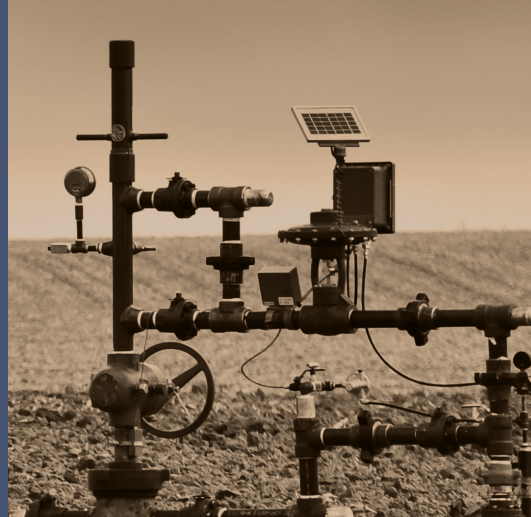




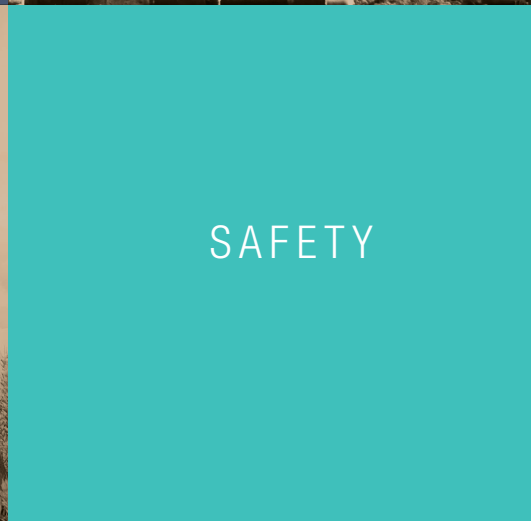
PIPELINES



HYDRAULIC  
FRACTURING



SAFETY



REFINING



AMERICAN PETROLEUM INSTITUTE

**ENERGY IS EVERYTHING**

**2017 | SUMMER**

**CONTACT OUR  
TEAM**



# AMERICAN PETROLEUM INSTITUTE FEDERAL RELATIONS TEAM

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# ENERGY AND FOUNDATION







AMERICAN PETROLEUM INSTITUTE

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July 21, 2017

To the Members of the 115<sup>th</sup> Congress:

You don't have to look very far to see the American energy renaissance. U.S. retail gasoline prices as reported by AAA are at their lowest levels since 2004. Additionally, American families have already saved on average \$1,337 in 2015 through lower home energy costs as well as lower costs of goods and services across the board as a result of an abundant North American natural gas supply.

That's good news, and the news keeps getting better. Among the almost 2 million job opportunities projected in the oil and natural gas industry, over 55 percent are expected to be in blue-collar occupations – indicating great opportunity for workers with high-school diplomas and some post-secondary, vocational, or apprenticeship training. Projections indicate upcoming job opportunities will include over 700,000 positions to be held by African American and Hispanic workers, and nearly 300,000 jobs filled by women by 2035. This expansion allows the U.S. oil and natural gas industry to spend over \$130 billion in domestic capital investments every year.

Energy is all around us – in fuels and products that make life better and more comfortable. Yet energy's value goes even deeper: What do you want to do? Where do you want to go? What do you want to become? Energy is integrally involved in the answers to all three. It's estimated that even today, more than 1 billion people around the world lack access to electricity and 2.7 billion live without clean cooking facilities. American oil and natural gas could significantly increase the number of people who have access to the cleaner, affordable energy they need to live healthier and more productive lives. Domestically, the largest 3,460 American hospitals use more than 5 percent of the energy consumed by the entire U.S. commercial sector. At home, everything from lip balm and lipstick, to paints and cleaning supplies include components derived from petroleum – including those plastic containers many of us will bring to cookouts and camp grounds this summer.

This recess when you're at home visiting with friends, family members, and constituents, we ask that you consider the large amounts of energy that helped transport you there, and the good paying U.S. jobs the oil and natural gas industry supports. We have a once-in-a-generation opportunity to find solutions for many of today's most pressing issues; including creating middle class jobs, tackling income inequality, ensuring sustained affordable energy for consumers, and enhancing our national security. All of these goals, and others, can be achieved with the help of the 21<sup>st</sup> century American energy renaissance.

I'd ask that you take a look at the information provided in this booklet about the vast benefits of a strong U.S. oil and natural gas sector, and of course, some of the challenges we may face along the way. If you have any questions at all, please feel free to contact myself or anyone on my team to discuss these matters further.

We hope you have a restful and productive recess, and we look forward to working with you.

Sincerely,

A handwritten signature in black ink, appearing to read "Khary I. Cauthen", written in a cursive style.

Khary I. Cauthen

A photograph of an industrial facility, likely a refinery or chemical plant, featuring several tall smokestacks and a complex network of pipes and structural steel. The image is overlaid with a semi-transparent blue filter. A white rectangular box highlights a section of the central smokestack where white smoke or steam is rising. The title text is centered over the image.

# ENERGY AND THE ECONOMY







# AMERICAN PETROLEUM INSTITUTE ENERGY AND THE ECONOMY

## HYDRAULIC FRACTURING

**The link between hydraulic fracturing and U.S. global leadership in oil and natural gas production is direct:** Without fracking, there would be no American energy renaissance – or the array of benefits it is providing to our economy, to individual households, U.S. manufacturers and other businesses.

