



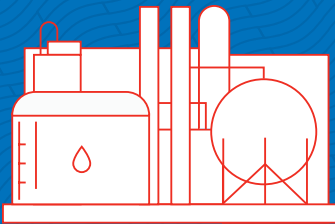
Driving Progress

2024 Annual Report

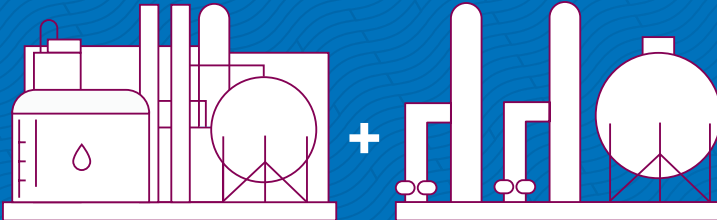


U.S. Refineries and Petrochemical Facilities

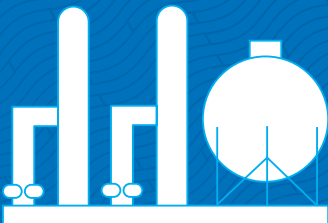
There are **129 operable refineries** and **366 petrochemical manufacturing units** in the United States.



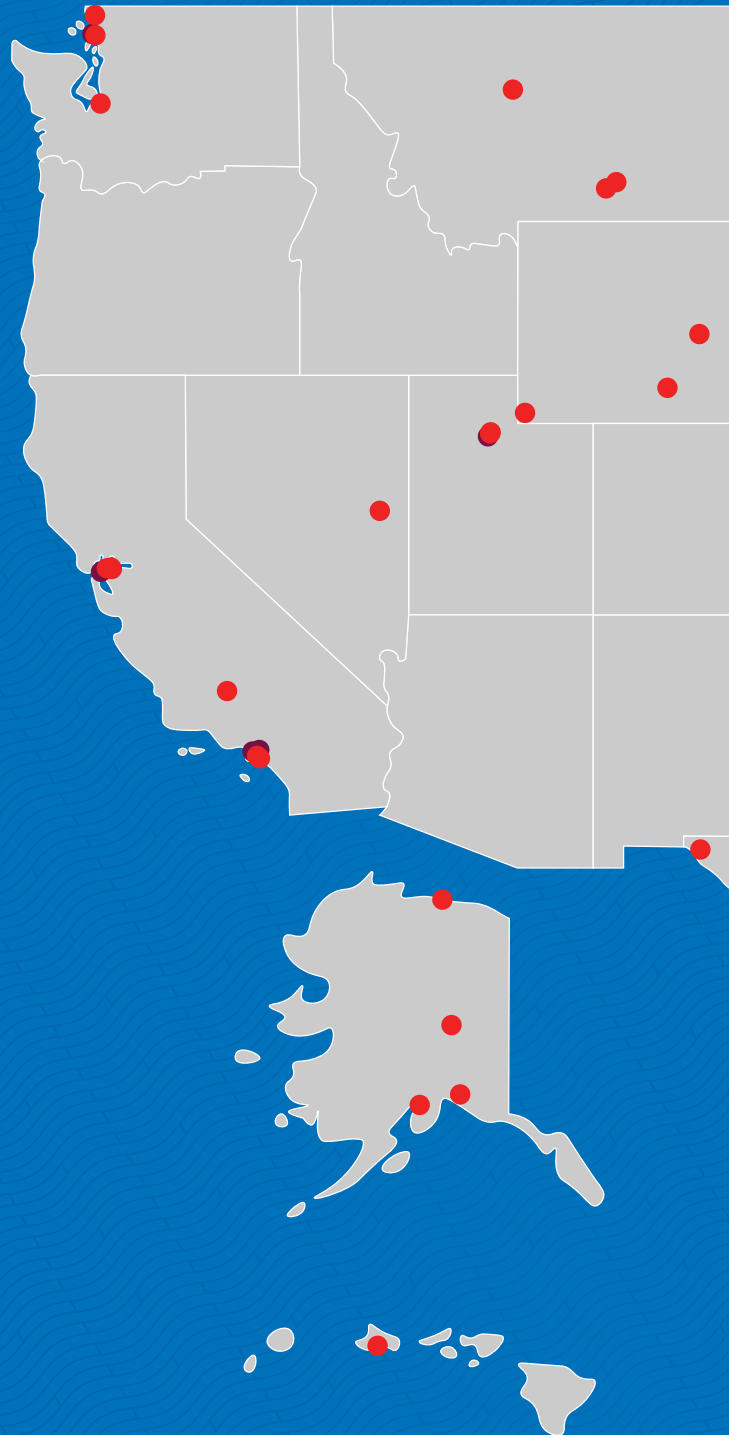
- **74** refineries produce gasoline, diesel, jet fuel and other products



- **55** refineries produce gasoline and other fuels, and produce base petrochemicals at **212** petrochemical units colocated with the refineries



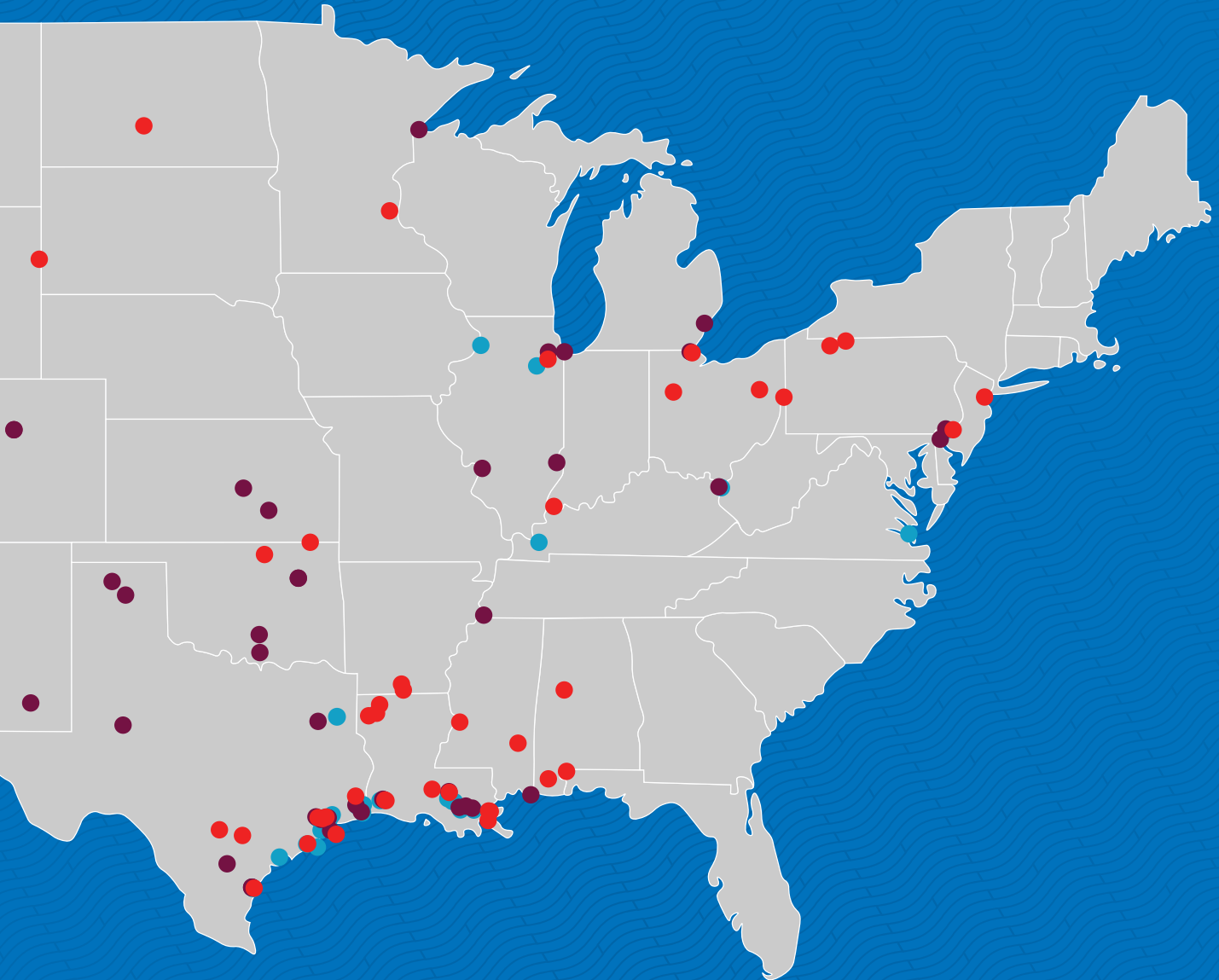
- **154** standalone petrochemical units produce base petrochemicals



"Our refiners and petrochemical manufacturers have been around for more than 100 years, and we will be here for 100 more. We will continue to drive progress through innovation, produce ever cleaner products, in increasingly sustainable and safer ways.

Our facilities and our midstream network are invaluable assets to our country, fundamental to our energy security and that of our allies. And we are essential to enabling economies and societies across the world to thrive."

— Chet Thompson, President and CEO
American Fuel & Petrochemical Manufacturers





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

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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.



13 Petrochemical

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



21 Midstream

The midstream sector includes the companies that transport feedstocks into refining and petrochemical facilities and end products out to the market.



27 Environmental Stewardship

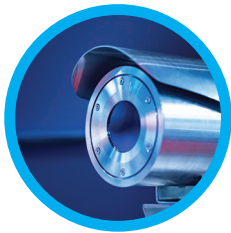
The U.S. refining, petrochemical and midstream sectors are actively working to reduce emissions, conserve water and energy, reduce waste and preserve the lands and ecosystems that surround them.



37 Health & 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.

building blocks for modern life and the midstream companies that transport our feedstocks and products where they need to go. We make products that make life better, safer and more sustainable.



45 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.



51 Economic Development

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



57 Community Engagement

Refining and petrochemical companies contribute in many ways to provide the best standard of living to our workers, their families and our surrounding communities.



61 Policies and Principles

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



67 Board, Members and Resources

Listings of AFPM Board of Directors, Executive Committee, AFPM Members, Committees, Subcommittees and Working Groups.

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

The U.S. refining and petrochemical industries are critical assets to our country. Our nation's 129 refineries produce the fuels that reliably get us where we need to go, when we need to get there. They fuel the global economy and increase our energy security. Our petrochemical facilities produce petrochemicals that are the building blocks of our modern life. They are foundational to industries like healthcare, technology, renewable energy and transportation, and they make thousands of products better, stronger, safer, and more readily available for people here in the United States and around the world.

Last year, and for the second year in a row, U.S. refiners ran at more than 90% utilization and produced more than 270 billion gallons of refined product, putting nearly all their capacity to use to keep Americans moving and our allies fueled. U.S. petrochemical manufacturers did the same, ramping up production of ethylene and propylene—two of the most important chemicals in the world—accounting for about 20% of global production and positioning the United States as a key supplier of both products.

Our position as world leaders in liquid fuel and petrochemical production is not only an advantage globally, these industries are critical to the health of our economy and the communities where we operate. Put together, the U.S. refining and petrochemical industries contributed more than \$800 billion to the U.S. economy in 2023 and supported more than 3 million jobs—high-paying, family-supporting jobs for people of diverse backgrounds and skill sets. The companies in our industries also care deeply about the well-being of their communities—donating time and resources, contributing to the improvement of health and education, providing access to resources for small businesses, volunteering to support our troops and first responders, and so much more.

These industries are not standing still. They continue to evolve and work toward addressing our most pressing challenges. They are investing in technologies and processes to improve environmental performance and reduce emissions

by deploying carbon capture, utilization and sequestration, and lower-carbon hydrogen. Our refiners are making record investments in lower carbon-intensity fuels like renewable diesel, sustainable aviation fuel, renewable natural gas and renewable gasoline. Our petrochemical manufacturers are continuing to scale recycling technologies, including advanced recycling that can give the hardest-to-recycle products new life and create new opportunities to re-use plastics. They are doing all of this while maintaining and delivering on their commitment to safety and maintaining their position among the safest of all of the manufacturing industries tracked by the federal government.

Within the pages of this report, you will find myriad reasons these industries are essential to our economy, our national security, our global competitiveness and our communities. With our global population anticipated to grow by nearly 1 billion in the next decade, the U.S. refining and petrochemical industries are well-positioned to meet demand for their products and services safely and more sustainably than ever before.



Mike J. Hennigan

Mike Hennigan
AFPM Chairman of the Board

Chief Executive Officer
Marathon Petroleum
Corporation



Chet M. Thompson

Chet M. Thompson
President and CEO

American
Fuel & Petrochemical
Manufacturers

Refining

The background is a solid blue color with a subtle, repeating pattern of fine, wavy lines. Overlaid on this are several thick, curved bands of a slightly darker shade of blue, creating a sense of depth and movement. The word "Refining" is positioned in the upper left quadrant in a large, white, sans-serif font.

