INSTITUTE FOR ENERGY RESEARCH

BEFORE THE SUBCOMMITTEE ON ENERGY AND POWER

COMMITTEE ON ENERGY AND COMMERCE

HEARING ON NORTH AMERICA ENERGY INFRASTRUCTURE ACT

OCTOBER 29, 2013

TESTIMONY OF MARY J. HUTZLER

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.

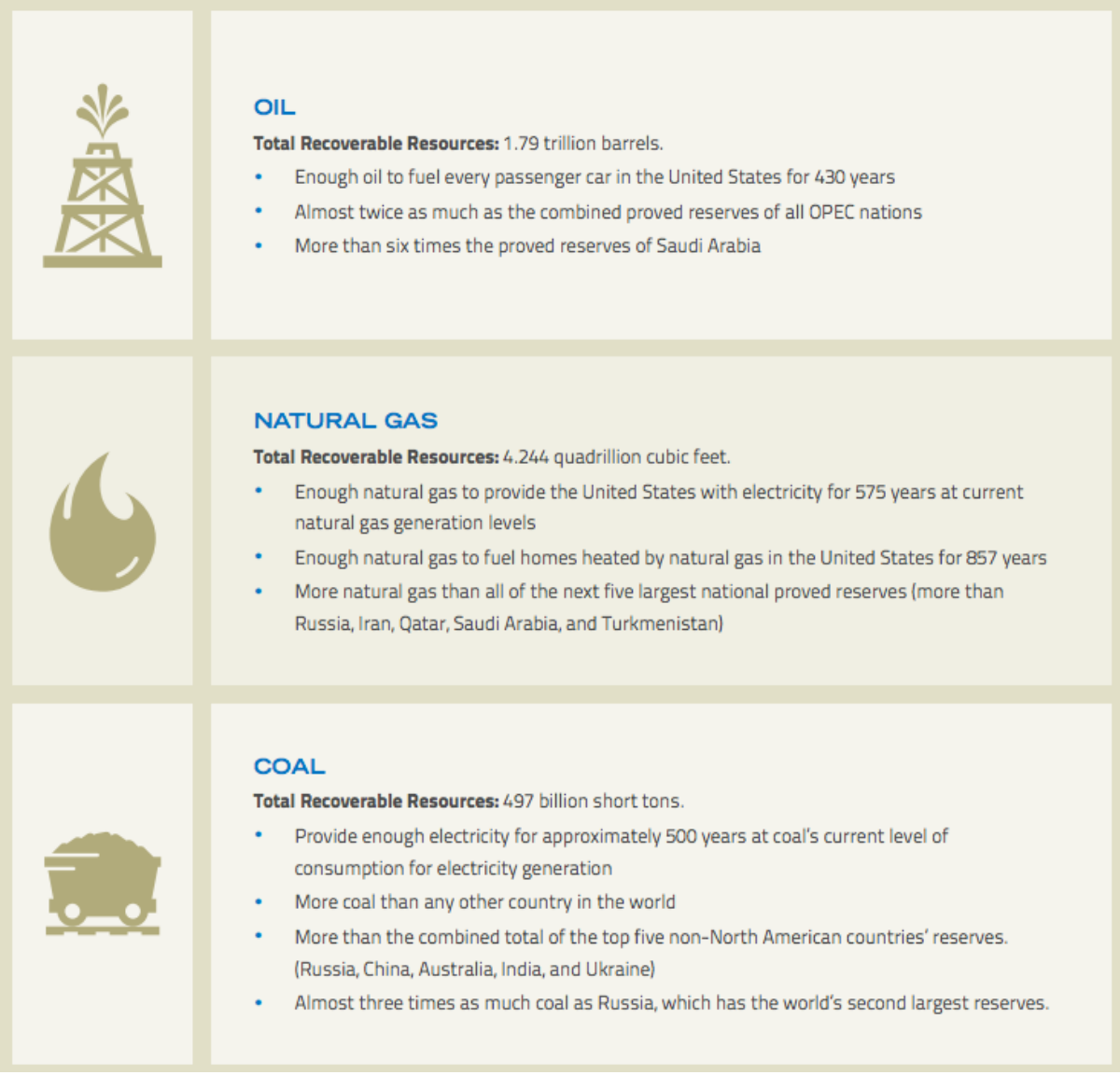
Importance of North American Energy Trade

Thank you for the opportunity to testify today regarding H.R. 3301, "North American Energy Infrastructure Act." *Energy* is defined as "the capacity to do work." *Infrastructure* is defined as "the basic physical and organizational structures and facilities (e.g., buildings, roads, and power supplies) needed for the operation of a society or enterprise." If the United States wants to have the structures and facilities that will enable us to operate our society and our enterprises so that they have the capacity to do the work necessary to remain a great nation, it is essential that we seek to reduce impediments to expanding energy infrastructure and commerce.

The Committee's review of legislation which seeks to do just that is welcome at a time when trans-border energy commerce is increasing throughout North America and our newfound energy bounty means that we can become more dependent upon ourselves and less dependent upon overseas supplies that have been less secure than many Americans would have liked in the recent past. It is fitting that the

Energy & Commerce Committee would seek to reestablish Congress' Article 1, Section 8 Constitutional role to "regulate Commerce with the foreign nations."

North America is a powerhouse of energy, as the Institute for Energy Research demonstrated in our 2011 North American Energy Inventory.[i] In that groundbreaking analysis, using the government's own estimates, we were able to show that contrary to the impression left after decades of discussions of energy shortages, North America is endowed with enormous energy supplies. The recent shale oil and gas revolution is but a small part of the potential future supplies of energy at our disposal.



