



WRITTEN STATEMENT OF
AMERICAN FUEL & PETROCHEMICAL MANUFACTURERS
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on

**"21st Century Energy Markets: How the Changing Dynamics of World Energy Markets
Impact our Economy and Energy Security"**

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The American Fuel & Petrochemical Manufacturers (AFPM) is a national trade association representing more than 400 companies that encompass virtually all U.S. refining and petrochemical manufacturing capacity. AFPM appreciates the opportunity to share its view on the impacts of the rapidly changing energy markets on the U.S. economy, jobs, and consumers. AFPM's testimony will briefly discuss the state of the global energy markets, regulatory environment, and the refining industry's view on the potential impacts of policy changes.

Changing Energy Picture

Production

The United States is in the midst of an energy boom that few predicted even a few years ago. For decades, U.S. crude production declined and the national energy conversation was too often characterized by fears of scarcity. In reaction to the 1973 OPEC oil embargo, the United States enacted the Energy and Policy Conservation Act of 1975 (EPCA). As originally enacted, EPCA prohibited the export of both crude oil and petroleum products. Through a series of Executive Orders in the 1980's and 1990's, the ban on petroleum products exports and exports to Canada were both eased or lifted, but there was little reason to have a conversation about exporting U.S. crude that most thought was on the permanent decline. More recently, the 2005 Energy Policy Act and the 2007 Energy Independence and Security Act both reflected the scarcity mindset and gave rise to some of the most significant challenges refiners face today.

As we now know; however, innovation and entrepreneurship in the energy sector have reversed that trend, and the mere fact that Congress is holding this hearing is evidence that previous paradigms are no longer relevant. Led by new technology, U.S. crude oil production, particularly in North Dakota and Texas, averaged more than 8.6 million barrels per day (mbpd)

in 2014, an incredible 72 percent increase since production bottomed out at 5 mbpd in 2008. EIA projects that an additional 900,000 bpd of domestic production could come online by 2016. Of course, these projections are also based on assumptions about future conditions. Issues such as prices, geology, regulatory uncertainty, transportation logistics, and technology uncertainties will all impact future production.

When one broadens the lens and considers North America energy production, the picture becomes even brighter. In addition to new production in the U.S., Canada is expected to increase production by 500,000 bpd by 2016 for total new production of 4.2 mbpd. The types of crude are also different, with new Canadian production generally classified as heavy and the vast majority of new U.S. production classified as light. Diversity in crude slates can help ensure that refiners can access different properties to meet demand for different fuel mixes and other products.

Distribution

The energy renaissance is spurring significant changes in U.S. distribution. First and foremost, much of the new production is not connected to the refinery delivery infrastructure that existed prior to this tight oil boom. In many cases, new crude movements represent a reversal of historical flow patterns. As a result, upstream producers, midstream distributors, and refiners are rapidly adapting existing infrastructure while investing in new infrastructure. For example, some pipeline capacity is being adapted by converting natural gas pipelines to crude pipelines. Other pipelines are in planning or construction phases, including the southern leg of Keystone.

However, because our pipeline infrastructure is primarily developed from south to north, moving new supplies east and west has presented a challenge. The industry has responded with significant new investments in rail offloading facilities and terminals at coastal refineries, as well as new and improved tank cars to ensure crude oil can arrive to its destination safely and efficiently. In fact, AFPM members have invested more than \$4 billion on new and safer tank cars in just the past few years. As pipeline infrastructure continues to come online, some such as the North Dakota Pipeline Authority expect rail shipments from the Bakken to level off as pipelines and new small refineries are built in the Williston Basin.

The rapidly shifting distribution infrastructure has also changed the competitive positions of our refineries. For instance, historically Gulf Coast refiners ran more imported crude oil and mid-western refiners imported crude by pipeline from the Gulf. Now, mid-continent refiners are gaining access to reliable and affordable Canadian crude and close-by U.S. crude oil. Similarly, several east coast refiners are now sourcing a much higher percentage of their crude oil domestically rather than continuing the same levels of crude imports. Consider that several refineries in and around Philadelphia, PA nearly closed their doors permanently in 2012. However, those refineries were able to start acquiring U.S.-produced crude from the Bakken region and are still operating today, supporting thousands of jobs in Delaware Valley.

