 PM

die
PROPYLENE



game pieces
BENZENE

plastic-coated game cards
ETHYLENE

yeah, yeah, sometimes "lunch" means chocolate in a plastic wrapper
PROPYLENE



same polyester blouse you don't dryclean for a "lunch" smudge
XYLENE

12:00 PM

reusable grocery bag
BUTADIENE



6:00 PM

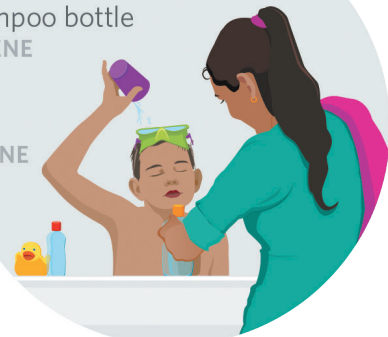
knife handle
PROPYLENE, BUTADIENE, BENZENE

cutting board
ETHYLENE

7:45 PM

shampoo bottle
XYLENE

bath toy
PROPYLENE



The Petrochemical Market in 2022

Although the global market for petrochemical feedstocks remains strong, higher feedstocks and fuels prices challenged the industry in the first half of 2022, before lowering in the second half of the year. The global petrochemical market was characterized by higher operational and shipping costs, excess supply that took the form of new plant startups and curbed demand because of higher levels of inflation. Through it all, the U.S. petrochemical industry remained advantaged because of its access to cheaper feedstocks and fuels, especially when compared to Europe and Asia.

A rock climber wouldn't be able to get vertical if it weren't for petrochemical products. Ropes, shoes, garments, harnesses and hand holds are just a few of the products that petrochemicals make possible.



U.S. exports of ethylene were 1.24 million metric tons per year in 2022, 70% higher than 2021.¹²

2022
Exports



2021
Exports

Growing Demand for Petrochemicals

Ethylene and propylene are the two most in-demand petrochemicals. In 2022, U.S. ethylene capacity grew eight percent over the previous year to 44.5 million tons per year. This accounts for 20 percent of global ethylene capacity. The demand for ethylene is expected to continue to grow, with U.S. production increasing nearly an additional two million metric tons per year by 2027 to 46.5, and to just under 50 million metric tons per year by 2032.⁸

U.S. propylene capacity grew three percent last year to 23.9 million metric tons or 14 percent of global propylene capacity. It, too, is projected to grow — to 25.7 million metric tons per year by 2027 and reach 27 million in 10 years.⁹

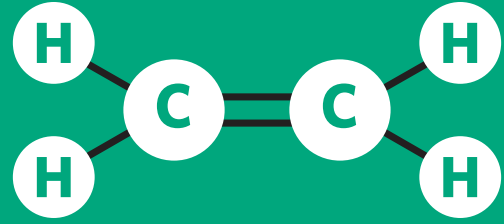
U.S. petrochemical plants are among the world's most efficient, operating at 86 percent capacity in 2022 compared to the world average utilization rate of 82 percent. This efficiency has led to U.S. production of ethylene and propylene that exceeds domestic demand and allows the export of these feedstocks, which is expected to increase in the coming years.¹⁰

As demand grows, U.S. petrochemical producers are investing in their facilities. Last year, 6.8 billion dollars went into their plants and over the next five years, they plan to spend a total of \$49 billion in investments into their facilities.¹¹

Ethylene: “The World’s Most Important Chemical”

Ethylene is an essential building block for plastic and resin and is widely regarded as the “world’s most important chemical” due to its vast use throughout the global economy. Ethylene is produced through “steam cracking,” a process that breaks down oil or natural gas feedstocks by heating them at extremely high temperatures and “cracking” apart their molecular bonds. The ethylene gas that is produced through this process is then transformed into four different compounds, which in turn are developed into several household and other products:

- **Polyethylene (Plastics)**
used to make food packaging, bottles, bags and other plastics-based goods.
- **Ethylene Oxide and Ethylene Glycol**
becomes polyester for textiles, as well as antifreeze for airplane engines and wings.
- **Ethylene Dichloride**
this, in turn, becomes a vinyl product used in PVC pipes, siding, medical devices and clothing.
- **Styrene**
synthetic rubber found in tires, as well as foam insulation.



Did you know?

The United States is one of the largest producer of polypropylene. Polypropylene is commonly used to make rope, food packaging, fabrics, carpeting, in medical devices, car parts including bumpers and batteries and many more items.¹³



Midstream

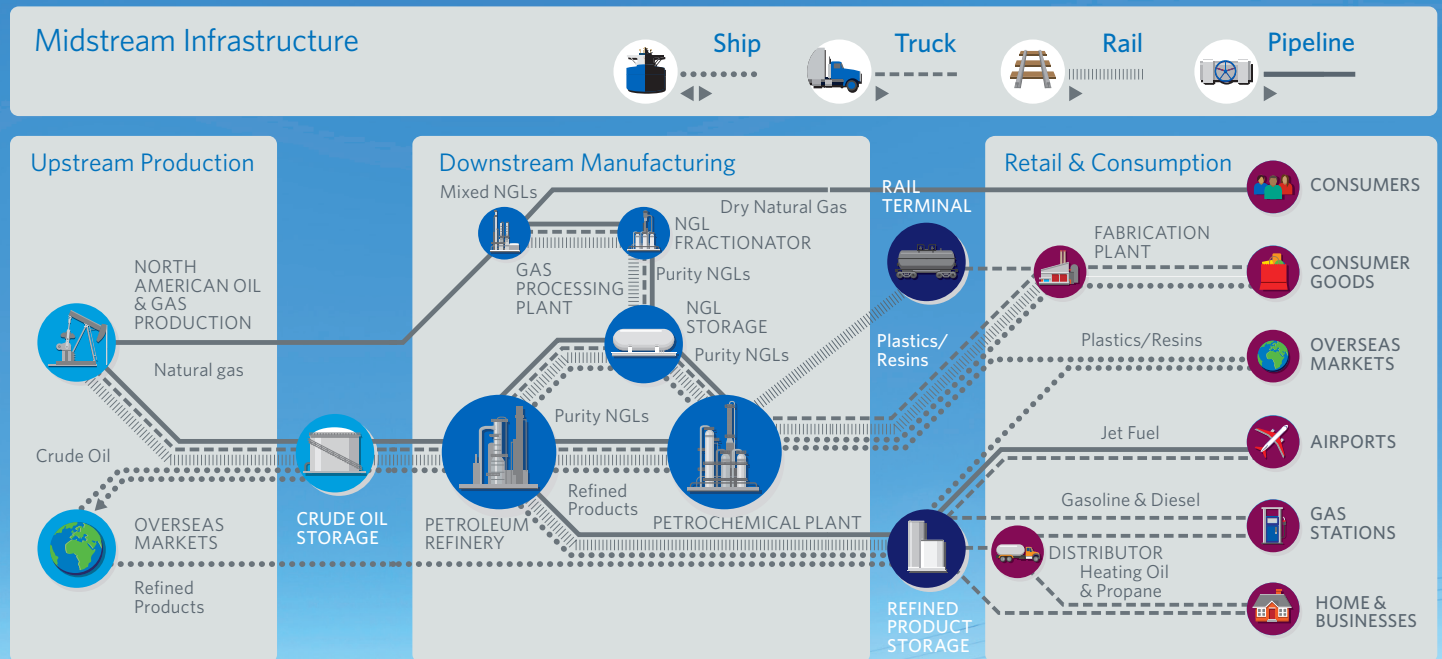
The background features a series of overlapping, wavy lines in shades of purple and magenta. There are also several geometric shapes, including triangles and trapezoids, in the same color palette, creating a dynamic and abstract composition.



Midstream

The midstream sector includes the companies that transport feedstock — oil and natural gas products — into refining and petrochemical facilities and end products — like gasoline, diesel, jet fuel, home heating oil, resins, plastic pellets and many other products — out to the market. They are critical to the reliable and safe delivery of these products into and out of our facilities. The midstream sector is comprised of pipelines, railroads, ports, waterways, highways and storage facilities.

The nation's midstream sector is an integrated system of pipelines, railroads, ports, waterways, highways and storage facilities and is the backbone of the fuel and petrochemical product supply chains.

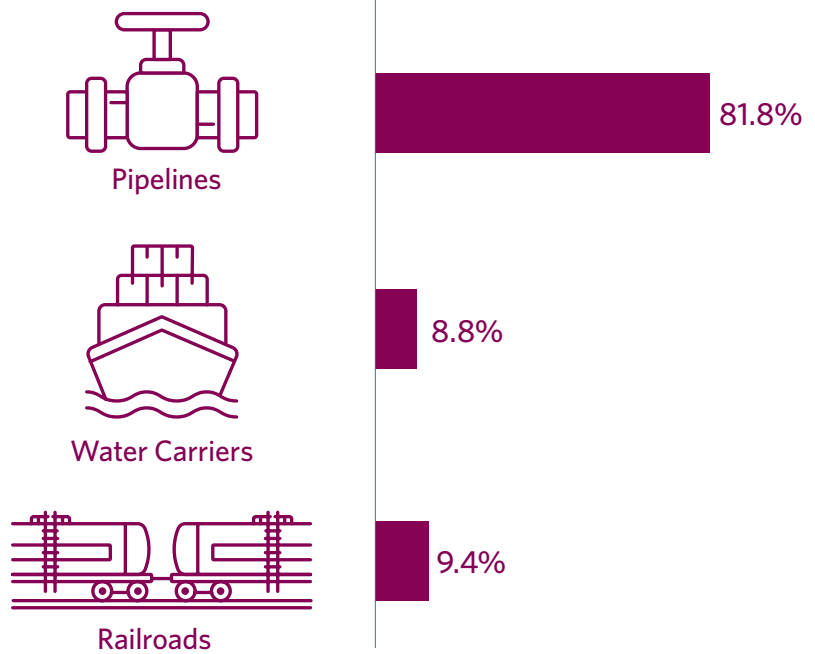


Midstream

Pipelines Deliver Essential Products

The nearly 230,000 miles of pipelines transport the large majority — nearly 82 percent — of the total crude oil, petroleum products and petrochemical feedstocks throughout the country. And while that sounds like a lot of pipe, U.S. energy infrastructure development has not kept pace with U.S. crude oil production. Our nation cannot realize the full potential of our vast energy and petrochemical sector without building out our critical midstream infrastructure. A robust network of pipelines is critical to efficiently moving domestically produced crude and refined products to our ports and ultimately to market overseas.

Combined Crude and Petroleum Products Transported by U.S. Midstream Infrastructure¹⁴



Pipelines transport the large majority — **nearly 82 percent** — of the total crude oil, petroleum products, ethanol and petrochemical feedstocks throughout the country.

Pipelines are the safest, and most efficient, way to transport crude oil, natural gas liquids, petrochemicals and refined products on land. This achievement is the result of a culture that values safety above all, throughout the pipeline lifecycle — from the planning process, where pipeline companies work closely with stakeholders to address safety and security issues; to sound construction; to rigorous integrity management protocols during operation, where pipeline operators are constantly monitoring pipeline performance using state-of-the-art technology.

Refiners, petrochemical manufacturers and our midstream partners are also working to improve the environmental performance of pipelines. These companies are investing in technologies and processes — like carbon capture, utilization and storage — to reduce pipeline emissions.

- **Valero**, as part of its efforts to reduce the carbon intensity and increase the economic value of its products, is progressing a carbon sequestration pipeline in the U.S. Midwest, which will connect eight of its ethanol plants and capture nearly three million metric tons of CO₂ per year.
- **Enterprise Products and Oxy Low Carbon Ventures** are working on a CO₂ transportation and sequestration system in the greater Houston to Beaumont/Port Arthur area, which would utilize new and existing pipelines to connect to the sequestration hubs being developed along the Gulf Coast.
- **Honeywell** has partnered with EnLink Midstream to combine Honeywell's carbon capture and storage (CCS) and hydrogen-purification technologies with EnLink's planned CO₂ pipeline transportation network to help decarbonize the Mississippi River corridor, ranging from Baton Rouge to New Orleans.

