INSTITUTE FOR ENERGY RESEARCH

BEFORE THE SUBCOMMITTEE ON ENERGY POLICY, HEALTH CARE AND ENTITLEMENTS

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

HEARING ON THE EFFECTS OF RISING ENERGY COSTS ON AMERICAN FAMILIES AND EMPLOYERS

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TESTIMONY OF DANIEL R SIMMONS

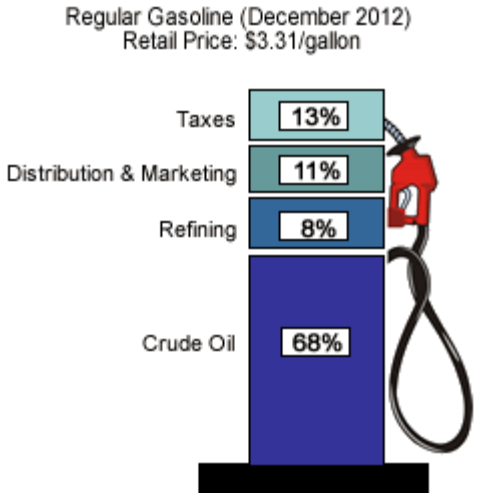
THE INSTITUTE FOR ENERGY RESEARCH

The Institute for Energy Research (IER) is a non-profit organization that conducts intensive research and analysis on the functions, operations, and government regulation of global energy markets. IER articulates free market positions that respect private property rights and promote efficient outcomes for energy consumers and producers. IER staff and scholars educate policymakers and the general public on the economic and environmental benefits of free market energy. The organization was founded in 1989 as a public foundation under Section 501(c)(3) of the Internal Revenue Code. Funding for the institute comes from tax-deductible contributions of individuals, foundations, and corporations.

Why are gasoline prices so high?

A majority of the price paid for a gallon of gasoline comes directly from the wholesale price of crude oil, which is refined to make gasoline and other petroleum products. According to the Energy Information Administration (EIA), in December 2012, 68 percent of the price of gasoline was the cost of crude oil, 8 percent was the cost of refining, 11 percent the cost of distribution and marketing, and 13 percent was the cost of taxes.[1]

Petroleum is a globally-traded commodity. On net, the United States imported 41 percent of the crude oil it consumed in 2012.[2] The United States exports some crude oil and petroleum products due to geography and location and ownership of refineries. For example, the United States purchases crude oil from Canada and sells Canada a small amount of crude oil produced in Alaska. The United States purchases crude oil from Mexico and sells Mexico gasoline in return. Also, Venezuela owns three CITGO refineries in the United States and ships some of the products refined in the United States back to Venezuela.



To understand the movements in crude oil prices over the last several years, the obvious answer from an economist is "supply and demand." Getting more specific, we can see that there are "fundamental" factors involved, which amplify consumption demand and restrict supply. In addition, the supply and demand fundamentals can be augmented in the presence of loose monetary policy, as investors rush into commodities as a hedge against future inflation.