Refining

In addition to climbing the list of major crude oil producers, the U.S. is also home to the world's largest and most advanced refining industry. In total, our members produce more than 15 mbpd of finished petroleum products—primarily gasoline and diesel—making the U.S. the world's leader in refinery throughput and accounting for more than 20 percent of global fuel

manufacturing. Since 2009, U.S. refineries have been able to run at very high utilization rates to meet the needs of the domestic market, while also becoming a net exporter of finished petroleum products, led by diesel exports to Europe and South America. The boon in U.S. crude oil production has been a significant factor in keeping U.S. refineries competitive in an increasingly competitive global market.

AFPM is aware there are ongoing questions about whether U.S. refiners are even capable of handling new U.S. production. The questions are driven by a key misconception that the existing refining configurations are ill-suited to absorb more light sweet crude, which is the primary type of crude being produced from tight formations in the Bakken and Eagle Ford. In reality, however, U.S. refiners have plenty of room to accommodate new, domestic supplies of light crude oil, with additional capacity to further grow U.S. production. The refining industry is constantly shifting crude slates to maximize efficiency and to meet consumer demand.

During the 1980s many refineries—particularly along the Gulf Coast—made investments in order to process heavy, high-sulfur crudes from growing production in nearby areas such as Mexico and Venezuela. Similarly, albeit more recently, some mid-continent refiners have added additional capacity to handle heavier oils from Canada. However, these investments do not preclude those refiners from processing additional light crude oil. Refiners typically run different types of crude oil with different qualities through their processing units. In fact, refiners have already started to adapt to increased domestic production by reducing imports, increasing utilization, changing the crude mix, and investing in additional refinery changes.

First, the domestic crude boom has helped reduce U.S. crude oil imports from 66 percent of U.S. refinery inputs in 2007 to about 45 percent of refinery inputs in 2014. When one removes Canadian and Mexican crude imports, the U.S. has reduced crude oil imports from outside North America from 46 percent in 2007 to 23 percent in 2014. Given favorable economics, refineries along the Gulf Coast will continue to reduce imports and invest in equipment to process more light-ends. In fact, this investment is already occurring. Turner Mason estimates that with limited additional investments, the U.S. has 400 thousand bpd in additional capacity to process domestic production. Further, Turner Mason estimates that if announced investments are included and favorable economics continue, an additional 500,000 bpd of additional refining capacity is possible for a total of 900,000 bpd. This capacity is more than enough to handle the projected 720,000 bpd of lower 48 domestic crude oil production growth that the Energy Information Administration (EIA) anticipates between now and 2016. Over the long-term, if the high-resource cases materialize and the U.S. continues to increase production, a glut of light, high-naphtha crude could occur. However, the precise nature of future production is highly uncertain. One needs to look no further back than the government and industry projections of production in the last decade to show that what we predict today may not reflect reality.

As an example of this uncertainty, it is worth noting one of the more significant shifts in the U.S. energy market is the decline in the U.S. demand for gasoline. In particular, the Energy Information Administration's 2014 projection for gasoline demand in 2030 is almost 43 percent lower than what the agency foresaw in its 2007 Annual Energy Outlook. U.S. demand for distillates such as diesel and home heating oil is slated to rise, but distillate represents a much

lower share of U.S. fuel consumption than gasoline. The decline in gasoline demand is due to a number of factors, including increased vehicle efficiency and changes in consumer behavior.

As a result, U.S. refineries are increasingly utilizing international markets. For example, U.S. export of distillate to Western Europe and Latin America grew by more than 500 percent between 2000 and 2014. Refined product exports allow U.S. refineries to add value to crude oil and maintain the infrastructure that ensures the U.S. has the ability to produce as much product as it consumes. However, international markets are not stagnant and are quickly adapting. Other nations have been expanding their refining capacity and compete with U.S. for global market share. For instance, Saudi Arabia expanded its refining capacity nearly 19 percent between 2012 and 2013. Likewise, Brazil and China have increased refining capacity by 4.6 and 5.6 percent respectively. Much of this investment is being driven by growing demand in non-OECD countries, which account for nearly all the new growth in petroleum product demand. The U.S. is well-positioned to capture international market share provided U.S. policy is structured to allow refineries to effectively compete globally. Unfortunately, U.S. refineries are also the target of increasingly onerous and conflicting regulations.