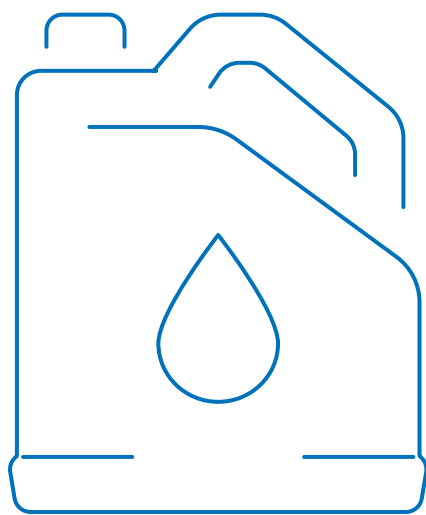
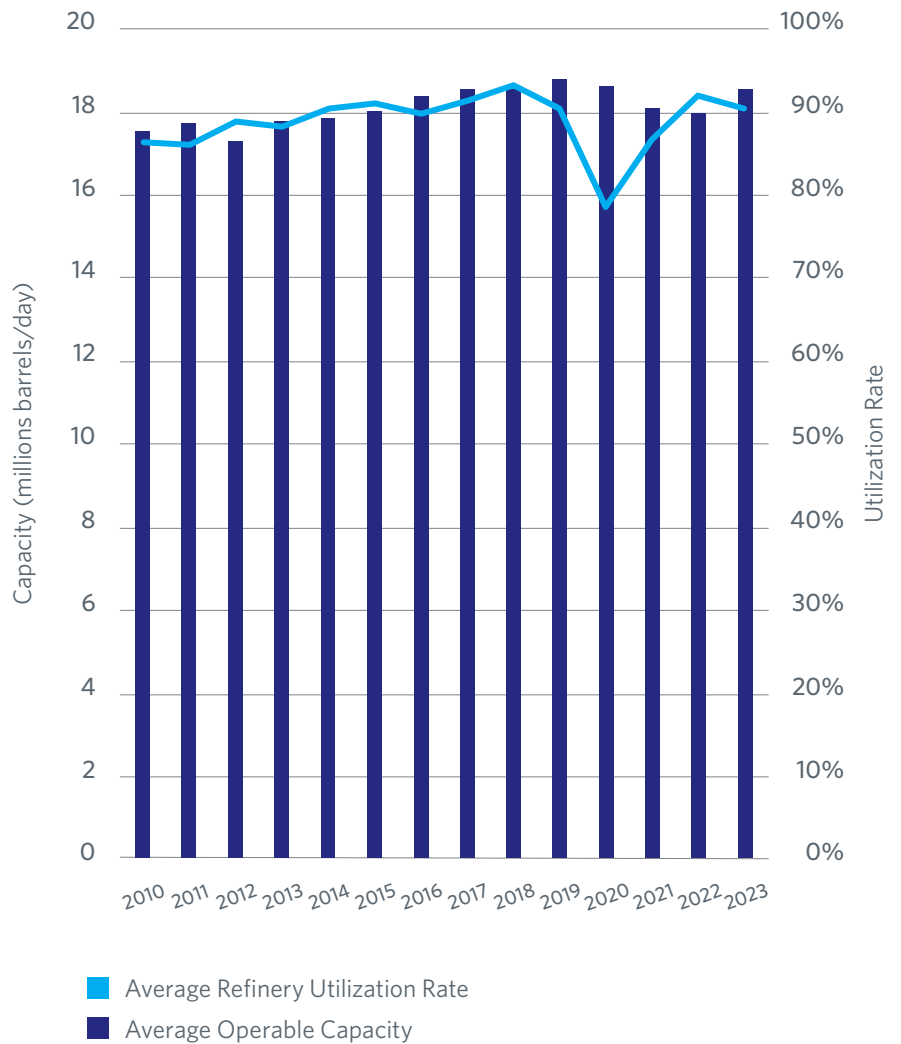
Refining

For more than 150 years, the petroleum refining industry has transformed the way we live—fueling our trips to work and school, keeping us warm in the winter, moving our goods around the world and providing the United States with unparalleled energy security. This sector is a source of strength and security and will continue to supply the world with the energy it needs to thrive. The U.S. Energy Information Administration (EIA)¹ and the International Energy Agency (IEA)² both expect strong demand to continue for decades to come.

Meeting Global Demand for Liquid Fuels

U.S. refineries produced more than 270 billion gallons of refined product in 2023, more than enough to meet U.S. demand and supply the growing global market for refined products. In 2023, the U.S. exported more than 90 billion gallons of gasoline, diesel, jet fuel and other refined products to more than 100 countries, including Mexico and countries primarily in Europe, and Central and South America, making a significant positive contribution to the U.S. balance of trade.

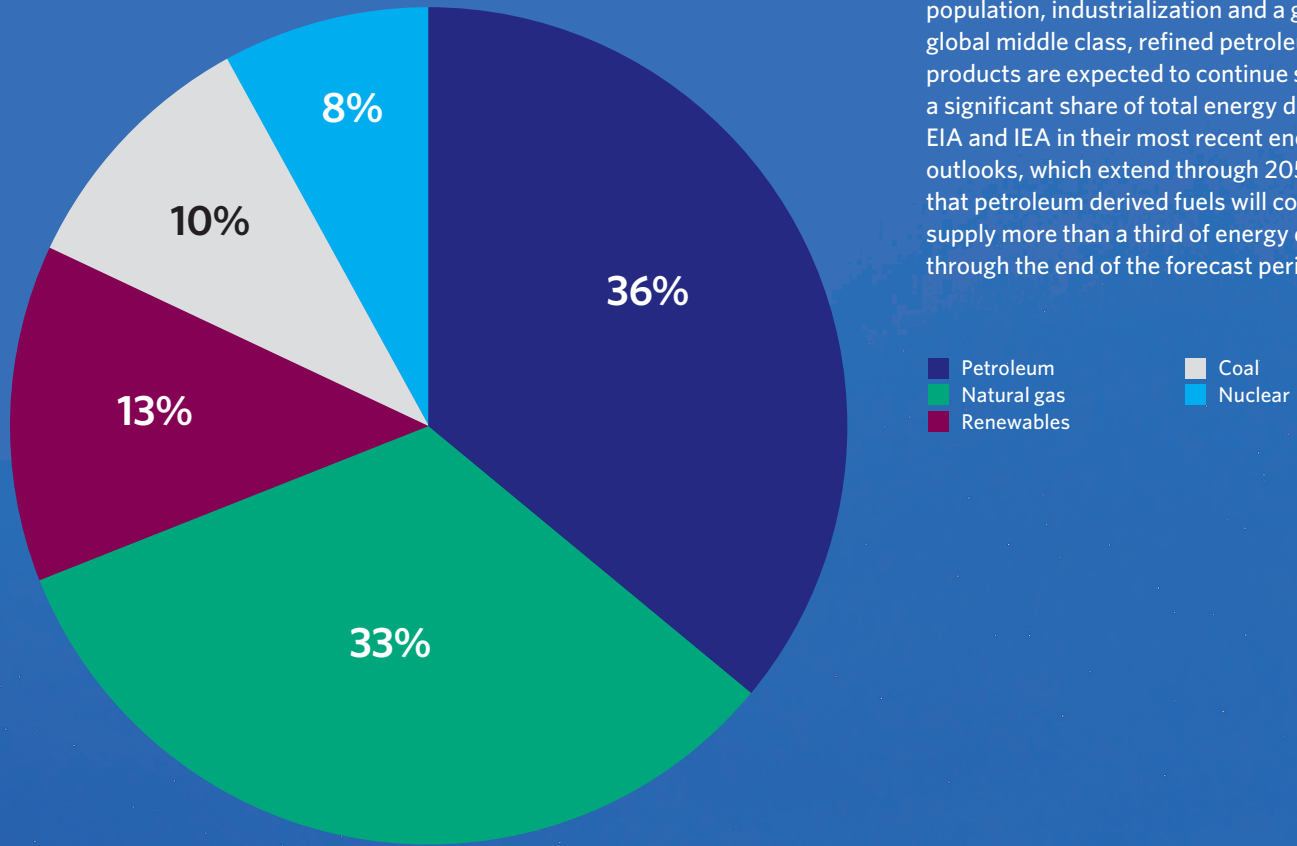
U.S. Refinery Utilization³



270 Billion Gallons

U.S. refineries produced more than **270 billion gallons** of refined product in 2023, more than enough to meet U.S. demand and supply the growing global market for refined products.

U.S. Primary Energy Consumption by Major Sources, 2022⁴

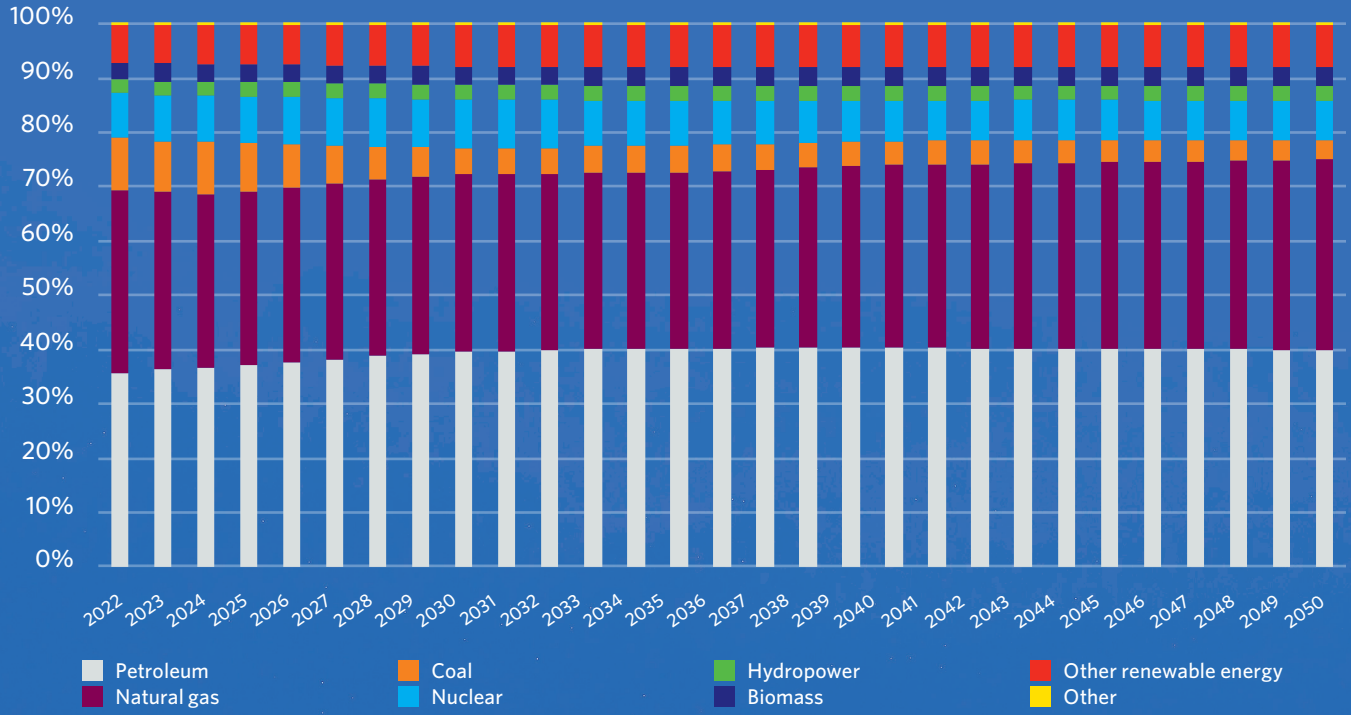


As demand for energy in the United States and around the world continues to increase, driven by economic growth, increases in population, industrialization and a growing global middle class, refined petroleum products are expected to continue supplying a significant share of total energy demand. EIA and IEA in their most recent energy outlooks, which extend through 2050, project that petroleum derived fuels will continue to supply more than a third of energy demand through the end of the forecast period.

Petroleum-derived products such as gasoline, diesel, home heating oil and jet fuel supplied 36% of the United States' energy demand in 2022, more than any other single energy source.



U.S. Energy Consumption by Source⁵



Investing in Our Future

Petroleum refining is a capital-intensive industry and petroleum refiners have one of the highest investment shares of the Gross Domestic Product (GDP) of any major manufacturing industry. U.S. refineries recently invested \$12.5 billion⁶ to maintain, upgrade and expand petroleum refining operations. This included converting and expanding operations to meet the growing demand for lower-carbon fuels, including renewable diesel, renewable gasoline, sustainable aviation fuel (SAF), hydrogen and renewable natural gas.

Renewable diesel:

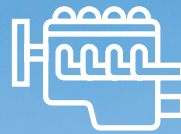
Made from renewable feedstocks



Upwards of 80% reduction in lifecycle GHG emissions



100% compatible with existing engines



Investing in Lower Carbon Intensity Fuels

U.S. refiners are achieving lifecycle greenhouse gas (GHG) emission reductions through investing and scaling the production of alternative fuels including renewable diesel, biodiesel, SAF and renewable natural gas, among other lower carbon intensity fuels. In fact, at the end of 2023,⁷ U.S. refiners owned 90% of U.S. renewable diesel production capacity.



Did you know?

Renewable diesel can be made from a variety of feedstocks, including vegetable oils (like soy or canola), animal fats and used cooking oil. Last year, U.S. renewable diesel capacity increased to more than four million gallons per year. The benefits of renewable diesel include reducing lifecycle GHG emissions by up to 80%—depending on the feedstock, processing technology and energy inputs—and being used as a “drop-in” fuel that allows consumers to keep their current cars and trucks.

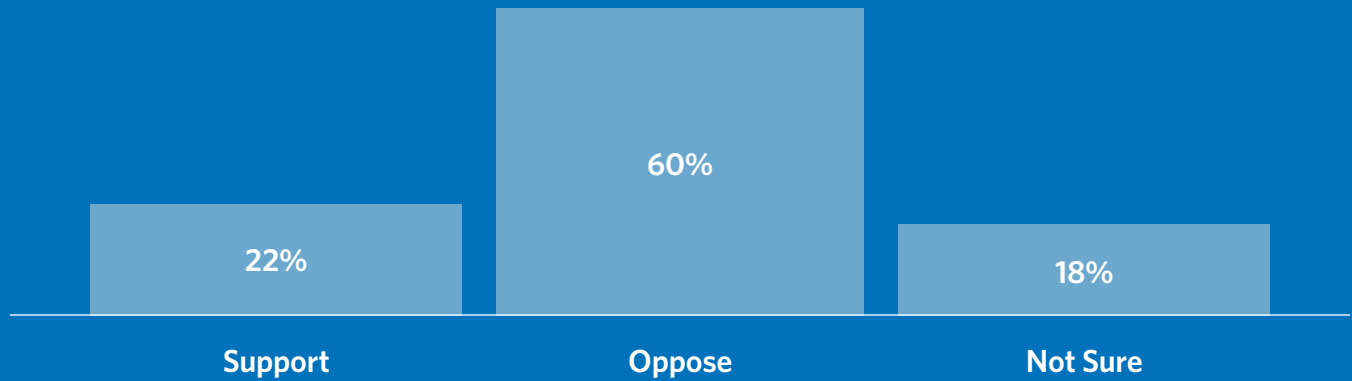


A Majority of American Voters Oppose Gas-Power Vehicle Bans

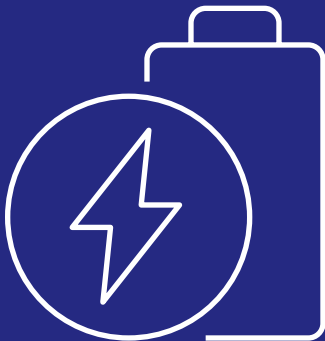
The world needs more energy and increasingly diverse mobility options, including electric vehicles, internal combustion engine (ICE) vehicles and hybrids. Unfortunately, the Biden administration and leaders in states like California are driving forward policies to ban or effectively ban new sales of ICE vehicles—the cars and trucks most Americans drive today—in an effort to force a market for electric vehicles. In addition to being unpopular among Americans, these types of policies will leave consumers with fewer vehicle options, increase costs for taxpayers and electricity users, and sacrifice U.S. energy security to dependence on China.



Would you support or oppose a government mandate that by the year 2032 requires 70% of new cars sold in the U.S. to be electric instead of gas-powered, amounting to a de facto ban on internal combustion engines in less than 10 years?



