ONE HUNDRED FOURTEENTH CONGRESS **Congress of the United States House of Representatives** COMMITTEE ON ENERGY AND COMMERCE

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MEMORANDUM

July 8, 2015

To: Subcommittee on Energy and Power Democratic Members and Staff

- Fr: Committee on Energy and Commerce Democratic Staff
- Re: Hearing on H.R. 702, "Legislation to Prohibit Restrictions on the Export of Crude Oil"

On <u>Thursday</u>, July 9, 2015, at 10:00 a.m. in room 2123 of the Rayburn House Office <u>Building</u>, the Subcommittee on Energy and Power will hold a legislative hearing on H.R. 702, "Legislation to Prohibit Restrictions on the Export of Crude Oil." Representative Barton (R-TX) introduced the bill on February 4, 2015, in light of the growing interest in lifting the current prohibition on the export of crude oil from the United States, due to growing domestic supply.

I. BACKGROUND

The Energy Policy and Conservation Act of 1975 (EPCA) is the primary statute restricting the export of domestically produced crude oil. EPCA was enacted in the wake of the 1973 oil embargo.

EPCA includes several provisions intended to mitigate impacts from disruptions in U.S petroleum product supplies. The law directs the President to prohibit the export of crude oil and natural gas produced in the United States, unless doing so is determined to be in the national interest and consistent with the purposes of EPCA.¹

¹ Congressional Research Service, *The Strategic Petroleum Reserve: Authorization, Operation, and Drawdown Policy* (Aug. 27, 2013) (R42460) (online at www.crs.gov/pdfloader/R42460).

The Department of Commerce's Bureau of Industry and Security (BIS) is responsible for regulating crude oil exports by issuing licenses to interested companies.² In accordance with EPCA's general prohibition on crude oil exports, BIS will only approve export licenses for a limited subset of transactions.³

Over the past several years, the number of approved applications and the level of crude oil exports have steadily increased. The number of approved crude oil license applications grew from 31 approved applications in FY 2008 to 189 approved applications in FY 2014.⁴ Crude oil exports reached the high point of 586,000 b/d in April 2015, going primarily to Canada.⁵

II. TRENDS IN U.S. CRUDE OIL PRODUCTION, CONSUMPTION, AND PRICES

Nearly all of the recent growth in U.S.-produced crude is in light sweet crude oils from tight oil formations.⁶ In the past, the oil and natural gas industry considered resources locked in tight, impermeable formations, such as shale either technically impossible or uneconomical to produce. Historically higher oil prices and advances in horizontal drilling and hydraulic fracturing have made these resources commercially viable. The recent precipitous drop in oil prices has called into question the long-term economic feasibility of continued growth in light sweet crude oil production.⁷

A. <u>Crude Oil Production</u>

Domestic crude oil production has increased significantly over the past few years, reversing a decline that began in 1986. According to the U.S. Energy Information

³ 15 C.F.R. § 754.2(b)(1).

⁴ Congressional Research Service, *U.S. Crude Oil Export Policy: Background and Considerations*, at 10 (Dec. 31, 2014) (R43442) (online at www.crs.gov/pdfloader/R43442).

⁵ U.S. Energy Information Administration, *U.S. Exports of Crude Oil* (online at www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCREXUS2&f=M); U.S. Energy Information Administration, *Exports by Destination* (online at www.eia.gov/dnav/pet/PET_MOVE_EXPC_A_EPC0_EEX_MBBLPD_M.htm).

⁶ Crude oils categorized as "light" have a relatively low density, while higher density crude oils are known as "heavy." Low sulfur content crudes are known as "sweet," while crude oils with higher sulfur content are known as "sour." *See* U.S. Energy Information Administration, *Oil Crude and Petroleum Products Explained* (June 19, 2014) (online at www.eia.gov/energyexplained/index.cfm?page=oil_home); Government Accountability Office, *Changing Crude Oil Markets: Allowing Exports Could Reduce Consumer Fuel Prices, and the Size of the Strategic Reserves Should Be Reexamined* (Sept. 30, 2014) (GAO-14-807) (online at www.gao.gov/assets/670/666274.pdf).