Reliable Freight Rail Service

While pipelines comprise the majority of petroleum product transportation, today, the U.S. freight rail system moves nearly 10 percent of crude oil and refined products each year, accounting for more than two million carloads.

The threatened rail strike of 2022 brought a few realities to light. First was the critical role of rail in getting products where they need to go, especially to regions with an insufficient pipeline system. U.S. refiners and petrochemical manufacturers rely heavily on the rail network to deliver feedstocks and critical materials to their facilities and refined products to consumer markets. They are also important to move materials that are used in many manufacturing processes and in water treatment at municipal facilities and other industrial facilities.

Disruptions to rail service threatened to limit production and delivery of critical products such as gasoline, diesel, heating oil and petrochemicals at a time when demand was high and inventories low — a disruption that would hurt consumers with higher costs. Disruptions and embargoes that went into place in anticipation of a strike also impacted refiners' ability to maintain their current high production and utilization rates. They also resulted in the inability to move certain materials in and out of our facilities, which led to onsite storage capacity being overwhelmed and bottlenecks that eventually forced production cuts.



Did you know?

More than two million carloads of fuel and petrochemical feedstocks and products, including crude oil, natural gas liquids, refined products, petrochemicals and plastics, are moved in the United States by rail each year.



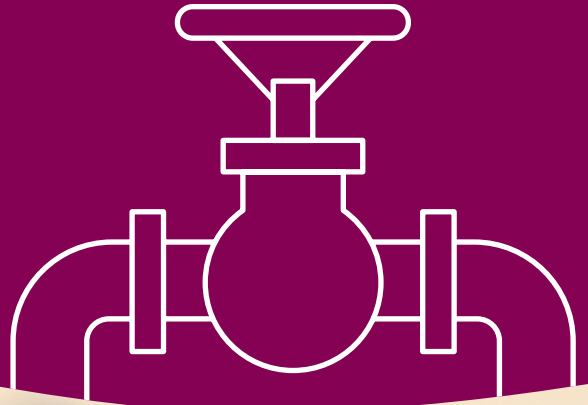
Fortunately, with the intervention of Congress a rail strike was averted, but existing problems in the system persist. Because of rail consolidation there has been a lack of rail competition in the United States, with 78 percent of customers who ship products and feedstocks by rail served by a single railroad, leaving them "captive shippers." While railroads are bringing in record profits, rail customers are paying more for less service and have little if any recourse to demand change. This also means American consumers are being forced to pay more for everyday necessities like food, electricity, gasoline, automobiles and building materials.

Unfortunately, federal policies have not kept pace with massive changes in the railroad industry and freight railroads are failing to deliver reliable service or competitive shipping rates since competition in the industry has practically vanished. Until Congress finds a solution, service will continue to have issues and become more expensive for shippers and consumers.



Did you know?

Since 2010, U.S. crude oil production has more than doubled while the pipeline networks needed to transport it have only expanded by roughly 56 percent.



Environmental Stewardship

The background is a vibrant green with several curved, overlapping bands of varying shades of green. A large, light green arrow shape points from the bottom left towards the top right, partially overlapping the text.

Environmental Stewardship

The U.S. fuels and petrochemical industries are continuously working to improve the environmental performance of our operations and products. These companies are focused on reducing their emissions, increasing the energy efficiency of their facilities, conserving and managing their water use, reducing, reusing and recycling waste and are protecting and restoring the land around them.



Environmental Stewardship



Energy Efficiency and Emissions Reduction

Our industries continue to focus on efficiency and emissions improvements at their facilities and have invested more than \$100 billion in the last decade to reduce emissions, produce cleaner fuels and increase their productivity. As a result, the U.S. carbon intensity of operating refineries decreased by 12 percent during this period.¹⁵ And despite historic expansion, U.S. petrochemical greenhouse gas (GHG) emissions have remained relatively flat. Industry is setting its sights even higher with companies making historic commitments to significantly reduce emissions over time.

Refiners and petrochemical manufacturers utilize a wide range of low-emission energy resources like wind and solar energy to modular nuclear technologies and other processes and technologies to increase their energy efficiencies while also reducing their carbon footprint.

- **Flint Hills Resources**, for instance, is building the largest single-user solar panel project in the nation at its Pine Bend refinery in Rosemount, Minnesota. The 45-megawatt solar installation, which will include over 120,000 individual panels arrayed on 350 acres of land next to the facility, startup is expected late summer or fall of this year. In conjunction with the recently completed Combined Heat and Power system, the facility will be able to provide almost 70 percent of its power needs onsite under optimal conditions.
- **Dow**, meanwhile, is working with X-energy to develop and deploy small modular nuclear technology at one of its Gulf Coast sites, allowing Dow to benefit from a carbon-free process to heat and power its facility.



Water Management

Our industries are focused on being efficient and environmentally responsible and are doing so by recycling, reusing and reducing water used in their processes. Process water and stormwater are managed onsite at wastewater treatment plants and companies are finding innovative ways to treat it, including investing in technologies that allow facilities to more efficiently recycle and reduce wastewater. Through these efforts, as much as 70 percent of the water used in refining processes and landscaping at certain facilities is now recycled or reclaimed.

- **HF Sinclair** partners with **CIRCON Environmental** to recycle and repurpose wastewater, resulting in 835,449 gallons of water being safely treated and discharged back into the ecosystem last year.
- **LyondellBasell** has helped save approximately 1.5 million gallons of water each year since 2004 as the lead sponsor of the Galveston Bay Foundation's Rain Barrel Program in Texas, according to the organization. One rain barrel can conserve approximately 1,050 gallons of water per year.



Waste Reclamation and Recycling

Our industries have introduced numerous initiatives to recover, repurpose and recycle various forms of waste throughout their facilities from traditional waste like paper, plastics, aluminum, glass and cardboards to industrial items like metals, rubber, catalysts and oil tank waste.

- **Phillips 66** has recycled over one million metric tons since 2014, including more than 220,000 pounds of electronic waste, refinery process catalyst, oils, metal, glass and paper.
- **Ergon's** Crafco recycles roughly 10 million pounds of crumb rubber from tires each year, reducing about 30 million pounds of CO₂ - equivalent emissions.



Conservation and Habitat Restoration

U.S. fuel and petrochemical manufacturers are committed to the conservation and preservation of the land around them. Among other initiatives, they support their local communities' efforts to conserve and restore regional landscapes and vegetation and host community education and engagement programs on conservation.

- **Chevron's** Pascagoula refinery partnered with the nonprofit Mississippi Gulf Fishing Banks to turn five carbon-steel structures from a recent refinery project into an artificial reef that will help support fish and marine biodiversity.
- **Valero** is supporting wetland restoration in Louisiana via a donation to the Pontchartrain Conservancy. The multi-year program is expected to include restoration planting, student education and environmental monitoring. Approximately 28,000 tree saplings will be planted over 140 acres; the mature trees are expected to capture over 100,000 tons of CO₂ each year.

Investing in a More Sustainable Future

The refining, petrochemical and midstream industries are investing billions of dollars to find solutions to address our industries' most pressing challenges. These companies are developing and investing in technologies to reduce emissions in our operations, produce cleaner fuels and develop a full circular economy for plastics.


Scaling Carbon Capture Technologies

International and domestic energy agencies, scientists and politicians across the political spectrum have realized that creating a lower-carbon economy will require massive scaling of carbon capture, utilization and sequestration (CCUS). Our industries are playing a leading role to invest in and deploy these technologies.

- **Calpine, Chevron, Dow, ExxonMobil, INEOS, Linde, LyondellBasell, Marathon Petroleum and Phillips 66** are discussing plans that could lead to capturing and safely storing up to 50 million metric tons of CO₂ per year by 2030 and about 100 million metric tons by 2040.
- **Chevron, Talos Energy and Carbonvert** are also working on developing the Bayou Bend CCS offshore carbon sequestration hub off the coast of Beaumont and Port Arthur, Texas, which has the potential to sequester 225 to 275 million metric tons of CO₂ from area industrial sources.



↓ 15%
Emissions
reductions
by 2040

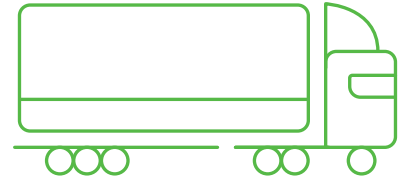


Did you know?

Carbon capture and storage (CCS) could reduce up to 15 percent of global emissions by 2040, and global decarbonization efforts are estimated to double in cost without CCS, according to the U.N. Intergovernmental Panel on Climate Change.¹⁶

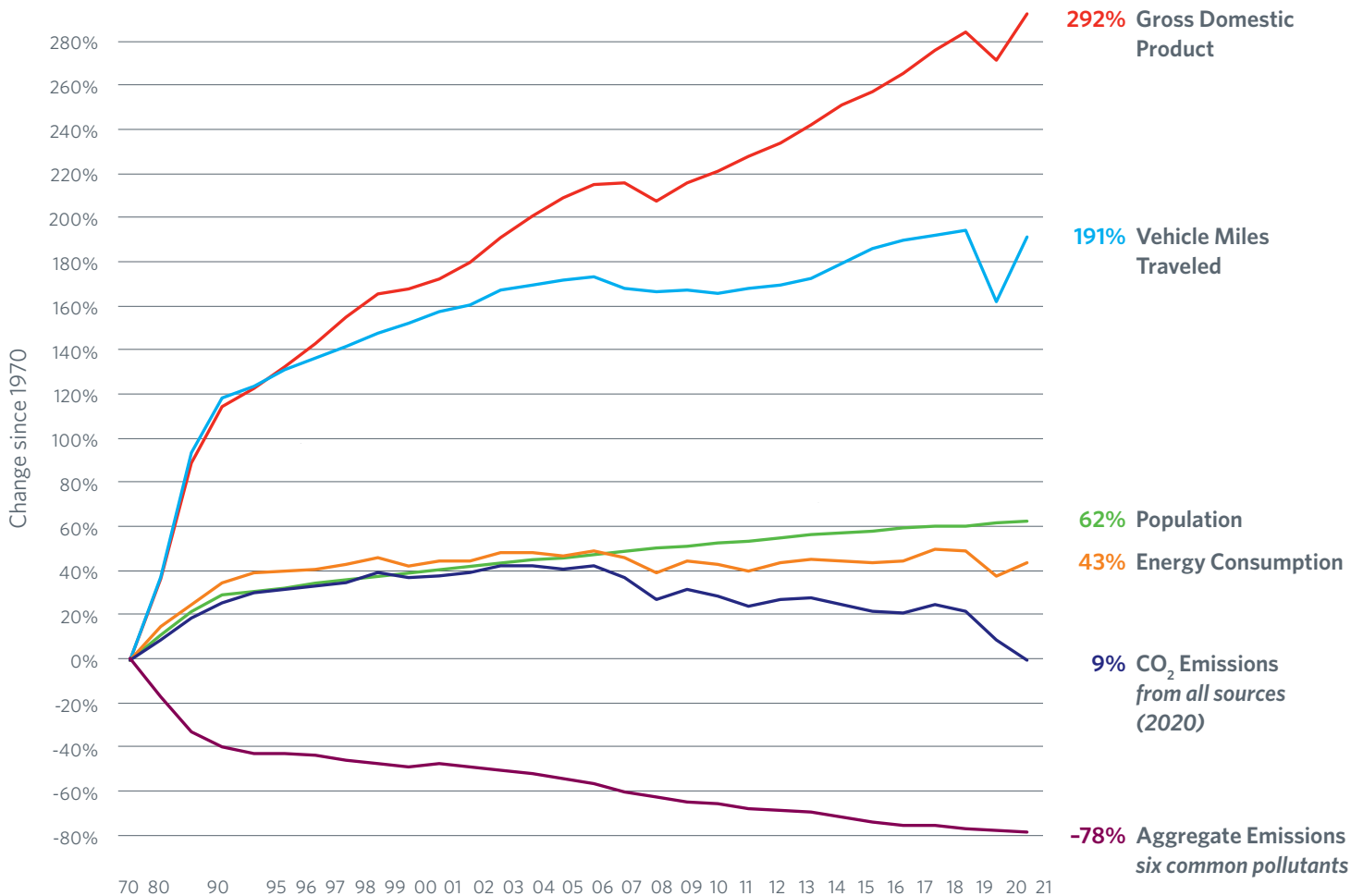
Reducing Emissions in the Transportation Fleet

U.S. refiners are driving emissions reductions across the transportation fleet and are investing record amounts in the production of lower carbon fuels, such as renewable diesel and sustainable aviation fuel, that could cut carbon emissions by 80 percent and lower carbon hydrogen.