Supply and Demand

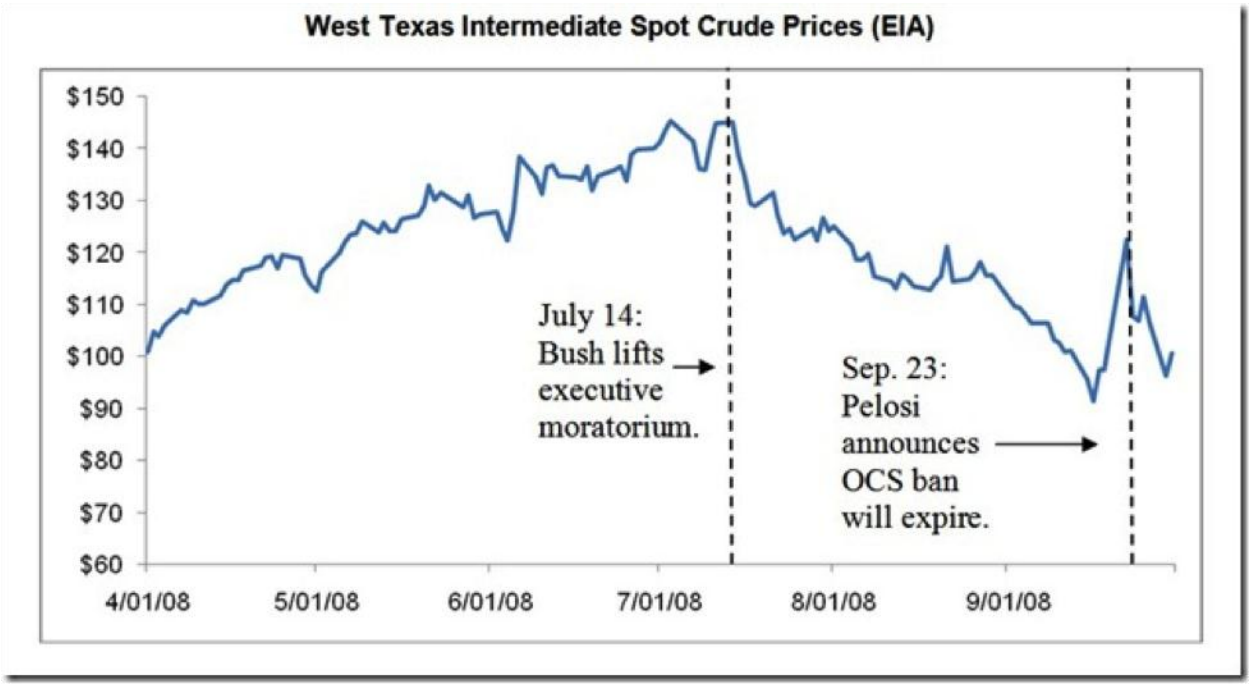
1. **World Oil Demand Growth**: World crude oil and liquid fuels consumption grew to the highest level ever in 2012, with an estimated 89.2 million barrels per day (bpd) consumed in total.[3] EIA projects that total world oil consumption will grow by 0.9 million bpd during 2013 and 1.3 million bpd in 2014 with countries outside the Organization for Economic Cooperation and Development (OECD) comprising most of the growth in consumption.[4] The largest increases in oil consumption will be non-OECD Asian countries, which are using increasing amounts of oil to sustain their rapid economic growth.

   China, in particular, has a large role in the increased global demand for oil. China is the second-largest consumer of oil behind the United States and as of 2009, China became the second-largest net importer of oil. In 2011, Chinese crude oil imports were 5.52 million bpd[5]—up 8.2 percent from 2010 levels.

2. **Domestic Supply**: According to the EIA, the U.S. produced 6.4 million bpd of crude oil in 2012,[6] up from 5.6 million bpd in 2011—the largest one-year increase ever. The EIA expects production from the Federal Gulf of Mexico (GOM)—which produced 28 percent of U.S. oil in 2010—to produce only 19 percent of U.S. oil production in 2013.[7] There are two reasons for this. First, hydraulic fracturing on private and state lands is rapidly increasing total domestic oil production and second, because oil production in the Gulf of

Mexico is predicted to fall by 12 percent from production levels in 2010 mainly due to government policies that restricted drilling in the Gulf.[8] Another important point for the Committee, I note later in my testimony that 96 percent of the increase in domestic production since 2007 has come from non-government lands. This increase could be much larger, but for government policies.

