

1.30.14, Oversight Hearing to explore opportunities and challenges associated with lifting the ban on U.S. crude oil exports.

FROM CHAIRMAN WYDEN

- 1. In your testimony you speak about the volatility of energy markets, particularly oil, as it relates to energy security you said, “OPEC oil is very vulnerable to supply disruptions.” Do you believe this volatility will continue, and if so, do you believe the US will be more dependent on OPEC oil if we allow exports?**

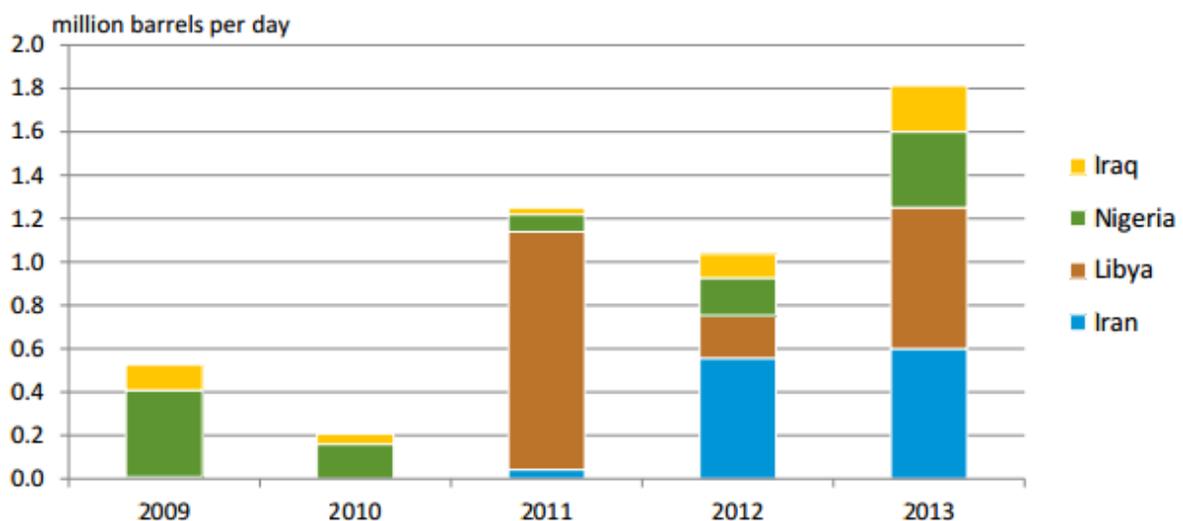
A1: The Energy Information Administration (EIA) recently found that Organization of the Petroleum Exporting Countries (OPEC) supply disruptions in 2013 reduced the anticipated growth in world global fuels supply. EIA reported this finding in the just published “Short-Term Energy Outlook Supplement: Uncertainties in the Short-Term Global Petroleum and Other Liquids Supply Forecast.”¹ EIA determined that

In January 2013, EIA’s Short-Term Energy Outlook (STEO) projected that global liquid fuels supply growth would average 1.0 million bbl/d in 2013, but EIA’s latest estimate shows that global supply grew by about 0.6 million bbl/d in 2013. The difference mainly reflects higher-than-expected unplanned supply disruptions among OPEC producers.²

This same analysis found that

OPEC disruptions increased in the second half of 2013, reaching 2.6 million bbl/d by the end of the year because of increased disruptions in Libya. *The issues underpinning the outages in these countries are unresolved, resulting in uncertain oil production outlooks for these countries.*³ (Emphasis added)

Figure 1. Estimated Unplanned Crude Oil Production Disruptions among OPEC Producers, 2009-13



Note: Estimated unplanned disruptions reflect the level of volumes shut in, accounting for effective production capacity.

Source: U.S. Energy Information Administration.

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As the production of U.S. oil has grown, the importation of foreign oil has declined from 57 percent in 2008 to 40 percent in 2013.⁴ This includes a 35 percent reduction in crude oil imports from OPEC since 2008, which was the second largest amount of imports since 1973.⁵ As U.S. domestic production continues to grow, EIA projects OPEC crude oil imports will decline by 47 percent between 2013 and 2020.⁶

Despite the important growth in domestic oil production, the U.S. will consume over 5 million barrels of oil and liquids per day in 2014 compared to the amount it produces.⁷ Unless there are large reductions in demand, the demand-supply gap will grow if the U.S. exports crude oil and liquids. This gap could be filled by oil from both OPEC and non-OPEC nations. If the U.S. begins to export significantly more oil than it did in 2013, it would have to import oil to offset the exports.