- **Marathon Petroleum** and **ADM** have joined forces to build a dedicated soybean processing plant in Spiritwood, North Dakota, that is expected to produce approximately 600 million pounds of refined vegetable oil annually. This oil will serve as a feedstock for renewable diesel — enough to create roughly 75 million gallons of renewable diesel each year.
- **CVR Energy** successfully converted the hydrocracker at its Wynnewood, Oklahoma, refinery to produce renewable diesel and the unit has been producing renewable diesel at capacity since October 2022.
- **Valero** is the world’s largest producer of renewable diesel and has grown in capacity to meet demand. A new plant started up in 2022 increased annual production capacity to 1.2 billion gallons of renewable diesel and 50 million gallons of renewable naphtha.


Comparing Growth and Emissions 1970-2021¹⁷



Creating a More Circular Economy for Plastics

U.S. petrochemical manufacturers are investing billions of dollars to create a more circular economy for plastics and keep plastic out of the environment in the first place. They are building and scaling advanced recycling operations that can turn plastic waste back into its original monomer, which can then be turned into myriad other products. They are also collaborating with each other as well as governments and others within the supply chain to keep plastic out of the environment by increasing the recovery and recycling of plastic waste here in the United States and abroad.

- AFPM member **ExxonMobil** successfully launched one of the largest advanced recycling facilities in North America late last year. The facility at the company's integrated manufacturing complex in Baytown, Texas, uses proprietary technology to break down hard-to-recycle plastics and transform them into raw materials for new products. It is capable of processing more than 80 million pounds of plastic waste per year, supporting a circular economy for post-use plastics and helping divert plastic waste currently sent to landfills. "We've proven our proprietary advanced recycling technology at Baytown, and now we're leveraging our scale and integration to increase production of certified circular plastics to meet growing demand," said Karen McKee, president of ExxonMobil Product Solutions Company. "There is substantial demand for recycled plastics, and advanced recycling can play an important role by breaking down plastics that could not be recycled in traditional, mechanical methods. We are collaborating with government, industry and communities to scale up the collection and sorting of plastic waste that will improve recycling rates and help our customers around the world meet their sustainability goals." Since the start of pilot operations at Baytown in 2021, ExxonMobil has recycled nearly 15 million pounds of plastic waste. The proprietary Exxtend™ technology enables the breakdown of plastic waste that would previously be destined for landfills - from synthetic athletic fields to bubble wrap and motor oil bottles.
- **WM** and **Dow** launched a collaboration to improve residential recycling for hard-to-recycle plastic films by allowing consumers in select markets to recycle these materials directly in their curbside recycling. Once operating at full capacity, this program is expected to help WM divert more than 120,000 metric tons of plastics film from landfills annually. The initiative has kicked off with an initial pilot program in the Chicago-area community of Hickory Hills, Illinois, reaching approximately 3,500 households, with more cities to follow across the country. Dow is supporting this initiative by incorporating recycled content into its product solutions, in line with the company's ambitious, updated Transform the Waste sustainability commitment to deliver three million metric tons of circular and renewable solutions by 2030.



“There is substantial demand for recycled plastics, and advanced recycling can play an important role by breaking down plastics that could not be recycled in traditional, mechanical methods.”

— *Karen McKee*
President
ExxonMobil Product Solutions Company

The Role of Plastic in a Lower Carbon Future

Plastics, too, help to reduce greenhouse gas emissions. A report by McKinsey & Company demonstrated that plastics are responsible for fewer greenhouse gas (GHG) emissions throughout their lifecycle than alternative materials.¹⁸ Generally speaking, plastic requires less energy to produce and is more weight-efficient than alternatives like paper and metal cans that hold food and are responsible for three times more GHG emissions than plastic food pouches.

Lifecycle Emissions: Plastic versus Alternatives



Health & Safety

The background is a solid orange color with several overlapping, curved, semi-transparent bands of a lighter shade of orange. There are also two larger, semi-transparent orange shapes that resemble stylized arrows or chevrons pointing towards the center.

Health and Safety

Nothing is more important to the refining and petrochemical industries than keeping their people, facilities and communities safe. Our companies build strong cultures of safety that extend from the leadership, who make it clear that safety is not compromised for anything, to the employees, who are empowered to not start work if anything might compromise safety.

The U.S. refining and petrochemical industries strive to achieve zero injuries, illnesses and process safety events. We invest heavily in preventative equipment maintenance, hazard recognition, extensive training and rigorous operating practices and procedures in order to operate safely. Our commitment to safety is ongoing and we continually look for new ways to improve our operations to provide the safest working conditions for our employees and ultimately the families, friends and neighbors who live near our facilities.

Health and Safety

From Government Regulation to Industry Leadership

Occupational Safety

The Occupational Safety and Health Administration (OSHA) first published its safety record keeping rule in 1971, which tracks rates of injuries and illnesses across companies and industries. Since then, AFPM has collected these metrics and has seen a more than 95 percent decrease, making the refining and petrochemical industries among the safest industries of all manufacturing according to Bureau of Labor Statistics (BLS).

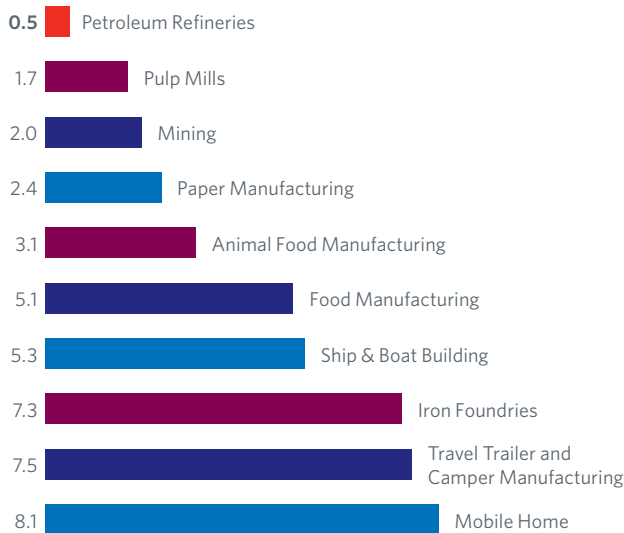
With a current rate of 0.5 total recordable injury rate (TRIR), there are very few events that industry can continue to learn from to achieve our goal of zero injuries. This led AFPM and our members to develop our own occupational safety metrics that capture near miss data — predictive indicators to prevent injuries before they happen. This Incident Classification Matrix is the next evolution of safety metrics that AFPM has shared with OSHA and other industries to help them improve and is just another example of how the refining and petrochemical industries are leaders in safety.

“Everything we do is aimed at creating an accident-free, incident-free workplace to keep our employees, contractors and neighbors safe and to protect the environment we all share.”

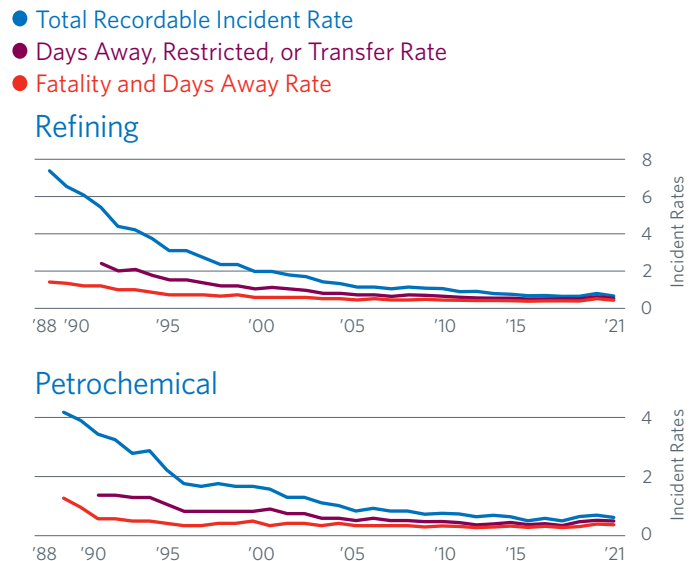


— Fritz Kin
 Director of Refining Safety, Security and Process Safety Management
 Marathon Petroleum Corporation

Incidence Rates of Non-Fatal Injuries or Illnesses Among Manufacturing Sectors¹⁹



Injury & Illness Incident Rates for Refineries Radically Reduced Injuries Past 30 Years²⁰



Process Safety

OSHA published its Process Safety Management Standard in 1993. Process Safety is a management system that focuses on preventing, mitigating and responding to chemical releases. Unlike Occupational Safety, there are no regulatory requirements to collect and share process safety metrics at an industry level. Therefore AFPM worked with industry and API to develop the *API RP 754 Process Safety Performance Indicators for the Refining and Petrochemical Industries*, which identifies leading and lagging process safety indicators useful for driving performance improvement. Since this information has been collected, our industries have seen a reduction in process safety events of about 50 percent for refining and 40 percent for the petrochemical industry.

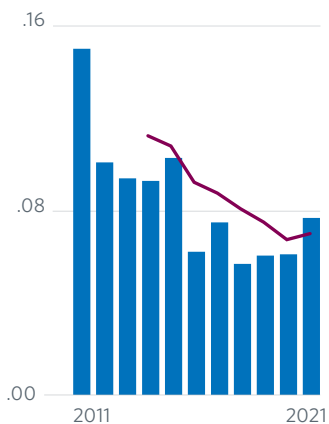


Process Safety events are categorized into four separate tiers based on their severity, Tier 1 being the most severe and Tier 4 being a leading indicator. AFPM collects data on both Tier 1 and Tier 2 events that are defined as a loss of primary containment that either met a certain quantity threshold, caused an injury or resulted in a fire or explosion.

