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Testimony

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Submitted by:

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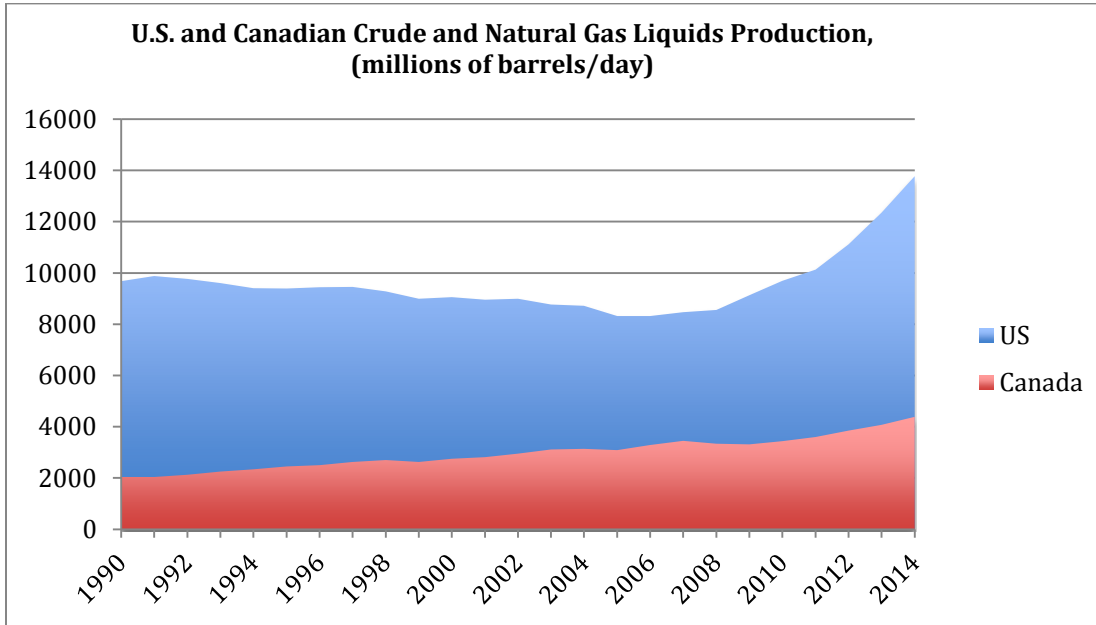
Chairman Whitfield, Ranking Member Rush, and members of the Subcommittee on Energy and Power, I want to thank you for this opportunity to testify on **The Energy Policy and Conservation Act of 1975: Are We Positioning America for Success in an Era of Energy Abundance?** I am president of the Energy Policy Research Foundation, a non-partisan and non-profit organization that has published extensive research on developments in U.S. and world energy markets since 1944. We have been called on to testify at nearly every session of Congress in the last decade and routinely provide briefings on our research for industry, non-profit organizations, federal, state, and local agencies and Congressional staff. EPRINC has been a source of expertise for numerous government studies.

North American Petroleum Renaissance – How We Got Here

The surge in crude oil and natural gas liquids production from the U.S. and Canada, totaling nearly 6 million barrels/day (MBD) since 2006-2007 (Figure 1), is a remarkable achievement of technological innovation and risk taking. This liquids growth arrived on the heels of large scale and low cost development of natural gas supplies from so-called tight or unconventional formations. U.S. production growth has been driven by long-term improvements in the application of both the art and science of horizontal drilling and hydraulic fracturing.

In the years just before the emergence of U.S. petroleum renaissance, Canada achieved substantial improvements in both mining and steam-assisted gravity drainage (SAGD) extraction techniques from the McMurray Formation in the Western Canada Sedimentary Basin. These North American (sans Mexico) unconventional petroleum developments are altering flows in world crude oil trade, shifting long-term price expectations, and challenging long-held conventional wisdom on U.S. energy policy promulgated in an era of scarcity.

Figure 1



An important feature of the rapid expansion in U.S. production is that it occurred entirely on private land outside the jurisdiction of the federal government, which permitted development to take place quickly. Oil and gas production from federal land has become highly contentious and subject to cumbersome and often cavalier regulatory oversight, court delays, and intractable political gridlock. An important feature of the recent surge in U.S. oil and gas output is that drilling permits and environmental regulations were handled largely by local authorities without the typical long delays and financial risks prevalent in projects developed under the jurisdiction of the federal government. In a stunning turn around, the U.S. is now the world's number one oil and gas producer after being written off as a petroleum province undergoing permanent decline.