⁷ See, e.g., Oil rig losses pass 1,000 as bankruptcies mount, EnergyWire (Jun. 22, 2015); U.S. shale production on the decline as OPEC keeps pumping, EnergyWire (Jun. 10, 2015).

² Congressional Research Service, U.S. Oil Imports and Exports (Apr. 4, 2012) (R42465) (online at www.crs.gov/pdfloader/R42465).

Administration (EIA), domestic crude oil production increased from 5.1 million b/d in 2007 to an estimated 9.6 million b/d in May 2015.⁸ EIA currently projects crude oil production to average 9.4 million b/d in 2015, and 9.3 million b/d in 2016, just shy of the highest annual average crude oil production in 1970.⁹ EIA also notes that strong growth in the domestic production of crude oil from tight formations is projected to lead to a decline in net imports.

Changes in U.S. crude oil production can be affected by technological advances which allow production to occur in potentially high-yielding tight formations. In that "High Oil and Gas Resource" case, production continues to climb reaching a high of 16.6 million b/d in 2040.¹⁰

However, EIA projections suggest that the recent gains in tight oil production may be temporary. In its 2015 Annual Energy Outlook Reference Case, EIA projects that domestic production slows after 2105.¹¹ Domestic production peaks between 10 and 12 million b/d in 2020 in the Reference Case. EIA expects that "after 2020, tight oil production declines, as drilling moves into less productive areas."¹²

B. U.S. Refining Capacity and Utilization

As of January 1, 2015, the United States had 140 operating refineries with a total crude oil processing capacity of 17.9 million b/d.¹³ Each refinery has its own unique configuration that is generally designed to economically optimize the use of a certain crude oil blend and the production of oil products that will maximize profit margins.¹⁴ More than 50% of the refining capacity in the U.S. is located in the Gulf Coast region, where the refineries are configured to process heavy crude. Refining of light sweet crude is concentrated primarily on the east coast.¹⁵

⁹ Id.

¹¹ U.S. Energy Information Administration, U.S. Crude Oil Production Forecast-Analysis of Crude Types (May 29, 2014) (online at

www.eia.gov/analysis/petroleum/crudetypes/pdf/crudetypes.pdf).

¹² *Id*.

¹³ U.S. Energy Information Administration, *Number and Capacity of Petroleum Refineries* (Jun. 19, 2015) (online at www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_nus_a.htm).

¹⁴ Congressional Research Service, U.S. Crude Oil Export Policy: Background and Considerations (Dec. 31, 2014) (R43442) (online at www.crs.gov/pdfloader/R43442).

¹⁵ U.S. Energy Information Administration, *This Week in Petroleum: Regional refinery trends continue to evolve* (Jan. 7, 2015) (online at www.eia.gov/petroleum/weekly/archive/2015/150107/includes/analysis print.cfm).

⁸ U.S. Energy Information Administration, *Short-Term Energy Outlook June 2015* (Jun. 9, 2015) (online at www.eia.gov/forecasts/steo/pdf/steo_full.pdf). *Hereinafter:* U.S. Energy Information Administration, STEO June 2015.

¹⁰ U.S. Energy Information Administration, *Annual Energy Outlook 2015*, at ES-4 (Apr. 2015) (online at www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf).

Beginning in the late 1970s, U.S. refineries faced dwindling supplies of light sweet crude oil, typically used to make motor fuels. Many refineries switched their configuration to account for the increased availability of heavy sour crude oil, and added "cracking" and "coking" processes to convert petroleum "resid" into high value motor fuels. Several Midwest refineries have recently added coking/conversion capacity to take advantage of the increasing supply of heavier crude oils from Canada's oil sands projects.¹⁶

C. Imports of Crude Oil

Despite increased production, the U.S. remains heavily dependent on imports of crude oil. In April 2015, the U.S. imported an average of 6.6 million b/d of crude oil.¹⁷ However, in 2014, U.S. imports declined to an estimated 26% of consumption since peaking in 2005 when the U.S. imported 60% of the petroleum it consumed.¹⁸ This is the result of a variety of factors, including a rise in domestic oil production and a decreased demand for petroleum products –due to increased alternative fuel use, higher fuel efficiency standards and the overall economic downturn. EIA projects that net U.S. petroleum imports will fall to 21% of consumption in 2016, which would be the lowest level since 1969.¹⁹