Modern hydraulic fracturing – fracking has been used commercially for decades – is the technological engine behind surging U.S. oil and natural gas output. According to the U.S. Energy Department, up to 95 percent of new wells drilled today are hydraulically fractured, accounting for two-thirds of total U.S. marketed natural gas production and about half of U.S. crude oil production.

Modern hydraulic fracturing and horizontal drilling allow multiple wells to be drilled from one spot, reducing the size of the drilling area above ground by as much as 90 percent. Fracking is the key to unlocking vast U.S. shale resources, freeing up oil and natural gas that previously was inaccessible, while protecting groundwater supplies and the environment. America's shale energy revolution is privately financed and technologically driven. It's also an economic dynamo; shale natural gas and oil projects in just one region, the Marcellus shale, were responsible for more than 72 million man hours of direct and indirect labor construction hours from 2008 through the first half of 2014. By helping to lower power and materials costs, as well as stimulating economic activity for a variety of businesses, like service and supply companies, fracking has supported growth across an economy that has struggled in recent years.

Hydraulic fracturing is modern technology, safely and responsibly developing vast reserves of oil and natural gas from shale and other tight-rock formations. It's the backbone of an energy renaissance that's making the U.S. more prosperous and safer in the world today.

The combination of industry standards, best practices and effective state and federal regulation is protecting communities and the environment – while making available increasing volumes of cleaner-burning natural gas that is allowing the U.S. to lead the world in reducing carbon emissions from electricity generation.

## KEY POINTS

- **America is powered every day by oil and natural gas, which supplies 66 percent of the energy Americans use, according to the U.S. Energy Information Administration.**
- **Through private investment, technological innovation and American grit, U.S. oil and natural gas producers launched a domestic energy renaissance that has seen oil production surge 78 percent and natural gas output rise 31 percent since 2008.**
- **Modern horizontal and directional drilling techniques allow multiple wells to be drilled from one spot, reducing the footprint of the site by as much as 90 percent. When the well is complete, the production site can be approximately the size of a two-car garage that will yield oil or natural gas for decades.**
- **Oil and natural gas are projected to supply 67 percent of the country's energy needs in 2040.**
- **Advanced horizontal drilling and modern hydraulic fracturing have safely unlocked vast deposits of shale, and have made the U.S. the world's leading oil and natural gas producer.**
- **Studies from government and universities have shown that hydraulic fracturing is safe and does not threaten groundwater.**
- **Oil and natural gas projects related to one shale region in the U.S. were responsible for more than 72 million direct and indirect labor construction hours.**



# AMERICAN PETROLEUM INSTITUTE ENERGY AND THE ECONOMY

## CONSUMERS AND WORKERS

**You don't have to look very far to see the American energy renaissance at work for U.S. consumers.** In 2016 U.S. retail gasoline prices were at their lowest level since 2004. Falling prices at the pump reflect reduced crude oil prices worldwide – in part, because of rising U.S. crude output over the same period.

Increased global supply puts downward pressure on crude prices. The result for consumers is significant savings when they fill up. AAA estimates Americans saved, on average, more than \$550 per licensed driver in 2015 relative to 2014. That's a year over year savings of \$115 billion, which translates into increased disposable household income for individuals and families, as well as cost savings to manufacturers and other businesses for transportation of raw materials and finished goods. Consumers ultimately benefit from those savings, too.

And the benefits of abundant American energy extend beyond our fuel tanks. According to one study, plentiful natural gas from shale put an extra \$1,337 back in the pocket of the average U.S. family through lower home energy costs and lower costs of goods and services. Here's another data point: Since 2008, roughly the start of America's production surge, average annual energy costs per U.S. household have dropped 14 percent, lowering Americans' overall cost of living.

American energy is providing savings benefits to consumers but also energy – the energy to travel, build, create and manufacture. U.S. industrial electricity costs are 30 to 50 percent lower than those of overseas competitors, which is helping increase business investment here at home. The American Chemistry Council says U.S. chemical production grew 1.6 percent in 2016 and is projected to increase through 2020 with more than \$164 billion in investments expected to come online.


This broad economic support provided by America's oil and natural gas companies benefits individuals and families. We have a once-in-a-generation opportunity to

find solutions for many of today's most pressing issues, including creating middle class jobs, tackling income inequality, ensuring sustained affordable energy for consumers and enhancing our national security. And for all of these goals, and others, the 21<sup>st</sup> century American energy renaissance offers a solution.