Source: Institute for Energy Research, http://www.instituteforenergyresearch.org/wp-content/uploads/2013/01/Energy-Inventory.pdf

The vast energy riches of North America mean that our economic future can be bright, and we can choose to chart our own course to a greater degree than we have been led to believe during the past four decades of the myth of energy scarcity. However, energy infrastructure is key to enabling and enhancing our energy and economic prosperity, and anything Congress can do to reduce the barriers to energy infrastructure within North America would be most welcome. Already, our energy commerce with our neighbors is substantial, and it is destined to grow as demand for energy increases here and around the world.

The United States imports oil and natural gas from our northern neighbor, Canada, and southern neighbor, Mexico. These fuels are transported primarily by pipeline—the least expensive, most efficient, and safest transport means to move the fuels. As oil supplies have exceeded oil pipeline capacity limits, rail has increasingly been used to transport oil and petroleum products both within the United States and between the United States and Canada. The United States also exports oil and natural gas to Canada and Mexico based on availability and location of supplies and directional flows of the pipeline system.

Canada is our largest foreign supplier of oil and Mexico is our third largest foreign supplier. The United States annually imports about 1 billion barrels of oil from Canada and almost 400 million barrels of oil from Mexico. Without these imports, Americans would need to import more oil from overseas at a greater cost to the U.S. economy, increasing our dependence on overseas supplies to a greater extent than necessary. While Presidents have sought “energy independence” as a goal from President Nixon on through President George W. Bush, that elusive goal may finally be within reach according to many forecasters. The energy revolution that is going on in North America is historic, and since the resource base is so enormous, we are not limited by a shortage of energy.

There are many reasons why energy trade with our northern and southern neighbors is important. First, it is important to have diversity of supply and the free flow of energy resources in a market that can respond without artificial impediments. Having diverse sources of supply is particularly important today for natural gas because the United States is increasingly relying on it. The United States is generating more electricity from natural gas due to its current low price and to onerous regulations on coal-fired power plants promulgated by the Environmental Protection Agency (EPA). Due to EPA's current and proposed regulations, existing coal-fired power plants will be prematurely retired and no new coal-fired plants will be built, meaning that even more natural gas-fired power plants will need to be constructed in the future.

Even though these regulations are currently not fully implemented, they are having the effect of stopping investment in new coal plants and the mines throughout the United States that service them. Inasmuch as the United States has the world's largest proven reserves of coal, policies seeking to ban the use of coal force the use of massive amounts of other energy sources. That role has increasingly fallen to natural gas, because the baseload dispatchable power currently produced by coal needs to be replaced by another dispatchable source, such as natural gas.

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. The United States currently gets 3 trillion cubic feet of natural gas from Canada, about 12 percent of our current annual natural gas consumption. We need to ensure that we have a system that allows access to these resources to ensure a flexible, reliable, and stable market place.

The U.S. Oil and Gas Pipeline System

The energy pipeline transportation network of the United States is vast. It consists of over 2.5 million miles of pipelines, which could circle the earth about 100 times. These pipelines are operated by approximately 3,000 companies, and are regulated by the U.S. Department of Transportation.[ii]

Pipelines are not new. They have been used to transport natural gas, oil, and petroleum products for three quarters of a century. The first large-diameter, long-distance pipelines were constructed during World War II, and they proliferated across the country over the following two decades. There are over 2 million miles of natural gas pipelines in the United States and over 180,000 miles of oil pipelines.[iii]

Oil pipelines consist of crude oil pipelines and refined petroleum product pipelines that carry gasoline, jet fuel, home heating oil, diesel fuel and other petroleum products. Crude oil pipelines consist of gathering lines and trunk lines. Gathering lines are small pipelines generally from 2 to 8 inches in diameter that gather the oil from the wells and connect to larger trunk lines that are generally 8 to 24 inches in diameter. There are between 30,000 and 40,000 miles of small gathering lines located in Texas, Oklahoma, Louisiana, Wyoming, and other oil producing states. The crude oil trunk lines or transmission pipelines to which the gathering lines are connected carry crude oil from producing areas to refineries. The Trans Alaskan Pipeline System, which is 48 inches in diameter, is an example of such a pipeline. There are about 55,000 miles of transmission pipelines in the United States.

Refined product pipelines deliver petroleum products to large fuel terminals with storage tanks, from which tanker trucks make local deliveries to gas stations. These refined petroleum pipelines vary in size from relatively small at 8 to 12 inches in diameter to 42 inches in diameter and are found in almost every U.S. state. There are about 95,000 miles of refined product pipelines.

The natural gas pipeline system is organized somewhat differently because unlike oil, natural gas is delivered directly to homes through pipelines. There are about 20,000 miles of natural gas gathering lines that move natural gas to large cross-country transmission pipelines. These large distribution lines, of which there are about 305,000 miles, move the natural gas close to cities where much smaller lines carry it under streets to homes and businesses in almost every city and town in the United States, accounting for the vast majority of the pipeline mileage--over 1.8 million miles.