Both the U.S. and Canadian experiences offer substantially different risk profiles for petroleum investment. All-in per barrel cost of shale resource development is costly by world standards (\$50/barrel or more, with substantial core areas below this cost), but financial and project risks are low as total costs are modest and revenue begins to flow within months. Most shale developments do not require risking large capital outlays over long time periods before first production.

In contrast to the U.S. experience, the Canadian production surge is almost entirely from “Crown” properties, but sustained reform of Canadian leasing procedures administered by the National Energy Board (NEB) of Alberta and the Alberta Energy Regulator have fostered a predictable and long-term program to bring in investment from both international oil companies (IOCs) and state-owned or national oil companies (NOCs).¹ Canadian oil sands development is capital intensive and characterized by a substantial delay before first production, but investors remain confident that they can manage regulatory and political risk in Canada.

Energy Security, Economic Benefits and the Importance of the North American Lens

Over the last 40 years the world oil market has been characterized by a concentration of low-cost petroleum resources among relatively few producers. This concentration of low cost reserves presents an important economic, and to some extent, security threat to the U.S. The primary threat is that a small number of producers can constrain output and obtain prices for crude oil sales into the world market above a price, sometimes substantially, that would prevail in more competitive environments. This market power results in large wealth transfers from the United States to foreign oil producers. OPEC’s market power waxes and wanes, but it is this concentration of low cost reserves among a few producers that remains the major energy security threat to the U.S. economy. A second threat is that production from one or more of the major producing centers might be halted or substantially restricted as a result of war, revolution or terrorism. If production losses are substantial these events could spike world oil prices, harming U.S. economic growth (or even moving the economy into a recession). The U.S. cannot insulate itself from the world oil prices, but a stable and growing North American oil production platform can substantially reduce this risk.

The energy security benefits to the U.S. from rising North American crude oil production are not directly tied to exports, imports, or oil dependence, but instead by diminishing the market power of major foreign producers through the establishment of a stable production platform outside of production centers subject to either manipulation of output and/or to disruption in world supplies from embargoes,

¹ The commercialization of the oil sands benefitted from a royalty relief regime wherein projects paid 1% royalty until initial capital costs were recovered then moved to the prevailing royalty rate

war and terrorism. This is why preserving and ensuring that the entire North American production platform can continue to prosper and grow should be a central theme in U.S. energy policy.

Even as many world production centers (Iraq, Iran, Libya, Sudan, Syria, etc.) lost output from political turmoil, sanctions, and war, the growth in North American production constrained spikes in oil prices, common in earlier periods. Until very recently oil prices remained high, but would have been substantially higher in the absence of the North American production increase. The production surge has been so successful that oil prices now are declining (Figure 2). These lower oil prices; over \$30/bbl. below recent levels (\$65/bbl. on December 1, 2014) are delivering substantial benefits to the world

Figure 2
Crude Oil Prices – West Texas Intermediate
(nominal prices)