## KEY POINTS

- **American families saved on an average, \$1,337 in 2015 through lower home energy costs as well as lower costs of goods and services as a result of the abundant supply of North American natural gas.**
- **Among the 1.9 million job opportunities projected for the oil and natural gas industry, over 55 percent are projected to be in blue-collar occupations – indicating great opportunity for workers with high school diplomas and some post-secondary training.**
- **A recent report projects that oil, natural gas and petrochemical job opportunities will include over 700,000 positions to be held by African American and Hispanic workers, and more than 290,000 jobs filled by women by 2035.**
- **Lower oil and natural gas prices give U.S. industries a crucial competitive edge and are attracting more business investment back into the U.S.**
- **Since 2008, roughly the start of the energy renaissance, the average annual energy costs per household in the United States have dropped by 14 percent.**
- **For the American consumer, the nation's energy renaissance has meant lower energy costs, an average of \$550 savings in 2015 on transportation fuel costs, according to the AAA.**
- **According to the American Chemistry Council, U.S. chemical production grew 1.6 percent in 2016 and is projected to continue to increase through 2020 as new capacity from 264 announced projects and over \$164 billion in investment comes online.**





# AMERICAN PETROLEUM INSTITUTE ENERGY AND THE ECONOMY

## EXPORTS

**“I believe that a focus on energy security can and must be a critical new element in the American strategic partnership in Central and Eastern Europe, and will benefit Poland, Europe as a whole, and the United States.”**

**General James L. Jones**, Former National Security Advisor to President Obama

One benefit of the renaissance in U.S. energy production is the new capability to export American oil and natural gas – the mere discussion of which reflects the recent sea change in the U.S. energy outlook. Today, thanks to surging domestic output, exporting oil and gas is not only possible, it’s happening, with clear benefits for the economy, domestic production and America’s allies abroad.

The United States started freely trading crude oil in December 2015, following congressional legislation to end a 1970’s-era ban on exports. The early results are promising. The U.S. Energy Information Administration (EIA) reported that the number of countries buying American crude in 2016 had increased sharply over 2015 and 2014 (when major restrictions on exports were in effect). Further, significant domestic fuel cost increases predicted by some opponents of lifting the export ban haven’t materialized – which is what most major studies projected.

Unlike crude exports, the situation with LNG exports is different, because there wasn’t a ban. Rather, declining domestic production of previous decades was pushing the U.S. toward importing large volumes of natural gas to meet needs here at home. The shale energy revolution changed that; now there’s an LNG export opportunity, one that an ICF study projects could contribute up to 452,000 jobs nationwide, while adding up to \$73.6 billion annually to GDP through 2035. Beyond the job and economic benefits, exporting U.S. LNG will help allies overseas – especially those seeking more options in terms of LNG supply – in particular, countries in Central and Eastern Europe.

With new crude exports and growing capacity to export LNG, the United States is just now discovering its potential as a global energy supplier. It’s time to complete the equation by expediting federal approvals for LNG export facilities so that the U.S. can be fully competitive with other suppliers around the world.

**“Like shale gas was a game changer in the U.S., American gas exports could be a game changer for Europe.”** Maros Sefcovic,  
The European Union’s energy chief

## KEY POINTS

- In the first year after export restrictions were lifted, the number of nations buying American crude oil increased to 26, further diversifying global supply options, boosting the U.S. economy through increased trade activity with Europe and providing an outlet for U.S. producers.
- Fuel cost increases predicted by those who opposed lifting the oil export ban did not materialize.
- Exporting natural gas to U.S. allies could contribute up to 452,000 American jobs between 2016 and 2035, and add up to \$73.6 billion annually to the U.S. economy.
- As of December 2016, more than 20 U.S. facilities still awaited approval, and more than half of those applications were sent to the Department of Energy in 2014 or earlier. Meanwhile, dozens of LNG export projects are currently planned or under construction in other nations.
- Access to U.S. natural gas will help improve energy security for our allies in Europe that are vulnerable to supply disruptions from other countries.
- The mayor of a Lithuanian town that just opened a natural gas import terminal to break reliance on Russian natural gas explained the geopolitical implications succinctly, commenting: “U.S. LNG is more than just about gas. It’s about freedom.”
- A 2014 DOE study found that exporting U.S. LNG will reduce global GHG emissions because U.S. natural gas consumed in Europe or Asia has lower life cycle GHG emissions than power generation from locally sourced fossil fuels.



# AMERICAN PETROLEUM INSTITUTE ENERGY AND THE ECONOMY

## RENEWABLE FUEL STANDARD (RFS)

**There might not be a sharper contrast with the innovation- and market-driven success of the U.S. energy renaissance than the broken federal Renewable Fuel Standard (RFS) – a program rooted in the era of U.S. energy scarcity that has been made obsolete by the ongoing surge in domestic oil and natural gas production.**

The RFS was significantly expanded nearly a decade ago to help counter rising U.S. crude oil imports. The idea was to stand up an industry that would supply the country with renewable fuels – ethanol, advanced and cellulosic biofuel and biodiesel – that could be blended into the nation's gasoline supply. But advanced and cellulosic biofuels haven't taken off commercially and are dwarfed in the RFS mix by corn ethanol. At the same time, the purpose of the RFS has been overtaken by events – chiefly a U.S. energy revolution that has seen domestic crude production increase nearly 80 percent since 2009 and a lowering of crude imports to levels not seen since 1985.

At the same time, U.S. gasoline demand has fallen below levels projected by the Energy Information Administration (EIA), even as mandates to blend more ethanol into the fuel supply continue to grow. Lower demand coupled with rising RFS mandates risks breaching the ethanol blend wall, where more ethanol is required than can be safely blended as the E10 gasoline that's standard across the country.

**This could put consumers at risk.** About 85 percent of the vehicles on the roads today weren't designed to use higher ethanol blends like E15, and studies have shown E15 can damage engines and fuel systems in those vehicles and could even void manufacturers' warranties. Beyond those potential impacts, those pushing for greater use of higher ethanol blend fuels in the marketplace are ignoring the marketplace, where consumer reception for E15 and E85 has shown EPA's aspirations for those fuels are unrealistic.