The U.S. pipeline network is regulated by the U.S. Department of Transportation (DOT), who monitors safety, reliability, and environmental pipeline operation. Data on pipeline safety are available from DOT, who requires pipeline operators to report any incident that crosses a certain safety threshold.[iv] According to safety and accident statistics provided by the U.S. Department of Transportation, pipelines result in fewer spillage incidents and personal injuries than truck and/or rail. In fact, one is more likely to get struck by lightning than to be killed in a pipeline accident.[v]

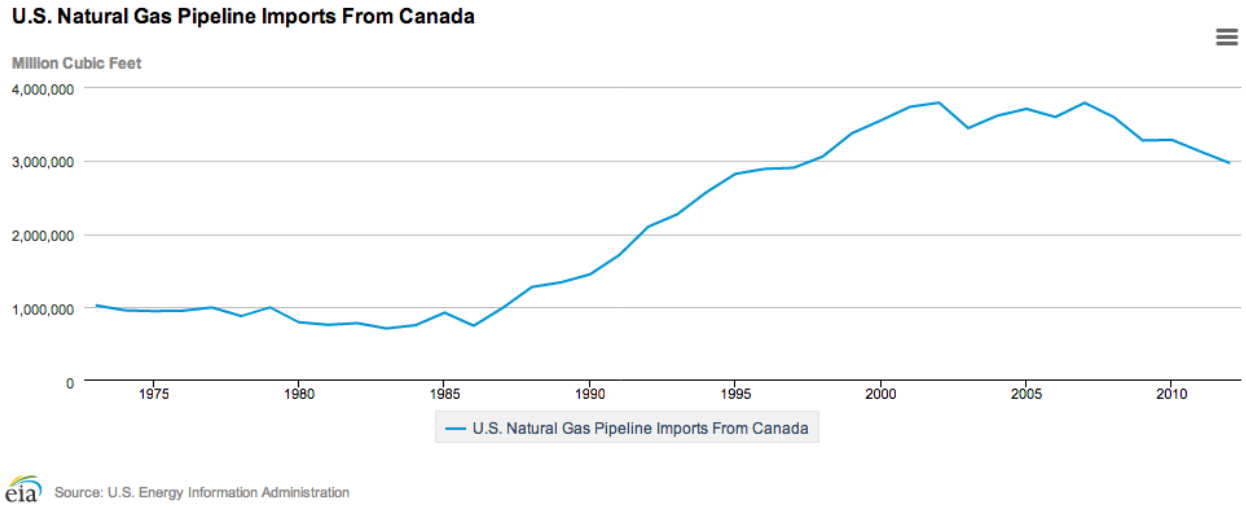
Further, the Manhattan Institute indicates that oil spills are a greater risk with trains than pipelines. A U.S. railway is about 34 times more likely to spill hazardous materials than a pipeline transporting the same volume an identical distance. That is not to say that rail is dangerous. The American Association of Railroads touts a 99.997 percent hazmat safety record.[vi] According to the American Association of Railroads, railroads have an accident rate two to three times higher than pipelines, but involve smaller amounts in each incident, since trains carry smaller amounts than pipelines.

But, due to pipelines reaching full capacity, oil transport by rail has increased dramatically despite it being more greenhouse gas intensive than pipelines. For example, oil carried on trains from Canada to the United States has increased by 46 percent, despite pipelines emitting 8 percent less greenhouse gases than trains, according to the State Department.[vii]

Natural Gas Imports from Canada

The United States imported almost 3 trillion cubic feet of natural gas from Canada in 2012, about 12 percent of our consumption that year. Between the 30-year period from 1983 through 2012, U.S. imports of natural gas from Canada increased by 316 percent. They have declined from their peak in 2002 when they reached 3.8 trillion cubic feet due to the shale gas revolution in the United States and hydraulic fracturing and horizontal drilling technologies, which enable that gas to be produced

economically. The United States gets 94 percent of its natural gas imports from Canada by pipeline; the other 6 percent come by pipeline from Mexico or as liquefied natural gas (LNG) from overseas.



Source: Energy Information Administration, http://www.eia.gov/dnav/ng/hist/n9102cn2a.htm