Oil companies would like to export “lighter” crude oil because there has been a slight increase in light oil production in the U.S. over the past few years.^{8 9} In 2013, EIA reported that domestic crude oil was light, with an average API gravity of 35.3. Imported oil was intermediate, with an average API gravity of 28.¹⁰

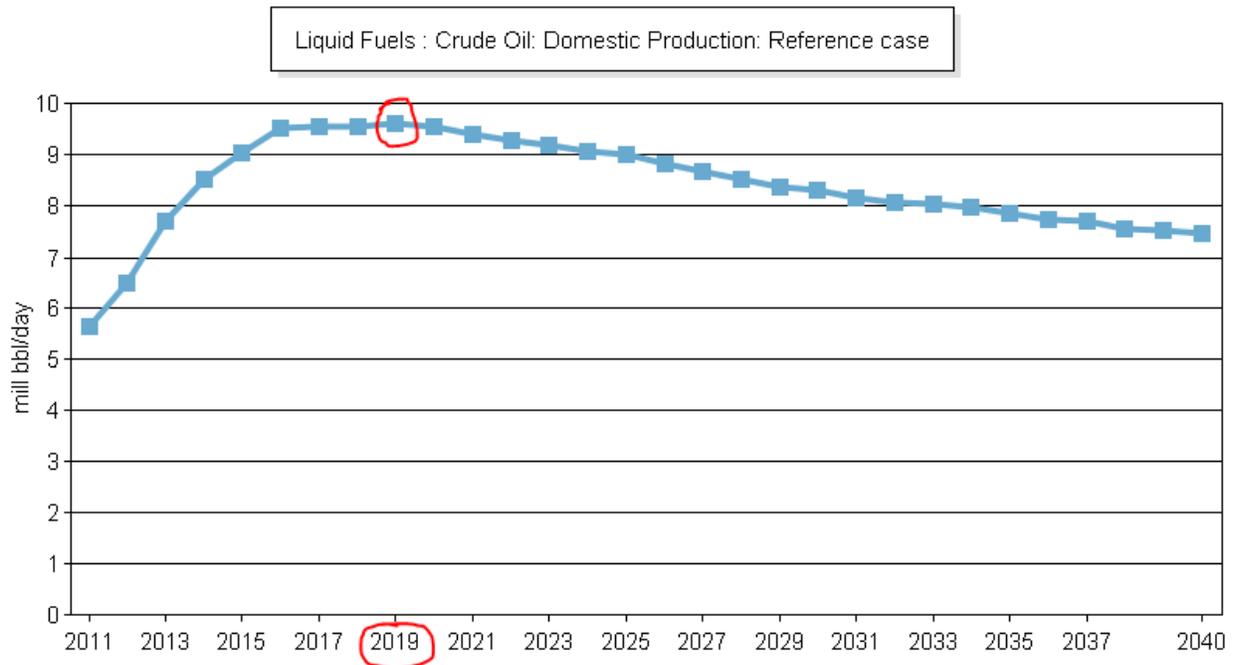
EIA projects that the increase in domestic production will “replace imports of medium and heavy crude.”¹¹ If exports were allowed, refiners could import slightly heavier oil as they were before the domestic production increase began in 2009. The three largest importers of heavy oil are Canada, Mexico, and Venezuela, with average imports of 2.6 million barrels per day (mbd), 1.0 mbd, and .8 mbd, respectively, during the first 11 months of 2013.¹² Presumably, some of the increase in heavier crude oil to offset any domestic exports will come from Venezuela, which is a member of OPEC. I am not aware of any projections of changes in future oil imports from these three nations if the crude oil export ban is lifted.