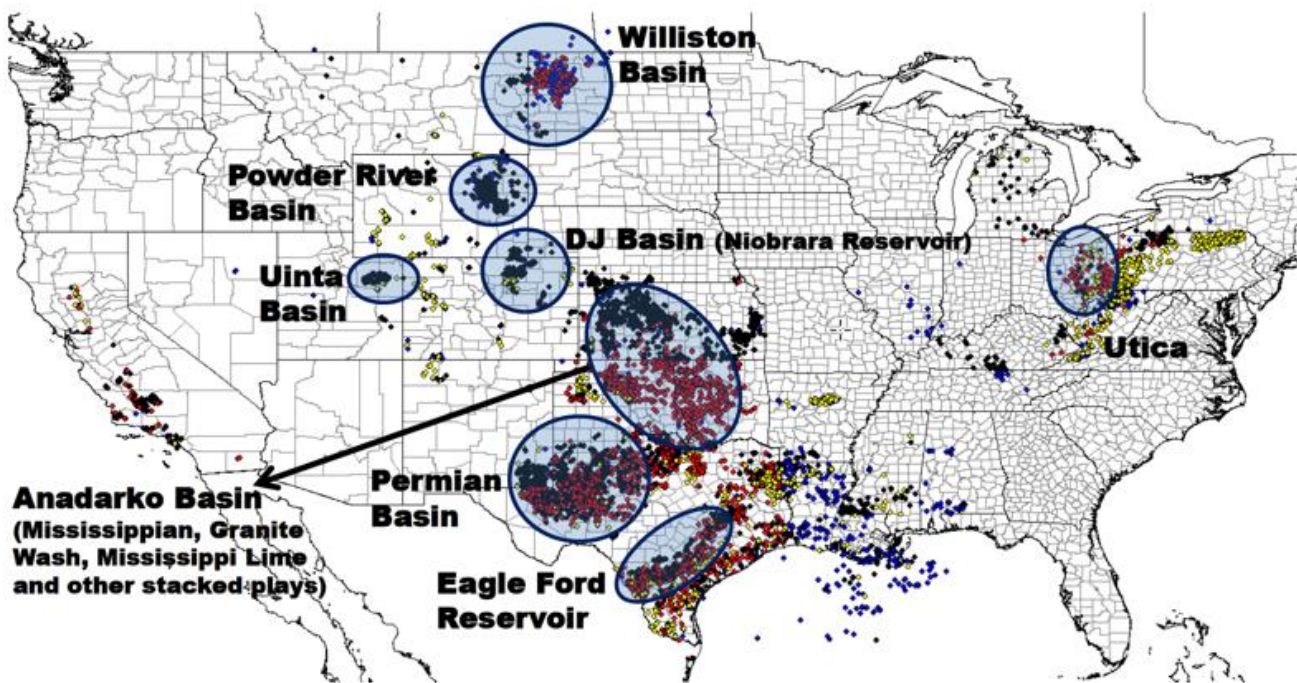
Source: Macrotrends

economy and U.S. consumers. This reduction in oil prices, if they persist for one year, puts approximately \$1.3 trillion in the hands consumers worldwide. For the average U.S. driver, who has seen annual costs of \$3,000 for gasoline, the lower oil prices mean he or she will now be receiving an \$800 reduction their annual fuel bill. This is equivalent to a 2% pay increase.

Will the Fall in Oil Prices Constrain U.S. Production?

The rapid decline in world oil prices, driven in large part by the success of the North American petroleum renaissance, will also place considerable cost pressure on the pace of oil and gas development in the U.S., particularly unconventional plays. Figure 3 shows new drilling permits issued for the last 90 days prior to December 2014 throughout the lower 48. Note that recent activity has remained high, but these permits were requested and issued before the recent price decline and we are only now