**BOTTOM LINE:** The RFS is an outdated, flawed program that should be repealed or significantly reformed. Its original objective, to reduce crude imports, is being achieved instead by rising domestic production. The risks of ever-increasing ethanol volumes in the fuel supply are too great.

## KEY POINTS

- **Government regulations currently mandate gasoline to be blended with renewable fuel including ethanol. Mandating additional levels of ethanol could breach the “blend wall,” requiring more ethanol than can be safely blended as standard E10 fuel. About 85 percent of vehicles on the road today weren't designed to use higher ethanol blends like E15, which studies show could cause engine damage. In fact, use of higher ethanol blends could void warranties of some vehicles.**
- **RFS mandates for ever-increasing use of ethanol in the fuel supply could result in driving up the price of gasoline by 26 cents per gallon, according to a study by the nonpartisan Congressional Budget Office. 75 percent of 2016 voters were concerned about government mandates to increase ethanol in gasoline.**
- **Demand for ethanol-free gasoline (E0), which many consumers seek for boats, lawnmowers, classic cars, motorcycles and power equipment, is significant. The Energy Information Administration reported in 2015 Americans consumed 5.3 billion gallons of ethanol-free gasoline, but the EPA's 2017 volume requirements incorporate only 200 million gallons.**
- **USA Today calls the ethanol mandate a “folly” that “forces consumers to buy billions of gallons of ethanol, a costly and inferior fuel produced mostly from corn.”**



# AMERICAN PETROLEUM INSTITUTE ENERGY AND THE ECONOMY

## TAXES

**The U.S. oil and natural gas industry invests \$232 billion in domestic capital investments every year.** That's steel in the ground, paychecks for families and American production helping to grow our economy. This type of investment is a main driver of economic growth, technological advancement and jobs and should be considered wisely when making any changes to the tax code.

The U.S. tax system can impact the cost of capital in important ways. In particular, how those costs are recovered and depreciated is directly tied to a business's cost of capital analysis. Furthermore, even if coupled with a corporate tax rate reduction to lessen the impact of depreciation repeal or timing increases, most studies show that the long-term effects would result in slower economic growth.

The oil and natural gas industry is very capital intensive – from well equipment to pipelines to refiner towers. The ability to continue to make substantial investments would be directly impacted by slower capital cost recovery provisions

As tax policy is debated and reform is considered, it must be remembered that proposals increasing the cost of capital will have long-term, negative economic consequences as businesses adjust to the new tax regime. The goal of any well-structured tax system should be to raise revenue in a way that does the least amount of economic harm, while encouraging domestic investment and job creation, and allowing taxpayers to compete internationally for new opportunities.

## KEY POINTS

- Subsidies are cash outlays from the U.S. Treasury, and the oil and natural gas industry doesn't get them. There are no targeted tax credits currently being used by industry.
- Legitimate tax treatments used by oil and natural gas companies – similar to those used by other business sectors – regularly come under attack by those pushing for higher taxes on energy companies.
- Tax rules should be non-discriminatory among industries and should provide a level playing field for taxpayers engaged in similar activities.
- Any pro-growth tax system should recognize the cost of capital and move toward a model of immediate expensing or decreasing depreciation lives to as short as possible.
- Any tax reform should be based on sound, transparent policies, and tax rates should be lowered to support a tax structure that promotes investment and is competitive with other major trading partners.
- Rules ensuring that foreign source operating income of U.S.-based companies is not subject to double taxation are essential for supporting the competitiveness of U.S. companies internationally.
- Any new tax regime will be difficult for businesses to immediately adopt. Fair and equitable transition rules must be developed and implemented.

# AMERICAN PETROLEUM INSTITUTE ENERGY AND THE ECONOMY

## TRADE

**The United States is the world's leading producer of oil and natural gas.** Free trade allows the U.S. to maximize the benefits of being the world's largest producer of oil and natural gas.

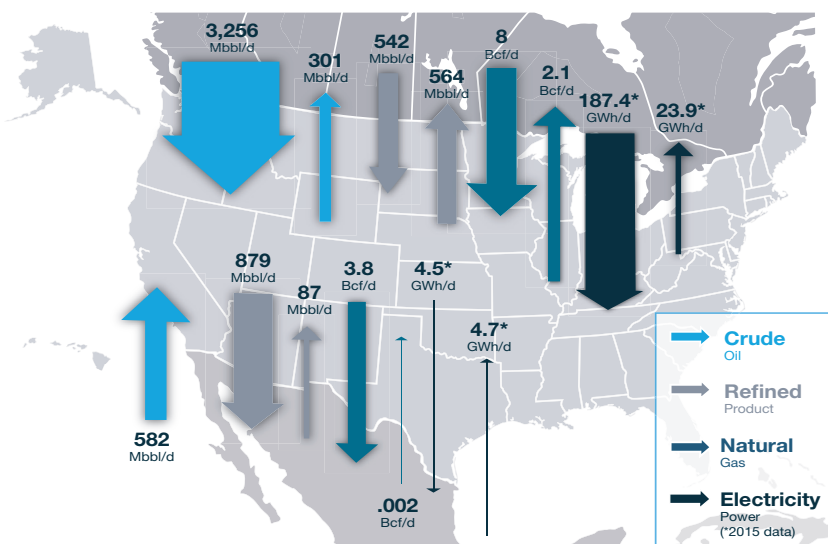
Oil and natural gas production from shale resources, made available by hydraulic fracturing and horizontal drilling, has led to a U.S. revolution.