FROM RANKING MEMBER MURKOWSKI

- 1. The International Energy Agency states in its January 2014 Oil Market Report: “The growing volumes of light tight oil that cannot leave North America are increasingly posing a challenge to industry, putting the spotlight on the US crude oil export ban.” Last year, the head of the IEA – Maria van der Hoeven – warned that the ban threatens production. Where, in as much detail as possible, do you believe the IEA’s analysis is incorrect?**

A1: The International Energy Agency (IEA) “Oil Market Report” is not incorrect, but it is incomplete. It is simply a snapshot of U.S. crude oil production in 2013 and 2014, and not a projection of future production. The EIA reference case projects that U.S. crude oil production will peak in 2019, and then began a slow but inexorable decline through 2040, when production will be less than it was in 2013.¹³ (See graph below)

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Source: Energy Information Administration

The IEA notes that the U.S. oil industry has adjusted well to the significant increase in domestic production. It has

Demonstrated the capacity of the US oil industry and markets to seize new opportunities and adjust on their own to changing realities.

Although US production growth in 2013 far surpassed our projections, the industry met the challenge of extra supply in its stride. The accommodation of the additional production was possible because of refinery, pipeline and crude rail capacity expansions, allowing the Midwestern crudes to reach the Gulf Coast and East and West Coast refineries.¹⁴

This seems to obviate the need to allow crude oil exports at this time.

2. Do you believe American consumers (e.g., motorists) have benefited from the record increases in oil production domestically?

A2: The IEA “Oil Market Report” noted that U.S. drivers have not appreciably benefited from the increase in U.S. production.

Remarkably, surging US supply and runs have not markedly lowered product prices for consumers. Rising global demand and supply shortfalls elsewhere— with twice as much annual growth in global demand as in world supply last year – have kept OECD

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[Organization of Economic Co-operation and Development] stocks tight and oil prices generally high.¹⁵

In 2013, inflation adjusted gasoline prices were the sixth highest in the past 37 years, at \$3.54 per gallon, according to EIA.¹⁶ This occurred even though the U.S. had its highest domestic oil production since 1988.¹⁷



Source: Energy Information Administration

In 2012, the *Associated Press* conducted an analysis of the relationship between domestic oil production and gasoline prices, but found no correlation between the two.

A statistical analysis of 36 years of monthly, inflation-adjusted gasoline prices and U.S. domestic oil production by The Associated Press shows no statistical correlation between how much oil comes out of U.S. wells and the price at the pump.¹⁸

EIA reports that the price of crude oil is responsible for 71 percent of the price of a gallon of gasoline.¹⁹ As long as the price of oil is set on the world market controlled by the OPEC cartel, then it will be very difficult for U.S. production to significantly affect the price of gasoline.

The most effective way to help consumers is to produce cars that use significantly less gasoline. For instance, the 2025 fuel economy standard for passenger and light duty vehicles will save drivers an estimated average fuel savings of \$8,000 over the life of a new car.²⁰ This is equivalent to lowering the price of gasoline by \$1 per gallon.²¹

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Investments in alternatives to gasoline would also help drivers spend less on transportation. This could include the construction of public recharging infrastructure for electric vehicles, the commercial production of cellulosic (non-crop) advanced biofuels, and investments in public transportation. All of these could provide cleaner, cost effective alternatives to gasoline.

FROM SENATOR LANDRIEU

1. Mr. Weiss, you use a very specific example to prove the link between U.S. crude export and increased price. You cite a CRS report on the period of 1995-2000, when exports of crude produced in Alaska and refined on the West Coast were accompanied by shifts in price. You contend that the increase from West Coast prices being 5 cents above the national average in 1995 to being 12 cents in 2000, the year exports stopped. However, this same CRS report makes the point that West Coast gasoline prices, as evidenced by their starting point above the national average, are subject to influences beyond price increases- additional environmental regulations and constricted refining capacity are cited specifically. The CRS report goes on to state that these factors could also explain the price differences seen in the West Coast market- the CRS report states that in fact they would have had “significant bearing, even during the years of crude exports.”

a. Do you contend that the price differences seen in this instance are still related directly to exports, or do you agree with the CRS report that external factors could also have driven this price difference?

A1a: I noted in my testimony that

“The only real-world experience of lifting an oil export prohibition occurred following the 1996 removal of a ban on Alaska oil exports. During the ban, much Alaskan oil was shipped to the West Coast. A Congressional Research Service analysis found that lifting the oil ban exacerbated the existing price differential between West Coast and national gasoline.