Americans strongly oppose government bans, mandates and restrictions on gas-powered vehicles. A national survey fielded among more than 1,000 likely general election voters shows six out of 10 Americans (60%), oppose the Environmental Protection Agency’s (EPA’s) proposal to require roughly 70% of new cars to be electric by 2032.



Did you know?

China has more electric vehicle battery capacity than the rest of the world. Currently, up to 90% of the EV battery supply chain relies on China.⁸

Petrochemicals

The background is a vibrant teal color with a subtle, repeating pattern of wavy lines. Overlaid on this are several thick, curved bands of a slightly darker shade of teal, creating a sense of depth and movement. The overall aesthetic is modern and industrial.

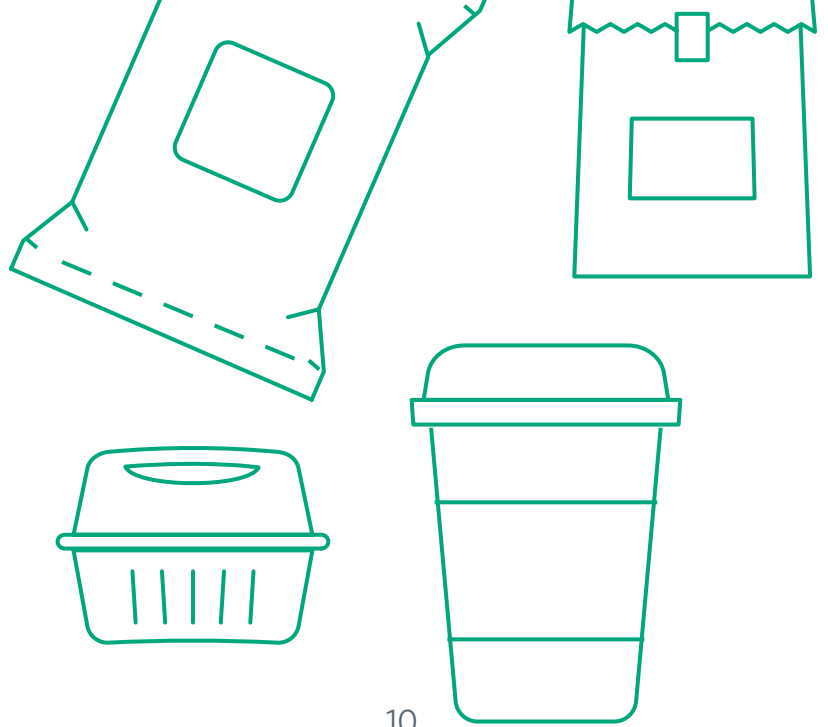
Petrochemicals

For more than 150 years, chemists and chemical engineers have turned hydrocarbons from oil and natural gas into other products including petrochemicals. The six base petrochemicals—ethylene, propylene, butylene, benzene, toluene and xylene—are crucial components of myriad products that make our modern life possible.

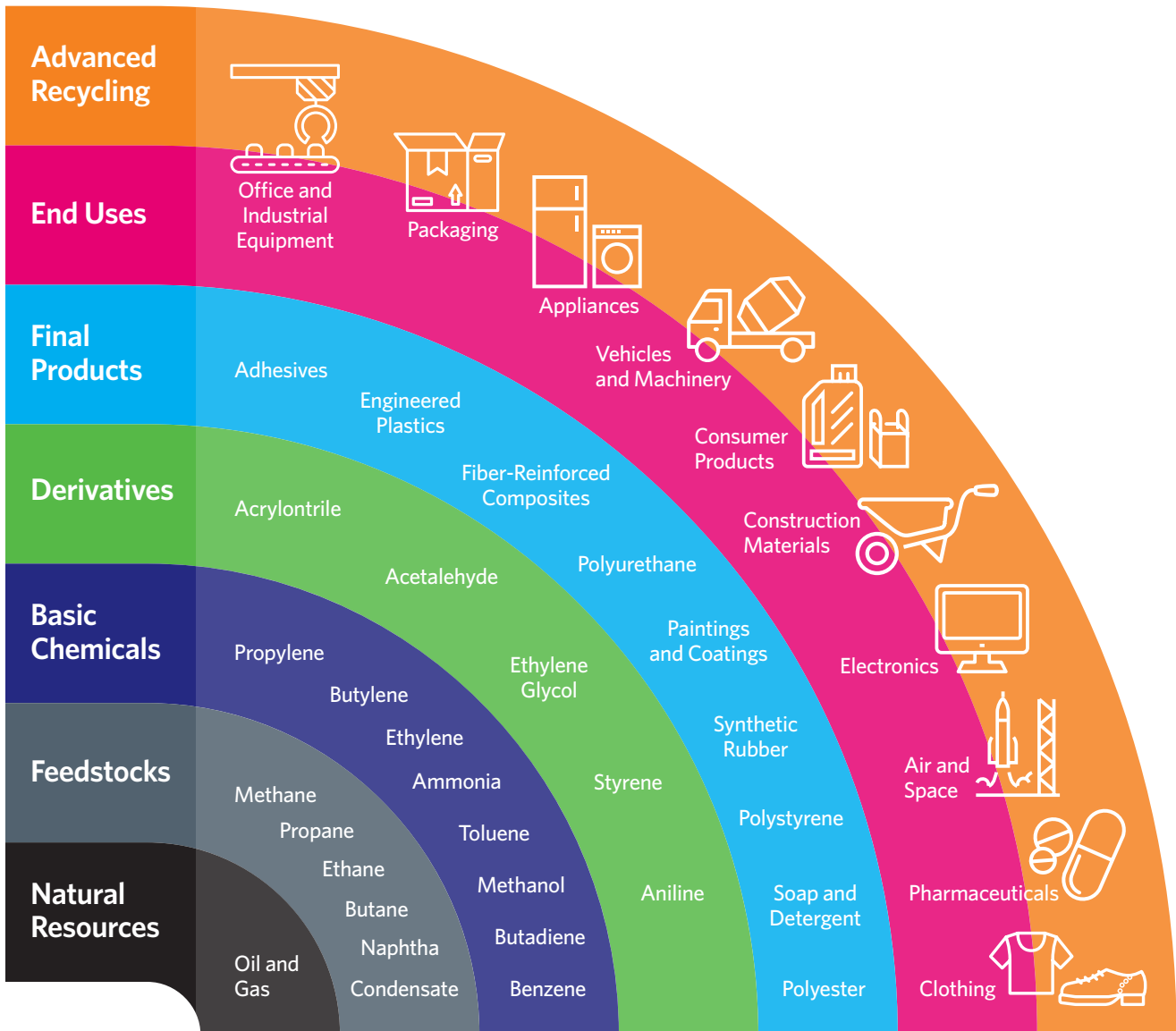


Making a Difference in Our Lives

The unique properties of petrochemicals are difference-makers in thousands of products we use every day. They make wind turbines stronger, cars safer, jet airplanes lighter, agriculture more productive and cell phones smaller. And they are critical to the technologies and products that are helping to address some of the world's biggest challenges from reducing GHG emissions to increasing access to clean water and keeping food fresh longer, among others. For example, 1.5 grams of plastic film around a cucumber will extend the shelf life of that cucumber from three days to up to 17 days.⁹



The Flow Chart of Petrochemicals



Meeting Petrochemical Demand

Ethylene and propylene are the two most in-demand petrochemicals in the world and go into making many items we use daily including appliances, detergents and clothing. They are also the two most important petrochemical feedstocks produced in the United States.

U.S. ethylene production capacity totaled 45 million metric tons, or 20%¹¹ of the total world production capacity last year. U.S. ethylene production totaled 37 million metric tons, or 21%,¹² of global production. Total U.S. production of ethylene is expected to grow 8% in the next five years.

The United States is also a key supplier of propylene. In 2023, U.S. propylene production capacity totaled 23 million metric tons, or 14%,¹³ of the total world production capacity. U.S. propylene production was 14 million metric tons, or 12%,¹⁴ global production last year and is expected to grow 6% in the next five years.



Supplying a Growing World

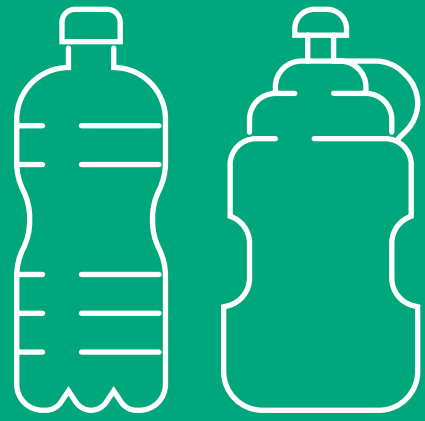
Global petrochemical demand is expected to grow over the next decade as more people around the world move into the middle class and need access to consumer goods, new infrastructure, construction materials and transportation options, for example.

U.S. petrochemical manufacturers are well-positioned to meet this demand due to growing capacity and access to cost-effective feedstocks, primarily ethane. This advantage results in lower production costs that allow the industry to be globally competitive now and for the foreseeable future.

In 2023, net exports of ethylene from the United States totaled 1.2 million metric tons¹⁵ and supplied Europe, China, India, Africa, Mexico and Central and South America. Ethylene exports are expected to increase as U.S. terminal capacity grows to more than two million metric tons per year by 2025.¹⁶ Propylene exports were also significant, totaling more than half a million metric tons last year, and primarily supplied countries in Europe, Asia and South America.

Did you know?

Circularity is a system where materials are regenerated, not wasted. In the case of plastic, it is kept in circulation or used through processes including reuse, recycling and compost. Today, plastics circularity investments in the United States total \$64.8 billion.¹⁷



Advancing a More Circular Economy for Plastics

Plastics derived from petrochemicals enable incredible things in our lives—it is impossible to imagine a modern hospital, grocery store, school or workplace without them. They are light, durable, energy efficient, and are responsible for less GHG emissions throughout their lifecycle than alternative materials. It's essential, though, that these products be re-used, recycled and recovered correctly.

That is why U.S. petrochemical manufacturers are heavily invested in efforts to create a more circular economy for plastics. This includes investments in mechanical and advanced recycling. It also includes helping to create better systems for collecting post-consumer plastics to provide sufficient quality feedstocks for scaling advanced recycling operations. Together, these efforts will reduce plastic waste, and have the potential to transform the recycling industry and significantly increase recycling rates.

Mismanagement of Plastic Waste Requires Multiple Solutions

Mechanical and advanced recycling work together as a complimentary approach to tackling plastic waste in a meaningful and effective way.



mechanical recycling

melts & re-molds discarded plastic to form new products

opportunities
easier to process

considerations
limited types of used plastic can be recycled. degradation of polymers



used plastic



advanced recycling

uses heat and/or chemistry to break down polymers to its building blocks or feedstocks for new plastic

opportunities
wider variety of plastics can be recovered and recycled into high-performance applications

considerations
more complex process and requires high energy



used plastic



Recycling Technologies

Traditional, **mechanical recycling** systems take used plastic products, sort them by type, grind, wash and then re-melt them into new plastic. This process does not break the polymers' chemical bonds. Mechanical recycling enables various common products to be made from recycled content, but has limitations—for example, not all plastic products can be used in the process, and others can only be recycled a handful of times before key properties, like strength, diminish.

Advanced recycling (also called chemical or molecular recycling) takes a different approach. Using heat or chemicals, advanced recycling breaks down used plastic all the way to its smallest chemical components, called monomers. The result is a product that is identical to brand-new plastic that can then be transformed into thousands of consumer products without any compromise in strength or quality. Moreover, this process can be repeated multiple times without any impact on quality, enabling manufacturers to expand the boundaries of how, and where, recycled plastics are used.

gets sorted by type and deep-cleaned

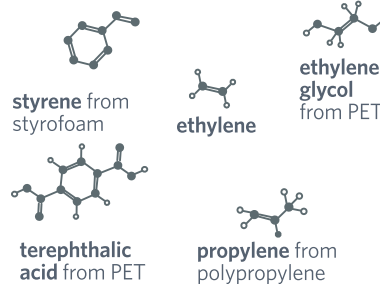


melted down and turned into things like

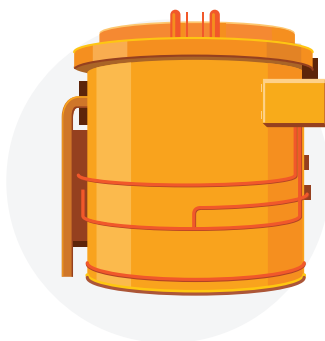


shredded into a million pieces

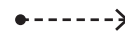
gets deep cleaned and heated with no oxygen, through a process called pyrolysis—one of many advanced recycling processes



which become the building blocks for brand new plastics like



and breaks apart at the weakest point



Working on Global Solutions to Reduce Plastic Waste in the Environment

AFPM members are committed to developing a global agreement that helps end plastic pollution, unlocks innovation and accelerates a global transition to a circular economy. As an accredited Non-governmental

Organization by the United Nations (UN) Environmental Program, AFPM has participated in a series of negotiations aimed at developing a global agreement on plastics pollution by the end of 2024. We are committed to helping to meet the agreement's goals of eliminating plastic pollution, while also recognizing the tremendous societal benefits of plastics.

Together we can achieve these goals, but we must have policies that unlock innovation across the plastics value chain and do not stifle it. Measures must include enabling policies to develop a circular economy and global guidance, with industry input, on product design, recycled content and optimizing resources. Production caps on plastics are not viable solutions to combating plastic pollution. Limiting production would deprive society of plastics' benefits, slow progress toward the UN's Sustainable Development Goals and negatively impact numerous supply chains, all while ignoring waste management issues that result in plastic pollution.

Instead of bans, solutions should focus on promoting sustainable consumption and production, fostering the development of well-designed plastic products that enable waste minimization and, most importantly, creating universal access to collection and environmentally sound waste management, which is a key step toward circularity. Without this access pollution will continue and the supply of feedstocks critical to circularity will not be realized. Improved waste management is foundational to reducing plastic pollution and achieving circularity. To eliminate plastic pollution, it is essential to create a circular economy in which used plastics are no longer perceived as waste but as feedstocks for recycling.

It is also important that nations are given the flexibility needed to address their unique plastic waste challenges using National Action Plans supplemented by global standards and metrics. This would allow each nation to develop regionally appropriate and effective strategies to best eliminate plastic waste leakage based on their local circumstances.

If waste is properly managed or recycled and kept out of the environment, the goals of the proposed UN agreement can be met. AFPM and our members will continue to work toward that goal.