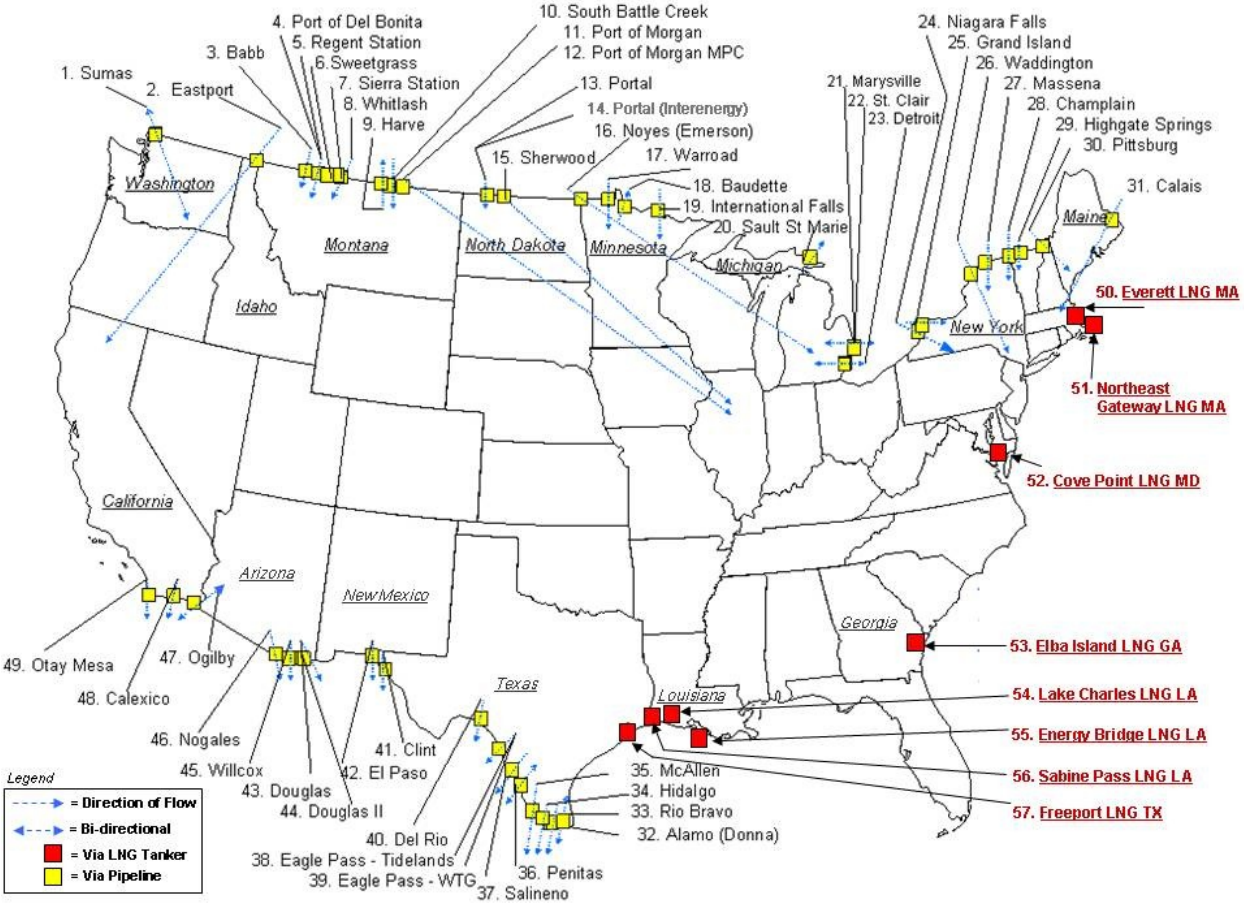
While total U.S. natural gas imports from Canada have been decreasing every year since 2007, not all receiving regions in the United States have followed that decreasing trend. Canadian natural gas imports into the Northeast and Midwest have declined, but they have increased into the Northwest.

The Northeast receives natural gas from Canada, domestic gas from the Marcellus shale, gas from the Gulf of Mexico, and liquefied natural gas (LNG) from the Everett terminal in Massachusetts. Canadian natural gas imports into the Northeast have declined for two reasons. First, natural gas imports through the Maritimes & Northeast Pipeline from the Canaport LNG terminal and from the Sable Offshore Energy production in Canada declined from around 0.5 billion cubic feet per day at its peak to about 0.15 billion cubic feet per day. Second, natural gas production from the Marcellus Shale formation displaced Canadian imports into the northeastern United States. Four interstate natural gas pipeline projects in the Northeast began commercial service in 2011, adding nearly 1.5 billion cubic feet per day of deliverable capacity.

Canadian natural gas imports into the northwestern part of the United States have increased, mainly because natural gas prices at the AECO-C Hub--the benchmark price of natural gas produced in Alberta, Canada--are generally the lowest-cost supplies for the western United States. Pipeline systems for imports in this region are mostly operating at full capacity. Some of the Canadian natural gas imported into the northwestern states is used by the western states and some is delivered to the Midwest through pipelines such as Northern Border and Alliance.

Every U.S. state that shares a land border with Canada has at least one gas pipeline crossing. The states serving as a point of entry for natural gas imported from Canada are: Idaho, Maine, Michigan, Minnesota, Montana, North Dakota, New Hampshire, New York, Washington, and Vermont. The 31 points of entry between Canada and the United States for natural gas are indicated on the map below and detailed in the table below.

U.S. Natural Gas Import/Export Locations, as of 2008



Source: Energy Information Administration, Office of Oil and Gas, Natural Gas Division, Imports/Export Points Database, http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/impex_map.html .