Refining Process Safety Event (PSE) Rates²¹

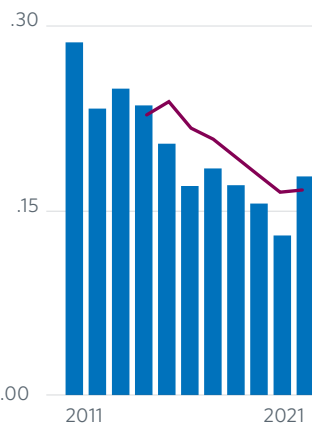
Tier 1 Refinery Process Safety Event Rates

- Refining
- 5-year Refining Rolling Average



Tier 2 Refinery Process Safety Event Rates

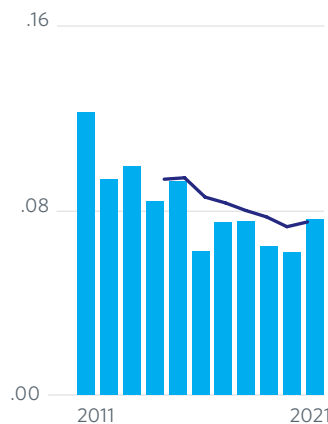
- Refining
- 5-year Refining Rolling Average



Petrochemical Process Safety Event (PSE) Rates²²

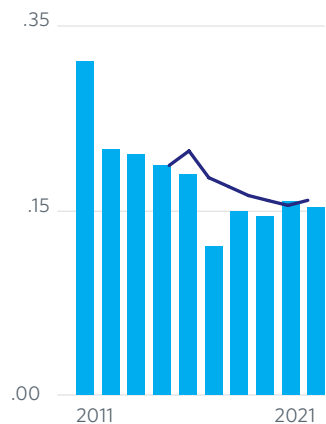
Tier 1 Petrochemical Process Safety Event Rates

- Petrochemical
- 5-year Refining Rolling Average



Tier 2 Petrochemical Process Safety Event Rates

- Petrochemical
- 5-year Refining Rolling Average



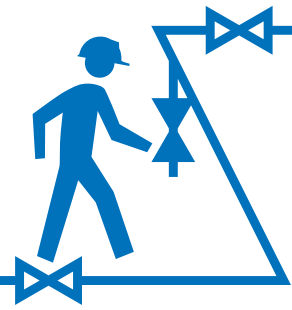
Collaborating to Enhance Safety

Health and safety are paramount at AFPM, and we take pride in our safety programs. AFPM's focus on both process and occupational safety is multifaceted and includes data collection that is shared across multiple member committees to develop programs and initiatives that improve safety, reliability, operating practices and training. This information is shared throughout the entire refining and petrochemical industries to further improve safety and is applied through the following safety programs.



Advancing Process Safety Programs

Advancing Process Safety (APS) is AFPM's flagship safety program. This groundbreaking program was developed to promote collaboration across industries and to continuously improve process safety through data collection and opportunities to share experiences and knowledge. Created in 2012 to improve process safety at facilities, this voluntary program has grown to include a suite of resources — including virtual reality, webinars and other tools and resources — that encourage the sharing of information and good practices.



AFPM's Advancing Process Safety Program consists of several programs:

- **Walk the Line:** Employee human performance program directed at operators that provides a toolbox of training materials and good practices to prevent common incidents caused by errors associated with operational discipline.
- **The Process Safety Regional Networks:** Six regional information sharing networks that allow process safety professionals to improve overall safety performance through collaboration at the site and association level.
- **The Process Safety Site Assessment Program:** Independent third-party assessments that help facilities prevent process safety events through rigorous evaluation of written programs and operations.
- **Hazard Identification/Practice Sharing Subgroup:** Develops Hazard Identification and Practice Share documents for broad industry distribution that address common industry hazards and good industry practices.
- **The Mechanical Integrity Subgroup:** Develops resources to help members improve mechanical integrity programs, a key process safety program element.
- **The Human Reliability Subgroup:** Develops information and tools to improve human performance in operations that aid in reducing the likelihood and consequences of human errors.
- **Industry Learning & Outreach Subgroup:** Industry data analysis that identifies opportunities for improvement for APS and conducts monthly industry webinars.

AFPM
AFPM Winterization Trivia Pilot Experience:
Interactive training tool
focusing on winterization hazard identification
Target Audience: Front Line Workers
Length: 3-4 minutes

To Access:
<https://kahoot.it/>
PIN: 007919812

For Mobile Access:
1. Scan the QR Code above with your mobile device to access the AFPM Winterization Trivia Pilot Experience
2. Type in a nickname and click the 'OK, go!' button.

OR

For Web Access:
1. Copy and past the URL: <https://kahoot.it/challenge/007919812>
2. Type in a nickname and click the 'OK, go!' button.

Produced by the Advancing Process Safety and the Immersive Learning Program

“The value of the AFPM Safety Programs is that we use real data to identify opportunities for improvement. We can focus our efforts on things that will make actual safety improvements. Based on our 2022 data analysis, we have been focusing on winterization, mechanical integrity and human organizational performance. These initiatives have saved lives and because of their adaptability will continue to save lives and prevent releases in the future.”



— Brook Vickery
Vice President and Manufacturing Manager
Flint Hills Resources, LP



Occupational Safety Programs

AFPM occupational safety programs and training are geared toward preventing injuries in our facilities. Through incident data collection, we are able to identify opportunities for industrywide improvement and build tools to address these issues that are then shared throughout

the industries. Our Occupational Safety Regional Networks facilitate information sharing, including lessons learned and good practices to improve the overall safety of the industries. Sharing good energy isolation practices has been a significant focus of this program.

Immersive Learning Program

The AFPM Immersive Learning Committee provides a forum to share knowledge around the quickly evolving area of immersive learning. This includes highly interactive technologies like virtual and augmented reality to improve performance and safety, while also reducing training time. This group developed the first AFPM virtual reality (VR) simulation, a complex training tool replicating the process for lighting a fired heater from a cold start — a key facility operation for which hands-on training with intricate procedures is crucial. This simulation aims to improve and support the retention and comprehension of training by providing the opportunity to "fail safely" by experiencing low frequency, high consequence incidents in a safe simulated environment.



Sharing Safety Practices Across the Manufacturing Sector

Other industries and government partners are taking note of the success of AFPM's safety programs and are seeking to apply good practices more broadly across the manufacturing sector. During the last year, AFPM has worked with organizations and government partners such as the American Petroleum Institute, the Chemical Safety Board and the Occupational Safety and Health Administration (OSHA) to share good practices derived from these programs.



"...AFPM meetings, users' conferences, and seminars hosted by catalyst vendors, are good forums for sharing recommended practices and lessons learned. These forums have strengthened the industry's overall FCC competence."

— U.S. Chemical Safety Board and Hazard Investigation Board, Investigative Report



AFPM Safety Awards Celebrate 30 Years of Honoring Industry Leaders

The AFPM Safety Awards were created 30 years ago to recognize outstanding workplace safety, a reflection of the deep commitment these industries have to safety. Each year, AFPM member facilities submit their safety records and activities to be considered for the safety awards. Four categories of awards are given each year to honor varying degrees of safety, the Elite Silver Award recognizes those sites that have attained top industry safety performance for the application year and are in the top 10 percentile of industry safety; the Elite Gold Award, recognizes facilities with safety performances in the top five percentile and the highest honor, the Distinguished Safety Award, is awarded to the top sites with outstanding safety performance, program innovation and safety leadership. Last year, this honor was awarded to four facilities for achieving a sustained, exemplary level of safety performance.

Finally, the Innovation Awards, introduced in 2020, recognize facilities and their contractors that have unique and innovative programs or practices that effectively improve the site's safety performance for either occupational or process safety.

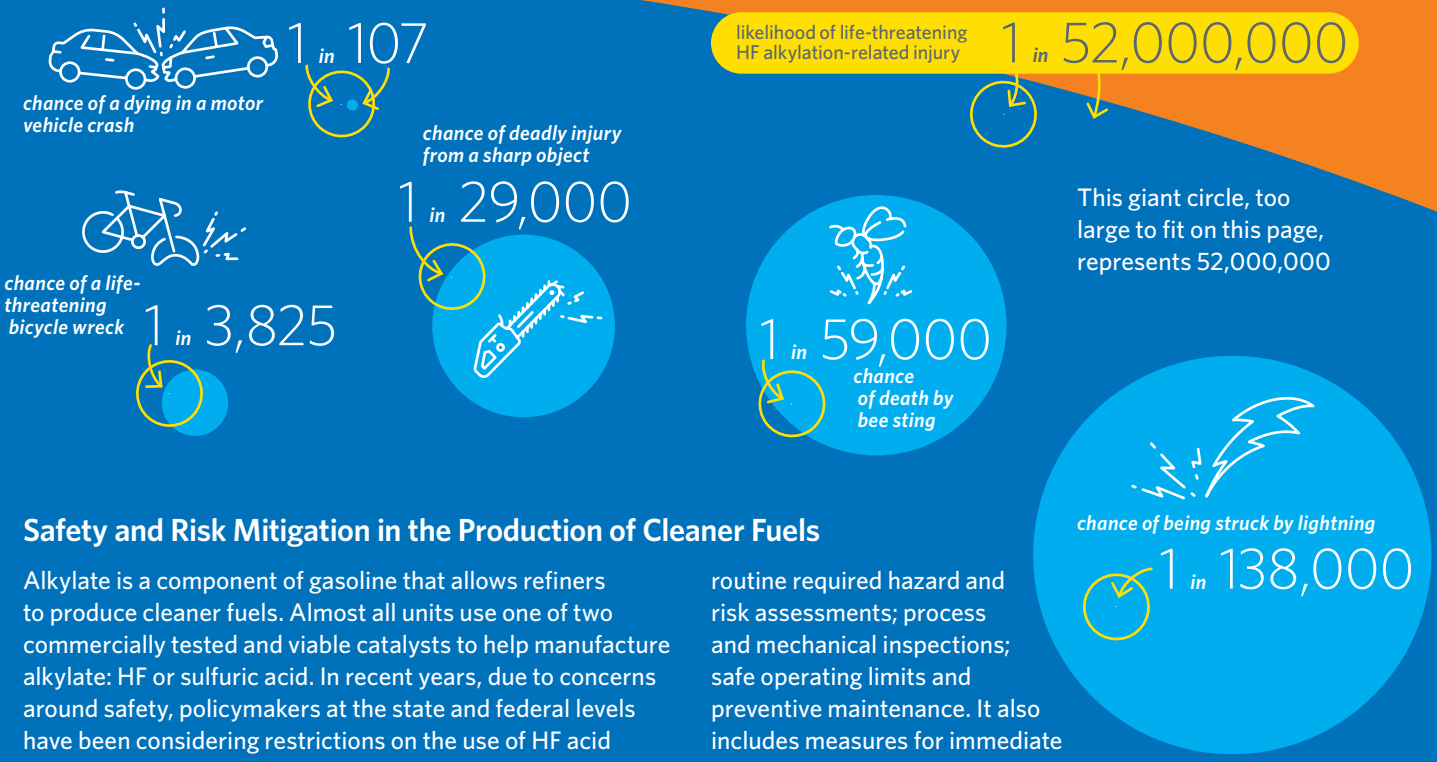
"Really there is no greater honor than being recognized for a culture of continuous improvement that ensures our employees and contractors return home safely to their loved ones after a day of work at our facility."

— Randy Tatum
Site Manager, Morris Plant
LyondellBasell

Did you know?

Nearly every gallon of gasoline sold in the United States contains liquid alkylate. Alkylate is an essential ingredient when manufacturing the cleanest, high-octane motor gasoline and aviation gasoline — fuels capable of satisfying the world’s strictest environmental standards.

There are two commercially proven catalysts that refiners around the world have long used to make alkylate: hydrofluoric acid (HF) and sulfuric acid. Because of the extensive safety measures refiners employ around their HF alkylation units — including layers of risk mitigation tools and technologies and rigorous training for employees — risks associated with the use of HF by AFPM member refineries are extremely low.



Safety and Risk Mitigation in the Production of Cleaner Fuels

Alkylate is a component of gasoline that allows refiners to produce cleaner fuels. Almost all units use one of two commercially tested and viable catalysts to help manufacture alkylate: HF or sulfuric acid. In recent years, due to concerns around safety, policymakers at the state and federal levels have been considering restrictions on the use of HF acid alkylation in refining.

Fuel manufacturers employ numerous risk reduction strategies around the operation of alkylation units. Looking at HF alkylation specifically, in addition to following all government regulations U.S. refiners have developed extensive industry-specific guidance for managing HF in refinery settings, *API Recommended Practice 751 (RP 751)*. RP 751 is considered the most rigorous and exhaustive policy for HF management in existence, recognized by OSHA and the U.S. Chemical Safety Board as providing effective guidance for the safe operation of HF alkylation units and management of HF catalyst.