"Think about all the benefits that plastics bring to our everyday lives. Plastics help preserve our food, plastics help protect against bacteria, plastics help to lightweight things so that we are more efficient from a fuel efficiency perspective. Plastics are critical to achieving sustainability goals. When you think about having a sustainable food supply, when you think about having energy-efficient transportation, plastics are part of that."

— Michelle Salim
Advanced Recycling Program Manager,
ExxonMobil



Midstream

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Midstream

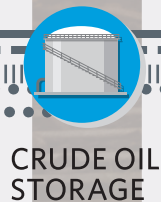
The midstream sector serves as the backbone of America. This integrated system of railroads, pipelines, ports, waterways, highways and storage facilities are essential to our daily lives. AFPM midstream member companies reliably and safely transport feedstocks, like oil and natural gas, into and out of our refining and petrochemical facilities and out into the market and are an important part of the product supply chain. They are committed to the safety of their equipment and the protection of the environment, and constantly invest to ensure their continued reliability.



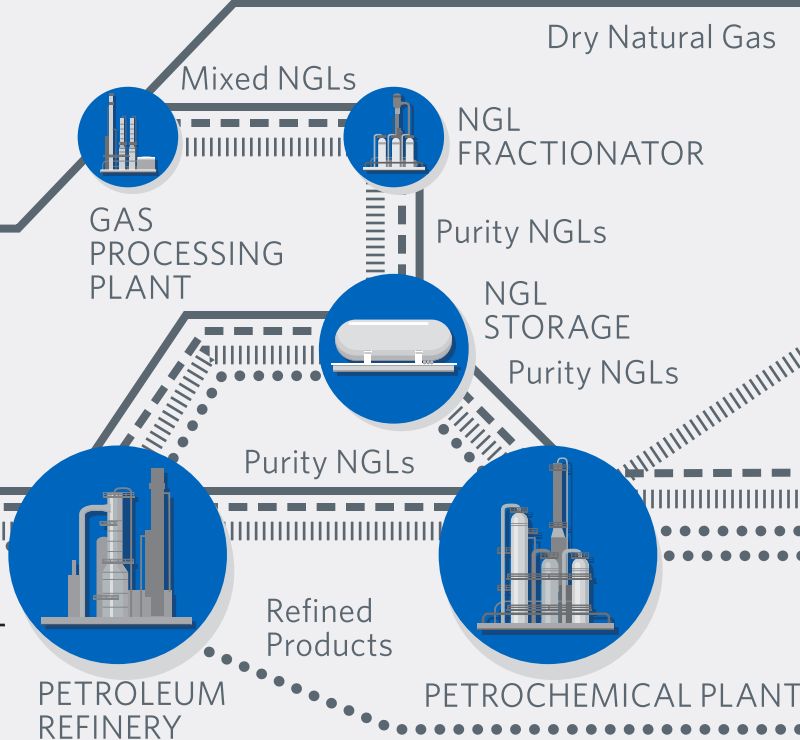
Midstream Infrastructure

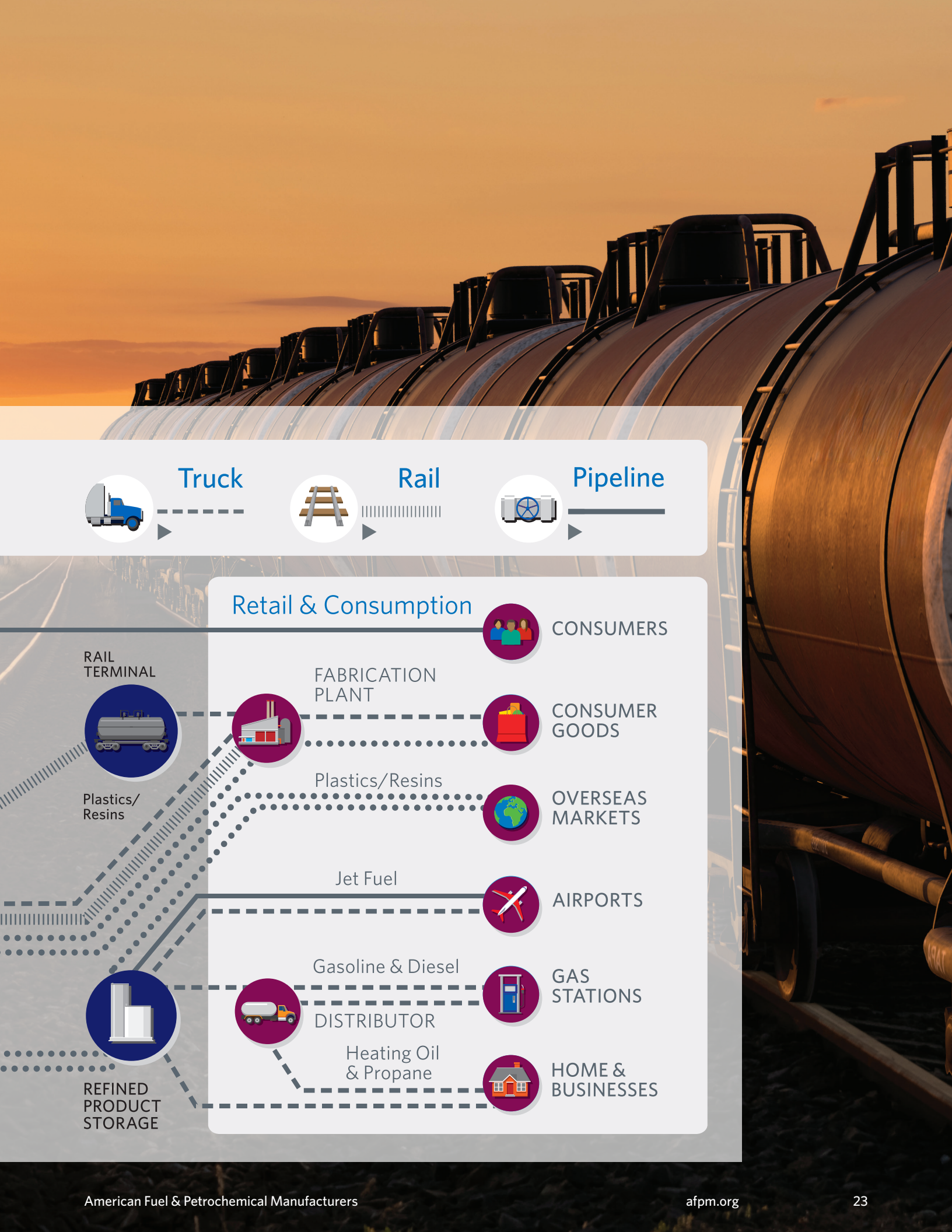


Upstream Production



Downstream Manufacturing





Truck



Rail



Pipeline

Retail & Consumption

RAIL TERMINAL



Plastics/Resins



FABRICATION PLANT

Plastics/Resins



CONSUMERS



CONSUMER GOODS



OVERSEAS MARKETS



AIRPORTS



GAS STATIONS



HOME & BUSINESSES

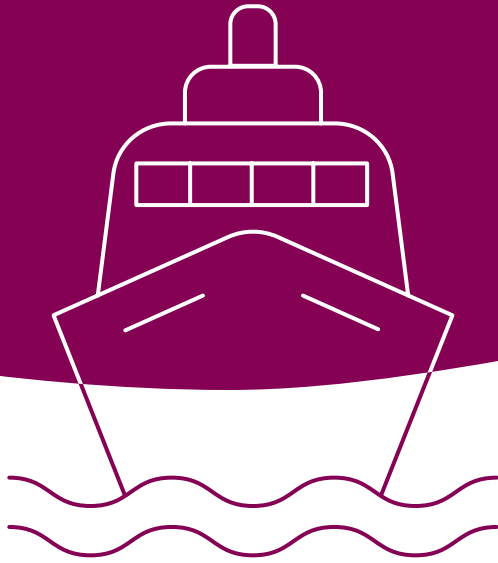
Jet Fuel

Gasoline & Diesel

DISTRIBUTOR

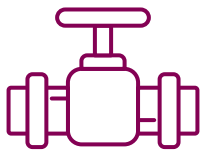
Heating Oil & Propane

REFINED PRODUCT STORAGE



Did you know?

The midstream sector connects the upstream and downstream sectors by transporting, storing and distributing crude oil, natural gas and other energy products. Midstream includes all infrastructure needed to move these products and includes pipelines, rail, trucks and ships.



Pipelines

Pipeline — 2.6 million miles¹⁸ of crude oil, natural gas liquids (NGLs) and refined product pipelines move raw materials from production areas to refineries and petrochemical plants and finished products to consumers.



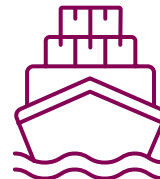
Railroads

Rail — 140,000 miles¹⁹ of railway track and more than 200,000 rail tank cars move crude oil and NGLs from areas not served by pipelines or areas with inadequate pipeline capacity.



Trucking

Truck — Over 164,000 miles²⁰ of highways help to move truck shipments of fuels to retail outlets, businesses and homes.



Water Carriers

Ship — 36,000 miles²¹ of inland waterways and more than 300 ports²² facilitate domestic fuel movements and provide access to global import and export markets.

Moving Products Safely by Pipeline

There are 2.6 million miles of pipeline that make up a transportation system that delivers crude oil, natural gas liquids, petrochemicals and refined products that American consumers, manufacturers and businesses rely on every day. Pipelines are safe, efficient and essential to affordable and reliable energy, energy security and our nation's global competitiveness.

The exceptional safety record of pipelines is the result of a culture that values safety above all, throughout the pipeline lifecycle. This begins with the planning process, where pipeline companies work closely with stakeholders to address environmental 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 to ensure safe and reliable operations.

Working closely with safety officials, local first responders and other community members, pipeline operators have extensive preparedness plans in place, ready to implement in the unlikely event of an incident. In addition, pipelines are highly regulated at the state and federal levels. State and federal regulatory processes guide the construction and safe use of oil and gas pipelines, and ensure the safety of the design, operation, maintenance, and emergency response of oil and gas pipelines and facilities.

Pipelines across the United States are regulated by:



Pipeline and Hazardous Materials Safety Administration is responsible for regulating the safety of design, testing, operation, maintenance, construction and emergency response of U.S. oil and liquids pipelines.



Federal Energy Regulatory Commission is an independent agency that regulates the interstate transmission of oil, natural gas and electricity.



Each state has its own process for the review and permitting of pipelines. States share authority over oil pipeline siting and construction, although companies may also need to apply for additional federal permits.



Various federal regulations also control the permitting of pipelines, including the EPA, the U.S. Fish and Wildlife Service, Army Corps of Engineers, and others.

Calling for Improved Rail Service

Railroads are an important means of transportation for most industries across the United States. Everything from soybeans to gravel to fuel is moved by rail. In the refining and petrochemical industries alone, more than two million carloads of fuel and petrochemical feedstocks and products, including crude oil, natural gas liquids, refined products, petrochemicals and plastics, are transported by rail each year.

Today, this large volume of goods is primarily moved by four large railroads that control 90% of rail traffic in the United States. This lack of rail shipping options has led to service cuts, restrictions, and sometimes embargoes causing shipment delays that disrupt the movement and production of everyday goods and weaken the supply chain.

In addition, the few existing railroads have added dozens of fees—like fuel surcharges, demurrage fees, empty freight fees and diversion charges—significantly increasing the cost to ship products. During the 15-year period from 2004 - 2019, rates increased over 40%.

AFPM advocates for railroads to report service metrics and use reciprocal switching to address insufficient rail service. Reciprocal switching is a practice in railroad operations that allows a shipper to access more than one railroad company for their freight service, even if they are physically served

by only one railroad. This practice involves transferring freight cars from one railroad to another at a nearby junction point, for a compensatory switching fee. This can increase competition, lower costs and improve service quality for shippers. AFPM will continue to urge the policymakers to reintroduce competition in the rail industry on a wide scale—which is the root cause of poor service.

“If the thresholds for railroad performance are set too low, it can be sure the railroads will improve no more than required, incentivized to do ‘just enough’ to avoid reciprocal switching. The Surface Transportation Board must set targets that incentivize good service, rather than codifying the poor service of the past.”

— Rob Benedict
AFPM Vice President of
Petrochemicals and Midstream



Rail industry consolidation has allowed railroads to increase rates dramatically more than inflation and trucking. Rail rates have increased **2.4 times more than truck rates and inflation.**²³

Environmental Stewardship

The background is a vibrant green color. It features a subtle, repeating pattern of wavy, concentric lines that create a sense of movement and depth. Overlaid on this pattern are several thick, curved bands of a slightly darker shade of green, which sweep across the lower half of the image, adding a dynamic, organic feel to the design.

Environmental Stewardship

U.S. fuel and petrochemical companies are focused on meeting the world's energy and petrochemical needs while being good stewards of the environment. This includes investing in technologies, products and processes to improve air quality, increase energy efficiency, conserve water, reduce waste and preserve land and fragile ecosystems.

Our industries recently invested \$12.5 billion in their domestic facilities and are expected to invest an additional \$100 billion over the next five years. Many of these investments are focused on addressing two of our most pressing challenges—reducing carbon emissions and eliminating plastic waste in the environment. In fact, our companies are investing up to three times more than the average company in climate change technology and are among the top producers of green patents.