In 1995 ... West Coast pump prices [were] only 5 cents per gallon above the national average. But by 1999 West Coast gasoline was 15 cents per gallon higher. When crude exports stopped in 2000, the average [difference] ... was 12 cents; it [later] narrowed further to 7 cents. ... When Alaskan oil exports ceased, the gasoline price differential between the West Coast and the national average did decline.

“This experience suggests that lifting the nationwide crude oil export ban could similarly raise gasoline prices. Barclays Plc. predicts that lifting the export ban could increase total spending on motor vehicle fuel by \$10 billion per year. Sandy

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Fielden, director of energy analytics at RBN Energy, told Bloomberg that if there are more oil exports, ‘The most obvious thing that’s going to happen is that crude prices will go up and so will gasoline.’”²²

The CRS report strongly suggests, but does not *prove*, that the elimination of the Alaska oil exports contributed to the increase in West Coast gasoline prices between 1996 and 2000. I noted in a response to a question that there has not been an independent assessment of the impact of lifting the crude oil export ban on domestic gasoline prices. In response to a question during the hearing, I urged the Senate Energy Committee to seek such an analysis from the Energy Information Administration. As you know, Senators Ron Wyden and Maria Cantwell recently sent a letter to EIA requesting such an analysis.²³

- b. You also quote the Commission on Energy Security as saying that “volatility in the global oil market will remain a serious concern.” What is your opinion of Ms. Myers Jaffe’s argument that U.S. crude exports, used as a tool of geopolitics, may have the effect of reducing volatility in the global oil market, much of which is driven by geopolitical conflicts?**

A1b: As you note, much of the price volatility in the global oil market “is driven by geopolitical conflicts.” I am not an expert in the regional conflicts in the Middle East, Africa, or other oil producing regions. However, even from my lay person’s perspective it seems that ancient sectarian disagreements, government repression, joblessness, and vast disparities of wealth in these nations are a major part of many of these conflicts. It is difficult to imagine, for instance, that the export of one million barrels of oil per day from the U.S. would have much impact on these factors.

FROM SENATOR FLAKE

- 1. This hearing produced much discussion about the existence of a global price for crude oil and refined petroleum products such as gasoline. To that point, the Energy Information Administration (EIA) has suggested that the price for these products is “driven by the international market” subject to short term fluctuations in the supply chain, including regional price adjustments. Do you believe that the price for crude oil and refined products such as gasoline is set by the global markets? Please include an explanation of the support for your position.**

A1: There is ample analysis that reinforces the idea that there is a global market price for oil, set by the OPEC cartel that produces 40 percent of the world’s oil.²⁴ For instance, EIA explains that

Crude oil prices are determined by worldwide supply and demand.

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One of the major factors on the supply side is the Organization of the Petroleum Exporting Countries (OPEC), which can have significant influence on prices by setting production limits on its members, who together produce more than 40% of the world’s crude oil. OPEC countries have essentially all of the world’s spare oil production capacity, and possess about two-thirds of the world’s estimated crude oil reserves.²⁵

OPEC meets regularly to assess the benchmark price for crude oil. At its meeting in December 2013, it was reported that

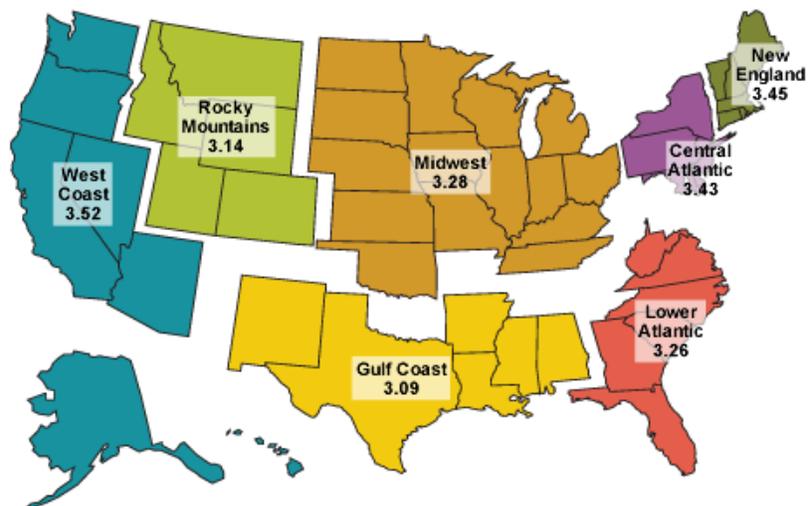
Saudi Arabia and other OPEC members argue that benchmark crude oil prices, currently averaging \$100 per barrel, provide acceptable income for producers without weighing too heavily on consumers.²⁶