This guidance and industry measures to safely use HF include workforce training and personal protective equipment requirements; measures to avoid a chemical release, including

routine required hazard and risk assessments; process and mechanical inspections; safe operating limits and preventive maintenance. It also includes measures for immediate leak detection, including acid detecting paint, HF sensors, alarms and remote cameras—tools that identify the source of a leak so that unit personnel can quickly activate acid isolation and other mitigation procedures and equipment; and measures to reduce severity and immediately contain a leak if one were to occur, including remote-activated and controlled water mitigation systems and systems to limit the duration of a release.

The chance of sustaining a life-threatening injury from HF alkylation in the United States is roughly one in 52 million for the general public and one in 144,000 for those who live close to HF alkylation units, according to data from the National Safety Council, actual incident reports and mitigation surveys. The risks are so much smaller compared to those we assume every day when riding a bike, driving a car and playing with pets.

Security

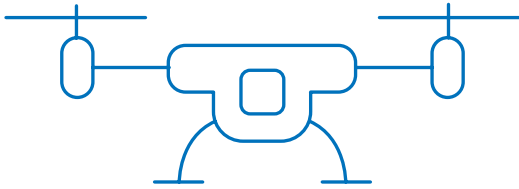
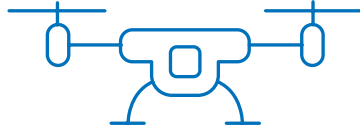
The background is a solid blue color with several overlapping, curved, wavy bands of a lighter shade of blue. These bands create a sense of movement and depth, flowing from the bottom left towards the top right. The overall aesthetic is clean, modern, and professional.

Security

The refining and petrochemical industries plan and prepare 365 days a year for a variety of events, from extreme weather to cybersecurity to physical threats to our facilities, to be prepared to protect our employees and facilities. They not only adhere to tough security regulations, they frequently go above them, following robust security measures and utilizing cutting-edge technology.



Security



Drones, sensors, security software and smart fences have been used for years to secure the perimeter of our members' operations.

Applying a Layered Approach to Security

The threat landscape is constantly evolving and growing, challenging companies and governments around the world. We are meeting these changing risks with robust security measures designed to protect our employees and facilities from operational threats and cybersecurity attacks. AFPM and our members work collaboratively and proactively with federal agencies to develop site security plans that have helped to identify and eliminate site vulnerabilities and cybersecurity disruptions.

Our member companies secure their facilities with multiple layers to ensure that disruptions do not occur. Drones, sensors, security software and smart fences have been used for years to secure the perimeter of our members' operations. Many of our members also have third parties on retainer to help identify, isolate and respond to cyber attacks quickly. Other technologies such as thermal security cameras are effectively used to identify potential intruders and allow facilities to assess threats in darkness or bad weather.

The refining and petrochemical industries employ security programs that are risk-based and flexible and that allow them to be responsive to growing threats. Keeping a vigilant eye on information technology (IT) and operational technology (OT), our member companies employ a variety of best-in-class security measures, as well as experts who are trained to identify all types of threats, to maintain the safety of our facilities and people.



What's the difference between IT and OT?

IT (information technology) is a broad term that covers software (data/information processing) and includes endpoint devices like computers, servers and all that is encompassed within. OT (operational technology) is responsible for managing and controlling systems.



Collaborating Across Industry and with Government to Protect Operations

The refining and petrochemical industries take a comprehensive approach to physical and cyber security. Designated as critical infrastructure by the U.S. Department of Homeland Security, we strive to ensure that every effort has been made to identify, detect and counter threats to our facilities.

An important aspect of providing secure operations is open and constant communications with our partners in government and across industries. AFPM and our member companies work closely with government agencies and other critical infrastructure groups to share information that helps to identify potential threats of all types and to develop new security and cybersecurity policies that shape security systems, procedures and added voluntary initiatives, in order to protect America's critical infrastructure.

AFPM works with the following government partners to provide the most secure operations:



Working with our government partners we participate in the following councils and working groups to share information and establish best practices:

- **Chemical Sector Coordinating Council:** self-organized and self-governed council that enables critical infrastructure owners and operators, their trade associations and other industry representatives to interact on a wide range of sector-specific strategies, policies and activities to address the critical infrastructure security and resilience policies and efforts for the chemical sector.
- **Small Unmanned Aircraft Systems (sUAS) Security Critical Infrastructure Partnership Advisory Council (CIPAC) Working Group:** public and private sector advisory group to develop best practices and recommendations on mitigating risk to critical infrastructure posed by sUAS and make recommendations to the federal government on actionable, reliable and scalable risk mitigation solutions for sUAS threats.
- **Industrial Control Systems Joint Working Group (ICSJWG):** industry and the Department of Homeland Security (DHS) working group to facilitate information sharing, reduce the risk to the nation's industrial control systems and continue and enhance the collaborative efforts of these systems. This group provides a vehicle for communicating and partnering across all Critical Infrastructure (CI) Sectors between federal agencies and departments, as well as private asset owners/operators of industrial control systems.
- **National Maritime Security Advisory Committee (NMSAC):** industry and government advisory committee that makes recommendations to the United States Coast Guard (USCG) on port security issues and to the Transportation Worker Identification Credentials (TWIC) Reader Workgroup to revise and improve the TWIC Reader Rule to enhance port and facility security.
- **Oil & Natural Gas Security Coordinating Council:** self-organized and self-governed council that enables critical infrastructure owners and operators, their trade associations and other industry representatives to interact on a wide range of sector-specific strategies, policies and activities to address the critical infrastructure security and resilience policies and efforts for the oil and natural gas sectors.



Defending Critical Infrastructure from Cybersecurity Attacks

Around the world cyber-attacks are growing in number and our industries, like all others, are not immune to this threat. In fact, the Federal Bureau of Investigation (FBI) has reported a significant increase in cyber-attacks against the general public, private sector companies, critical infrastructure, government agencies and the supply chain in the past few years.

As cyber attacks grow in number, they are also evolving and increasing in scale and severity, with criminal groups targeting our nation's critical infrastructure. This is why our nation's energy and chemical sectors regularly enhance their cybersecurity efforts, using multiple layers of technologies to deter, detect, delay and deny unauthorized intrusions. A high-level view of what companies today are doing includes installing firewalls, threat detection and threat blocking software and devices that constantly monitor networks and block phishing attempts. It is this layered approach and our close coordination with government agencies that make a major breach highly unlikely.

Companies also plan and practice their emergency response, similar to hurricanes and other severe weather events, through emergency response training, continuous monitoring, regular communication, crisis management and audits of operations.

Preparing for Extreme Weather Events

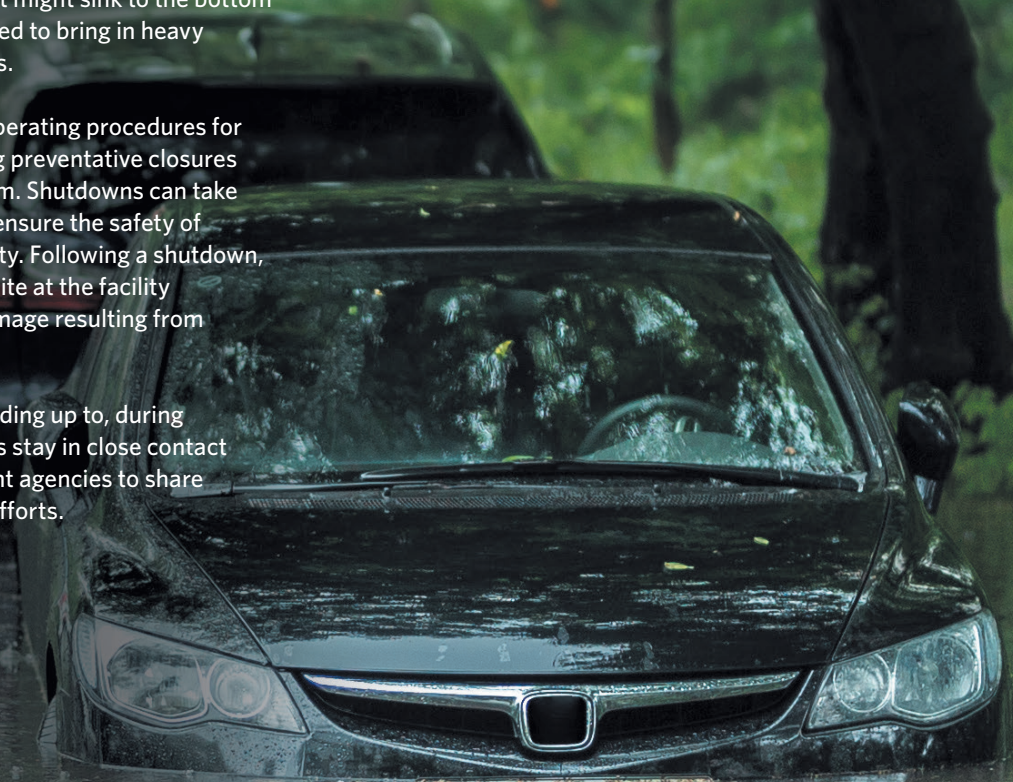
Extreme weather events can have significant impacts on refining, petrochemical and midstream operations. As such, AFPM members have robust preparedness plans that are routinely re-evaluated and adjusted to mitigate safety risks and minimize potential environmental impacts due to these events.

Following past weather events, facilities have taken measures like building and elevating new refinery control rooms, electrical equipment, pumps and compressors to avoid flooding. They have added redundant power supplies and generators.

Facilities have also increased on-site containment facilities to reduce the risk of substances being released into the environment in the face of a storm. Facilities have booms that absorb chemicals that might leak and float to the surface. Dams can be setup to contain substances that might sink to the bottom of floodwater. Facilities are also prepared to bring in heavy equipment and portable diking systems.

They have also developed additional operating procedures for startup and shutdown events, including preventative closures of refineries in advance of a major storm. Shutdowns can take several days and are done carefully to ensure the safety of workers and the surrounding community. Following a shutdown, a "ride-out crew" typically remains onsite at the facility to monitor safety and any potential damage resulting from the storm.

Throughout the year and especially leading up to, during and after weather events, our members stay in close contact with local, state and federal government agencies to share information and coordinate response efforts.



Economic Development

The background features a vibrant pink and red color palette. It is decorated with several overlapping, wavy, curved lines that create a sense of movement and depth. A prominent, light pink triangle is positioned on the left side, pointing towards the right. The overall aesthetic is modern and dynamic.

Economic Development

The U.S. refining and petrochemical sectors are foundational to the communities in which they operate as drivers of the U.S. economy, significant taxpayers and providers of high-paying, family-supporting jobs.



Last summer, **Ergon** participated in a joint effort that provided 193 boxes of food to Extra Table to help restock Mississippi food pantries. Each box was packed with an assortment of proteins, vegetables and more to ensure delivery of more wholesome meals in an efficient way.

Economic Development

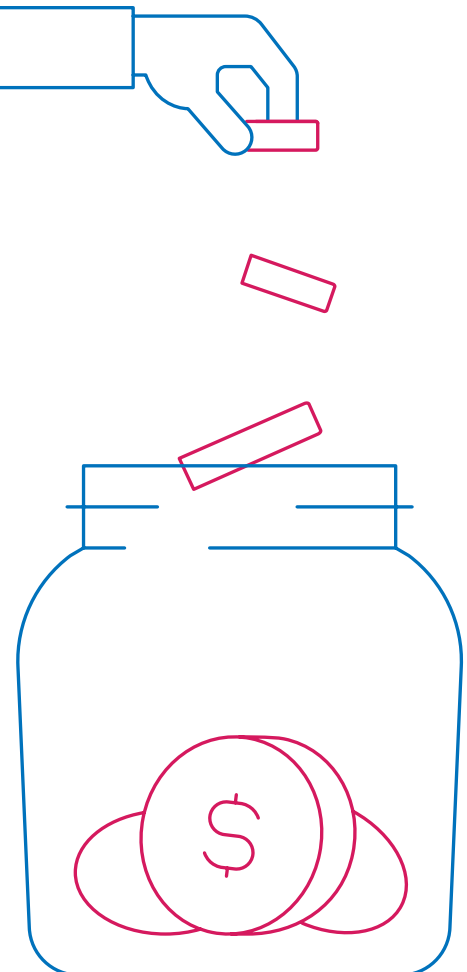
Economic Contributions

In 2021, activities at oil refineries and petrochemical manufacturers supported more than \$580 billion²³ of economic output (GDP) across the United States. Their contributions help to strengthen economic development in their communities, stimulate job growth and offer better employment and income opportunities.