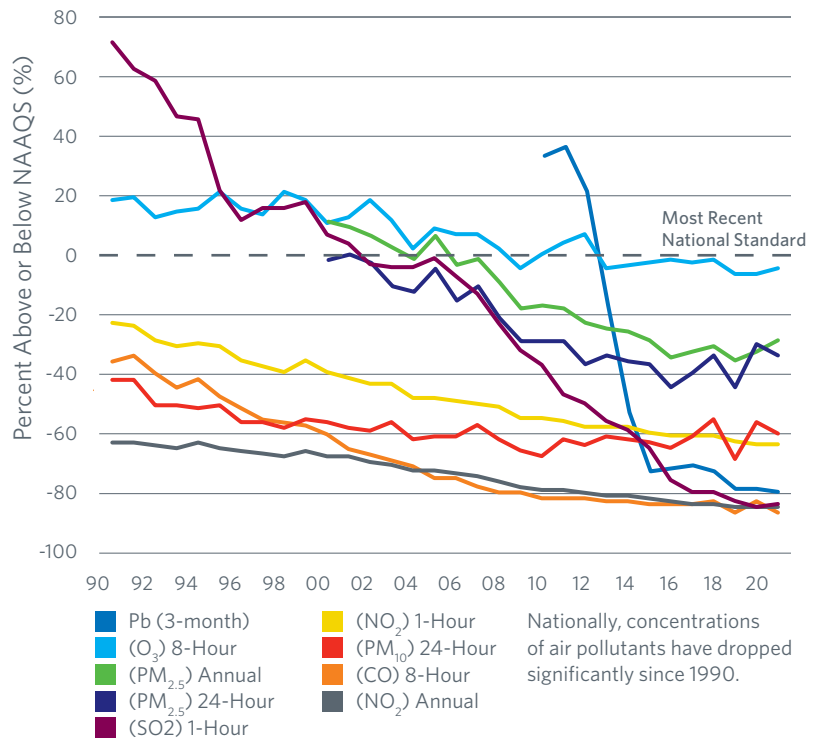




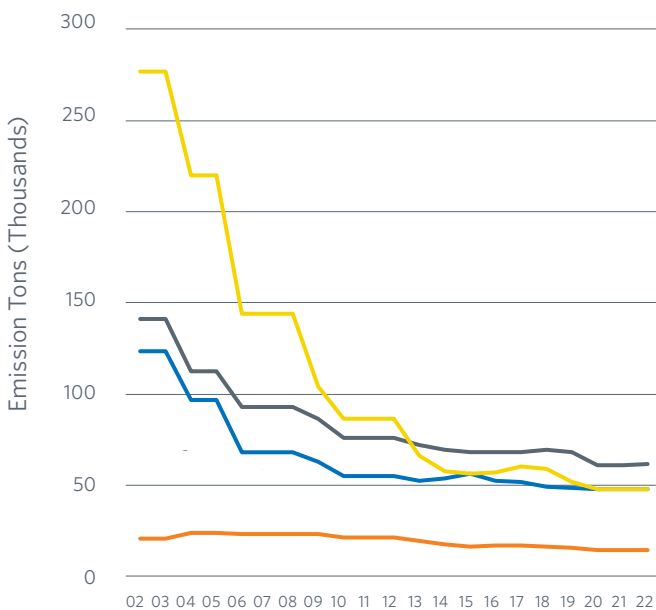
Reducing Emissions and Improving Air Quality

Efforts to improve efficiency and reduce emissions are paying off and our nation's air is getting cleaner. Total air emissions by refiners and chemical manufacturers have been reduced significantly in the past twenty years. And, a combination of work, innovation and investments of all U.S. industries—including the refining, petrochemical and midstream industries—has led to a 78% decline since 1970 of the combined emissions of the six criteria and precursor pollutants, including a 37% reduction in particular matter (PM)_{2.5} emissions²⁵ during the last two decades. This positive downward trend is expected to continue in the years to come as companies invest more resources into developing emission reduction technologies and greater efficiencies in their processes.

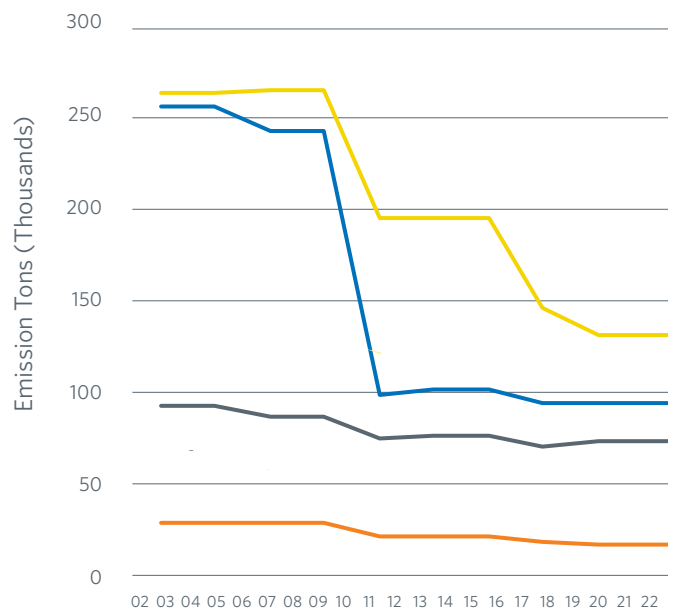
Air Quality Trends Show Clean Air Progress²⁴



Total Air Emissions by Petroleum Refineries from 2002-2022²⁶



Total Air Emissions by Chemical Manufacturers from 2002-2022²⁷



- VOC
- PM_{2.5}
- NOS
- SO₂

Total air emissions by petroleum refineries and chemical manufacturers (information is not available for petrochemical manufacturers) have been reduced significantly in the last twenty years. According to EPA's National Emissions Inventory data, petroleum refineries saw emissions reductions of 61% in volatile organic compounds (VOCs), 33% of fine particulate matter (PM_{2.5}), 57% of NO_x and 83% of SO₂ below the 2002 baseline. Chemical manufacturers followed the same trend with a 65% reduction in VOC emissions, 33% of PM_{2.5}, 37% of NO_x and 66% reduction of SO₂ during the same period.

A combination of work, innovation and investments has led to a 78% decline since 1970 of the combined emissions of the six criteria and precursor pollutants and a 37% reduction in PM_{2.5} emissions during the last two decades.²⁸





Energy Efficiency

Our industries are increasing their operational efficiency while expanding investments to realize further efficiency gains.

- **Plains All American** has optimized its tank mixer utilization to reduce operation during peak grid consumption times and to optimize the overall run-time, resulting in a reduction of about 16 million kilowatt hours—the equivalent of the annual emissions of roughly 2,500 passenger vehicles.
- **Marathon Petroleum's** "Focus on Energy" program, a holistic approach that sets key performance indicators to guide energy management across sites, has helped the company avoid the equivalent of two billion British thermal units per hour of energy use, approximately the amount of energy used by 100,000 homes or 200,000 gasoline-powered passenger vehicles in a year.
- **Valero** has installed "expanders" that generate power from exhaust gases at six of its refineries, including the world's largest expander at its Corpus Christi West facility. The expanders are designed to collectively displace more than 600,000 tons of CO₂ annually that otherwise would be generated by conventional power plants.



Renewable Power

AFPM member companies are expanding their use of renewable energy, including solar and wind power, to further reduce their emissions.

- **Flint Hills Resources** commissioned a 45 MWac, 350 acre solar power installation at its Pine Bend Refinery in Minnesota. This is reported to be the largest direct use industrial solar installation in the U.S.
- **INEOS Olefins & Polymers** entered into a renewable power purchase agreement that will result in the construction of a new 310 megawatt solar project in north central Texas, with the entire output dedicated to INEOS O&P USA. The project is expected to cover the net purchased electricity load of all 14 of its manufacturing, fractionation and storage facilities in the United States and is expected to reduce GHG emissions by more than 320,000 metric tons annually.
- **Dow** is among the top 20 corporations globally for renewable power purchases, with roughly 40% of its purchased electricity coming from renewable sources.



Hydrogen Production

Hydrogen has the potential to be a lower-, or even a zero-carbon energy source and a transportation fuel. AFPM members are pursuing a variety of technologies to produce hydrogen, including developing green hydrogen via electrolysis.

- **ExxonMobil** is constructing its first large-scale low-carbon hydrogen production plant at its refining and petrochemical facility in Baytown, Texas. The facility will produce up to one billion cubic feet of hydrogen each day, with over 98% of the CO₂ captured and stored, making it the largest low-carbon hydrogen project worldwide at the time of expected startup in 2027-2028.
- **Phillips 66** is developing a project to produce green hydrogen via electrolysis to decarbonize its fuel production and supply its operations.
- **Chevron** has a majority interest in the Advanced Clean Energy Storage Delta (ACES Delta) electrolytic hydrogen production and storage project in Delta, Utah, with operations planned by mid-2025. The project is expected to initially produce up to 100 tons per day of electrolytic hydrogen and will utilize salt caverns to store the energy.



Carbon Capture and Sequestration

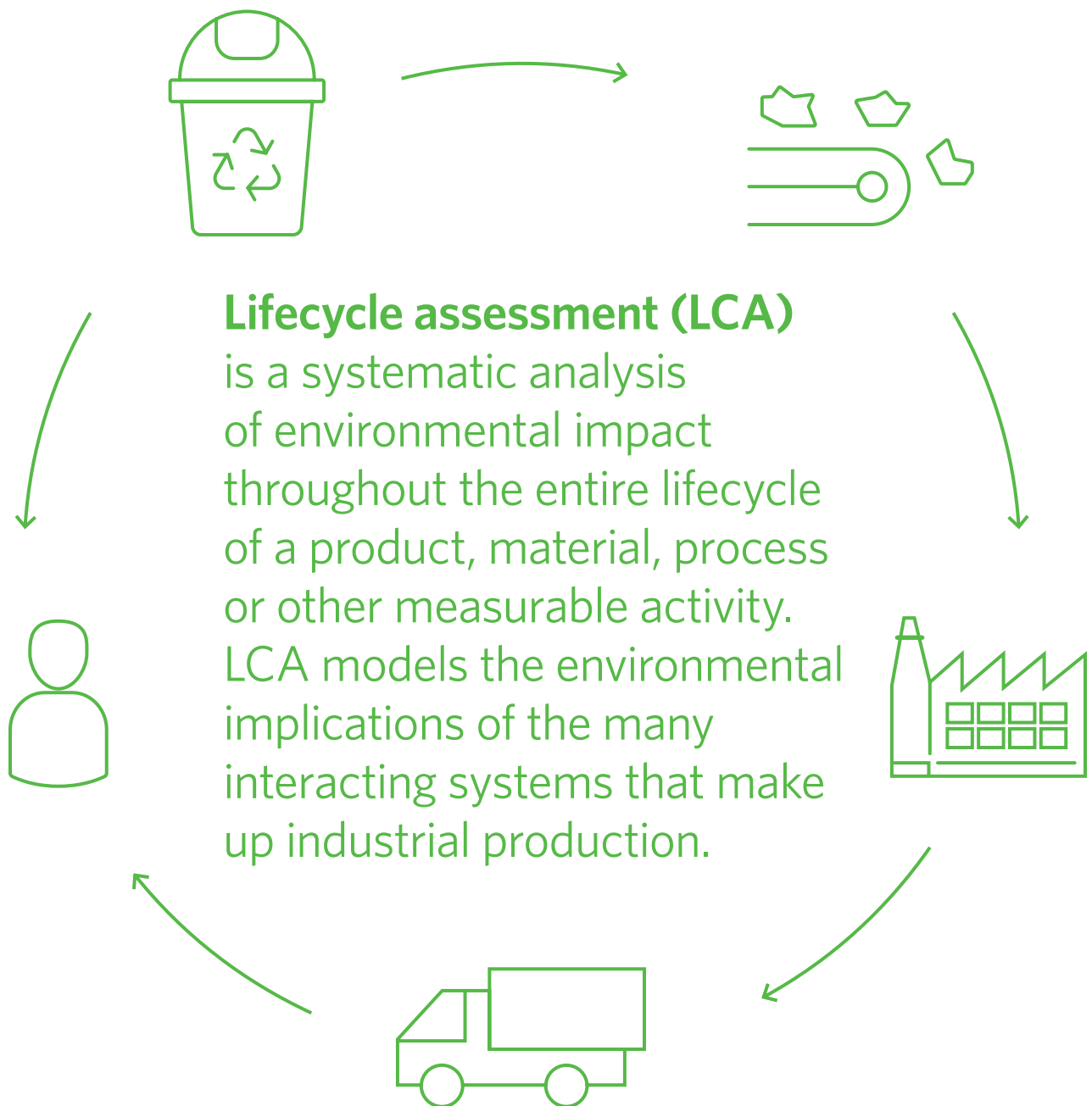
Many of our companies are investing in this process that captures CO₂ as a byproduct of fossil fuel combustion before it enters the atmosphere and transports and injects it deep underground at a carefully selected and suitable subsurface geologic formation where it is securely stored.

- Through a joint venture with **Talos Energy** and **Equinor**, **Chevron's** Texas Bayou Bend project is positioned to be one of the largest carbon storage projects in the United States. In early 2023, the project was expanded to cover nearly 140,000 acres of geological formation.
- **Cenovus** currently operates two carbon capture projects—at the Lloydminster Ethanol Plant and at the Pikes Peak South thermal asset in Saskatchewan—with the capacity to capture roughly 89,000 metric tons of CO₂ each year. In addition to these projects and others being evaluated at the company's upstream assets, Cenovus is investigating carbon capture at its Minnedosa Ethanol Plant and Lloydminster Upgrader, which would have combined capacity to capture over 700,000 metric tons of emissions annually.
- **Marathon Petroleum** is partnering with TC Energy and the University of North Dakota's Energy and Environmental Research Center to help develop a carbon capture and utilization system for its Dickinson, North Dakota, renewable diesel refinery—a project that is also funded by a \$2.5 million U.S. Department of Energy grant.

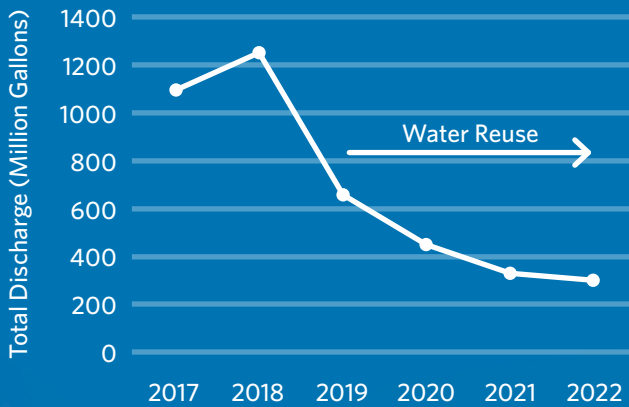
Data Quality Improvements

Refiners and petrochemical manufacturers have adopted improved technologies and methodologies that have enhanced their ability to identify lifecycle assessments and GHG emissions tracking.

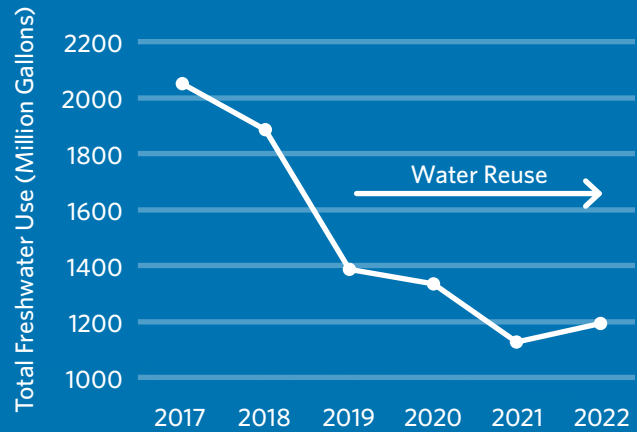
- **LyondellBasell** is not only undertaking lifecycle assessments for its products and proprietary technologies, but also collaborating to support the harmonization of product lifecycle metrics and share good practices within the chemical industry. Moreover, LyondellBasell is growing its internal capability to calculate lifecycle metrics and product carbon footprints, using these tools to support the evaluation of new technologies and calculate product carbon footprints in its supply chain.
- **ExxonMobil** is working with the MIT Energy Initiative to create a new tool that measures the lifecycle impact of numerous technologies, representing the majority of sources of GHG emissions.