Nearly the entire recent decline in crude oil imports has occurred in light sweet grades. In particular, U.S. light crude imports fell over 85% between 2010 and April 2015.²⁰ Imports of light sweet crude to the U.S. Gulf Coast have been virtually eliminated.²¹

D. Volatility in Global Oil Markets

¹⁷ U.S. Energy Information Administration, *U.S. Net Imports of Crude Oil* (Feb. 27, 2015) (online at www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRNTUS2&f=M).

¹⁸ U.S. Energy Information Administration, *STEO June 2015*; Government Accountability Office, *Changing Crude Oil Markets: Allowing Exports Could Reduce Consumer Fuel Prices, and the Size of the Strategic Reserves Should Be Reexamined* (Sept. 30, 2014) (GAO-14-807) (online at www.gao.gov/assets/670/666274.pdf).

¹⁹ U.S. Energy Information Administration, STEO June 2015.

²⁰ U.S. Energy Information Administration, *Crude Imports, Imports of lights sweet from World to Total U.S.* (online at www.eia.gov/beta/petroleum/imports/browser/#/?chartindexed=1&e=201504&f=m&g=g&s=201 001&v=1&vs=PET IMPORTS.WORLD-US-G.M).

²¹ U.S. Energy Information Administration, *EIA tracking tool shows light-sweet crude oil imports to Gulf Coast virtually eliminated* (Feb. 10, 2015) (online at www.eia.gov/todayinenergy/detail.cfm?id=19931).

¹⁶ See Oil Change International, Should It Stay or Should It Go? The Case Against U.S. Crude Oil Exports (Oct. 11, 2013) (online at

priceofoil.org/content/uploads/2013/10/OCI_Stay_or_Go_FINAL.pdf); Congressional Research Service, *Small Refineries and Oil Field Processors: Opportunities and Challenges* (Aug. 11, 2014) (R43682) (online at www.crs.gov/pdfloader/R43682).

Analysts have identified several factors contributing to the recent fall in global oil prices, including: decreased demand in Europe and Asia; significantly increased production by the world's major oil producers; and OPEC's decision to maintain current production levels in order to secure their share of the global market.²²

The price of a barrel of oil fell rapidly in the second half of 2014. The price of futures contracts for West Texas Intermediate crude oil (WTI), the main U.S. benchmark oil price, fell from approximately \$100 per barrel in July 2014, to approximately \$47 in March 2015.²³ The current price of oil is \$59 per barrel.²⁴

Much of the decline in gasoline prices in mid-2014 was attributable to falling crude oil prices. The combination of robust U.S. crude oil production growth, a return of Libyan production, weakening expectations for global economic growth – particularly in China, and the sustained level of crude output from OPEC has reduced oil prices.²⁵

U.S. gasoline prices have increased since the last time the Committee examined crude oil exports despite a sustained increase in oil production from OPEC.²⁶ According to EIA, gas prices rose from a six year low average of \$2.21 per gallon in January 2015 to an average of \$2.89 per gallon in June.²⁷

E. <u>Condensate</u>

Condensate is the lightest form of hydrocarbons classified as crude oil, and refers to very light hydrocarbons that exist as a gas underground but condense to a liquid after reaching the pressure and temperature at the earth's surface. Some tight oil deposits have very high condensate content, for instance as much as half of all oil production in the Eagle Ford Shale is believed to fall into the condensate category.²⁸

²³ U.S. Energy Information Administration, *Cushing, OK Crude Oil Future Contract 1* (Jul. 6, 2015) (online at www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=rclc1&f=d).

²⁴ *Id*.

²⁵ Id.

²⁶ OPEC oil output hits 3-year high in June, Business Standard (June 30, 2015) (online at www.business-standard.com/article/markets/opec-oil-output-hits-3-year-high-in-june-115063000830_1.html).