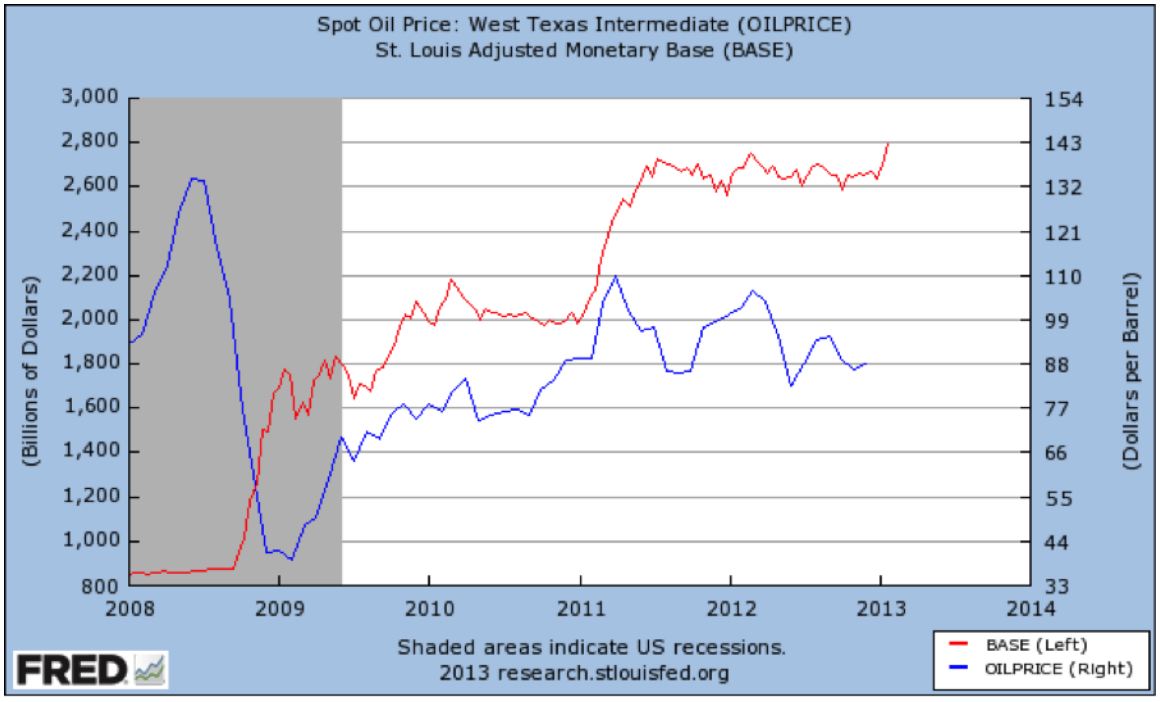
Some people argue that allowing more domestic offshore drilling would have little impact on oil prices. It is true that oil is a global commodity, and that it takes time—perhaps several years—for oil to actually hit the market after a new site has been approved for development. Nonetheless, after President Bush lifted the executive moratorium on July 14, 2008, and then again after Speaker Nancy Pelosi announced on September 23, 2008 that Congress would allow the congressional moratorium to expire, there were immediate price decreases. For example, prices dropped $9.26 per barrel—or 22 cents per gallon—on world markets during President Bush's speech explaining the lifting of the moratorium. The chart below illustrates this effect:



Economic theory predicts that the potential for greater future oil production should lead to price relief. It is true that lifting the moratorium could not immediately increase oil production from the affected areas, but other oil producers with excess capacity, such as Organization of Petroleum Exporting Countries (OPEC) nations, would have an incentive to produce more in the present once they believe that future U.S. output will be higher. This episode from 2008 is one example of immediate oil price relief because of a policy change implying potential future oil production.

3. **OPEC Production Restraints, Actual and Potential:** About 23 percent of our oil product supply in 2012 arrived from the twelve OPEC countries:[9] Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. These twelve oil-exporting nations possess much of the world's known conventional oil reserves, and as such, have excess production capacity. However, in order to maintain favorably high oil prices, these nations agree on production targets that curtail the supply of oil from member states. For instance, in December 2008, the 11 members bound by quota restrictions, all but Iraq, agreed to a 4.2 million bpd production cut to keep oil prices high. In December 2012, OPEC agreed to cut production by 465,000 bpd to maintain high oil prices.[10] In addition, oil prices are buoyed due to unrest in the Middle East and the boycott of Iranian oil[11] in an attempt to make Iran abandon development of nuclear weapons. Finally, the mere *potential* of the outbreak of a major war in the Middle East keeps oil prices artificially high, as oil traders factor in the chance of a major disruption in exports from the region.

4. **Expansionary U.S. Monetary Policy**: Since 2009, commodity prices (like food and fuel) have risen with Federal Reserve interest rate cuts and the various rounds of "quantitative easing." This increase is precipitated by investors choosing to secure their finances with non-income generating real assets, like oil and precious metals, in the face of inflation and the threat of a devalued dollar. In particular, oil prices surged along with other commodity prices when the Federal Reserve Board revved up its second burst of quantitative easing in 2010–2011 and stabilized when QE2 ended.