Annual Discharge to Ottawa River



Annual Freshwater Use



The Cenovus Lima Refinery began using large-scale reverse osmosis in 2019 to significantly reduce its annual water discharge and freshwater use. This process is making real impacts by improving the facility's water recycling rates from 60% in 2020 to 93% in 2021. The facility expects to get close to a 100% water recycling rate in the near future by continually optimizing its techniques²⁹.

Water Management



Water is essential in the cooling towers and boilers needed to produce fuels and petrochemicals, and recycling that wastewater is a major part of our commitment to use our resources responsibly. Refiners and petrochemical manufacturers invest in technologies that allow facilities to more efficiently separate oil and water to recycle and reduce wastewater.

- **Monroe Energy** is constructing three cooling towers that will reduce the facility's dependence on Delaware River water by 95%.
- **Phillips 66's** Remediation Management team treated roughly 50 million barrels of water in 2022, recycling 94% of the treated water for reuse at its facilities and thereby reducing the amount of freshwater needed to operate.



Waste Reclamation and Recycling

AFPM member companies are constantly looking for ways to reduce waste and implementing creative solutions to recover, utilize and recycle waste streams—ranging from hazardous waste to production byproducts like sulfur—at their facilities, our industries are making real progress in reducing waste throughout their operations.

- Almost 110,000 metric tons of waste from **Marathon Petroleum's** refineries was turned into an alternative fuel source for the cement industry, avoiding over 264,000 metric tons of CO2 equivalent emissions when compared to coal use for cement manufacturing operations.
- **CountryMark** has invested in a landfill gas offtake project. Methane (natural gas) that would have otherwise been released to the atmosphere is now captured and can be used as a transportation fuel.



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, Flint Hills Resources and Phillips 66** have partnered with Ducks Unlimited to maintain habitats for birds. Flint Hills Resources is helping to conserve more than 250,000 acres in North America while Chevron is working with Ducks Unlimited to help preserve over 405,000 acres of wetlands in South Louisiana. Phillips 66, meanwhile, is supporting a project by Ducks Unlimited and the U.S. Fish and Wildlife Service's Two Rivers National Wildlife Refuge to enhance and restore more than 320 acres of floodplain wetlands.
- **Phillips 66** has partnered with the Sutton Avian Research Center to conduct ecological field research on developing and applying techniques for reintroducing and monitoring southern bald eagles, managing captive breeding of endangered species, performing bird surveys and monitoring declining grassland birds.
- **Valero** supported the nonprofit BCarbon to create a 1,000-mile living shoreline of oyster reef breakwaters in the Texas Gulf Coast to reduce erosion, restore shoreline habitat, enhance water quality and improve fish and wildlife habitat.

Health & Safety

The background of the page is a solid orange color with a subtle, repeating pattern of wavy lines. Overlaid on this are several large, curved, semi-transparent orange bands that sweep across the page from the bottom left towards the top right, creating a sense of movement and depth.

Health and Safety

Refining and petrochemical companies put safety first and strive for zero incidents. Our industries have a strong safety record and are determined to do whatever it takes to continuously improve our performance to take care of our people, communities and environment.

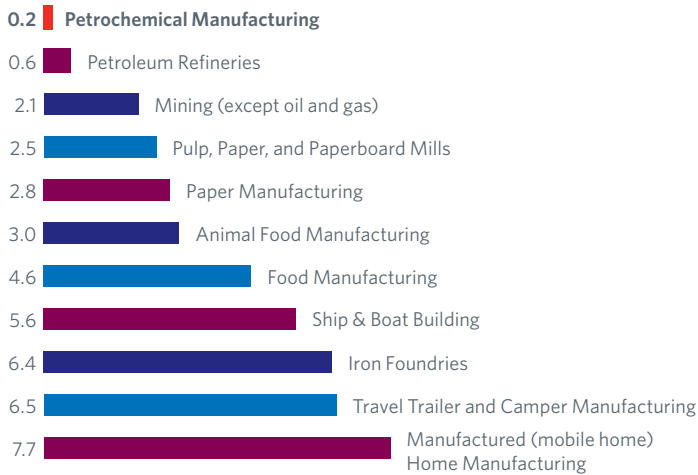
We work closely with federal, state and local governments and agencies to ensure the safety of everyone in and near our facilities. This is why our industries are consistently ranked among the safest of all manufacturing industries in the country.



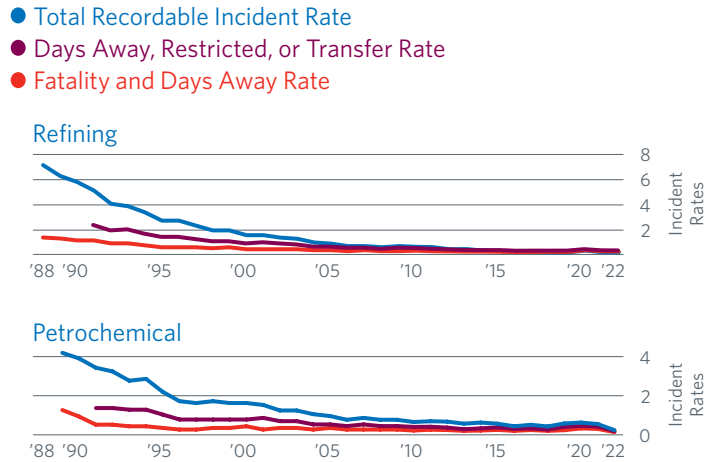
Refining and Petrochemical Industries' Safety Performance

The refining and petrochemical industries' safety records reflect a more than 30-year decline in rates of injury and illness that are currently significantly lower than the total recordable rates for other manufacturers and their process safety events have been cut in half in just the past decade.

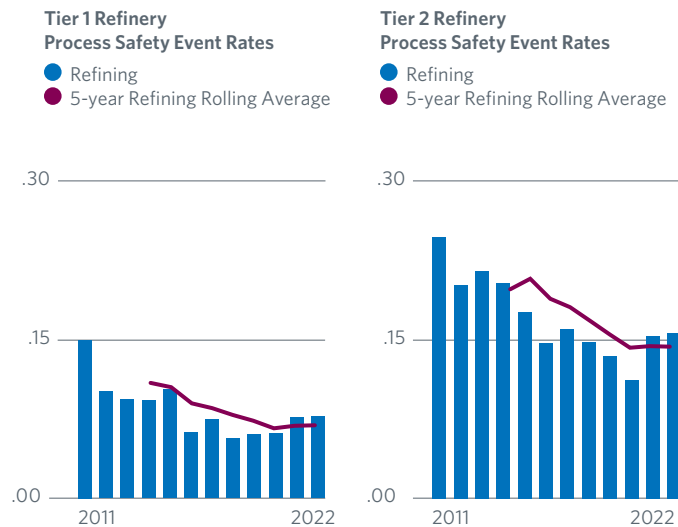
Incidence Rates of Non-Fatal Injuries or Illnesses Among Manufacturing Sectors³⁰



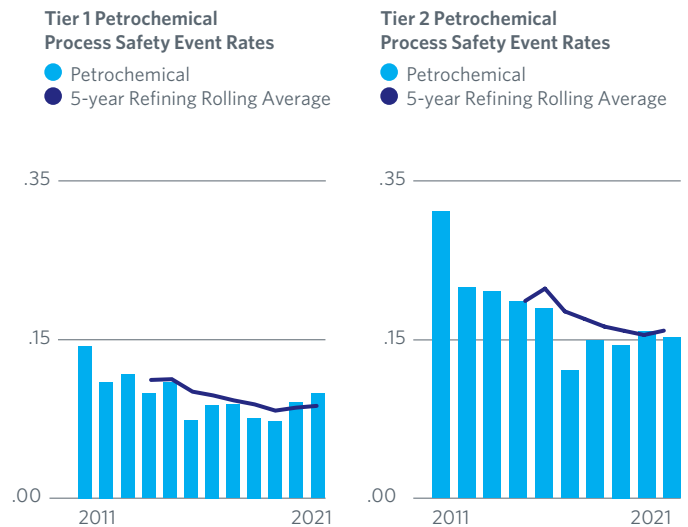
Injury & Illness Incident Rates for Refineries Radically Reduced Injuries Past 30 Years³¹



Refining Process Safety Event Rates³²



Petrochemical Process Safety Event Rates³³



Did you know?

Petrochemical manufacturers ranked first and refiners tied for second out of nearly 500 industries in industry safety.





What is a Refinery Turnaround and Why Do We Need Them?

The U.S. refining industry is the most sophisticated in the world. But to keep U.S. facilities online and operating safely requires upkeep, both in the form of ongoing maintenance and much more intensive refurbishment and replacement projects. The latter, which are known as turnarounds, involve taking all or parts of facilities offline for planned periods of time to conduct important site upkeep, extensive maintenance and construction, and other improvement projects with specialized professionals.

Turnarounds—and the time they require—are critical for safe refinery operations and for the longer-term reliability of U.S. fuel production. A turnaround is a planned period of extensive maintenance, renovation and capital investment at a refinery or other major manufacturing installation. Refineries conduct turnarounds at regular intervals in addition to the routine maintenance and upkeep they receive daily when they're in operation.

Turnarounds are essential. Enhanced inspections and equipment replacements, which are all part of the turnaround process, enable refineries to operate safely, comply with government regulations and stay competitive in a fierce global market. Turnaround timelines can range from a matter of weeks to a matter of months, depending on the complexity of all the planned projects. Bottom line, turnarounds are a normal part of refinery operations and are essential to help facilities perform as efficiently and as safely as possible.

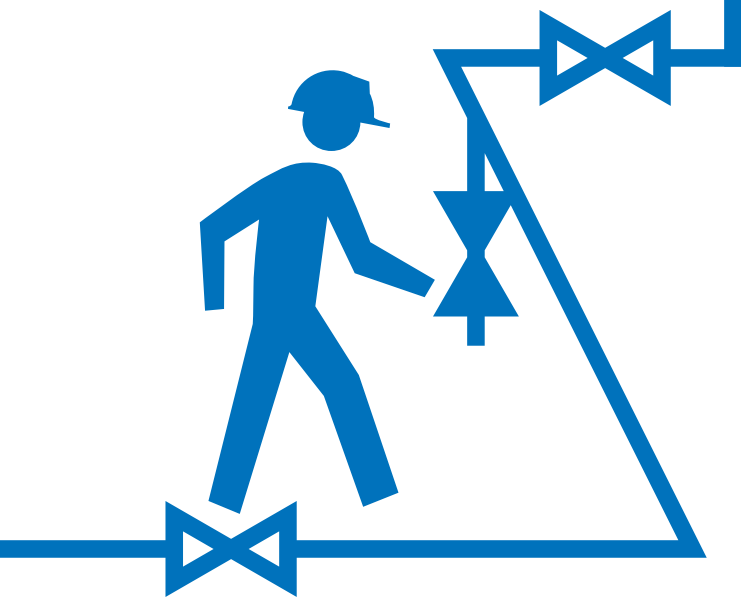


Collaborating to Improve Safety

U.S. refiners and petrochemical manufacturers work collaboratively to learn from each other and share good practices to advance safety across industries. AFPM facilitates this collaboration through a series of safety programs focusing on process safety, occupational safety and training and development.

Advancing Process Safety Programs

Advancing Process Safety (APS) is AFPM’s flagship safety program. AFPM developed this groundbreaking program 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 learnings and information.



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 learnings 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 & Organizational Performance 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.

“The AFPM safety programs use real industry data to develop tools and resources that are designed for those doing the work —this is the real value of the program, to get the information and awareness to the folks in the field. Over the past several years, we focused on Human and Organizational Performance to increase the effectiveness of all our programs and drive long-term sustainable improvements.”

— Chris Gallo, Vice President
Regional Refining, Refining Headquarters
Phillips 66

Occupational Safety Programs

AFPM Occupational Safety programs and trainings are geared toward preventing injuries in our facilities. Through incident data collection, we can identify opportunities for industrywide improvement and build tools to address these issues, which are then shared throughout the industries. Our Occupational Safety Regional Networks facilitate information sharing, including lessons learned 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 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.

Enhancing FCC Safety

Industry collaboration is critical when it comes to safety. Everyone benefits by sharing information and lessons learned and we are constantly looking for new opportunities to help members improve the safety, reliability and sustainability of their plants.

To further our mission to enhance safety, AFPM created the Fluid Catalytic Cracking (FCC) Process Subcommittee to address recommendations by the U.S. Chemical Safety (CSB) and Hazard Investigation Board. FCC units are an integral part of the petroleum refining process and are widely used around the world. FCC units convert heavy hydrocarbons into lighter, more valuable products, including gasoline and diesel, and are an important part of the refining process. AFPM's FCC Subcommittee, established in 2021, has been working to develop resources for industry-based learnings on FCC safety and improved practices for plant operations.

In a short amount of time, the committee developed and presented several webinars and conference sessions on improved processes and FCC process safety documents. It is now developing a series of regional, one-day training meetings at member company sites to cover a range of topics including startups, shutdowns and emergency procedures, communicating with local safety professionals, reactor oxygen monitoring, shift handover checklists, and many other procedures that workers must perform to maintain safe operations. The work of this group will add to the already expansive AFPM library of safety information and training materials.



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 worked with organizations and government partners such as the American Petroleum Institute, CSB and the Occupational Safety and Health Administration (OSHA) to share learnings derived from these programs.



AFPM Honors Industry Safety Leaders

The refining and petrochemical industries' ongoing mission and commitment to enhance and recognize outstanding workplace safety is recognized yearly with the AFPM Safety Awards. The awards are part of a comprehensive program developed by the AFPM Safety and Health Committee to promote safe operations in the refining and petrochemical industries. They also recognize facilities that have outstanding occupational and process safety performance.