²⁷ U.S. Energy Information Administration, U.S. All Grades All Formulations Retail Gasoline Prices (Jul. 2015) (online at

www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM_EPM0_PTE_NUS_DPG&f=M).

²⁸ Oil Change International, *Should It Stay or Should It Go? The Case Against U.S. Crude Oil Exports* (Oct. 11, 2013) (online at

²² Congressional Research Service, *Lower Oil Prices 2015* (Jan. 6, 2015); *A Simple Guide to the Sudden Collapse in Oil Prices*, Washington Post (Dec. 1, 2014) (online at www.washingtonpost.com/blogs/wonkblog/wp/2014/11/28/a-simple-guide-to-the-sudden-collapse-in-oil-prices/).

Until recently, condensate was treated exclusively as a crude oil and subject to export restrictions. However, BIS issued two private rulings in 2014 to allow, without license, the export of condensate. When asked to clarify its decisions, BIS stated, "lease condensate that has been processed through a crude oil distillation tower is not crude oil but a petroleum product."²⁹ Some have questioned the Commerce Department's process and legal rationale behind these private rulings, highlighting the potential easing of restrictions on crude exports.³⁰ Despite the uncertainty surrounding the commodity classification of condensate, refiners have already started making significant investments in condensate splitters (distillation towers) in order to extract and export the resulting components without restriction.³¹

III. IMPACTS OF LIFTING THE CONTROLS ON CRUDE OIL EXPORTS

The boom in domestic crude oil production and anticipation of continued growth has led to increased calls to lift the current limitations on crude oil exports. One of the arguments commonly used in favor of lifting exports restrictions is premised on the likelihood of an oversupply of light crude in the U.S. due to a mismatch between the light sweet oil being produced and configurations of the U.S. refining capacity, much of which is optimized to run heavy sour crude.

A. Economic Impact of Crude Exports

The economic impact of lifting the crude export ban is an area of considerable uncertainty and disagreement.³² Proponents of lifting the current export restrictions have cited, among other things, two studies released in 2014: one by IHS and the other by ICF International. The results of these studies vary widely, but both anticipate significant increases

priceofoil.org/content/uploads/2013/10/OCI_Stay_or_Go_FINAL.pdf); *What is Condensate? Introducing America's New Oil Export*, Wall Street Journal (June 25, 2014) (online at blogs.wsj.com/corporate-intelligence/2014/06/25/what-is-condensate-introducing-americas-new-oil-export/).

²⁹ U.S. Department of Commerce, Bureau of Industry and Security, *FAQs – Crude Oil and Petroleum Products* (Dec. 30, 2014) (online at www.bis.doc.gov/index.php/licensing/embassy-faq).

³⁰ Letter to Secretary Penny Pritzker, from Senators Edward J. Markey and Robert Menendez (July 2, 2014) (online at www.markey.senate.gov/imo/media/doc/2014-06-25_Commerce_Condensate.pdf).

³¹ U.S. Energy Information Administration, *Presentation by Adam Sieminski on the Effects of Low Oil Prices* (Feb. 12, 2015) (online at

www.eia.gov/pressroom/presentations/sieminski_02122015.pdf); Congressional Research Service, U.S. Crude Oil Export Policy: Background and Considerations (Dec. 31, 2014) (R43442) (online at www.crs.gov/pdfloader/R43442).

³² U.S. Energy Information Administration, *What Drives U.S. Gasoline Prices*? (Oct. 30, 2014) (online at www.eia.gov/analysis/studies/gasoline/pdf/gasolinepricestudy.pdf).

in production, reductions in oil prices by anywhere from \$0.25 to \$5 per barrel (Brent prices), and lower gasoline prices ranging from \$0.014 to \$0.12 per gallon.³³

Opponents of lifting the crude oil ban, including independent refiners, have challenged the premise of U.S. market and refining system oversaturation with light tight oil. One study found that U.S. refiners appear to have underutilized their lighter processing capacity and that, by 2020, the U.S. will have capacity to absorb 3.1 to 4.3 million b/d of additional U.S. light tight oil production versus that consumed in Q4 2013.³⁴ CBO estimates that if the restrictions on crude oil exports are lifted, "the prices of domestic light crude oils seen by some U.S. crude oil producers and petroleum refiners would rise."³⁵ These price increases would be seen primarily by refineries already configured for processing light sweet crude, like those on the east coast.³⁶