AFPM member companies more directly support the national, state and local economies as significant taxpayers. In 2021, industries' contributions in local, state and federal taxes were \$133 billion dollars.²⁴ These taxes were used to fund the development of infrastructure at every level and to support schools, libraries, fire and rescue services, hospitals, and so much more.

Refinery workers' average annual compensation is more than **\$260,000** and petrochemical manufacturer workers is **\$200,000**, compared to the national annual average wage of **\$73,000**.

Petroleum refineries and petrochemical manufacturers contributed more than **\$133 billion** in local, state and federal taxes.



Jobs in the Refining and Petrochemical Industries

The refining and petrochemical manufacturing industries are committed to offering great working environments and career opportunities to people from diverse backgrounds and varying educational degrees and skillsets. Our industries welcome different perspectives and new ideas and work to develop our employees to offer them growing opportunities and lifelong careers.

Collectively, the refining and petrochemical industries employ nearly three million people in the United States that benefit from above average compensation. Total compensation, which includes wages and benefits, of the people who work in our industries is among the highest of any U.S. industry. Refinery workers' average annual compensation is more than \$260,000 and petrochemical manufacturer workers is \$200,000, compared to the national annual average wage of \$73,000.²⁵



Creating Diverse, Equitable and Inclusive Workplaces and Communities

The U.S. refining and petrochemical industries believe that having a diverse, equitable and inclusive workforce, and continuously promoting equity and inclusion within our communities is critical. These companies are committed to cultivating cultures of belonging, where each employee is provided opportunities to succeed and grow and has the support needed to perform to the fullest of their abilities in the workplace.



- **LyondellBasell** rolled out live Diversity, Equity and Inclusion (DEI) training to employees worldwide, providing them with the opportunity to develop skills that will enhance inclusion in the workplace. By the end of 2021, 98 percent of all leaders, professional and administrative employees globally completed required DEI training and a total of 14,000 additional training courses were completed voluntarily.
- **Chevron** has developed Environmental Justice Principles to guide engagement with stakeholders and to advance racial equity, respect human rights and protect people and the environment.
- **PBF** is a member of the Corporate Partnership Council (CPC) of the Society of Women Engineers. The CPC focuses on sharing best practices, addressing retention and advancement issues and partnering on diversity initiatives. A group of PBF engineers will be participating in the Society of Women Engineer's annual conference.
- **Dow** has allocated \$13 million to Dow ACTs, a framework for addressing systemic racism and inequality, and has joined a coalition of businesses pledging to upskill, hire and advance one million black individuals in the United States over the next 10 years.

Did you know?

The employment multiplier for the petroleum refining industry was close to 40 in 2021, meaning that for every one job at a petroleum refinery, an additional 38 jobs were supported elsewhere in the economy. The petrochemical manufacturing industry jobs multiplier is close to 10, or eight jobs were created in the U.S. economy for every one job at their petrochemical facilities.²⁶





Investing in the Future Workforce

Fuel and petrochemical companies are partnering with educators and members of our communities to provide training and education to those interested in building careers in the fields of science, technology, engineering and mathematics (STEM) and those interested in obtaining industrial skills training. These companies donate time and money in the form of tutoring, training, computers, internet service, tuition and other educational-focused collateral to ensure the future talent our industries will need.

- **Marathon Petroleum** provided a \$274,000 grant, industry-grade equipment and guidance for a unique training program that connects local high school students with the El Paso Community College to earn advanced welding certifications and an associate degree. Marathon Petroleum also provided expertise about industry standards and shaped the curricula, with El Paso refinery employees serving as mentors.
- **INEOS Styrolution** is supporting Mission Fulfilled 2030, a nonprofit that works to provide educational opportunities to underfunded and underrepresented youth, with a goal of building 10,000 mentors and coaches of color by 2030 to help accelerate diversity gains in STEM fields.
- **BASF** expanded its North American Apprenticeship Development Program, providing on-the-job training and the opportunity to earn industry-recognized credentials while earning a full-time wage to almost 100 apprentices in 20 manufacturing facilities around the country.
- **Chevron Phillips Chemical** employees volunteered their expertise and support for under-represented fifth graders at the St. Elmo Brady STEM program in Houston, which aims to empower and inspire students to become the next generation of engineers, scientists and technologists through hands-on STEM experiences. The company has also pledged \$1.4 million to the Future of STEM Scholars Initiative (FOSSI), which provides scholarships, internships and leadership development opportunities to students studying STEM fields at Historically Black Colleges and Universities.
- For more than 15 years, **Plains All American** has partnered with Genesys Works, a Houston-based career readiness nonprofit that provides high school students in underserved communities with skills training, meaningful work experience and impactful relationships.

People of Industries Spotlight



“Being able to volunteer with the ZOOMS STEM design challenge has been a rewarding experience. Elementary kids come in and are presented with a design challenge either in enrichment or an exhibit. It’s amazing to see kids who are 7 to 10 years old developing engineering problem-solving skills, thinking about the problem holistically and then seeing the engagement and range of creativity that comes about.”

— Anne Lee
Senior Environmental Technical Lead
Flint Hills Pine Bend

“My favorite aspect of my job is the people I work with. The Logistics and Pipeline Team I work with is very close-knit. We bounce ideas off each other, are not afraid to speak our minds, and are honest with each other. At the end of the day, we do what is best for CountryMark.”



— Jamie Lynn Marques
Senior Pipeline Engineer, CountryMark

“In the refining and petrochemical industries, we develop great technical people and strong leaders who solve very complex ideas and there are many opportunities to grow your personal skills and see different parts of the business. I don’t really feel like this business is going away, and I’ve always been proud of what we do for society.”



— Marides Chidalek
I&E Designs Engineering Team Lead, Chevron Richmond

Motiva Mentor and Mentees



Motiva mentors and their high school mentees connect face-to-face at their local schools. The Motiva Aspire mentoring program gives employees the opportunity to empower, encourage and motivate students to pursue higher education in fields that are needed in the energy industry. Each student receives one-on-one time with their mentor to identify their career interests, explore relevant career paths and future job market projections with associated salaries, and understand education requirements of attaining jobs in those fields.

Community Engagement



Community Engagement

Refining and petrochemical companies contribute in many ways to provide the best standard of living not just to our workers and their families, but also to our surrounding communities. Member companies provide day-to-day support to their neighbors, assistance during unexpected or extreme events like hurricanes, support service members and even serve their communities by serving our country. They contribute time, expertise, equipment, clothing, money — whatever is needed to make life better for everyone in their communities.



Employees from **Monroe Energy** participate in a cleanup day at Little Tincum Island Wildlife Refuge.

Giving Back to Our Communities

- Following Hurricane Ian, **Chevron** quickly pledged \$500,000 to relief and recovery organizations like the American Red Cross and Team Rubicon, and also matched qualified donations by employees and retirees to hurricane relief organizations. Phillips 66 similarly donated \$250,000 to the American Red Cross to aid recovery efforts. The San Antonio Zoo was able to send its Zoo Disaster Relief Program recovery crew to Florida to help out after Hurricane Ian, thanks to a generous donation of gas cards from Valero.
- **Ergon's** Magnolia Marine Transport Company employees helped pack gift boxes sponsored by the Seaman's Church Institute. Boxes are packed for crewmembers of each towing vessel on the river. Each box contains knitted and crocheted hats and scarves, handmade Christmas cards, games, books and assorted gifts. The purpose of the gift boxes is to spread Christmas cheer and show appreciation to mariners who will not be at home during Christmas. Over 3,000 boxes were sent to towboats all over the inland river system.
- **PBF's** Toledo Refining Company donated \$100,000 to help make East Toledo more accessible for those with disabilities.
- In a single year, **Valero** and the **Valero Energy Foundation** generated more than \$62 million for charities, with over \$17 million going to support United Way chapters across the United States and \$5.8 million supporting healthcare needs such as the Driscoll Children's Hospital in South Texas, a Mobile Mammography Unit and an Alzheimer's Unit at the University of Texas Health Science Center.
- **Marathon Petroleum's** Garyville employees and contractors put together hundreds of Louisiana-themed care packages that were delivered to troops stationed overseas and unable to make it home for the holidays.
- **Emerson Automation Services** has vowed to dedicate \$200 million over the next 10 years to address education inequity needs, focusing on the developmental and educational needs of early childhood through high school children in under-resourced communities.
- **Phillips 66** provided a grant for Crow Tribe education to the Plenty Doors Community Development Corporation in Montana, supporting the nonprofit's efforts to increase food access, cultural sharing and small business resources.



“I’ve always felt the need to serve, because I have had friends and family that have served in the Air Force and the Army. I tried to join right out of high school, but unfortunately had a broken leg injury that prevented me from joining the Idaho National Guard. It wasn’t until about 10 years later that I revisited joining the military, and the Army Reserve accepted me. I am really proud to be able to serve my country, and it’s worked out where Marathon Petroleum is both supportive and has a strong patriotic environment.”

— Brian Miller
 Lab Analyst
 Marathon Petroleum Salt Lake City

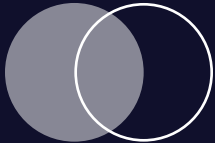


**Policies that
Power Progress**



Policies that Power Progress

AFPM works to advance public policies that address our most pressing challenges. Whether it's advocating for a nationwide high-octane fuel standard that would drastically reduce emissions or pursuing strategies to address plastic waste in the environment, AFPM supports policies that enable our members to supply the fuel and petrochemicals that growing global populations and economies need to thrive, and to do so in a sustainable way.



Enhance Transparency

The future of American manufacturing requires reasonable and cost-effective regulations. AFPM supports regulatory reform that enhances transparency, accountability and efficacy of federal regulations based in sound science.



Promote Competition

The refining and petrochemical industries welcome free-market competition unimpeded by market distorters including mandates and subsidies. Policymakers should also look to ensure U.S. companies operating abroad are treated fairly through a system of trade rules that facilitate cooperation and regulatory alignment and reflect the reality of an integrated energy and petrochemical market. Finally, policymakers must ensure the full potential of the modernized tax code is realized to spur growth now and into the future.



Balance Needs for All Americans

U.S. policies should balance the need for affordable and reliable fuels and a growing economy with sound environmental policies. The essential role and many societal benefits that petroleum fuels, natural gas and petrochemicals provide for our nation and the world should not be ignored.



Strengthen our Foundation

The global gains of the U.S. refining and petrochemical industries can't be maintained or built upon unless our nation's infrastructure keeps pace. Investment in critical infrastructure, including roads, pipelines, rail, inland waterways and ports are key to accessing and expanding the use of U.S. resources.

We must adopt policies that carefully assess needs vital for meeting current and future demands. This includes federal, state and local government investment, regulatory reform that encourages private investment and streamlining our regulatory system and permitting processes to facilitate prompt construction of critical new infrastructure, including pipelines.