As IER economist Robert P. Murphy has explained:

> The fit [of the above chart], is not perfect of course—nothing ever is in macroeconomics—but since early 2009, the movements in oil prices closely follow the movements in the Fed's balance sheet (approximated here by the "monetary base"), particularly during the two years from early 2009 to early 2011.
>
> In fairness, one could defend Ben Bernanke by saying that with every round of "quantitative easing," investors thought the world economy was on the road to future growth, and hence bid up the price of oil. Yet a cynic could equally well argue that the world economy is hardly in a robust recovery, despite literally unprecedented monetary inflation from the Fed and other central banks. A more plausible explanation of the chart above is that commodity prices are being bid up by the flood of liquidity crashing into an economy with very weak fundamentals because of misguided government policies.

In recent months, the Federal Reserve Board has again signaled its commitment to near-zero interest rates first through 2013, and then through 2014. Oil and other commodity prices have begun another surge and hedge funds are again betting on commodity plays.

Federal and State Taxes

The second main cost of the price of gasoline is federal and state taxes. In December 2012, federal, state and local taxes accounted for 13 percent of the price of gasoline.[12] The federal tax on gasoline accounts for 18.4 cents per gallon, while the volume-weighted average state and local tax is 30.4 cents per gallon as of January 2013. This amounts to a 48.8 cent nationwide average tax on gasoline.[13]

Refining Costs

The third cost to factor into the price of gasoline is the refining process, where crude oil is "cracked" and formulated into its chemical components and made into gasoline. In December 2012, refinery costs comprised 8 percent of the retail price of gasoline.[14] This figure varies regionally because different parts of the country require different additives and processing steps in their gasoline formulations. The figure of 8 percent would also vary in other months, owing to seasonal changes in refinery operations. For example, in the spring when refineries need to retool to produce summer-blend gasoline and to meet summer gasoline demands, the cost of refinery operations is higher.

It is becoming harder and harder to refine oil in the United States. Over the past 30 years, refineries have dealt with a huge number of ever-stricter regulations. Between 1981 and April 2012, the federal government has promulgated 65 major regulations and 755 non-major regulations that affect the subset of manufacturers that includes refineries.[15] A major regulation is a regulation that the federal government calculates will cost over $100 million.

This dramatic increase in regulation has led to higher costs which have driven 66 U.S. refineries out of business since the 1990s. According to the Department of Energy the costs of regulatory compliance is one of the prime reasons for these closures.[16] Since 1990, refineries have spent $128 billion to comply with federal environmental regulation.[17] To put that in context, that works out to over $850 million per operating refinery in 2011.[18] In essence, the result has been that refineries have become fewer but larger, which makes logistics more difficult when problems occur at a refinery, as they do in any major industrial operation.

Refinery costs are set to continue to increase as a result of a number of federal regulations including new ozone national ambient quality standards, greenhouse gas emissions regulations on refineries, Tier III gasoline mandate, EPA's mandate to buy commercially unavailable cellulosic biofuel, just to name a few. According to a study conducted by the economic consulting firm NERA, energy-intensive sectors such as chemicals and petroleum products output could be on average 10 percent lower over the next decade due to major regulations due over the next 10 years.[19]

Distribution and Marketing Costs

The last component of the price of gasoline is the retail dealer's costs and profits, which constituted a combined 11 percent of the cost of a gallon of gasoline in December 2012.[20] From the refinery, most gasoline is shipped first by pipeline to terminals near consuming areas and then loaded into trucks for delivery to individual stations. Ethanol must also be transported by truck or train because it cannot be mixed with gasoline prior to delivery.

Even though many gas stations are branded as Shell, Exxon, BP or another major oil company, the major oil companies actually own fewer than 5 percent of gas stations.[21] The vast majority of gas stations are actually independent businesses that purchase gasoline for resale to the public. In addition, some retail outlets are owned and operated by refiners.

The price at the pump reflects both the retailer's purchase cost for the product and the other costs of operating the service station. It also reflects local market conditions and factors, such as the desirability of the location and the marketing strategy of the owner. Everyone in Washington has seen this at the gas station on the corner by the Watergate.

Additional Issues:

Limited Energy Production on Federal Lands

The federal estate contains vast energy resources, but the federal government allows energy production on a very small percentage of taxpayer-owned federal lands. The Interior Department has leased just 2 percent of federal offshore areas and less than 6 percent of federal onshore lands for oil and gas development.[22] This is particularly important because, while the entire U.S. including Alaska and Hawaii is 2.271 billion acres, the government owns mineral access to 2.4 billion acres due to the Outer Continental Shelf.