As a result, imports of crude oil by the U.S. have decreased in recent years. At the same time, U.S. consumers benefit from the lowest July gasoline prices in 12 years, which reflect reduced crude oil prices worldwide – in part because of rising U.S. crude output over the same period. In addition, natural gas prices are at their lowest annual average price since 1999. The combination of low prices and rising production of crude oil, natural gas and refined products makes it possible for the U.S. to enjoy lower energy prices at home and to increase our exports to help friends and allies abroad through trade.

For example, free trade has helped make North American energy markets integrated and interdependent. Energy infrastructure crosses the borders of the U.S., Canada and Mexico. The trade in crude oil, natural gas, refined products such as gasoline and petrochemicals, and electricity between the three countries is multi-directional.

## KEY POINTS

- Oil and natural gas markets are global. API members support free trade because it supports jobs, keeps energy more affordable and strengthens U.S. foreign policy.
- As soon as 2020, North America will achieve self-sufficiency with respect to liquid fuels, when measured by production of liquid fuels exceeding consumption of the same across the U.S., Canada and Mexico.
- NAFTA's zero tariffs, trade liberalization, market access and investment protection all play a critical role in supporting U.S. jobs, affordable energy and energy security of the US and our allies.
- Zero tariffs make energy we consume more affordable, allowing oil and natural gas products and services – and those of our integrated supply chains – to flow efficiently.
- Free flows – or trade liberalization – across U.S. borders allows U.S. energy companies and refineries, which lead the world in efficiency and environmental stewardship, to provide jobs here in the U.S. that support exports of oil, natural gas and refined products to consumers around the world.
- Trade and investment agreements level the playing field outside the U.S., allowing open market access to our oil and natural gas companies to trade products and make competitive investments abroad.
- Strong protections for U.S. investors, including Investor- State Dispute Settlement (ISDS), are consistent with U.S. law and practice and protect U.S. oil and natural gas foreign investments against egregious actions such as expropriation; these do not allow for companies to challenge regulations in the U.S. or abroad.



**FIGURE 1. NORTH AMERICA ENERGY FLOWS BY COMMODITY, 2016**





# ENERGY AND SECURITY







# AMERICAN PETROLEUM INSTITUTE ENERGY AND SECURITY

## ACCESS

**The United States is the number one producer of oil and natural gas in the world and maintaining that position benefits U.S. national security, economic security and energy security.** While the U.S. has abundant

potential resources off its shores, under current government policies only six percent of federal offshore areas are open to leasing and production. Offshore oil and natural gas production serves as the backbone of U.S. production and plays an important role in stabilizing U.S. energy production, even as onshore shale plays have created a U.S. energy renaissance. The Department of the Interior recently initiated the process to develop a new 2019-2024 Five Year OCS Leasing Program. This is the first step of a multi-step, multi-year process and continuing momentum throughout the process is important if the U.S. is to take advantage of the vast resources off our shores, which could create jobs, grow our economy, and increase American energy security. Doing this safely remains industry's top priority, and we are constantly improving the technologies, standards and best practices, and programs that protect our workers and our environment.

## ATLANTIC SEISMIC

The last seismic surveys targeting potential oil and natural gas deposits in the Atlantic OCS were conducted more than 30 years ago. Given advances in technology and the need for more updated scientific data, the U.S. government is currently reviewing permits to allow seismic surveys in the Atlantic, which is an important step to take to ensure that future decisions are informed by science. This will allow the government to update its resource estimates using new science and technology rather than relying on outdated information collected decades ago.

## KEY POINTS

- The United States has a long and successful history of producing oil and natural gas offshore, but government restrictions keep 94 percent of federal offshore waters locked away.
- More than 80 percent of voters support increased development of U.S. oil and natural gas.
- Our energy renaissance has put millions of Americans to work, generated billions of dollars in revenue for the government, and put downward pressure on prices for consumers.
- Opening new areas to exploration, like Alaska, the Atlantic and eastern Gulf of Mexico, would send a signal to the markets and to the world that America's oil and natural gas renaissance is here to stay.
- Accessing our offshore oil and natural gas resources is safer now than ever before. Regulators and the industry together have made great strides to enhance the safety of offshore operations.
- A revenue sharing agreement like the one in effect for states bordering the Gulf of Mexico should be extended to other coastal states.
- The most recent Department of Defense Compatibility Assessments determined that only 5% of the Mid- and South-Atlantic offshore areas and 11% of those in the Eastern Gulf of Mexico would be off limits to oil and natural gas activities demonstrating that the military can coexist with offshore production like it does currently in the Gulf of Mexico.
- Modern seismic surveys are the best way to safely explore for oil and natural gas offshore and industry's experience over decades of activity shows little-to-no impact on marine mammal populations.