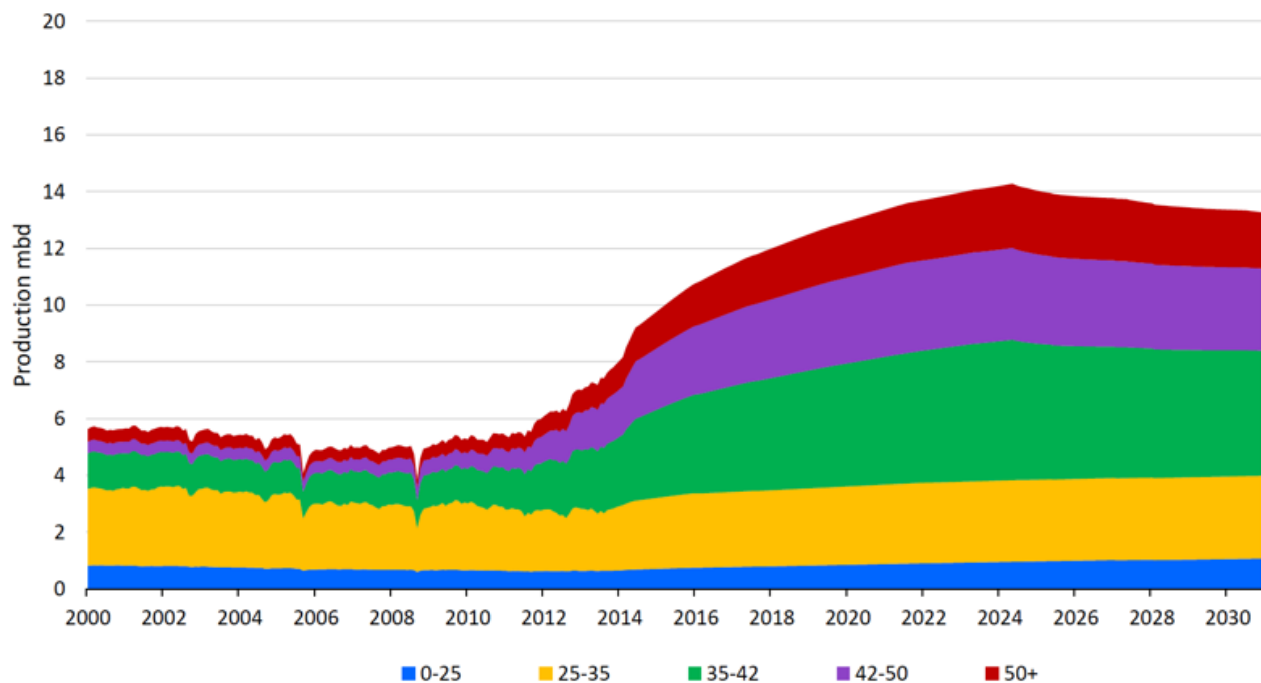
Figure 3
Permit Activity



Source: HDMI, Past 90 days, December 2014

receiving some information suggesting a falloff is underway in permit activity. In trying to estimate the implications for domestic oil production, we are in uncharted waters. Figure 4 shows EPRINC's estimate of potential total U.S. production by API category over the next 15-20 years.

Figure 4
EPRINC Production Evaluation



Source: EPRINC & Ponderosa Advisors, does not include NGLs.

This production estimate was made under a more favorable price environment, and if current prices persist or even fall further, we can expect some reduction in the pace of new activity. Some smaller firms will go out of business, and clearly there will be a pull back in the rate of growth of new production. In many regions, the rapid pace of drilling will continue for the next year or so as oil companies fulfill minimum drilling requirements under their contracts with landowners. In addition, technological improvements will continue to take place in both exploration and development of unconventional reserves, and this will act to limit a massive pull back in domestic production. What we just do not know at this point is how the industry will fully adapt to this new price environment. Clearly in the case of natural gas, technological improvements and the prolific nature of U.S. unconventional gas

reserves, particularly in the Marcellus, are so extensive that production continued to expand even in a low natural gas price environment.

Preventing Mistakes of the Past

As we look back on U.S. energy legislation policies since the 1970's, we cannot help but be stunned by the systematic failure to predict the future and the unintended consequences of U.S. energy policy. Often these policies, in an attempt to either promote the development of alternatives to petroleum or to insulate consumers from price volatility, prevented more productive responses from both consumers and producers. Price controls implemented in response to a 6 month Arab oil embargo in 1973 resulted in over ten years of sustained misallocation of resources, limited the cost-effective development of U.S. petroleum resources, and brought about the proliferation of dozens of small inefficient refiners. The contrast of how we responded to the price run up in recent years, compared to the 1970's, speaks for itself. The U.S. government chose not to implement price controls, resources were accessible on private land, and the marketplace delivered a remarkable response in new supply.

In the late 1970's, in response to concerns we were running out of natural gas, we banned its use in electricity generation throughout the national economy. These policies were implemented through the Powerplant and Industrial Fuel Use Act of 1978, which encouraged the use of coal, nuclear energy, and other alternative fuels under the assumption that natural gas production was in permanent decline. I am sure it is lost on none of us how peculiar and counter-productive this legislation seems today.

In more recent years, in response over rising gasoline prices, we implemented the Renewable Fuel Standard (RFS), which mandated the use of ethanol and biofuels into transportation fuels. When the RFS was established as law, the U.S. faced rising consumption of transportation fuels, declining domestic natural gas and crude oil production, and rapidly rising petroleum product imports. None of these conditions exist today, yet we are left with a program that requires U.S. consumers to use ever-larger volumes of ethanol, which continues to place upward pressure on gasoline prices.

Given the vast changes in our energy landscape we should now revisit the entire range of regulatory programs that were put into place in a much different era. Petroleum is no longer an instrument of economic distress, but a major driver of economic growth and a much-improved strategic outlook for the U.S.