The large increases, however, in oil production that have occurred in the United States are almost entirely on private and state lands. The Congressional Research Service (CRS) found that oil production on private and state lands makes up about 70 percent of total U.S. oil production.[23] According to CRS, 96 percent of the increase in oil production between fiscal years 2007 and 2012 came from private and state lands and production there increased 11 percent in fiscal year 2011 from fiscal year 2010 levels. In contrast, the CRS report found that oil production from the federal onshore mineral estate was a mere 306,000 barrels per day (5.5 percent) out of a total of 5,590,000 barrels produced daily in the United States in fiscal year 2011.[24]

Limited Hydraulic Fracturing on Federal Lands

Hydraulic fracturing is changing the world's oil and natural gas outlook, but primarily on private and state lands in the United States. The states have a very good track record of regulating hydraulic fracturing. Over the past 60 years, more than 1.2 million wells have been hydraulic fractured, and according to EPA administrator, Lisa Jackson, there has not been a single confirmed case of groundwater contamination from the process.[25] Given that technologies are getting better and cleaner, as they always do, there is no reason to think that things will get worse.

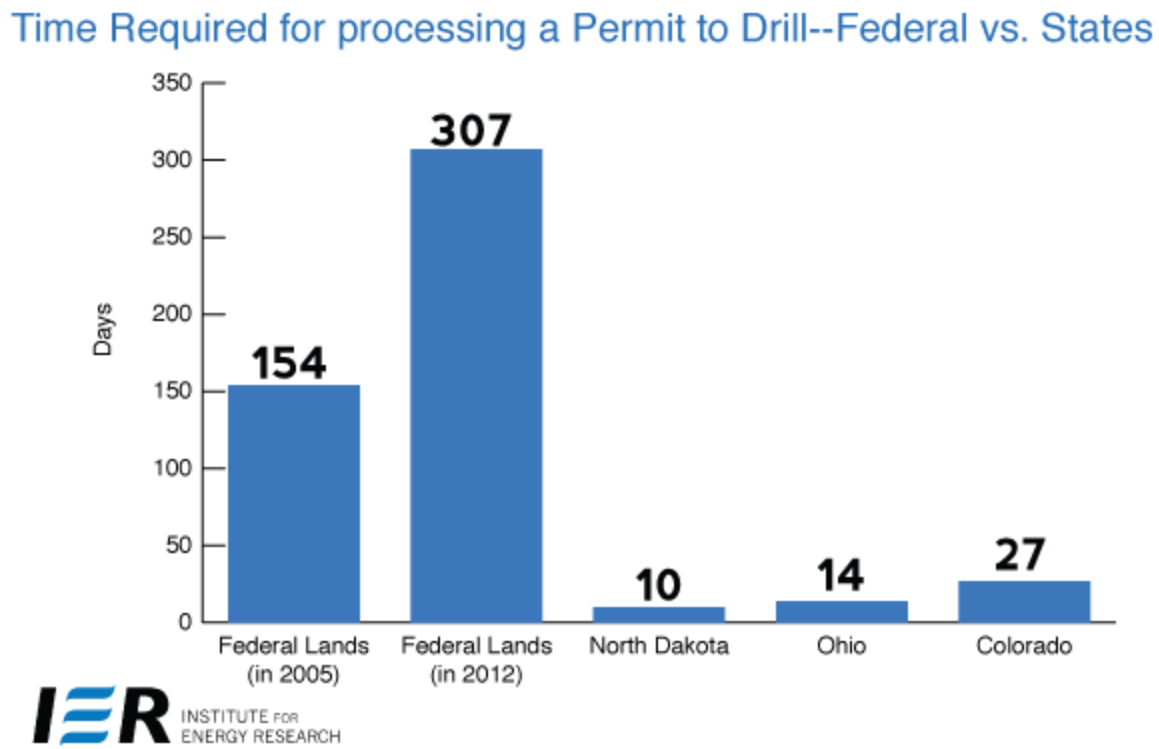
Despite the states' track record of dramatically increasing oil and natural gas production on federal lands without problems relating to the process, the federal government now wants additional regulation of hydraulic fracturing.

The Bureau of Land Management (BLM) has proposed new and costly regulations for hydraulic fracturing on federal lands. According to a study by John Dunham & Associates, the BLM's hydraulic fracturing regulation will cost society $1.5 billion.[26] The cost per well to comply with the regulations tops $250,000.[27] If there is no problem, there is no reason for this except to penalize investment on federal lands. The result will be that businesses will continue to skip doing business with the federal government and the taxpayers and energy consumers of the country will suffer.