A May 2012 CBO study also examined the relationship between global markets and U.S. energy prices. This report found that increased domestic production of crude oil does not prevent or mitigate spikes in oil and gas prices. CBO examined gasoline prices in Canada, the United States, and Japan between 1999 and 2011. CBO found that gasoline prices in those countries rose and fell in tandem with the world market, even though Japan produced almost no oil, Canada was a net oil exporter, and the United States produced less than half of its own oil. More domestic supply did not protect Canadian consumers from price shocks. CBO concluded that "even if the United States increased production to become a net exporter of crude oil, U.S. consumers would still be exposed to gasoline prices that rose and fell in response to disruptions around the world."³⁷

B. **Climate and Environmental Impact of Crude Exports**

³⁴ Baker and O'Brien, Inc., An Analysis of U.S. light Tight Oil Absorption Capacity (Sept. 24, 2014) (online at

www.bakerobrien.com/bakerobrien2/assets/File/B&OB%20LTO%20Capacity%20Study.pdf).

³⁵ Congressional Budget Office, The Economic and Budgetary Effects of Producing Oil and Natural Gas From Shale (Dec. 7, 2014) (online at www.cbo.gov/sites/default/files/cbofiles/attachments/49815-Effects of Shale Production.pdf).

³⁶ U.S. Energy Information Administration, *This Week in Petroleum: Regional refinery trends* continue to evolve (Jan. 7, 2015) (online at www.eia.gov/petroleum/weekly/archive/2015/150107/includes/analysis print.cfm).

³⁷ Congressional Budget Office, *Energy Security in the United States* (May 9, 2012) (online at www.cbo.gov/sites/default/files/05-09-EnergySecurity.pdf).

³³ Presentation by Jason Bordoff, Director of the Center on Global Energy Policy, Columbia University, to EIA Energy Conference (July 14, 2014) (online at

www.eia.gov/conference/2014/pdf/presentations/bordoff.pdf); IHS, U.S. Crude Oil Export Decision: Assessing the Impact of the Export Ban and Free Trade on the U.S. Economy (May 29, 2014); ICF International, for the American Petroleum Institute, The Impacts of U.S. Crude Oil Exports on Domestic Crude Production, GDP, Employment, Trade, and Consumer Costs (Mar. 31, 2014).

Maximizing U.S. oil production would exacerbate climate change and increase the risks to the land, water and air. According to a recent study, approximately one third of the world's remaining oil reserves and half of the remaining gas reserves should remain untouched over the next 40 years in order to prevent the global average temperature from rising more than 2°C.³⁸ An increase in oil production, consistent with unrestricted crude exports, would run counter to U.S. and global efforts to limit greenhouse gas emissions and prevent catastrophic climate change.

Two additional climate concerns are methane leaks and natural gas flaring. The drilling boom has outpaced the building of infrastructure necessary to control methane leaks from oil and gas wells leading to increased emissions of this potent greenhouse gas. The energy sector—including sources like natural gas and petroleum systems—is the largest source of U.S. methane emissions, accounting for 263.5 million metric tons of CO₂ equivalent in 2013.³⁹ In oil-rich shale formations, such as North Dakota's Bakken and Texas's Eagle Ford shales, natural gas often is produced along with crude oil. As oil production has boomed, so has the amount of gas produced, but industry has not built the gas gathering infrastructure necessary to process and transport much of that gas to market.⁴⁰ This lack of infrastructure, combined with low natural gas prices, often makes it cheaper for industry to burn the gas than to capture and process it.⁴¹ This flaring generates air pollution and releases CO₂.