The highest honor, the *Distinguished Safety Award*, is awarded to the top sites with outstanding safety performance, program innovation and safety leadership. Last year, AFPM awarded the following top sites with this honor:

- ExxonMobil Chemical Company—Beaumont Chemical Plant
- LyondellBasell Industries—Bayport Complex
- Phillips 66—Sweeny Refinery

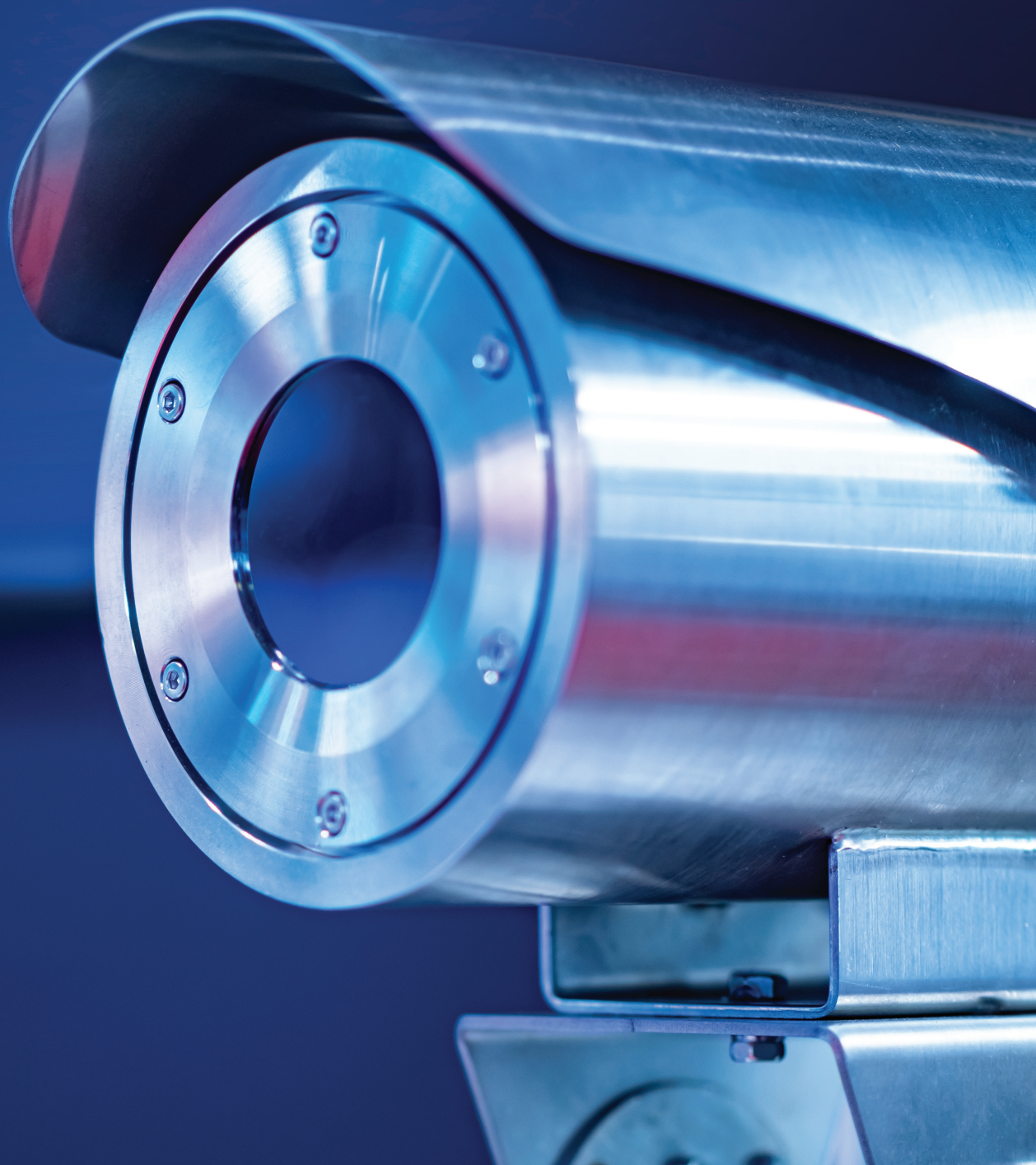


Security



Security

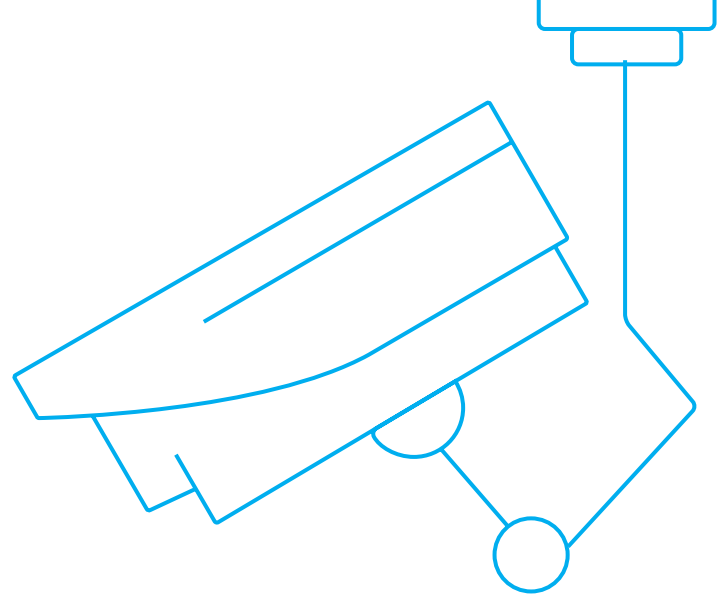
Fuel and petrochemical companies take a multi-layered approach to security to protect their facilities and the people working in and around them. AFPM member companies employ measures that are risk-based, flexible and responsive to their environments. In addition, we work closely with federal, state and local governments to ensure that we comply with all regulations while enhancing our security measures and preparing for the unexpected.



Collaborating with Government to Keep Facilities Secure

The refining and petrochemical industries take a comprehensive approach to physical and cyber security. By working closely with government agencies and other critical infrastructure groups, we can share information that helps all parties identify potential threats and develop new protocols to further enhance our security systems and protect our nation's critical infrastructure.

During the past year, AFPM and our member companies worked with multiple government agencies including the Federal Bureau of Investigation, U.S. Coast Guard, Transportation Security Administration, Department of Homeland Security, Cybersecurity & Infrastructure Security Agency (CISA), Department of Transportation, Department of Energy, and many others, to ensure that our operations are secure and our people are safe.



The Importance of the Chemical Facility Anti-Terrorism Standards

Our industries' multilayered approach to security includes implementation of a highly valued program, the Chemical Facility Anti-Terrorism Standards program, or CFATS. This program helps to protect chemical facilities from potential terror threats by addressing a wide range of possible vulnerabilities, including cyberattacks. It also provides an avenue for the public and private sector to cooperate through a uniform, national program that maintains chemical facility security.

CFATS provides facility risk assessments, guidance to companies about their security plans and, importantly, it allows our facilities to vet personnel against the national terrorist screening database. When in use, the database vets more than 9,000 new personnel each month—a significant reason why this program is an essential tool in the security toolkit.

For 15 years, industry and the CISA have successfully worked together to develop and implement the CFATS program, which many consider the gold standard for chemical security. The resources offered by CFATS, combined with industry's own multi-million-dollar investments in security, collectively ensure U.S. chemical facilities and refineries can access the best tools to protect against potential terrorist threats.

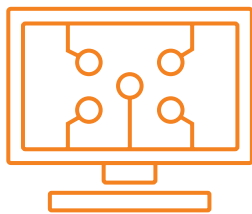
Yet, despite the clear value of and overwhelming support for the program, Congress failed to reauthorize CFATS before its sunset date in 2023. AFPM remains committed to the program and continues to advocate for its reauthorization.

Staying Ahead to Stay Vigilant

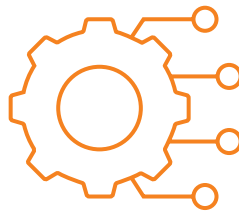
Maintaining a secure facility is critical and would not be possible without the regular adoption of new technologies. Our member companies update and employ the latest technology—information technology and operational technology—to prepare for and prevent any type of malicious attack.

All facilities employ a layered approach to security, which includes cybersecurity. Cyber incidents, like other disruptive events, can have severe impacts. This is why our companies have detailed cyber incident and response plans in place with emergency management, cyber professionals, law enforcement and other key stakeholders.

In addition to the latest cybersecurity software, our members use security monitoring and thermal cameras, drones, sensors and smart fences to secure their facilities. Refining, petrochemical and midstream companies will do whatever it takes to maintain safe and secure operations.



Information technology (IT) is a broad term that includes software and devices like computers.



Operational technology (OT) is responsible for managing and controlling computer systems.

Did you know?

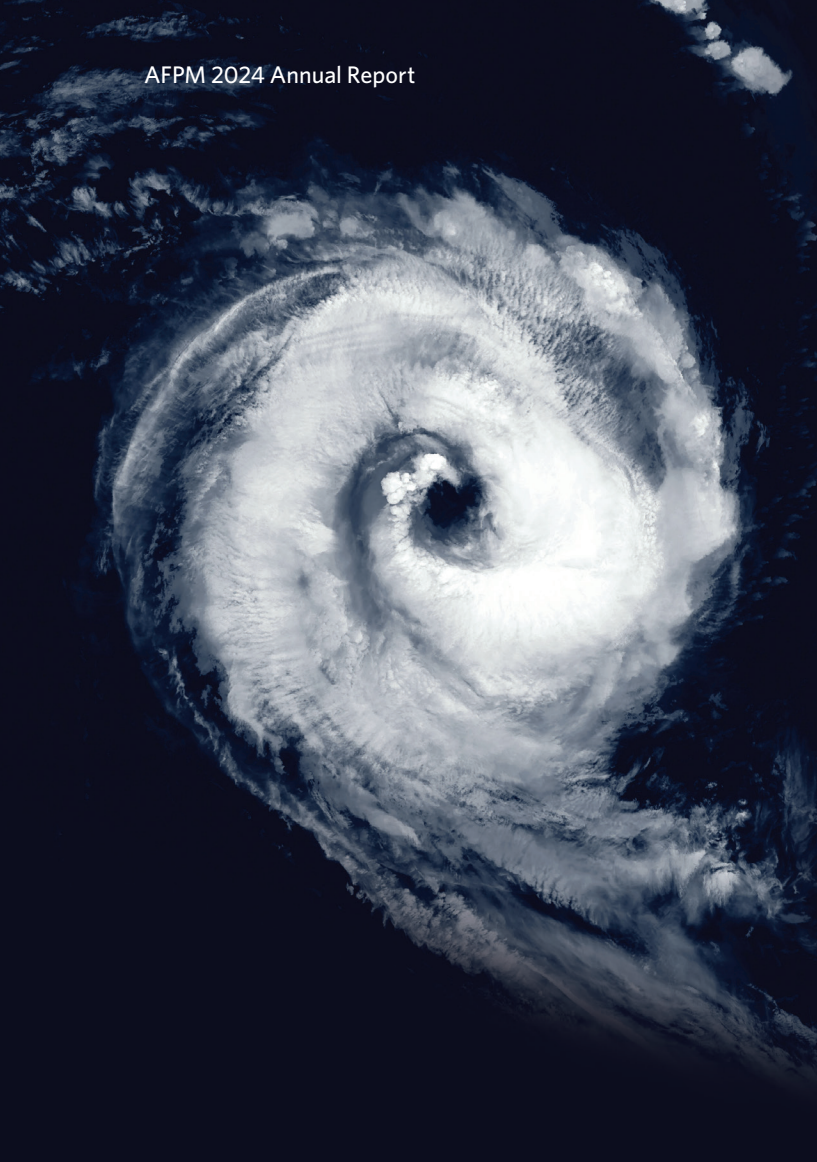
Multiple layers of technologies are added to deter, detect, delay and deny unauthorized cybersecurity intrusions. A high-level view of what companies today are doing includes installing firewalls, threat detection and threat blocking software and devices that constantly monitor networks and block phishing attempts.





Our members use security monitoring and thermal cameras, drones, sensors and smart fences to secure their facilities.





Preparing for Extreme Weather

AFPM members have robust preparedness plans to rapidly respond to any type of emergency, including extreme weather events. Severe weather like hurricanes, deep freezes or high winds can have significant impacts on refining, petrochemical and midstream operations. For this reason, AFPM and our members regularly review and update their preparedness and response plans to ensure they can quickly respond to one of life's most unpredictable factors, the weather.

Lessons are learned after every event and facilities continually change and enhance their operations and facilities. In the recent past, facilities have increased on-site containment capabilities to reduce the risk of substances being released into the environment after a storm, added booms to absorb chemicals that may leak, and built and elevated new control rooms, electrical equipment, pumps and compressors to avoid flooding.

AFPM staff, company security personnel and emergency response representatives engage with officials across local, state and federal government to ensure ongoing communications and to share information.

Collaborating Across Industry and Government to Prepare for Disruption

Industry and government communication and coordination during significant weather events is valuable and varied. In addition to traditional meetings and calls, AFPM and member companies work with our government partners to be prepared for what may seem like improbable events—like a pandemic seemed just five years ago.

Recently, AFPM and several of our member companies participated in a Federal Emergency Management Agency (FEMA) exercise titled, Idaho Private Sector Exercise Series. This two-day exercise consisted of a “Rehearsal of Concept” (ROC)—or a play-by-play walk-through of an event and response plan—in the aftermath of a significant earthquake event.

The “Idaho” event involved an exercise scenario in response to a catastrophic 9.0 earthquake along the full length—800 miles—of the Cascadia Subduction Zone Fault.

This fictional earthquake also generated a tsunami wave between three and 80 feet, depending on coastal location. The ROC placed participants at the scene four days after the earthquake to roleplay their emergency response.

The benefits of this exercise were many and demonstrated the lengths industry will go to be prepared. It gave participants the opportunity to work through their emergency preparedness plans and checklists to learn what does and doesn't work, identify gaps in current plans and establish contacts in local, state and federal governments to work with during a true emergency. In addition, the Idaho Private Sector Exercise Series was not a one-time event. Each year FEMA creates and coordinates a new scenario to test government and industries' response plans and to maintain contacts—providing important opportunities to learn without taking risks.