Locations of U. S. Natural Gas Import & Export Points, 2009

Map Key	Location Name (U.S)	Foreign Location Name	Operation (Import/ Export/Both)	State To/ From	Country From/To	U.S. Pipeline	Foreign Pipeline	Capacity (MMcf/d)	Pipeline Diameter (Inches)	Year Service Began
1	Sumas	Huntingdon	Both (but primarily imports)	WA	British Columbia, Canada	Northwest Pipeline (Ferndale & Sumas International use these facilities)	Duke Energy Gas Transmission Canada	1,676 Imp 51 Exp	36, 30,26, & 20	~1962
2	Eastport	Kingsgate	Import	ID	British Columbia, Canada	Gas Transmission - Northwest	Foothills Pipeline/Alberta Natural Gas	2,967	42 & 36	1961
3	Babb	Cardston	Both (but primarily imports)	MT	Alberta, Canada	EnCana Pipelines Ltd	Canadian-Montana Pipeline Ltd	60	10	1989
4	Port of del Bonita	Del Bonita	Import	MT	Alberta, Canada	Omimex Resources Inc	Canadian-Montana Pipeline Ltd	2	4	~1978
5	Regent Station	Coutts	Import	MT	Alberta, Canada	Connector Pipeline Co	Regent Resources Ltd	20	4	2003
6	Sweetgrass	Coutts	Import	MT	Alberta, Canada	EnCana Pipelines Ltd	Canadian-Montana Pipeline Ltd	15	10	~1976
7	Sierra Station	Coutts	Import	MT	Alberta, Canada	Sierra Production Co	Sierra Production Co	24	6	2003
8	Whitlash	Aden	Import	MT	Alberta, Canada	EnCana Pipelines Ltd	Canadian-Montana Pipeline Ltd	26	6 & 8	1980
9	Harve	Willowcreek	Both (but primarily exports)	MT	Saskatchewan, Canada	Havre Pipeline Co	Many Islands Pipeline Ltd	10	8	1993
10	South Battle Creek	Loomis	Export	MT	Saskatchewan, Canada	Omimex Resources Inc	Many Islands Pipeline Ltd	15	6	2001
11	Port of Morgan	Monchy	Import	MT	Saskatchewan, Canada	Northern Border Pipeline	Foothills Pipelines Ltd	2,373	42	1986
12	Port of Morgan MPC	Monchy	Import	MT	Saskatchewan, Canada	EnCana Pipelines Ltd	Foothills Pipelines Ltd	10	4	NA
13	Portal	North Portal	Import	ND	Saskatchewan, Canada	Portal Municipal Gas/Williston Basin PL Co	WBI Canadian Pipeline Ltd	49	16	1994
14	Portal (Interenergy)	North Portal	Import	ND	Saskatchewan, Canada	Interenergy Sheffield Gas Co via Willliston	Interenergy Sheffield Processing Co	3	8	1998
15	Sherwood	Northgate	Import	ND	Saskatchewan, Canada	Alliance Pipeline Co	Alliance Pipeline Canada	1,875	36	2000
16	Noyes	Emerson	Both (but primarily imports)	MN	Manitoba, Canada	Great Lakes and Viking Transmission Co	TransCanada Pipeline Ltd	2,928	36 (2) & 24	1967
17	Warroad	Spraque	Import	MN	Manitoba, Canada	Centra-Minnesota Pipeline Co	Centra Transmission, Inc.	63	12	~1975
18	Baudette	Rainy River	Export	MN	Ontario, Canada	Centra-Minnesota Pipeline Co	TransCanada Pipeline Ltd	63	12	~1975
19	International Falls	Fort Frances	Import	MN	Ontario, Canada	Centra-Minnesota Pipeline Co	Centra Transmission, Inc.	63	12	~1975
20	Sault Ste. Marie	Sault Ste. Marie	Export	MI	Ontario, Canada	Great Lakes Gas Trans Co	TransCanada Pipeline Ltd	130	12 & 10	1967
21	Marysville	Sarnia	Import	MI	Ontario, Canada	Bluewater Pipeline	Union Gas Ltd	500	20 & 12	1996
22	St Clair River	Sarnia	Both (but primarily exports)	MI	Ontario, Canada	Vector Pipeline/Great Lakes Trans	Union Gas Ltd	3,410	36 (2) & 24	1994
23	Detroit	Windsor	Both (but primarily exports)	MI	Ontario, Canada	Panhandle Eastern/Great Lakes/ANR/MichCon	St Clair Pipeline Ltd	100	26 & 22	1988
24	Niagara Falls	Niagara Falls	Both (but primarily imports)	NY	Ontario, Canada	Tennessee Gas Pipeline Co	TransCanada Pipeline Ltd	1,297	30 & 20	~1976
25	Grand Island	Chippawa	Import	NY	Ontario, Canada	Empire Pipeline Co	TransCanada Pipeline Ltd	655	24	1994
26	Waddington	Iroquois	Import	NY	Ontario, Canada	Iroquois Pipeline Co	TransCanada Pipeline Ltd	1,150	30	1991