An analysis of oil prices by the *Associated Press* noted that “oil is a global commodity and U.S. production has only a tiny influence on supply. Factors far beyond the control of a nation or a president dictate the price of gasoline.”²⁷

While there is a world market price for oil, gasoline prices mostly, but not solely, depend on the world oil price, and can vary widely by country, and by region within the U.S. This is due to different capacity and efficiency levels at refineries, transportation costs, taxes, and other factors. In February, a gallon of gasoline ranged from 40 cents per gallon in Iran to \$3.32 per gallon in the U.S. to \$10.74 per gallon in Norway.²⁸

There was much less variation in the U.S., but there were still regional differences in gasoline prices. EIA reports that for February 10, 2014, gasoline prices ranged from \$3.09 per gallon in the Gulf Coast to \$3.52 in the West Coast – 14 percent higher.²⁹

Regular grade gasoline prices at retail outlets by region for February 10, 2014 (dollars per gallon, including taxes)



Source: U.S. Energy Information Administration, *EIA-878, Motor Gasoline Price Survey*.

Source: Energy Information Administration

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- 2. If you believe, those prices are set by global markets, does that mean that the “domestic” crude oil discount (i.e., the lower input cost for refiners using domestic crude) that some have suggested has been retained by the refiners, as opposed to being passed along to consumers? Or, do you believe that the purported domestic crude oil discount is reflected in current domestic gasoline prices?**

A2: The impact on consumers from the recent increase in some domestic crude oils is unclear. Nationwide, the average refiner crude oil acquisition cost increased in 2013 to \$102.90 per barrel from \$100.71 and \$100.72 in 2011 and 2012, respectively.³⁰ This higher price could limit the benefit of higher production to drivers. EIA speculates that

Larger price discounts for U.S. crude oil production versus alternate world crudes, such as greater WTI and LLS discounts to Brent, may be needed to encourage Gulf Coast refiners to process the increased supplies.³¹

In other words, the price discount is not yet sufficient to increase gasoline production enough to affect prices.

On the other hand, there may be regional impacts that benefit some drivers. On February 6th, 24/7 Wall St., a website for investors, reported that “AAA also expects regional variation in gasoline prices, largely the result of access to cheaper North American crude oil.”³² 24/7 Wall St. reported in January that

Refining companies with the majority of their operations on the Gulf Coast of the United States have been in the driver’s seat for profits during the past several months of 2013. Access to cheaper U.S. crudes has lifted some refiners’ margins.³³

- 3. There has been some discussion about the use of crude oil swaps to alleviate some of the anticipated excess production of domestic light sweet crude. Do you see that as a viable option? What role, if any, would you foresee Congress playing in facilitating crude oil swaps?**

A3: Crude oil swaps could address some of the excess production of domestic light sweet crude, but several potential impacts should be evaluated to before allowing such swaps. What impact will swaps have on domestic gasoline and diesel prices? Will the swaps increase our dependence on oil from allies or other nations? Will the swaps encourage the production of oil with more well-to-tank carbon pollution? Until EIA or some other independent bodies analyze these and related questions, swaps should not go forward beyond what can occur under existing law.

If such an analysis demonstrates that swaps would not harm drivers, increase dependence on oil from non-allies, boost the production of tar sands or other dirty oils, then the Commerce Department has the authority to approve export applications to facilitate the swaps. There is no need for Congressional involvement.