It is important for the Committee to remember that vast areas of protected lands are not subject to leasing for oil and gas, including the National Park System, almost all of the National Wildlife Refuge System, the National Wilderness System and others. The Administration is proposing a whole new set of regulations for lands that are supposed to be used for multiple uses, including oil and gas development, and must be returned to their original condition by law once the activity is over.

The Department of Interior is reworking the regulations somewhat and recently announced that BLM "is making improvements to the draft proposal [to regulate hydraulic fracturing] in order to maximize flexibility, facilitate coordination with state practices and ensure that operators on public lands implement best practices." The revised draft is scheduled to be out by March 31.[28] Many of the states where drilling occurs already require these regulations, but the federal government now wants to assume these traditional state functions for itself, and the example below demonstrates the inefficiencies involved.

Consider one example of the time required to get a permit to drill on federal land versus some energy producing states. It takes 307 days for the federal government to process a permit to drill, but only 27 days for Colorado and 10 days in North Dakota. It should come as no surprise why North Dakota's oil production is rapidly increasing while energy production on federal lands is stagnating. The federal government has vast energy resources, but the federal government's current energy plan is designed to limit energy production on federal lands.



The federal government's land use policies have reduced oil and natural gas production on federal lands because federal regulations make it much more difficult to work on federal lands. Instead of following the example of the states, the federal government continues to slow down energy production.

Increased Energy Production on Federal Lands Is a Win-Win

If the federal government were to get serious about increasing oil and natural gas production on federal lands, the results could be dramatic. Areas that the federal government could open to oil and gas development include:

- The 10.4 billion barrels of oil and 8.6 trillion cubic feet of natural gas in the Arctic National Wildlife Refuge
- The 86 billion barrels of oil and 420 trillion cubic feet of natural gas in the outer continental shelf of the lower 48 states
- The 896 million barrels of oil and 53 trillion cubic feet of natural gas in the Naval Petroleum Reserve-Alaska
- The 25 billion barrels of oil in the outer continental shelf of Alaska
- The 90 billion barrels of oil and 1,669 trillion cubic feet of natural gas in the geologic provinces north of the Arctic circle
- The 982 billion barrels of oil shale in the Green River Formation in Colorado, Utah, and Wyoming.

These technically recoverable resources total 1,194 billion barrels of oil and 2,150 trillion cubic feet of natural gas that is owned by the federal taxpayer. At today's prices ($100.00 per barrel of oil and $4.00 per thousand cubic feet of natural gas), the value of the estimated oil resources is $119.4 trillion and the value of the estimated natural gas resources is $8.6 trillion for a grand total of $128 trillion.[29] These numbers, however, are likely to be low, since little is known, for example, about the offshore energy resources where a moratorium has been in place since 1981 on 85 percent of the waters in the lower 48 states and most of Alaska. The Obama Administration has effectively continued the moratorium lifted by Congress in 2008 through its 2012–2017 leasing plan.

The Congressional Budget Office (CBO) estimated that under current policies, revenues from royalties, rents, and bonuses from oil and gas leases on public lands will generate about $150 billion over the next 10 years. The CBO further estimated that if certain resources currently off limits were immediately opened to oil and gas leasing, another $7 billion would be realized over that period.[30] The CBO study estimates are considered to be conservative when compared to historical data and estimates by other analysts and do not consider the earnings from taxes paid by these industries or their employees.

Partially in response but also for education purposes, IER commissioned a groundbreaking paper highlighting the larger economic effects, including economic

growth, wages, jobs, and federal and state and local tax revenues, of opening Federal lands and waters to oil and gas leasing. The IER paper relies on the CBO natural resource and oil and gas price estimates to maintain direct comparability with the CBO analysis while recognizing that those figures have historically been proven to vastly underestimate resources and revenues. The government's resource information is poor in large part due to the lack of exploration resulting from practices limiting access to federal lands such as the moratoria.