27	Massena	Cornwall	Import	NY	Ontario, Canada	St Lawrence Gas Co	Niagara Gas Transmission Ltd	62	12	1962
28	Champlain	Napierville	Import	NY	Quebec, Canada	North Country Pipeline	TransCanada Pipeline Ltd	56	10	1993
29	Highgate Springs	Phillipsburg	Import	VT	Quebec, Canada	Vermont Gas System	TransCanada Pipeline Ltd	62	12	1965
30	Pittsburg	East Hereford	Both (but primarily imports)	NH	Quebec, Canada	Portland Gas Trans Pipeline Co	TransQuebec & Maritimes	216	24	1999
31	Calais	St Stephen	Import	ME	New Brunswick, Canada	Maritimes & Northeast Pipeline Co	Maritimes & Northeast Pipeline Canada	865	24	1999
32	Alamo	Reynosa	Both (but primarily exports)	TX	Tamaulipas, Mexico	Tennessee Gas Pipeline Co	Pemex Pipeline	215	24	1999
33	Rio Bravo	Hidalgo	Export	TX	Tamaulipas, Mexico	Tennessee Gas Pipeline	Gasoducto del Rio Pipeline Co	315	30	2003
34	Hidalgo	Reynosa	Both (but primarily exports)	TX	Tamaulipas, Mexico	Texas Eastern Transmission Co	Pemex Pipeline	350	30	1989
35	Mcallen	Reynosa	Both (but primarily exports)	TX	Tamaulipas, Mexico	Coral Energy Pipeline	Pemex Pipeline	350	24	2000
36	Penitas	Penitas	Export	TX	Tamaulipas, Mexico	West Texas Gas Co	Pemex Pipeline	400	24	1992
37	Salineno	Ciudad Camargo	Export	TX	Tamaulipas, Mexico	Kinder-Morgan Border Pipeline Co	Pemex Pipeline	375	30	2003
38	Eagle Pass-Tidelands	Piedras Negras	Export	TX	Coahuila de Zaragoza, Mexico	Tidelands Oil & Gas	Pemex Pipeline	15	12	2003
39	Eagle Pass-WTG	Piedras Negras	Export	TX	Coahuila de Zaragoza, Mexico	West Texas Gas Co	Pemex Pipeline	38	12	1980
40	Del Rio	Acuna	Export	TX	Coahuila de Zaragoza, Mexico	West Texas Gas Co	Pemex Pipeline	25	8	2004
41	Clint	Ciudad Juarez	Export	TX	Chihuahua, Mexico	Samalayuca Pipeline (El Paso Energy)	Pemex Pipeline	312	24	1997
42	El Paso	Del Norte	Export	TX	Chihuahua, Mexico	OkTex Pipeline Co	Pemex Pipeline	90	12	~1972
43	Douglas II	Agua Prieta	Export	AZ	Sonara, Mexico	El Paso Natural Gas Co	Pemex Pipeline	78	16	1999
44	Douglas	Agua Prieta	Export	AZ	Sonara, Mexico	El Paso Natural Gas Co	Pemex Pipeline	45	10	1992
45	Willcox Lateral	Cananea	Export	AZ	Sonara, Mexico	El Paso Natural Gas Co	Pemex Pipeline	230	16 (2)	2001
46	Nogales	Ductos de Nogales	Export	AZ	Sonara, Mexico	El Paso Natural Gas Co	Pemex Pipeline	8	16	2001
47	Ogilby	Sin Nombre Bistrain	Both (but primarily Imports)	CA	Baja California, Mexico	North Baja Pipeline Co	Gasoducto Bajanorte Ltd	614	30	2002
48	Calexico	Mexicali	Export	CA	Baja California, Mexico	SouthernCalifornia Gas Co	DNG Pipeline Ltd	25	16	1997
49	Otay Mesa	Tijuana	Both (but primarily exports)	CA	Baja California, Mexico	Sempra Energy Co	Gasoducto de Rosarito Ltd	350	30	2000
50	Everett	Boston	LNG Import	MA	LNG Tanker	Distrigas of Mass.	NA	1,300	NA	1971
51	Northeast Gateway	Offshore	LNG Import	MA	LNG Tanker	Algonquin Gas Trans Co	NA	800	24	2007
52	Cove Point	Cove Point	LNG Import	MD	LNG Tanker	Cove Point LNG	NA	1,800	NA	2003
53	Elba Island	Elba Island	LNG Import	GA	LNG Tanker	SCANA Interstate	NA	1,215	NA	2003
54	Lake Charles	Lake Charles	LNG Import	LA	LNG Tanker	Trunkline LNG	NA	2,100	NA	1981
55	Louisiana Energy Bridge	Offshore	LNG Import	LA	LNG Tanker	Sea Robin Pipeline	NA	500	36	2005
56	Sabine Pass	Cameron Parish	LNG Import	LA	LNG Tanker	Sabine Pass LNG Pipeline	NA	2,600	42	2008
57	Freeport	Brazoria	LNG Import	TX	LNG Tanker	Freeport LNG Pipeline	LNG Tanker	1,750	2@42	2008
58	Point Nikiski	Cook Inlet	LNG Export	AK	LNG Tanker	TAGS Pipeline	LNG Tanker	220	NA	1969

Notes: ~ indicates approximate in-service year. MMcf/d = Million cubic feet per day.

Source: Energy Information Administration, Gas Transportation Information System Exports/Imports Database, http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/impex_list.html

Four of the states through which Canadian natural gas moves--Montana, Idaho, North Dakota, and Minnesota-- account for about 75 percent of all the natural gas brought into the United States via pipeline from Canada. These states consume very little of the natural gas themselves, transferring it to other states with much higher natural gas demand. For example, Canadian natural gas entering through the states of Washington and Idaho supplies about one-fifth of the natural gas demand in California[viii]—a state that gets over 55 percent of its electricity generation from natural gas. Natural gas is also used heavily in California's buildings sector and for industrial uses. The state of Washington generally gets all its natural gas demand from Canada.

Natural Gas Imports from Canada by State of Entry
(million cubic feet)

	2011	2012
Idaho	606099	634194
Maine	149736	76540
Michigan	15193	11630
Minnesota	548686	406327
Montana	679849	754057
North Dakota	448977	433743
New Hampshire	19826	47451
New York	324475	276054
Washington	313922	312139
Vermont	10319	8247
Total	3117082	2960382

Source: Energy Information Administration, http://www.eia.gov/dnav/ng/ng_move_poe1_a_EPG0_IRP_Mmcf_a.htm