# AMERICAN PETROLEUM INSTITUTE ENERGY AND SECURITY

## REFINING

**Our nation's refineries provide us with quality fuels used for transportation, energy for heat and light and petrochemicals needed to manufacture the products we use every day – refineries are essential to our economy.**

U.S. refineries contribute approximately 1.8 percent to the nation's GDP. Domestic refineries support \$98 billion in wages and benefits annually, supporting more than 1.2 million jobs all along the skills continuum, which provides financial benefits to communities across the country. This is no surprise – the salaries at a refinery are generally more than twice the national average.

Our nation's world-class refineries provide fuels and petrochemical feedstocks needed to manufacture thousands of everyday products, such as plastics, pharmaceuticals, fertilizers and more. Today, U.S. refining capacity exceeds 18.5 million barrels per day. The sophistication of U.S. refineries, combined with the strength of the rest of the oil and gas industry, makes the country more secure by providing a consistent supply of domestic petroleum products and exports, all while refiners are doing their part to help the environment.

Domestic refiners are upgrading their operations to produce cleaner fuels and meet the needs of the American consumer. In fact, they spent more than \$160 billion between 1990 and 2015 on environmental expenditures. The combination of cleaner gasoline and diesel fuels, modernized equipment and facilities and more fuel-efficient vehicles has helped reduce U.S. air pollutants by 71 percent between 1970 and 2015, even as vehicle miles traveled increased by more than 184 percent. Refiners have dramatically changed fuel formulations across the country and continue to enable significant reductions in vehicle tailpipe emissions. Gasoline produced today has reduced levels of sulfur, toxics and summer vapor pressure, all improving air quality.

Further reductions in sulfur will continue to build on these improvements through 2020 and beyond as Tier 3 fuels and vehicles are phased in and the vehicle fleet turns over. Ultra-low-sulfur diesel fuel has 99.7 percent less sulfur and is now produced for all highway and non-road uses, allowing for dramatically reduced nitrogen oxide emissions from newer diesel engines. A strong U.S. refining sector is essential to our nation's economic and environmental security – and must not be hampered by duplicative and unnecessary regulation.

## KEY POINTS

- **There are 141 operable refineries in the U.S. They spread across the country in thirty states with half located in the Gulf Coast region.**
- **The U.S. refining industry supports more than 1.2 million jobs for high-skilled American workers across the country, with an average annual pay that's generally more than twice the national average.**
- **The U.S. refining industry supports \$98 billion in wages and benefits annually, contributing approximately 1.8 percent of the U.S. economy.**
- **U.S. refiners spent more than \$160 billion between 1990 and 2015 on environmental improvements and cleaner fuels for American consumers.**
- **The U.S. has the most sophisticated refining system worldwide and exports the most refined petroleum in the world.**
- **U.S. refining capacity, now at over 777 million gallons per day, is at a record high. Of this output, the U.S. consumes 392 million gallons of motor gasoline per day.**
- **More than half – approximately 10.2 million of U.S. refining capacity – is integrated with petrochemical manufacturing.**



# AMERICAN PETROLEUM INSTITUTE ENERGY AND SECURITY

## INFRASTRUCTURE

**American consumers' growing energy appetite means greater demands on our nation's energy infrastructure, including pipelines, railroads, highways, waterways and ports.** A robust infrastructure system that is safe, efficient and properly maintained can help lower the costs of supplying oil and natural gas and its products for consumers, by reducing congestion, maximizing efficiency and preventing accidents.

The country's energy infrastructure system was originally built to move oil and gas from the coasts, where it was delivered by ship, to the refining centers and populations inland. Today, the U.S. energy renaissance is driven by the enormous amount of energy resources found in inland formations. Pipelines are a modern, safe and efficient way to move oil and natural gas from where it is produced to where it is refined and processed to where it is used. In 2014, 500,000 miles of liquid and natural gas transmission pipelines transported 16.2 billion barrels of crude oil and petroleum products and 27.3 trillion cubic feet of natural gas throughout the country at a safety rate greater than 99.99 percent. The U.S. will need more pipelines to keep pace with growing production and consumer demand. The current lack of energy infrastructure negatively affects consumers. For example, in the Northeast infrastructure bottlenecks and/or the lack of infrastructure are part of the reason the region's 9 states had some of the highest energy costs in the country in 2016.

As impressive as our nation's energy infrastructure is, it needs to be expanded to keep pace with a growing population, demand for goods and services and energy needs. Investing in our nation's infrastructure will allow the oil and natural gas industry to keep pace with energy demand. It also will help keep energy affordable for the consumer, create well-paying jobs, give U.S. manufacturers a competitive advantage through lower energy and raw material costs and provide revenue to local, state and federal governments. It also will help keep energy affordable for the consumer, create well-paying jobs, give U.S. manufacturers a competitive advantage through lower energy and raw material costs and provide revenue to local, state and federal governments.