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- 4. During the hearing, you mentioned that one way to protect ourselves from domestic energy emergencies is through minimum inventory standards. Can you elaborate on that more? Do you, for example, envision something in addition to the strategic petroleum reserve, such as minimum commercial reserve requirements, as you briefly discussed in your testimony?**

A4: In October, New York became the first state to establish a “strategic gasoline reserve” to prevent serious supply disruptions during extreme weather events or other emergencies.³⁴ New York plans to store up to 3 million gallons of gasoline for first responders and other motorists. Establishment of additional reserves could supply gasoline in other states in the event of future supply disruptions. Because of technical limitations on storing significant amounts of gasoline for long periods of time, there would probably have to be multiple smaller reserves rather than several large reserves, as with the Strategic Petroleum Reserve. The Senate Energy Committee should explore the need for such gasoline reserves, as well as the technical and economic feasibility of building and maintaining them.

Amy Myers Jaffe, another witness at the January 30th hearing, recently promoted a mandate to ensure a certain amount of refined product inventories. She wrote:

Regulators [should] mandate a minimum level of mandatory refined product inventories in the United States. Such a system exists in Europe and Japan and allowed Europe the flexibility to provide gasoline to the United States during the production shortfalls that occurred following Katrina and Rita, preventing worse dislocations. The system helped Japan in the aftermath of the Fukushima crisis.

A US government program reserving the right to use for strategic national emergency releases a portion of this mandated minimum supplementary industry refined product stocks of 5% or 10% of each refining company’s average customer demand would ensure that needed supplies of gasoline or heating oil in inventory to ease the impact of sudden weather related demand surges or accidental disruption of consumer supplies.³⁵

I believe that this proposal would help address future extreme weather or other unforeseen events that cause gasoline supply disruptions.

¹ Energy Information Administration, *Short-Term Energy Outlook Supplement: Uncertainties in the Short-Term Global Petroleum and Other Liquids Supply Forecast* (U.S. Department of Energy, 2014), available at http://www.eia.gov/forecasts/steo/special/pdf/2014_sp_01.pdf.

² Ibid

³ Ibid

⁴ Energy Information Administration, *AEO2014 Early Release Overview* (U.S. Department of Energy, 2013), available at <http://www.eia.gov/forecasts/aeo/er/pdf/0383er%282014%29.pdf>.

⁵ Energy Information Administration, “U.S. Imports from OPEC Countries of Crude Oil,” available at <http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=mcrimxx2&f=a> (last accessed February 2014).

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⁶ Energy Information Administration, “Imported Liquids by Source, Reference case,” available at <http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2014ER&subject=8-AEO2014ER&table=101-AEO2014ER®ion=0-0&cases=ref2014er-d102413a> (last accessed February 2014).

⁷ Energy Information Administration, *AEO2014 Early Release Overview* (U.S. Department of Energy, 2014), Figure 12, available at http://www.eia.gov/forecasts/aeo/er/early_production.cfm?src=Petroleum-b2.

⁸ Energy Information Administration, *Annual Energy Outlook 2013* (U.S. Department of Energy, 2013), Figure 98, available at http://www.eia.gov/forecasts/aeo/MT_liquidfuels.cfm.

⁹ Crude oil with an API gravity greater than 35.0 is “light,” while oil with an API gravity less than 25.0 is “heavy.” In 2013, EIA reported that domestic crude oil was light, with an API of 35.3. Imported oil was intermediate, with an API of 28.

¹⁰ Energy Information Administration, *Annual Energy Outlook 2013*, Figure 98.

¹¹ Energy Information Administration, “WTI-Brent Spread Projected to Average \$11 per barrel in 2014,” *This Week in Petroleum*, February 12, 2014, available at <http://www.eia.gov/oog/info/twip/twip.asp>.

¹² Energy Information Administration, “U.S. Imports by Country of Origin,” available at http://www.eia.gov/dnav/pet/pet_move_impcus_a2_nus_epc0_im0_mbbldpd_m.htm (last accessed February 2014).

¹³ Energy Information Administration, “Petroleum and Other Liquids Supply and Disposition, Reference case,” available at <http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2014ER&subject=8-AEO2014ER&table=11-AEO2014ER®ion=0-0&cases=ref2014er-d102413a> (last accessed February 2014).

¹⁴ International Energy Agency, *Oil Market Report*, (International Energy Agency, 2014) available at <http://omrpublic.iea.org/currentissues/fullpub.pdf>.