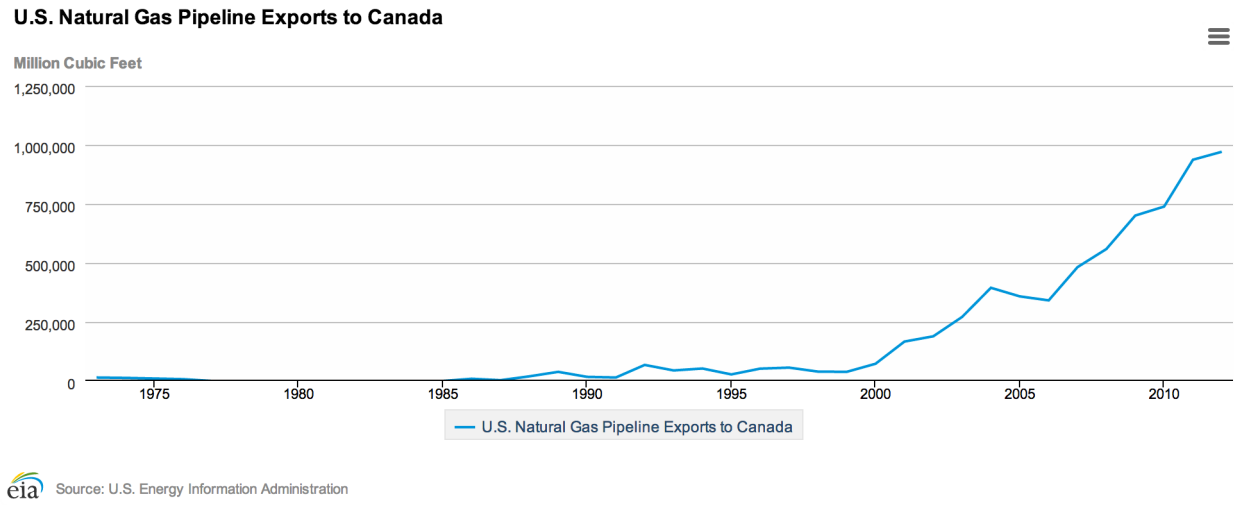
Montana serves as a point of entry for Canadian natural gas and pipes most of the Canadian gas it receives to North Dakota**,** who in turn pipes it to Minnesota and South Dakota. Both Wisconsin and Illinois benefit from Canadian natural gas coming by pipeline from the Dakotas and Minnesota. Illinois uses three-quarters of its natural gas supplies in the residential and commercial sectors, heating homes and offices, while Wisconsin uses slightly less of a percentage in those sectors (about two-thirds).

On the east coast, Vermont is entirely dependent on natural gas from Canada to meet its demand. Vermont was the first state to ban hydraulic fracturing[ix], which combined with horizontal drilling in shale structures, has made the U.S. the largest producer of natural gas in the world. Those technologies are now used to get natural gas from the Marcellus shale formation which supplies the Northeast.

Maine gets its natural gas supplies mainly from Canada and sends a large amount of natural gas to New Hampshire, who uses it to supply its own demand and also pipes supplies to Massachusetts. Massachusetts also receives domestic natural gas shipments and imports liquefied natural gas (LNG) from Trinidad and Tobago and Yemen via its LNG terminals in Everett, Massachusetts, and its Northeast Gateway terminal. Massachusetts' demand for natural gas is relatively high among U.S. states, using its natural gas supplies mostly in the buildings sector to meet residential and commercial demand, but also to generate electricity and for industrial uses. New York also receives natural gas imports from Canada, but receives a large amount of its natural gas from the Marcellus shale in Pennsylvania. Seventy percent of New York's demand is used in the buildings sector.

U.S. Natural Gas Exports to Canada

The United States also exports natural gas to Canada and those exports have been growing significantly since 2000. Between 2007 and 2012, U.S. natural gas exports to Canada have doubled, reaching almost 1 trillion cubic feet in 2012. Almost all U.S. natural gas exports to Canada are delivered from the Midwest via the Vector Pipeline that recently expanded its capacity allowing more natural gas to be exported. Natural gas exports from the Midwest to Canada reached a record-high level in 2011, totaling 2.4 billion cubic feet per day, and have decreased slightly in 2012.

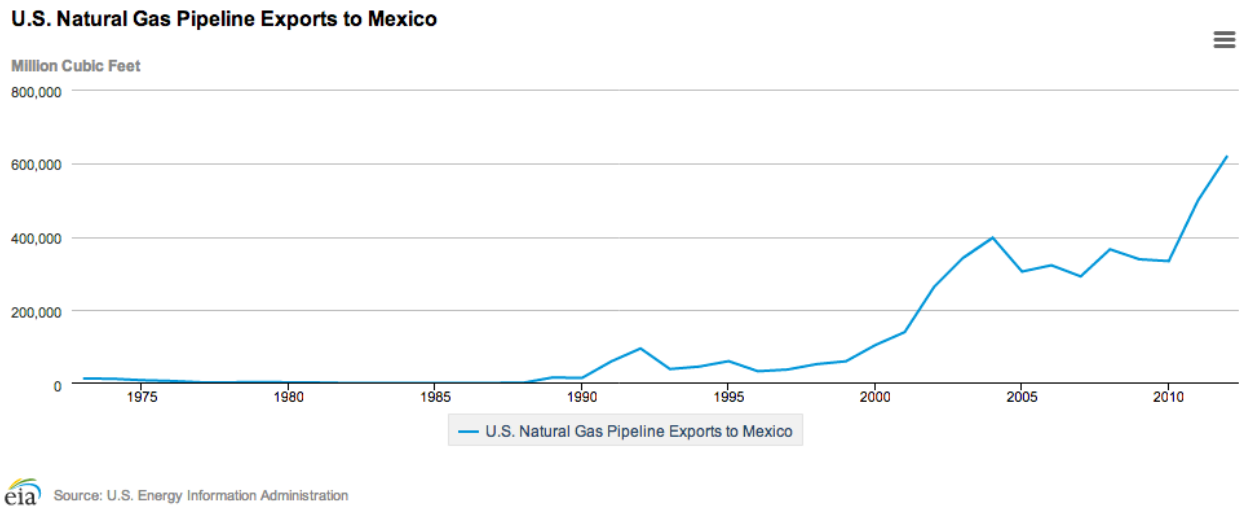


Source: Energy Information Administration, http://www.eia.gov/dnav/ng/hist/n9132cn2a.htm