Economic Development

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Economic Development

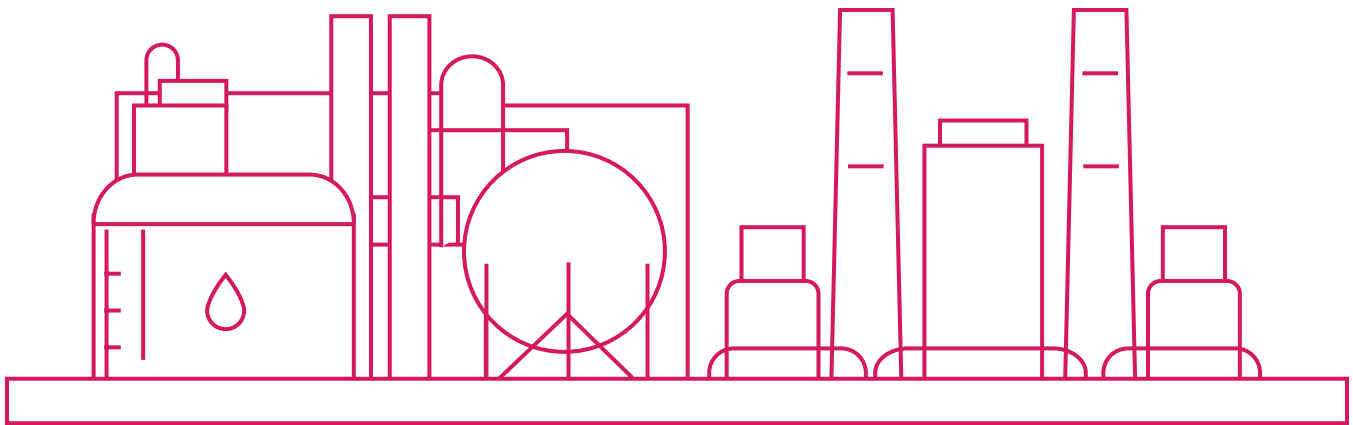
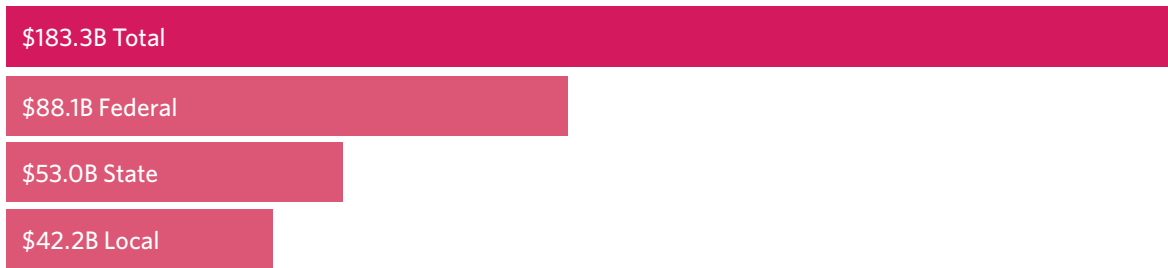
The U.S. refining and petrochemical industries are significant contributors to the economy and support millions of jobs throughout the country.



Providing Significant Economic Contributions

In 2022, U.S. refiners and petrochemical manufacturers contributed nearly \$820 billion of GDP across the United States and generated \$183 billion in federal, state and local taxes.³⁹ This tax revenue helps to fund local emergency services, schools, infrastructure and public health.

Tax contributions of the petroleum refining and petrochemical industries: ⁴⁰



Employment and Wages

The U.S. refining and petrochemical companies support more than 3.3 million³⁴ jobs across the United States. The jobs in these industries are high-paying, family-supporting jobs for people of a diverse set of skillsets and backgrounds. The average refinery worker's compensation is \$351,857³⁵ per year, including salaries and the value of benefits like health insurance, retirement savings plans and employer-paid social security taxes. In the petrochemical industry, the average salary and benefits are \$211,679³⁶, and both are significantly higher than the average worker's annual wage of \$73,416.

In addition to direct employment, these industries support jobs in their communities and throughout the country. The number of jobs supported elsewhere in a community by one refining or petrochemical job—referred to as the jobs multiplier—is high. In the petrochemical industry, there are 13 jobs³⁷ that exist in communities across America due to every one petrochemical job, and an impressive 45 jobs³⁸ for every one refinery worker's job.

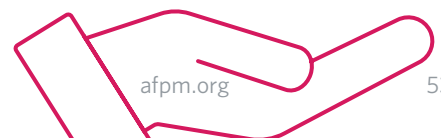
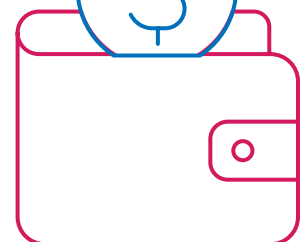
Refinery worker's average compensation and benefits are **\$351,857** per year



Petrochemical worker's average salary and benefits are **\$211,679**



Average worker's annual salary and benefits are **\$73,416**



Offering Careers and Opportunities

The refining and petrochemical industries are comprised of many highly skilled and educated professionals, including engineers, biologists, chemists, welders and truck drivers. People who work at our companies are natural resources for promoting science, technology, engineering and mathematics (STEM) education, as well as industry-specific skills.

AFPM members have built many long-term relationships with academic institutions, nonprofit organizations and community groups that contribute to the development of a trained workforce. Together we ensure that people in our communities have the skills necessary to access the high-paying jobs available in our industries. Through many programs, apprenticeships and co-op programs we allow students and U.S. veterans to gain real-world experience. We also donate computers, equipment and financial resources.

- Several **PBF** facilities partner with local colleges and universities to offer a cooperative education program to students, providing real-world work experience even as they continue their studies. Students are mentored and taught by experienced refinery personnel as they alternate semesters between academic studies and working at the refinery. By the end of the program, students have assumed most of the responsibilities of an entry-level engineer or technical employee.
- **HF Sinclair's** Tulsa Refinery has a Department of Labor accredited process operator apprenticeship that enables it to recruit veterans to work at the refinery and help them build skills. Because this training aligns with the provisions of the GI Bill, qualifying veterans can generate a substantial boost in income compared to entry-level roles.

"I think throughout my career I've been yearning for places where I can be a spokesperson for science, where I can give it a voice and where it can help speak for what it's capable of. It's so rewarding to be a part of a team who gets to visit automakers and technology providers around the world, exploring innovative solutions that can help enable the energy transition."

— *Brianne Kanach*
Senior Principal Engineer, Advanced Vehicles and Fuels
ExxonMobil



Did you know?

In 2022, petroleum refining had the highest jobs multiplier of any U.S. industry, adding 45 jobs to the economy for every one refinery worker's job.⁴¹



Committing to Diversity, Equity and Inclusion

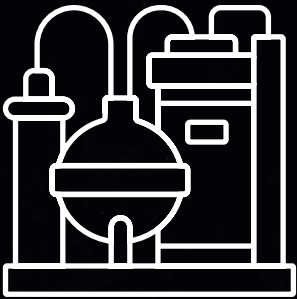
The U.S. refining and petrochemical industries believe that having a diverse workforce is critical to the future success of our industries. AFPM member companies are committed to continuously promoting diversity, equity and inclusion (DEI) and this is reflected in the many ways our members attract, develop and retain the best talent from a variety of backgrounds and experiences.

- **Chevron** offers several leadership development programs designed for underrepresented groups. The Transformational Leadership® for Multicultural Women Program works to address headwinds faced by multicultural women in their leadership efforts, while the Global Women's Leadership Development Program helps accelerate women's leadership growth and experience. Chevron also offers leadership programs focused on the unique challenges faced by Asian American, Asia-Pacific, Black and Latino leaders as they grow their careers.
- **Chevron Phillips Chemical's** ICARE (Inclusion, Cooperation, Accountability, Respect Every Day) program was launched in 2013, but CPChem redoubled its commitment by requiring ICARE training sessions for all employees, by naming its first Chief Diversity Officer and by tying its Employee Incentive Program to company DE&I efforts.
- **Dow's** ALL IN 2025 inclusion, diversity and equity strategy elevates its focus on diversity; embeds equity into its practices, policies and procedures; and emphasizes leading with inclusion to deliver breakthrough results by 2025.

California's Policies are Bad for California's Economy

California is the third largest refining state in the country. The refining industry supports more than 145,000 jobs,⁴² contributes more than \$60 billion⁴³ to its economy and pays \$8.4 billion in state and local taxes. It supplies the majority of refined products consumed in the state, and supplies neighboring states as well.

Despite these benefits, California politicians are moving ahead with policies intent to drive the industry out of the state, chief among them a ban of new sales of internal combustion engine vehicles. Not only will this deny Californians the ability to choose the vehicle that works best for them, but it also threatens the livelihood of the thousands of people who work in the state and the billions of dollars of economic activity driven by the industry.



California ranks third in the nation in oil refining capacity. The state's **13 refineries** have a combined capacity of **1.6 million barrels** per calendar day.

Community Engagement

The background features a complex pattern of fine, wavy, light-colored lines that create a textured, water-like effect. Overlaid on this are several thick, dark grey, curved bands that sweep across the frame from the bottom left towards the top right, adding a sense of movement and depth to the design.

Community Engagement

Refineries and petrochemical facilities are committed to fostering long-term cooperative relationships in the communities we operate. We know that our community partners hold our public license to operate and are committed to providing our neighbors with the support and resources they need to thrive.

Serving as the foundation of their local economies, our refining, petrochemical and midstream companies are active partners in programs to advance education, health, safety and environmental protection. Our members are building trust and lasting partnerships with the people that live in their communities by communicating openly and transparently and by offering programs, services and aid to their schools, hospitals, non-profit organizations, and much more.



- Since restarting an idled refinery over a decade ago, **Monroe Energy** has consistently supported regional education through its donations to neighborhood nonprofit scholarship foundation programs, as well as by establishing its own Process Control Technology and DE&I STEM Scholarship programs. Monroe Energy is also passionate about providing experiential opportunities for local students by funding educational trips and programs for their local elementary school. They also provide textbooks to local trade schools, donate slightly used computers, monitors and printers to help close the digital divide, host student groups for tours to help the next generation learn more about our industry, and support both co-op students and apprenticeships at their facility.
- **Motiva** awarded \$205,000 in scholarships to aid high school graduates in Southeast Texas in their pursuit of STEM or business-related undergraduate, associate or vocational degrees.
- **Valero** and its Energy Foundation collectively generated over \$68 million for charities through corporate philanthropy, fundraising, more than 117,500 volunteer hours, and employee and company donations.
- **HF Sinclair** partnered with Folds of Honor to raise over \$900,000 to fund educational scholarships for the children and spouses of disabled or fallen veterans.



Students at STEM Showalter High School in Chester, Pennsylvania, gather for career day presentations and refining overviews with Monroe Refining employees. Monroe offers students scholarships, mentors, internships, as well as materials needed to enter college.



"I hope that what I have instilled in my children is the desire to serve the community and to be active in the charitable sector. Throughout my entire life, I've been involved in the nonprofit world, and I have included my kids from a very young age, taking them with me to many meetings and volunteer opportunities. I have really tried to stress to them the importance of serving other people and doing things that matter in the community, regardless of your job. With that said, Marathon has always been a big proponent of community service, which is important to me in an employer."

— Alice Momenee
Senior Marine Supply Chain Representative
Marathon Petroleum

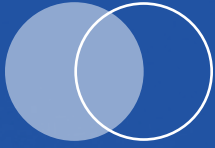
Policies and Principles

The background is a deep blue color with a subtle, repeating pattern of fine, wavy lines. Overlaid on this are several thick, curved bands of a slightly darker shade of blue, creating a sense of depth and movement. The text is positioned in the upper left quadrant, rendered in a clean, white, sans-serif font.

Policies and Principles

AFPM works to advance public policies that address our most pressing challenges. Whether it's supporting implementation of the Inflation Reduction Act (IRA) that recognizes and supports our members' technologies and investments in biofuels, hydrogen, sustainable aviation fuel and carbon capture technologies 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.



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 our nation and the world should not be ignored.



Promote Competition

The refining and petrochemical industries support policies that promote innovation, increase competition, and achieve market-based solutions to society's challenges. 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.



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.

AFPM Climate Policy Principles

AFPM is committed to the development of sound 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 an environmentally sustainable way.

Policies addressing climate change must be:

- 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.





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 repurposing 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 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.



Board, Members and Resources

The background features a vibrant red and orange color palette. It is composed of several overlapping, curved, wavy bands that create a sense of movement and depth. The top portion of the image has a fine, repeating wavy pattern, while the lower portion is dominated by larger, smoother curved shapes in varying shades of red and orange.

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Findlay, Ohio



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Stevie Toups (Associate Liaison)
 Chief Executive Officer
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 Baton Rouge, Louisiana

Board of Directors

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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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 2023 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**



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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 25 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 **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: Yvette Fowler

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: Leslie Bellas

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: Yvette Fowler

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

Chair: Keesha Esqueda, Flint Hills Resources
AFPM Secretary: Patrick Kelly

The **Gasoline Processes Committee** supports, or leads if appropriate, industry's adaptation to the changing demand and or 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 in application management, and integration of computing technology in the areas of process control and automation, modeling, real-time optimization and internet-based applications.
Chair: Patrick Robinson, Phillips 66
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: Shaunda Lamar, INEOS Olefins & Polymers USA
AFPM Secretary: Rob Benedict

Standing Committees and Working Groups

continued

The **Reliability & Maintenance Committee** promotes the exchange of technical information and proven practices related to process plant reliability, maintenance, inspection, procurement, project engineering, turnarounds, procurement and project engineering.

Chair: Dean Roberts, Ergon-West Virginia
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.

Chair: Jenny Hebert, Ketjen Corporation
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: Lara Swett

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: Lara Swett

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: Lara Swett

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: Brett Hume, Big West Oil

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: Tanya Cooper

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

Chair: Chris Gallo, Phillips 66

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: Paul Seyler, Phillips 66

AFPM Secretary: Mawusi Bridges

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 a variety of disciplines.

Regional Network Program

Chair: Samantha Garner, Ergon, Inc.

Secretary: Jasmine Beasley

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: Adam Klipstein, INEOS

Walk the Line Subgroup

Chair: Lawrence Moreaux, LyondellBasell Industries

AFPM Secretary: Mawusi Bridges

2024 Industry Meetings

AFPM delivers best-in-class meetings and live events that bring together the refining, petrochemical and midstream industries in dynamic and interactive formats. Our annual slate of conferences, workshops and webinars are comprehensive, covering all industry disciplines including management, maintenance, reliability, safety, environment, process technologies, operations, labor relations and security.

Annual Meeting

March 10 - 12, 2024
Gaylord Texan
Grapevine, TX

**International
Petrochemical Conference**

March 24 - 26, 2024
Grand Hyatt
San Antonio, TX

**Labor Relations /
Human Resources Conference**

April 16 - 17, 2024
JW Marriott New Orleans
New Orleans, LA

Security Conference

April 18 - 19, 2024
JW Marriott New Orleans
New Orleans, LA

**National Occupational
& Process Safety Conference**

May 14 - 16, 2024
Grand Hyatt
San Antonio, TX

Training Forum

Summer 2024
Houston, TX

Walk the Line Workshop

Summer 2024
Houston, TX

AFPM Summit

October 15 - 17, 2024
Hyatt Regency
New Orleans, LA

Environmental Conference

October 20 - 22, 2024
New Orleans Marriott
New Orleans, LA

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





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 learn more, contact Latoya Britt at
membership@afpm.org
202.457.0480
www.afpm.org/membership

Endnotes

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