Plastic Waste Principles

AFPM approaches the challenges of global plastic waste by addressing the many aspects of this complex issue. Ultimately, our solutions always acknowledge the tremendous long-term value of plastic products, while considering data-driven innovations that promote advanced recycling solutions and remove regulatory barriers to widescale adoption of such technologies. Specifically, we advocate for:



Developing a national framework to eliminate plastic waste in the environment and grow the circular economy for plastics.



Working collaboratively across the plastics value chain and with governments to encourage the responsible disposal of plastic products and the recycling, reuse and recovery of plastic waste on a global scale. This includes increased funding of state and local waste collection programs to better source and collect plastic waste.



Supporting the innovation and development of plastic waste re-purposing technologies that have the potential to recover plastic waste and transform it into usable materials. This includes removing regulatory barriers for new facilities that will allow for the continued expansion of advanced recycling capabilities.



Ensuring the regulatory classification for plastic waste is as a manufacturing feedstock, which simplifies the process and reduces regulatory hurdles for companies processing plastic; and proper accounting and tracking of recycled content, allowing companies to set clear goals and to consistently track their recycling efforts.

Plastic Waste Policies

- AFPM supports state efforts to classify advanced recycling as a manufacturing process, not a waste disposal or incineration process while refuting efforts to demonize plastic products, including Canada's efforts to mislabel plastic as toxic.
- AFPM supports federal legislation that spurs innovation and enables greater collaboration among industry, government and other stakeholders to keep waste out of waterways and drive recycling efforts that recapture the value of used plastic products.
- AFPM is participating in the development of a Global Treaty on plastic waste that aims to eliminate plastic waste leakage into the environment while recognizing the tremendous benefits of plastics and stimulating the development of a circular economy for plastics.



Climate Change Principles

AFPM is committed to engaging in the discussion and development of sound climate change policies that are:

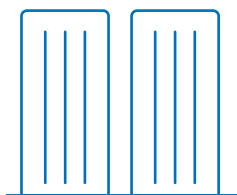
- Balanced and measured to improve quality of life, ensuring the long-term economic, energy and environmental needs of humanity are met;
- Protective of U.S. competitiveness and prevent the shifting of production, jobs and emissions from the United States to other countries;
- Harmonized, preemptive and economy-wide;
- Simple and transparent; and
- Achievable and flexible to adjust, as necessary.

AFPM and our members are further committed to:

- Delivering affordable, reliable fuel and petrochemical products that lift the standards of living for people all over the world;
- Improving the efficiency and sustainability of our operations;
- Offering fuels and petrochemicals that make engines and other products more efficient; and
- Continuing research, innovation and application of new technologies and products.



Climate Change Policies



Carbon Capture, Utilization and Storage (CCUS)

Carbon capture technology is critical to paving the way to a lower carbon energy future. AFPM is supportive of tax credits for carbon capture technologies — specifically the 45Q tax credit for carbon capture technologies — because these technologies are an essential pathway for reducing the carbon intensity of energy and industrial systems. We are working with policymakers on other policies to activate, expand and fully realize the benefits of this innovative technology.



95-RON fuel standard

AFPM members are leading the effort to transition the United States to high-octane gasoline through a nationwide high-octane, 95-RON fuel standard that would meet the most stringent air quality standards in every state. Alongside refiners' efforts to decarbonize heavy transportation through renewable diesel, a 95-RON octane standard would unlock an entirely new range of cleaner, fuel-efficient vehicle transportation options for consumers — options that include affordable, family-accommodating vehicles.

Board, Members and Resources

Join AFPM Today!

The vast majority of American petroleum refiners and petrochemical manufacturers, along with hundreds of industry service companies, are currently members of AFPM.

To find out more contact Latoya Britt at
membership@afpm.org
202.457.0480
www.afpm.org/benefits-of-membership



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AFPM is governed by a Board of Directors, comprised of representatives from each of our regular members. When the Board is not in session, it delegates authority to the AFPM Executive Committee to render judgments and govern the Association. The Board of Directors elects a chairman, seven vice presidents and a treasurer who, together with the immediate past chairman, comprise the Executive Committee. The Board also elects a president to serve as chief administrative officer of the Washington-D.C.-based staff and the headquarters office.

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Mikayla Cohoon

McKinsey & Company
Micah Smith

Merichem Company
Kendra Lee

MERRICK & Company
Jay Steiner

MISTRAS Group Inc.
Sotirios Vahaviolos, PhD

Mitsubishi Chemical America, Inc.,
Methacrylates Division
Jay Smith

Montrose Environmental Group, Inc.
Daniel Fitzgerald

Nouryon
Rob van de Graaf

Odfjell USA (Houston) Inc.
Gareth Williams

Ohmstede
Buddy Tucker

Old World Industries, LLC
Charles Culverhouse

Onpoint Industrial Services LLC
Chad Robl

Associate Members

continued

ParFab Companies

Josh Breaux

Partner Industrial, LP

Gary Stamey

Performance Contractors, Inc.

Lee Jenkins

Pilko & Associates, Inc.

George Pilko

Process Consulting Services Inc.

Scott Golden

Procter and Gamble Company

Brian Furlong

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PSC Group

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RAMBOLL

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Daniel Brewster

Repcon, Inc.

Joshua Causey

Roddey Engineering Services, Inc.

Michael Newton

S&B Engineers and Constructors Ltd.

J.D. Slaughter

S&P Global

Lisa Buck

Savage Services

Jason Ray

Schneider Electric

Vikram Gupta

Seqens Solvents & Phenol Specialties

Laurent Castor

SI Group

Paul Tilley

SLR

Barbara Kuryk

Sojitz Corporation of America

Tatsuhiko Mikami

Solomon Associates LLC

Charles Reith

Soltex, Inc.

Glenn Bohny

Southern Chemical Corporation

Jan Spin

Stancil & Co.

Jeffrey Nichols

STARCON International Inc.

Peter Cianchette

Swift Fuels, LLC

Chris D'Acosta

Symmetry Energy Solutions

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Mark Taylor

Tauber Petrochemical Company

Richard Tauber

TEAM, Inc.

Keith Tucker

Technip Energies

Poornima Sharma

Tecnimont USA

Scott Wiseman

Tecnon OrbiChem Ltd.

William Bann

Texas Aromatics LP

Melbern Glasscook

The Equity Engineering Group

David Osage

Topsoe, Inc.

Henrik Rasmussen

Total Safety U.S., Inc

Joe Davis

TRC

Christopher Vincze

Tricon Energy, Ltd.

Ignacio Torras

TRICORD Consulting, LLC

Joe Ibanez

Trihydro Corporation

Calvin Niss

Trindent Consulting USA Inc.

Adrian Travis

Trinity Consultants, Inc.

John Hofmann

TrinityRail

Gregg Yates

TruQC, LLC

Kate Allen

Turner Industries Group, LLC

Stephen Touts

Turner, Mason & Company

Michael Leger

United Rentals, Inc.

Michael Abbey

Universal Plant Services, Inc.
Brad Jones

Vapor Point
Jefferey St. Amant

Veolia North America
Francis McCann

Vopak Americas
Chris Robblee

Waid Environmental
Jason Graves

WIKA USA
Robert Torgerson

Wood

Wood Mackenzie
Cristina de Santos

Worley Group Inc
Jason Diefenderfer

Yokogawa
Eric Heavin

Zachry Group
Kenneth Manning

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ASAHI KASEI Corporation
Toshihito Kita

Axion Energy
Federico Garcia Verdier

Desarrollo Corporativo IDESA, S.A. de C.V.
Bernardo Alvarez Certucha

Evonik Corporation
Kenneth Rizzi

Hindustan Petroleum Corporation Limited, Mumbai
D.S. Mathur

HPCL-Mittal Energy Limited (HMEL)
Kulbhushan Wadhwa

Irving Oil Limited
Joe Harriman

ITOCHU Chemicals America Inc.
Takuya Kobayashi

MEGlobal
Katherine N. O'Connell

Mitsubishi International Corporation
Miya Kumar

Mitsui USA, Inc.
Eri Freeman

Parkland Refining (B.C.) Ltd.
Alex Coles

Petrojam Limited
Alicia Goss

Samsung C&T America, Inc.
Jeremy Kim

Sumitomo Corporation of Americas
Haiyan Cui

The Co-op Refinery Complex
Lenita Knudsen

The American Fuel & Petrochemical Manufacturers (AFPM) is the leading trade association representing the makers of the fuels that keep us moving, the petrochemicals that are the essential building blocks for modern life and the midstream companies that get our feedstocks and products where they need to go. We make the products that make life better, safer and more sustainable — we make progress.

Sponsors

AFPM would like to thank our 2022 sponsors.



Information Resources

Communications

Through a combination of traditional and social media outlets, AFPM reaches the press, policymakers and the public to educate them on the facts about our industries' work and value, and to inform member company employees about important issues impacting the industries.



**WE
MAKE
PROGRESS**



Publications

AFPM publications inform our members about industry statistics, technical innovations, environment and safety developments, security and many other relevant issues.

Newsletters and General Publications

- Annual Report
- Daily Alert
- Energy in Motion – The AFPM Transportation & Infrastructure Newsletter
- Fuel Line
- Green Room Report
- Security Watch
- Sustainability Report
- Tech Update

Statistics

- Annual Survey of Occupational Injuries & Illnesses
- Process Safety Event Report
- AFPM U.S. Refining & Storage Capacity Report

Petrochemical Statistics Program Subscriptions

- AFPM Petrochemical Surveys, Production & Inventory Statistics – quarterly
- AFPM Selected Petrochemical Statistics U.S. Trade Data – monthly

Technical Papers

- Annual Meeting Papers
- Cybersecurity Conference Papers
- Environmental Conference Papers
- International Base Oils & Waxes Conferences Papers
- National Occupational & Process Safety Conference Exhibition Papers
- Operational Planning Control and Automation Technologies Conference Papers (2019 and previous)
- Reliability & Maintenance Conference Papers (2019 and previous)

Transcripts

Operations & Process Technology Summit, formerly Q&A (2019 and previous)

* Publications are distributed to members only.

Standing Committees and Working Groups

The AFPM Board of Directors relies on the counsel and support of experts among its membership to accomplish specific Association functions and plan for the Association's future. In addition to our standing committees and subcommittees, we have a series of regional networks and working groups that serve to assist the Board in achieving AFPM's goals.

The **Associate Steering Committee** provides a forum for the Association's contractors, suppliers, vendors and consultants, to communicate with the Board of Directors on items of mutual interest and support.

Chair: Stephen Toups, Turner Industries Group, LLC
AFPM Secretary: Latoya Britt

The **Base Oils & Waxes Committee** provides oversight and assistance on matters related to automotive oils, base oils and waxes.

Chair: Ross Reucassel, The International Group
AFPM Secretary: Tanya Cooper

The **Communications Committee** shares information, ideas and communications strategies to increase support by external audiences for policy positions established by the Executive Committee and adopted by the AFPM Board.

Chair: Jake Reint, Flint Hills Resources, LLC
AFPM Secretary: Jaime Zarraby

The **Crude/Coking Process Technology Committee** promotes safe, reliable and sustainable operations in feedstock handling for crude distillation, desalting and coker units in refineries.

Chair: Greg Cantley, Marathon Petroleum Corporation
AFPM Secretary: Gordon Robertson

The **Cybersecurity Committee** provides information and recommendations on matters pertaining to cybersecurity and cyber threats.

Chair: Curt Wiggins, Chevron
AFPM Secretary: Jeff Gunnulfsen

The **Environmental Committee** provides a forum for members to exchange views and discuss environmental activities and advises the AFPM Board and staff on current environmental laws and regulations.

Chair: Ro Sharma, LyondellBasell
AFPM Secretary: Geoff Moody

The **FCC Process Technology Committee** provides a technical forum to help ensure that our individual fluid catalytic cracking units (FCCUs) operate in the safest manner possible.

Chair: Ziad Jawad, Phillips 66
AFPM Secretary: Gordon Robertson

The **Fuels Committee** provides information and policy recommendations concerning legislative, regulatory and motor fuel specification developments.