The study finds that if the federal government opened up additional federal lands and waters to exploration and production, the increase to GDP would be $127 billion *annually* for the next seven years, and $450 billion *annually* in the long run. Most impressively, the opening of federal lands would have a cumulative increase in economic activity of up to $14.4 trillion over a period of 37 years. And the ripple effect of that boom would be 552,000 in job gains *annually* over the next 7 years with *annual* wage increases of up to $32 billion over that time period and an increase of 1.9 million jobs *annually* in the long run with *annual* wage increases of $115 billion. Federal and state and local tax revenues would also increase to the tune of $2.7 trillion in federal revenues and $1.1 trillion in state and local revenues over 37 years.[31]

These, I'm sure you will agree, are staggering additions to our nation's wealth. And unlike some of the government's priority energy sources which require huge subsidies that are probably unsustainable, all the federal government must do to put millions to work and add to GDP and revenues is allow the private sector and Americans to go to work.

Conclusion

Oil prices are high because of supply and demand. Much of the new petroleum demand is coming from developing Asian countries such as China and India and not from developed countries. In fact, petroleum demand in the United States has fallen from the highs set in 2005.

The United States can help increase the global supply of oil. According to the International Energy Agency, the United States will overtake Saudi Arabia as the world's leading oil producer by 2017.[32] But the vast majority of this increase in oil production is only happening on private and state lands. Federal lands, however, contain vast oil resources and the United States could expand its energy production even more if the federal government wanted to increase domestic oil production.

Lastly, one additional factor that increases the price of gasoline in the United States is the large amount of regulation of the refining industry. As noted above, since 1990 refineries have spent $128 billion to comply with federal environmental regulation. This regulatory compliance has caused dozens of refineries to go out of business. All of these regulations and restrictions lead to higher prices at the pump.

[1] Energy Information Administration, *Gasoline and Diesel Fuel Update*, Feb. 11, 2013, http://www.eia.gov/petroleum/gasdiesel/.

[2] On a gross basis 60 percent of U.S. oil demand is imported from foreign countries. There is a difference between the gross and net imports because the U.S. exports some oil and refined products.

[3] Energy Information Administration, *Short Term Energy Outlook: January 2013*, http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf.

[4] Energy Information Administration, *Short Term Energy Outlook: January 2013*, http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf.

[5] Energy Information Administration, *China: Country Analysis Brief*, Oct. 16, 2012, http://www.eia.gov/countries/country-data.cfm?fips=CH&trk=c

[6] Energy Information Administration, *Monthly Energy Review January 2013, Table 3.1 Petroleum Overview*, http://www.eia.gov/totalenergy/data/monthly/pdf/sec3_3.pdf

[7] Energy Information Administration, *Short-Term Energy Outlook—January 2013, Table 4a. U.S. Crude Oil and Liquid Fuels Supply, Consumption, and Inventories*, http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf.

[8] *See* Energy Information Administration, *Short-Term Energy Outlook—January 2013, Table 4a. U.S. Crude Oil and Liquid Fuels Supply, Consumption, and Inventories*, http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf and Energy Information Administration, *Crude Oil Production*, http://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbblpd_a.htm.

[9] Energy Information Administration, *Monthly Energy Review: January 2013*, *Table 3.3c Petroleum Trade: Imports From OPEC Countries*, http://www.eia.gov/totalenergy/data/monthly/pdf/sec3_10.pdf.

[10] PennEnergy, Saudi Arabia keeps oil production steady as OPEC maintains ceiling

[11] Zaida Espana and Dmitry Zhdannikov, *Analysis: Oil price rise raises specter of global recession*, Feb. 26, 2012, http://www.reuters.com/article/2012/02/26/us-oil-recession-idUSTRE81P0JA20120226?feedType=RSS&feedName=topNews&rpc=71

[12] Energy Information Administration, *Gasoline and Diesel Fuel Update*, Feb. 11, 2013, http://www.eia.gov/petroleum/gasdiesel/.

[13] American Petroleum Institute, *Gasoline Taxes January 2013*, http://www.api.org/oil-and-natural-gas-overview/industry-economics/~/media/Files/Statistics/gasoline-diesel-summary.ashx.

[14] Energy Information Administration, *Gasoline and Diesel Fuel Update*, Feb. 11, 2013, http://www.eia.gov/petroleum/gasdiesel/.

[15] Manufacturers Alliance for Productivity and Innovation, *Macroeconomic Impacts of Federal Regulation of the Manufacturing Sector*, Aug. 12, 2012, http://www.mapi.net/research/publications/macroeconomic-impacts-federal-regulation-manufacturing-sector.