Regulatory Challenges

The companies operating refineries in the U.S. compete intensely with each other and with global competitors for every gallon sold. It is widely known that consumers make decisions on where to buy gasoline based on as little as one penny per gallon difference. This competition at the corner gas station reverberates up the supply chain. Changing dynamics in the domestic and global markets for crude oil and petroleum products, combined with the regulatory environment, create an increasingly uncertain future for many U.S. refineries.

Leading the list is the Renewable Fuel Standard (RFS), which at its core is the federal government telling consumers that they must use certain types of biofuels in their vehicles. The ethanol volumes mandated by the RFS have risen to the point where they are no longer compatible with existing cars and infrastructure—triggering significant volatility in the market for compliance credits. Those credits, known as Renewable Identification Numbers (RINs) – in the case of corn ethanol these are called D6 RINs - peaked at \$1.46 per gallon in 2013 and averaged around \$0.50 in 2014. Last week RINs were trading at around \$0.72 per gallon. The RFS can limit the supply of gasoline and diesel to the United States based on the amount of renewable fuels consumed in U.S. transportation fuel. In particular, obligated parties can only supply as much gasoline and diesel fuel as they have RINs to meet the RFS obligation that such fuel incurs.

In addition to industry-specific regulations like the RFS, the refining industry also faces government mandated environmental requirements that often conflict with one another. For instance, the proposed ozone NAAQS standard will drive large areas of the country into non-attainment, which will essentially halt any new construction projects and make it harder for refineries to invest in upgrades. A NERA report released just last week estimates that the low end of the proposed ozone NAAQS standard will increase industrial power costs, reduce refining sector output by 0.8 percent, and cause an average annual loss of 1.4 million job equivalents. Last year, EPA finalized its Tier 3 fuel regulations to reduce the sulfur content in fuel, which will require expensive new equipment that will consume more energy and increase greenhouse gas emissions from refineries. Taken together, the U.S. regulatory environment is virtually

unparalleled compared to global competitors, creating a challenge for trade-exposed industries such as refining.

Finally, in addition to reduced demand, increased competition, and environmental regulations, U.S. refiners seeking to ship crude oil between U.S. ports must comply with the Jones Act. The Jones Act, enacted in the wake of World War I, requires shipments moved between U.S. ports to use vessels that are U.S. built and flagged, U.S. majority-owned, and crewed by at least 75 percent U.S. citizens. As a result, it is significantly more expensive to use a Jones Act vessel than it is to ship internationally. In the context of lifting the crude oil export ban, it would be significantly cheaper to ship a barrel of crude from the U.S. gulf coast to Europe, than it would be to simply ship the barrel of crude to an east coast refiner solely because of the Jones Act requirement. European refiners export gasoline to the northeast, competing directly with U.S. refiners in that region. Lifting the export ban without addressing this dynamic would put U.S. refiners at a competitive disadvantage to their European counterparts and seriously hamper the ability of these U.S. manufacturers to compete globally.

Conclusion and Crude Oil Exports in Context

The enormous growth in U.S. crude oil production has naturally led to questions about whether it is time for the U.S. to readdress portions of EPCA, and in particular the crude oil export ban. AFPM believes that the free market should drive all energy policy, and does not oppose lifting the ban. However, the refining industry also believes that a more holistic energy strategy is needed to ensure all barriers to free and functioning markets are addressed. In particular, allowing the export of crude oil without addressing other policies, including the RFS

and the Jones Act, will create disparate regional impacts and could disadvantage some domestic refiners against global competition.

Policymakers should be aware of these issues, seek to mitigate those possibilities, and endeavor to understand the full, fact-based picture as they make decisions of such major import. For example, there is no evidence that the U.S. is currently on the verge of hitting a “refining wall” where it risks shutting in U.S. crude oil production. The refining industry is also investing billions of dollars to handle new domestic production.

Again, AFPM does not oppose lifting the crude oil export ban, but urges Congress to base decisions on the facts while readdressing a suite of anti-free market policies contemporaneously. Enacting this type of comprehensive energy policy will avoid the mistakes of the past, which have bred a balkanized and conflicting set of priorities and policies that ultimately disadvantage U.S. consumers.

As always, AFPM looks forward to working with the Congress to develop an approach to energy policy that will ensure that domestic refiners are able to compete in the global marketplace and minimize economic disruptions.