Chair: Scott Roginske, CHS Inc.
AFPM Secretary: Patrick Kelly

The **Gasoline Processes Committee** supports, or leads if appropriate, industry's adaptation to the changing demand and characteristics of the U.S. gasoline stream.

Chair: Rainer Bass, HF Sinclair Corporation
AFPM Secretary: Gordon Robertson

The **Government Relations Committee** serves as the principal forum for sharing information, ideas and strategies on legislative and regulatory issues important to the refining and petrochemical industries.

Chair: Richard Guerand, Phillips 66
AFPM Secretary: Aaron Ringel

The **Hydroprocessing Process Technology Committee** promotes safe and reliable operations within the hydroprocessing community and to ensure safe and sustainable operations.
Chair: Andrew Moreland, Valero Energy Corporation
AFPM Secretary: Gordon Robertson

The **Immersive Learning Committee** provides a forum for the exchange of information on learning, as well as research and development of training tools and solutions that utilize existing and emerging technologies to enhance member training programs.
Chair: Tyler Veenstra, Marathon Petroleum Company
AFPM Secretary: Abby Esterly

The **Issues Committee** advises the Executive Committee and provides direction and guidance to AFPM staff on current policy issues important to the refining and petrochemical industries.
Chair: Willie Chiang, Plains All American
AFPM Secretary: Geoff Moody

The **Labor Relations & Human Resources Committee** facilitates the exchange of information on matters related to industrial and labor relations, human resources practices and collective bargaining.
Chair: John McDarment, Marathon Petroleum Corporation
AFPM Secretary: Julia Kramer

The **Legal Committee** recommends litigation strategies to advance the interests of AFPM's members and the industries. The Committee also provides guidance to the AFPM staff on legislative and regulatory proposals and general legal issues affecting the industry.
Chair: Shane Pierce, Flint Hills Resources, LLC
AFPM Secretary: Rich Moskowitz

The **Manufacturing Committee** provides technical support and recommendations on matters that affect facility operations and products including federal, state and local laws and regulations.
Chair: Jolie Rhinehart, Phillips 66
AFPM Secretary: Gordon Robertson

The **Midstream Committee** analyzes policy, regulations and guidance relating to the transportation of oil, natural gas and the products derived from these critical resources, as well as other transportation and infrastructure issues that may arise.
Chair: John Hack, Marathon Petroleum Corporation
AFPM Secretary: Rob Benedict

The **Operational Planning Control & Automation Technologies Committee** focuses on sharing practical experience with the application management and integration of computing technology in areas including process control and automation, modeling, real-time optimization and Internet-based applications.
Chair: Tracy Sadowski, Monroe Energy, LLC
AFPM Secretary: Tanya Cooper

The **Petrochemical Committee** advises the AFPM Board and staff on current issues of importance to the petrochemical industry.
Chair: Justine Smith, Chevron Phillips Chemical
AFPM Secretary: Rob Benedict

The **Petrochemical Statistics Subcommittee** advises and assists the Petrochemical Committee and AFPM staff on matters pertaining to the collection and dissemination of statistics on petrochemicals, including trade, production and inventories.
Chair: Barbara Padron, CITGO Petroleum Corporation
AFPM Secretary: Rose Sabijon

Standing Committees and Working Groups

continued

The **Reliability & Maintenance Committee** provides information and advice on issues related to process plant reliability, maintenance practices, mechanical integrity and workforce issues. The Committee promotes the exchange of technical information and proven practices on reliability, maintenance, inspection, procurement, project engineering and turnarounds through the AFPM Summit.

Chair: Gerard Celestine, Motiva Enterprises, LLC
AFPM Secretary: Tanya Cooper

The **Security Committee** provides a forum for the exchange of information among the membership on security-related issues within the petroleum refining and petrochemical manufacturing industries.

Chair: Alfonso Cavazos, INEOS Olefins & Polymers USA, LLC
AFPM Secretary: Jeff Gunnulfsen

The **State & Local Outreach Committee's** purpose is to discuss state-level legislative and regulatory issues of importance to AFPM's refining and petrochemical members. The Committee will advocate for AFPM policies at the state and local levels, as directed by the Issues Committee.

Chair: Stephen Konig, Marathon Petroleum Corporation
AFPM Secretary: Don Thoren

The **Sustainability Process Technology Committee** supports industry's growth and sustainability goals by promoting new emerging technologies, providing updated market and regulatory outlooks and shares good practices in engineering and operations of new and retrofit renewable processing units.

Chair: Jeffrey Sexton, Marathon Petroleum Corporation
AFPM Secretary: Gordon Robertson

The **Sustainability Working Group** provides a forum for discussing how the fuel and petrochemical industries are advancing sustainability today and contributing to a sustainable future through environmental stewardship, the advancement of health and safety, helping people and communities thrive, and driving progress both within our industries and in sectors across the economy.

AFPM Secretary: Jaime Zarraby

The **Tax Policy Committee** provides analysis and recommendations on tax-related legislation and engages in regulatory matters at the U.S. Treasury Department and Internal Revenue Service.

Chair: Nicole Busey, Marathon Petroleum Corporation
AFPM Secretary: Geoff Moody

The **Women in Industry Working Group** focuses on empowering women in our industry by helping them develop professional goals, create networking and mentoring opportunities and provides training and skills development. Members take advantage of opportunities to learn from industry leaders, engage and connect.

AFPM Secretary: Latoya Britt

The **Workforce Development Network** directs and supports AFPM's Workforce Development Program. This network serves as a conduit for members and regional partners to share good practices and explore outreach opportunities to deliver the diverse and qualified workforce needed for the future.

AFPM Secretary: Julia Kramer

The **Safety & Health Committee** provides a forum for members to exchange views and share occupational and process safety best practices and developments in safety related legislation and regulation.

Chair: George Shawver, Valero Energy Corporation
AFPM Secretary: Jonathon Draper

The **Industrial Hygiene Subcommittee** provides a forum for the exchange of information on industrial hygiene, regulatory and legislative trends and developments, as well as other matters concerning industrial hygiene standards and practice.

Chair: Jason McGowan, HF Sinclair
AFPM Secretary: Jonathon Draper

The **Occupational Safety Regional Network Leadership Subgroup** reports to the Safety & Health Committee on the AFPM occupational safety regional networks. In addition, the Subgroup highlights practices for inclusion in the Practice Sharing Program, topics for the National Safety Conference and provides review for the Safety Innovation Award.

Chair: Kendra Richins, Phillips 66
AFPM Secretary: Donita Gray

Occupational Safety Regional Networks

Central States Regional Network

Chair: Zachary Zmoos, HF Sinclair Corporation

East Coast/Mid-West Regional Network

Chair: Keith Dempsey, PBF Energy Inc.

Eastern Gulf Coast Regional Network

Chair: Alan Parker, Ergon, Inc.

Pacific Coast Regional Network

Chair: Casey Woods, Valero Energy Corporation

Rocky Mountain Regional Network

Chair: Jeffery Chance, HF Sinclair Corporation

Texas Gulf Coast Network

Chair: Eric Roberts, Motiva Enterprises LLC

The **Hydrofluoric Acid Alkylation Safety Networks** provide a forum for the sharing of non-competitive topics between first and second-line supervisors in HF Alkylation Units. Topics focus on unit safety, personal and process safety, corrosion, inspection practices, material and equipment reliability as it pertains to safety, industry incidents, mitigation systems and interpretation and use of API RP-751.

AFPM Secretary: Gordon Robertson

The **Mechanical Integrity Networks** program was developed by AFPM to provide site inspection professionals from the petroleum refining and petrochemical industries a noncompetitive forum to exchange ideas to improve safety. The primary goal of the program is to strive for continuously improving industrywide mechanical integrity excellence, meet to discuss industry events, lessons learned, industry standards, regulatory challenges, practices from member sites and AFPM-published documents such as Hazard ID, Practice Share and Safety Bulletins.

AFPM Secretary: Duane McLarty

The **Process Safety Advisory Group** (PSAG) provides leadership, support and guidance to Advancing Process Safety (APS) programs in an effort to promote process safety performance excellence across the Association's memberships.

Chair: Brook Vickery, Flint Hills Resources, LP

AFPM Secretary: Lara Swett

The **Process Safety Workgroup** is responsible for implementing the direction and vision of the Process Safety Advisory Group by providing oversight and direction to the Advancing Process Safety Programs.

Chair: George Edwards, Koch Companies Public Sector, LLC
AFPM Secretary: Jasmine Beasley

Hazard Identification and Practice Sharing

Chair: Justin Collins, Motiva Enterprises LLC

AFPM Secretary: Jasmine Beasley

Industry Learning and Outreach

Chair: Marc Sexton, Koch Company Services

AFPM Secretary: Mawusi Bridges

The **Regional Network Program** provides opportunities for site-level practitioners to network, share events, learnings and good practices with each other in a non-competitive environment and in a variety of disciplines.

Chair: Samantha Garner, Ergon, Inc.

AFPM Secretary: Tanisha Hurey

Central States Regional Network

Chair: Maury Hoefer, CHS Inc.

East Coast Regional Network

Chair: Eric Cuvo, AdvanSix

Eastern Gulf Coast Regional Network

Chair: Lindsey Grantland, Hunt Refining Company

Mid-West Regional Network

Chair: Matt Wuebben, Marathon Petroleum Corporation

Rocky Mountain Regional Network

Chair: Rebecca Lipp, Marathon Petroleum Corporation

Texas Gulf Coast Regional Network

Chair: Alecia Cavender, Marathon Petroleum Corporation

Walk the Line Subgroup

Chair: Lawrence Moreaux, LyondellBasell Industries

AFPM Secretary: Mawusi Bridges

2023 Industry Meetings

Our live events are thoughtfully designed to provide state-of-the-industry information in a dynamic and interactive format, encouraging connections between attendees, presenters and exhibitors.

Annual Meeting
Grand Hyatt
San Antonio, TX
March 19 - 21, 2023

Security Conference
Westin Riverwalk
San Antonio, TX
April 13 - 14, 2023

AFPM Summit
Gaylord Texan
Grapevine, TX
October 3 - 5, 2023

International Petrochemical Conference
Grand Hyatt
San Antonio, TX
March 26 - 28, 2023

National Occupational & Process Safety Conference & Exhibition
Sheraton New Orleans
New Orleans, LA
April 17 - 19, 2023

Environmental Conference
Westin Riverwalk
San Antonio, TX
October 15 - 17, 2023

Labor Relations / Human Resources Conference
Westin Riverwalk
San Antonio, TX
April 11 - 12, 2023

For more information, visit www.afpm.org/events

“AFPM brings members together to share best practices and discuss solutions as an industry. Attending meetings in-person is so important because of the opportunity to network and build relationships with some of the most forward-thinking minds in petrochemicals.”

— Justine Smith
Senior Vice President, Petrochemicals
Chevron Phillips Chemical



Endnotes

- 1 Energy Information Administration (EIA) Refinery Yield
- 2 AFPM Analysis of EIA data
- 3 AFPM Analysis of EIA data
- 4 EIA
- 5 EIA
- 6 AFPM Analysis of EIA data
- 7 AFPM Analysis of Industrial Info Resources (IIR)
- 8 S&P Global Commodity Insights
- 9 S&P Global Commodity Insights
- 10 S&P Global Commodity Insights
- 11 IIR
- 12 S&P Global Commodity Insights
- 13 S&P Global Commodity Insights
- 14 U.S. Bureau of Transportation Statistics (BTS)
- 15 U.S. Environmental Protection Agency (EPA)
- 16 U.N. Intergovernmental Panel of Climate Change
- 17 U.S. EPA
- 18 McKensey & Company
- 19 Bureau of Labor Statistics
- 20 AFPM
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