C. <u>National Security Impact of Crude Exports</u>

Lifting the ban on crude exports would dramatically alter decades of U.S. policies put in place to encourage energy independence and national security. As noted above, imports of crude oil still represent about 26% of the nation's annual oil consumption.⁴² In its 2015 Annual Energy outlook, EIA estimates that total imports will not fall another 10% until 2040 with current regulations in place.⁴³ Lifting the ban on crude exports would hinder the predicted decline in imports and leave the U.S. dependent on foreign countries for more than a quarter of its oil for decades.

³⁹ U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013 (April 2015)* (online at http://epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2015-Chapter-3-

⁴² U.S. Energy Information Administration, *STEO June 2015*.

⁴³ U.S. Energy Information Administration, *Annual Energy Outlook 2015*, at ES-4 (Apr. 2015) (online at www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf).

³⁸ The geographical distribution of fossil fuels unused when limiting global warming to 2°C, Nature (Jan. 7, 2015) (online at www.nature.com/nature/journal/v517/n7533/full/nature14016.html).

Energy.pdf)

⁴⁰ Letter to Chairman Fred Upton, from Ranking Members Henry A. Waxman, Bobby L. Rush, and Diana DeGette (May 14, 2012).

⁴¹ Gas flaring permits surge in Texas, Fuelfix.com (Apr. 9, 2012) (online at fuelfix.com/blog/2012/04/09/gas-flaring-permits-surge-in-texas/).

Critics of the ban on crude oil exports contend that access to U.S. crude would decrease Europe's reliance on Russian oil and free them from "coercive energy supply policies".⁴⁴ This scenario is far from guaranteed. According to CRS, "the decision to export crude oil will be based commercial and economic considerations, not directed and controlled by the federal government," therefore, "predicting and quantifying physical crude oil flows to a particular region in the world under a non-restricted export scenario is difficult and is subject to several assumptions that may or may not be realized."⁴⁵ European refineries are currently configured to process Russia's medium sour crude and would need significant time and capital to handle American light sweet crude.⁴⁶ East Asian markets are the most likely beneficiaries of American crude oil exports, with China set up to be the top purchaser.⁴⁷

IV. H.R. 702, A BILL TO ADAPT TO CHANGING CRUDE OIL MARKET CONDITIONS

H.R. 702 repeals section 103 of EPCA which gives the President the authority to restrict exports of "coal, petroleum products, natural gas, or petrochemical feedstocks" as well as supplies of materials or equipment necessary to maintain or further "exploration, production, refining, or transportation of energy supplies" or for the construction or maintenance of energy facilities.⁴⁸ The bill also establishes a national policy on oil export restriction, which prevents any official of the federal government from imposing or enforcing any restriction on the export of crude oil."⁴⁹

Under the bill, the Secretary of Energy is required to conduct a study and develop recommendations on the "appropriate size, composition, and purpose of the Strategic Petroleum Reserve." This study and its accompanying recommendations would be due to the House Committee on Energy and Commerce and Senate Committee on Energy and Natural Resources within 120 days of enactment.⁵⁰

V. WITNESSES

⁴⁶ Senate Committee on Foreign Relations, *Hearing on American Energy Exports: Opportunities For U.S. Allies and U.S. National Security*, 114th Cong. (Jun. 23, 2015).

⁴⁷ *Id*.

⁴⁸ H.R. 702, a bill to adapt to changing crude oil market conditions § 2; Pub. L. No. 94-163 (1975).

⁴⁹ H.R. 702 § 3.

⁵⁰ *Id.* at § 4.

⁴⁴ Senate Oil Export Hearing Panelists Debate National Security And Limited Refinery Capacity, Breaking Energy (Mar. 30, 2015) (online at breakingenergy.com/2015/03/30/senate-oil-export-hearing-panelists-debate-national-security-and-limited-refinery-capacity/).

⁴⁵ Congressional Research Service, *Potential Market Effects of Removing Crude Oil Export Restrictions: Eastern Europe* (May 29, 2015)

The following witnesses have been invited to testify:

H.E. Petr Gandalovič Ambassador Embassy of the Czech Republic

Dr. W. David Montgomery Affiliated Consultant NERA Economic Consulting

Mark Kreinbihl Group President, Gorman-Rupp Company

Commander Kirk S. Lippold, USN (Ret.) President Lippold Strategies LLC