¹⁵ Ibid

¹⁶ Energy Information Administration, “Regular Gasoline Retail Prices,” available at <http://www.eia.gov/forecasts/steo/realprices/> (last accessed February 2014).

¹⁷ International Energy Agency, *Oil Market Report*.

¹⁸ Seth Borenstein and Jack Gillum, “Fact Check: More US drilling didn’t drop gas prices,” *Bloomberg Businessweek*, March 21, 2012, available at <http://www.businessweek.com/ap/2012-03/D9TL1BO00.htm>.

¹⁹ Energy Information Administration, “What do I pay for in a gallon of regular gasoline?” available at <http://www.eia.gov/tools/faqs/faq.cfm?id=22&t=10> (last accessed February 2014).

²⁰ The White House, “Obama Administration Finalizes Historic 54.5 MPG Fuel Efficiency Standards,” Office of the Press Secretary, August 28, 2012, available at <http://www.whitehouse.gov/the-press-office/2012/08/28/obama-administration-finalizes-historic-545-mpg-fuel-efficiency-standard>.

²¹ Ibid

²² Daniel J. Weiss, Testimony before the U.S. Senate Committee on Energy and Natural Resources, “U.S. Crude Oil Exports: Opportunities and Challenges,” January 30, 2014, available at <http://www.americanprogress.org/issues/green/report/2014/02/05/83559/u-s-crude-oil-exports-opportunities-and-challenges/>.

²³ Letter from Sen. Wyden and Sen. Cantwell to Administrator Sieminski, February 3, 2014, available at <http://www.energy.senate.gov/public/index.cfm/democratic-news?ID=4dd7893d-d472-425a-81f0-197e5fdf46b7>.

²⁴ Energy Information Administration, *Short-Term Energy Outlook*, (U.S. Department of Energy, 2014), available at http://www.eia.gov/forecasts/steo/report/global_oil.cfm.

²⁵ Energy Information Administration, “Oil Crude and Petroleum Products Explained,” available at http://www.eia.gov/energyexplained/index.cfm?page=oil_prices (last accessed February 2014).

²⁶ “Opec keeps production ceiling,” *AFP*, December 5, 2013, available at <http://thepeninsulaqatar.com/business/qatar-business/263469/opec-keeps-production-ceiling>.

²⁷ Borenstein and Gillum, “Fact Check: More US drilling didn’t drop gas prices”.

²⁸ “Petrol prices around the world, February 2014,” *MyTravelCost.com*, available at <http://www.mytravelcost.com/petrol-prices/> (last accessed February 2014).

²⁹ Energy Information Administration, “Gasoline and Diesel Fuel Update,” available at http://www.eia.gov/petroleum/gasdiesel/gas_geographies.cfm#pricesbyregion (last accessed February 2014).

³⁰ Energy Information Administration, “U.S. Crude Oil Domestic Acquisition Cost by Refiners,” available at http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=p&s=r1200_3&f=m (last accessed February 2014).

³¹ Energy Information Administration, “WTI-Brent Spread Projected to Average \$11 per barrel in 2014,”

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³² Paul Ausick, "Price of Gasoline Will Rise: AAA" *24/7 Wall St.*, February 6, 2014, available at <http://247wallst.com/energy-economy/2014/02/06/price-of-gasoline-will-rise-aaa/#ixzz2tdFMyWQr>.

³³ Paul Ausick, "Oil Refiners: Is There a Value Play?" *24/7 Wall St.*, January 2, 2014, available at <http://247wallst.com/energy-business/2014/01/02/oil-refiners-is-there-a-value-play/>

³⁴ Andrew M. Cuomo, "Governor Cuomo Launches First-Ever Strategic Reserve to Prevent Supply Gaps During Emergencies," Governor's Press Office, October 26, 2013, available at <http://www.governor.ny.gov/press/10262013Strategic-Gasoline-Reserve>.

³⁵ Amy Myers Jaffe, "Washington Needs to Embrace the New American Century: More Thoughts on US Exports," *The Energy Collective*, February 17, 2014, available at http://theenergycollective.com/amjaffe/341836/washington-needs-embrace-new-american-century-more-thoughts-us-exports?utm_source=hootsuite&utm_medium=twitter&utm_campaign=hootsuite_tweets.