<sup>1</sup> <http://www.api.org/-/media/Files/Policy/Infrastructure/API-Infrastructure-Study-2017.pdf>

<sup>2</sup> <http://www.api.org/-/media/Files/Policy/Natural-Gas-Solutions/API-Natural-Gas-Industry-Impact-Report.pdf>

## KEY POINTS

- To reach America's full energy potential we need to maintain our existing infrastructure and invest in new infrastructure projects. The private sector is investing billions of dollars in infrastructure with capital spending for the infrastructure that moves and transforms oil and natural into everyday products averaging \$78 billion per year between 2012 and 2016.
- According to a 2017 study<sup>1</sup>, updating America's energy infrastructure could generate up to \$1.3 trillion in new private capital investment, support up to 1 million jobs and add up to \$1.9 trillion to our nation's economy by 2035.
- And according to another recent 2017 study<sup>2</sup> examining the economic benefits and opportunities from the entire natural gas value chain, including the production of natural gas, its transportation and end uses like power generation and manufacturing:
  - » By 2040, consumers across the country could save an estimated \$100 billion, or \$655 per household, from the increased use of natural gas from potential increased supply throughout our economy – from manufacturing to generating affordable electricity.
  - » In 2015, the natural gas supply chain - production through end use - supported 3 percent of the U.S. economy, including direct, indirect and induced activities and jobs associated with natural gas.
  - » In 2015, natural gas supported more than 4 million jobs across the country from production to end uses like manufacturing. That number could be as much as 6 million jobs by 2040.
- Pipelines are a modern, safe and efficient way to move oil and natural gas. This pipeline network transports oil, petroleum products and natural gas throughout the country at a safety rate greater than 99.99 percent.
- Railroads help transport oil to regions of the country where it is needed, and accomplish this at a safety rate greater than 99.99 percent.
- The current lack of energy infrastructure has negatively affected consumers. In the Northeast, for example, infrastructure bottlenecks and/or the lack of infrastructure are part of the reason the region's 9 states had some of the highest energy costs in the country in 2016.
- Except for Pennsylvania, consumers in the Northeast paid between 15 percent to 68 percent more for their energy than the national average in 2016.









# ENERGY AND COMMUNITIES









# AMERICAN PETROLEUM INSTITUTE ENERGY AND COMMUNITIES

## SAFETY

**“The oil and natural gas industry has shown the world how entrepreneurial spirit, innovations in energy production techniques, a core commitment to safety – pioneered and reaffirmed every day by the millions of women and men of the oil and natural gas industry – and smart, effective regulations have transformed the United States from a passive consumer on the world energy stage to a leader in only a decade’s time.”** Jack Gerard, API President and CEO

**Safety is a core value for the oil and natural gas industry, which works tirelessly to improve safety in the workplace through ongoing research, standards development, training, sharing of recommended practices and advocacy.** These efforts are paying off. Even as the industry provides the foundation for our economy and quality of life, the injury and illness rate for the U.S. oil and natural gas industry remains well below the national average for all private sectors. **The industry remains committed to continuous improvement with a keen focus on zero incidents.**

Since 1924, API has been the leader in developing industry standards that promote reliability and safety worldwide. The API Standards Program is accredited by the American National Standards Institute (ANSI), the same body that accredits programs at several national laboratories. These standards are developed by the best and brightest technical experts from government regulators, academia and industry.

The oil and natural gas industry is committed not only to the safety and health of its employees and contractors, but also to the people of the communities in which we operate. Careful review of the science shows that current, robust industry standards and stringent state and federal regulations are protecting public health. America is in the middle of an energy renaissance built upon the safe and responsible development of oil and gas reserves in a manner that protects of human health and the environment.

## KEY POINTS

- Safety is the number one priority for the petroleum and natural gas industry.
- The oil and natural gas industry develops standards through an open, third-party accredited process that involves experts from a wide range of disciplines, including academia, government regulators and industry.
- The oil and natural gas industry maintains nearly 700 standards covering all segments of operations.
- Here in the United States, these standards are referenced more than 430 times in federal regulations, covering multiple government agencies, including the Bureau of Safety and Environmental Enforcement, the U.S. Coast Guard, the Environmental Protection Agency, the Federal Trade Commission, the Department of Transportation’s Pipeline and Hazardous Materials Safety Administration, and the Occupational Safety and Health Administration.
- Additionally, API’s standards are the most widely-cited petroleum industry standards by state regulators, with 240 API standards cited over 4,130 times in state-based regulations. Finally, API’s standards are the most widely cited standards by international regulators in the 14 major producing regions.









# AMERICAN PETROLEUM INSTITUTE ENERGY AND COMMUNITIES

## NATURAL GAS

**“The constant stress of fluctuating commodity prices and unpredictable weather is softened a bit with additional income from leasing, royalties and pipeline right of way. Over the long term, I believe natural gas development will actually preserve our precious open space. Successful farmers will farm the land rather than subdivide it.”** Jackie Root, Pennsylvania farmer and president of the National Association of Royalty Owners

**The U.S. depends on energy being available at the flip of a switch, 24 hours a day, seven days a week. The supply and demand of electricity must always be in balance – meaning the energy going into the power grid must equal the amount being used.** That’s why all our nation’s energy systems require constant power generation that also can fluctuate with our needs. Natural gas fuels that kind of generation. It reliably and efficiently provides affordable, flexible power that can quickly ramp up to keep the lights on when intermittent resources like wind and solar are not available.

American natural gas is a solution that has forever altered the world’s energy equation by: generating the power we need for our homes and businesses; providing the building blocks for our manufacturing renaissance; making our nation and our allies more secure; and fueling natural gas-powered transportation on our roads, oceans and waterways.

In 2015, natural gas generated nearly one-third of U.S. electricity, and clean-burning natural gas is lowering greenhouse gas emissions and reducing air pollution. Companies that provide the electricity to light, heat and cool your home have turned to natural gas. Power providers, manufacturing companies, surface and marine fleet operators and millions of small business and home-owners have turned to natural gas. Natural gas is America’s largest growing source of electricity generation, offering a clean, reliable and affordable way to create the energy people need, when and where they need it.

