Hearing Questions for the Record
The Honorable Robert E. Latta

Hearing on North America Energy Infrastructure Act
Mary J. Hutzler

1. **In your testimony, you state that with Canada's oil reserves at over 170 billion barrels, Canada can help the United states decrease its reliance on Persian Gulf oil, but it must be allowed to trade energy freely and transport it in a safe and reliable manner. If the reforms in this bill would go into effect, how much do you believe it would decrease U.S. reliance on oil imports from Persian Gulf states?**
   Response: Canada currently produces about 3.7 million barrels per day of petroleum. By 2040, the Energy Information Administration (EIA) expects Canada to produce 6.2 million barrels per day. The United States currently imports 2.946 million barrels per day of oil and petroleum products from Canada. Canada is the largest supplier of oil and petroleum products to the United States, supplying almost 99 percent of its oil and petroleum product exports to the United States. It is expected that if the transportation infrastructure were available, most of Canada's additional petroleum production of 2.5 million barrels per day by 2040, would be exported to the United States.

   In 2012, the United States imported 4.27 million barrels per day from OPEC, of which 2.156 million barrels per day came from the Persian Gulf. For the first seven months of 2013, imports from OPEC have declined to 3.79 million barrels per day and imports from the Persian Gulf have declined to 1.937 million barrels per day. Since Canadian oil is mostly heavy oil, those imports would displace heavy oil coming from the Persian Gulf and elsewhere in OPEC, such as Venezuela, assuming no major increase in petroleum consumption. EIA expects petroleum consumption in 2040 to be about the same as it was in 2011.

   The increased Canadian production of 6.2 million barrels per day would span the next 2 and a half decades, allowing time for infrastructure improvements. However, EIA expects Canada to increase production by 1.0 million barrels per day by 2015 and 1.4 million barrels per day by 2020, so the Keystone XL pipeline with capacity of 830,000 barrels per day, for example, would help to move a sizable portion of the increase if the pipeline were constructed in the near future.

   In truth, we cannot say for certain the levels of imports the United States would receive and the countries from which we would receive them, but the current growth rates in domestic oil production and increasing Canadian oil production indicate that North America could eventually become independent of overseas oil. Canada is a secure energy partner and ally, and since our nations border one another, pipeline transportation of energy – the safest and most economical means – will likely result in more energy trade in both directions.

2. **You discuss how EPA's proposed coal-fired power plant regulations will essentially end the industry as we know it, leading to an increased need for natural gas and natural-gas-fired power plants. You also say that the U.S. currently gets 3 trillion cubic feet of natural gas from Canada, about 12 percent of our annual natural gas consumption. Under the reforms of this bill:**

   a. **How much do you believe the U.S. will be able to increase its natural gas importation; and**

   Response: According to EIA forecasts, the United States will be producing sufficient natural gas domestically to fulfill our needs through 2040 and to also become a net natural gas exporter. The agency expects natural gas production in the United States to grow from 23 trillion cubic feet in 2011 to 33 trillion cubic feet in 2040, of which 16.7 trillion cubic feet is expected to be from shale gas production. The agency estimates shale gas technically recoverable resources to total 750 trillion cubic feet and total natural gas technically recoverable resources to be 2,335 trillion cubic feet, enough for over 90 years at current consumption rates. Thus, additional internal transportation infrastructure will be needed in the United States to move the additional natural gas to new demand centers.

   Because there is uncertainty regarding the amount of domestic resources and their export availability, it would be prudent , however, to ensure that all avenues of supply are open so that natural gas would be available even if bottlenecks were to occur. One such bottleneck occurred when California was in the midst of deregulating its electric generation sector. Natural gas deliverability problems resulted in a shortage of natural gas-fired generation in California. Since natural-gas fired technology was the marginal generation source setting the price, electricity prices skyrocketed.

   Another deliverability problem occurred early this year when a cold snap hit the Northeast making temperatures plummet and natural gas and electricity prices escalate. This occurred because the existing pipeline infrastructure was unable to meet rising natural gas demand when temperatures fell.

   Besides bottlenecks and deliverability problems, geographic issues may limit the availability of domestic sources of supply, resulting in the need for natural gas to be imported from our trusted northern ally.

   With new uses for American natural gas coming into vogue as a transportation fuel, for increased petrochemical production and for export as liquefied natural gas, the United States needs to ensure that all avenues of supply are open and available to the market. We need to ensure that we have an infrastructure system that allows access to supplies, providing a flexible, reliable, and stable market place, and pipelines serve that need.

   b. **Is it enough to offset the energy production we will lose as a result of U.S. coal-fired power plants being shutdown?**

Response: According to the Energy Information Administration, 47 gigawatts of coal-fired plant retirements are expected by 2017. EIA expects a combination of mainly natural gas, nuclear power, and renewable technologies (primarily wind and solar, but also biomass and geothermal) to replace the reitiring coal-fired capacity. With the growth in domestic natural gas production, there is sufficient physical supply to meet that demand.

However, one needs to be cautious regarding this forecast in that a number of nuclear plant retirements are expected due to low natural gas prices making it difficult for some merchant plants to compete and to delays by the Nuclear Regulatory Commission in approving life extensions and requests to restart downed nuclear units. EIA also ssumes that there will be 8 gigawatts of uprates added to existing nuclear capacity that also may not materialize. If EIA's nuclear forecast does not become reality, additional gas-fired power plants would be needed to fill the gap from the retiring coal-fired units. While there is sufficient natural gas supply to handle this, market forces need to provide clear signals to the producers and builders of gas-fired generating capacity.

Another source of caution regarding EIA's forecast is EPA's upcoming regulation of carbon dioxide emissions from existing power plants. EPA may impose draconian carbon dioxide restrictions on both existing coal and natural gas plants since both emit carbon dixoide emissions, which would lead to closures of both types of plants. Further, if EPA's regulation shuts down all existing coal-fired power plants, it would be difficult for natural gas to fill the gap, especially given the fact that EPA could clamp down on natural gas power plants' carbon dioxide emissions as well at any time

Another issue is that for the remainder of this decade, EIA's natural gas price projections are low, increasing by less than 4 percent, which makes natural gas attractive as a replacement fuel. However, by 2040, natural gas prices are expected to almost double in real terms, and further government regulatory or tax actions could exacerbate those increases. With higher natural gas prices expected in the future and the cost of constructing new generating capacity, retiring perfectly good nuclear and coal-fired capacity, whose capital costs have already been paid and therefore offer some of the most reasonably priced generation, may not be a prudent choice for the United States. Recent chaos in the generation markets in Europe owing to government policies should provide a cautionary tale about the impact of such policies on prices, consumers and the ability to compete in energy intensive industrial activities.