[16] Department of Energy, *Small Refinery Exemption Study An Investigation into Disproportionate Economic Hardship*, p. 29–30, March 2011, http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/small-refinery-exempt-study.pdf.

[17] Written Statement of American Fuel & Petrochemical Manufacturers as Submitted to the Subcommittee on Counterterrorism and Intelligence, Committee on Homeland Security, United States House of Representatives on *Implications of Refinery Closures for U.S. Homeland Security and Critical Infrastructure Safety*, Mar. 19, 2012.

[18] Energy Information Administration, *Number and Capacity of Petroleum Refineries*, http://www.eia.gov/dnav/pet/pet_pnp_cap1_a_(na)_8o0_count_a.htm.

[19] Manufacturers Alliance for Productivity and Innovation, *Macroeconomic Impacts of Federal Regulation of the Manufacturing Sector*, Aug. 12, 2012, http://www.mapi.net/research/publications/macroeconomic-impacts-federal-regulation-manufacturing-sector.

[20] Energy Information Administration, *Gasoline and Diesel Fuel Update*, Feb. 11, 2013, http://www.eia.gov/petroleum/gasdiesel/.

[21] Associated Press, *Exxon to sell all of company's gas stations*, Jun. 13, 2008, http://www.nbcnews.com/id/25126563/ns/business-oil_and_energy/t/exxon-sell-all-companys-gas-stations/.

[22] *See* Bureau of Ocean Energy Management, Regulation and Enforcement, *Offshore Energy and Minerals Management*, http://www.boemre.gov/offshore/. According to the administration's website, the outer continental shelf is 1.76 billion acres (http://www.boemre.gov/ld/PDFs/GreenBook-LeasingDocument.pdf page 1) and only 38 million acres are leased *(Department of Interior, Oil and Gas Lease Utilization – Onshore and Offshore,* http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&pageid=239255 *page 4*). That is a mere 2.16% of the entire Outer Continental Shelf. According to the Department of Interior, 38 million acres of onshore lands are leased for oil and natural gas production. See Table 3 in Department of Interior, *Oil and Gas Lease Utilization—Onshore and Offshore,* http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&pageid=239255. According to the Congressional Research Service, the federal government owns just over 650 million acres of land. See Appendix A. Congressional Research Service, *Major Federal Land Management Agencies: Management of Our Nation's Lands and Resources*, May 15, 1995, http://www.ncseonline.org/nle/crsreports/natural/nrgen-3.cfm. The federal government also controls an additional 58 million acres of federal mineral estate below privately owned surface estate. *See* Bureau of Land Management, *Split Estate*, http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/bmps.Par.98100.File.dat/SplitEstate08finalWeb.pdf.

[23] Marc Humphries, *U.S. Crude Oil Production in Federal and Non-Federal Areas*, Congressional Research Service, Mar. 20, 2012, http://freebeacon.com/wp-content/uploads/2012/03/R42432.pdf.

[24] *Id.*

[25] *See* Lisa Jackson, http://www.youtube.com/watch?v=im-yJhCHhCo.

[26] John Dunham Associates, *Business Impact of Proposed Changes to Well Completion Regulations*, June 11, 2012, http://westernenergyalliance.org/wp-content/uploads/2009/05/John-Dunham-Associates-Economic-Analysis-of-BLM-Fracing-Regulations-FINAL.pdf.

[27] *Id.*

[28] *Id.*

[29] Institute for Energy Research, *Federal Assets Above and Below the Ground*, Jan. 17, 2013, http://www.instituteforenergyresearch.org/2013/01/17/federal-assets-above-and-below-ground/.

[30] Congressional Budget Office, Potential Budgetary Effects of Immediately Opening Most Federal Lands to Oil and Gas leasing, August 2012, http://cbo.gov/sites/default/files/cbofiles/attachments/08-09-12_Oil-and-Gas_Leasing.pdf.

[31] Joseph R. Mason et. al., *Economic Effects of Immediately Opening Federal Lands to Oil and Gas Leasing: A Response to the Congressional Budget Office*, http://www.instituteforenergyresearch.org/beyond-the-congressional-budget-office/.

[32] International Energy Agency, *World Energy Outlook 2012*, http://iea.org/publications/freepublications/publication/English.pdf.