## KEY POINTS

- As the world leader in both emissions reduction and production of oil and natural gas, the United States has a proven model for achieving environmental progress without sacrificing jobs, economic growth, energy security or consumer affordability.
- More than 65 percent of the CO<sub>2</sub> reductions in the electric power sector since 2005 have come from fuel switching to natural gas.
- In 2016, natural gas became the leading fuel for generating electricity in the U.S. for the first time ever.
- Natural gas generation is capable of providing on-demand “dispatchable” power, ramping up quickly and following real-time changes in demand for electricity.
- A New England study illustrates how the increased use of natural gas benefits the environment. The study found that as the fuel mix shifted toward natural gas, regional emissions dropped 56 percent for nitrogen oxide, 91 percent for sulfur dioxide and 22 percent for carbon dioxide between 2006 and 2015.
- 77 percent of 2016 voters supported natural gas’ role in reducing U.S. greenhouse gas emissions.



# AMERICAN PETROLEUM INSTITUTE ENERGY AND COMMUNITIES

## ENVIRONMENTAL PROGRESS

**“By 2015, the combined emissions of the six common pollutants (PM<sub>2.5</sub> and PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOCs, CO and Pb) dropped 71 percent since 1970. This progress occurred while the U.S. economy continued to grow, Americans drove more miles and population and energy use increased.”** Environmental Protection Agency (Air Trends Report)

**America’s oil and natural gas industry has a long-standing commitment to protect the environment. The industry’s environmental investments represent a crucial aspect of today’s energy exploration and production process. Between 1990 and 2015, the industry has invested more than \$321 billion toward improving the environmental performance of its products, facilities and operations – \$996 for every man, woman and child in the United States. From 2000-2014, our industry invested \$90 billion in new low- and zero- emissions technologies alone.**

The oil and natural gas industry is committed to a regulatory structure that promotes safety and responsible operations and protects the public health and the environment. The business community, including the oil and natural gas industry, needs a cost-effective regulatory system that promotes the certainty and predictability necessary to make significant long-term capital investments, bringing energy and jobs to the U.S. economy.

Through the right mix of Executive Orders, legislation and agency regulations, we can continue to see emission drop while meeting the energy demands of the nation. According to EPA’s 2017 greenhouse gas inventory (1990-2015), U.S. carbon dioxide emissions were more than 11% below 2005 levels, even as the U.S. economy, and domestic energy production, grows. Carbon dioxide emissions from the electric power sector are near 30-year lows due primarily to increased use of natural gas as a fuel.

The plentiful, affordable, and dependable supply of U.S. natural gas, coupled with the fuel’s environmental advantages, makes it a logical choice. It achieves what were once thought to be mutually exclusive goals: providing more energy with a smaller impact on our environment. The powerful combination of continually improving industry practices, advancing state programs and federal environmental statutes – all work together to provide an effective structure that allows for the essential development of the nation’s oil and natural gas resources while protecting the environment.

## KEY POINTS

- From 1990-2016, gas production increased by 55%. During that same time, total methane emissions from natural gas systems are down 16%, according to EPA data.
- Thanks, in part, to increased use of natural gas and more efficient production processes, by 2015 ozone concentrations have dropped 17 % since 2000 and 32% since 1980.
- Ozone levels are declining at such a rate that, without any further investment on the 2015 standard, all but 9 counties in the U.S. (excluding California) are projected to be in attainment with the 70 ppb standard by 2025.
- Between 1990 and 2015, the industry has invested over \$321 billion toward improving the environmental performance of its products, facilities, and operations.
- The oil and natural gas industry is investing in cutting-edge technologies that reduce leaks, capture emissions and improve energy efficiency.
- According to EPA data, methane emissions from natural gas systems have fallen even as production and use have increased.
- Greater natural gas production and use lowers emissions of air pollutants such as mercury, sulfur dioxide, nitrogen oxide, and particulate matter.
- The American Petroleum Institute establishes standards and best practices for oil and natural gas production that lead the world in becoming more efficient, safer, cleaner and more productive.

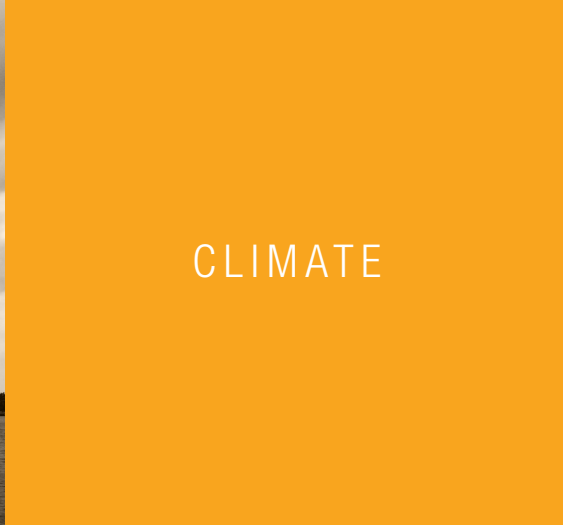
EXPORTS

INFRASTRUCTURE



CLIMATE

ACCESS



TRADE



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