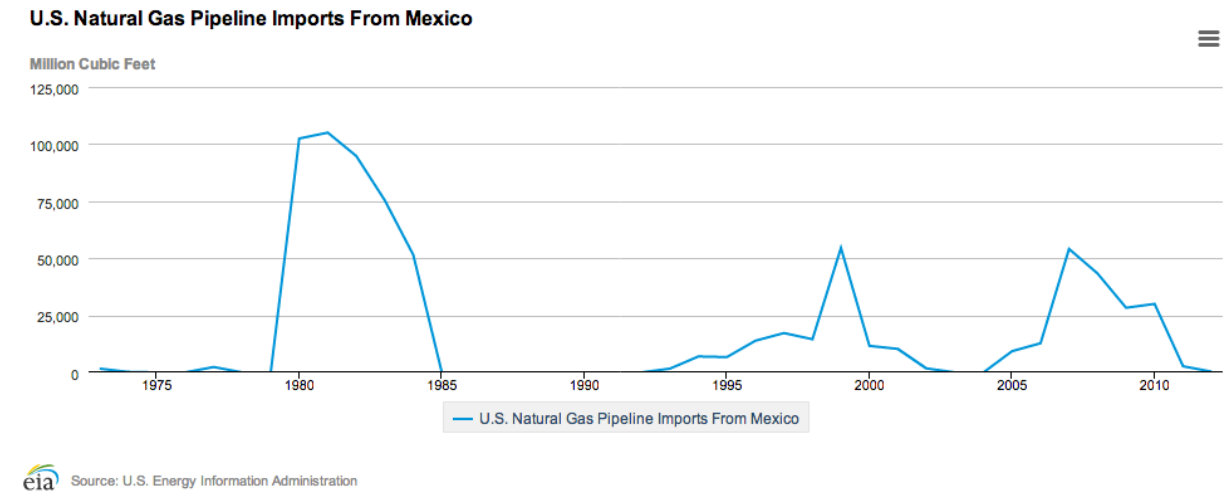
The United States exports only a small volume of gas to Canada from the Northwest and Northeast. However, natural gas exports from the Northeast to Canada have been rising since the beginning of 2011. Two projects, the Tennessee Gas Pipeline and the National Fuel Gas Supply expansion projects, commenced service on November 1, 2012 to Canada through Niagara, New York. With a total capacity of 0.57 billion cubic feet per day, these projects will significantly increase U.S. natural gas exports to Canada from the Northeast.

U.S. Natural Gas Trade with Mexico

The United States is a net exporter of natural gas with Mexico. Similar to the Canadian situation, U.S. exports to Mexico have been on an upward trend since 2000, and have more than doubled since 2007. In 2012, U.S. natural gas exports to Mexico totaled 620 billion cubic feet. In contrast, imports of natural gas from Mexico have been erratic and relatively small in scale.



Source: Energy Information Administration, http://www.eia.gov/dnav/ng/hist/n9132mx2a.htm



Source: Energy Information Administration, http://www.eia.gov/dnav/ng/hist/n9102mx2a.htm

The United States has 18 gas pipeline crossings with Mexico. The states serving as a point of entry for natural gas imported from Mexico are: Texas, Arizona, and California. The 18 points of entry between Mexico and the United States for natural gas are indicated on the map above and detailed in the above table. Of the 18 gas pipeline crossings, 13 are exclusively for natural gas exported from the United States, and 5 have the capability to be both export and import crossings.

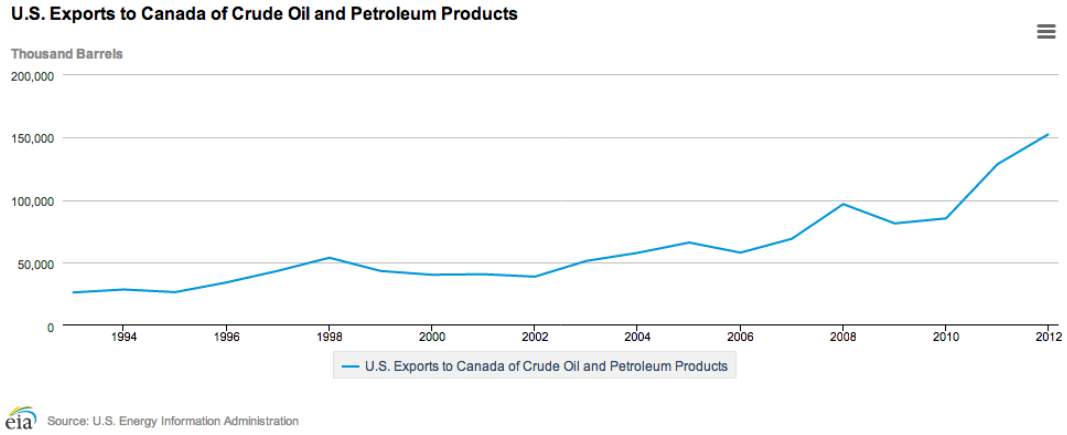
Natural Gas Imports from Mexico by State of Entry
(million cubic feet)

	2011	2012
California	2,171	0
Texas	501	314
Total	2,672	314

Source: Energy Information Administration, http://www.eia.gov/dnav/ng/ng_move_poe1_a_EPG0_IRP_Mmcf_a.htm

Oil and Petroleum Product Imports from Canada

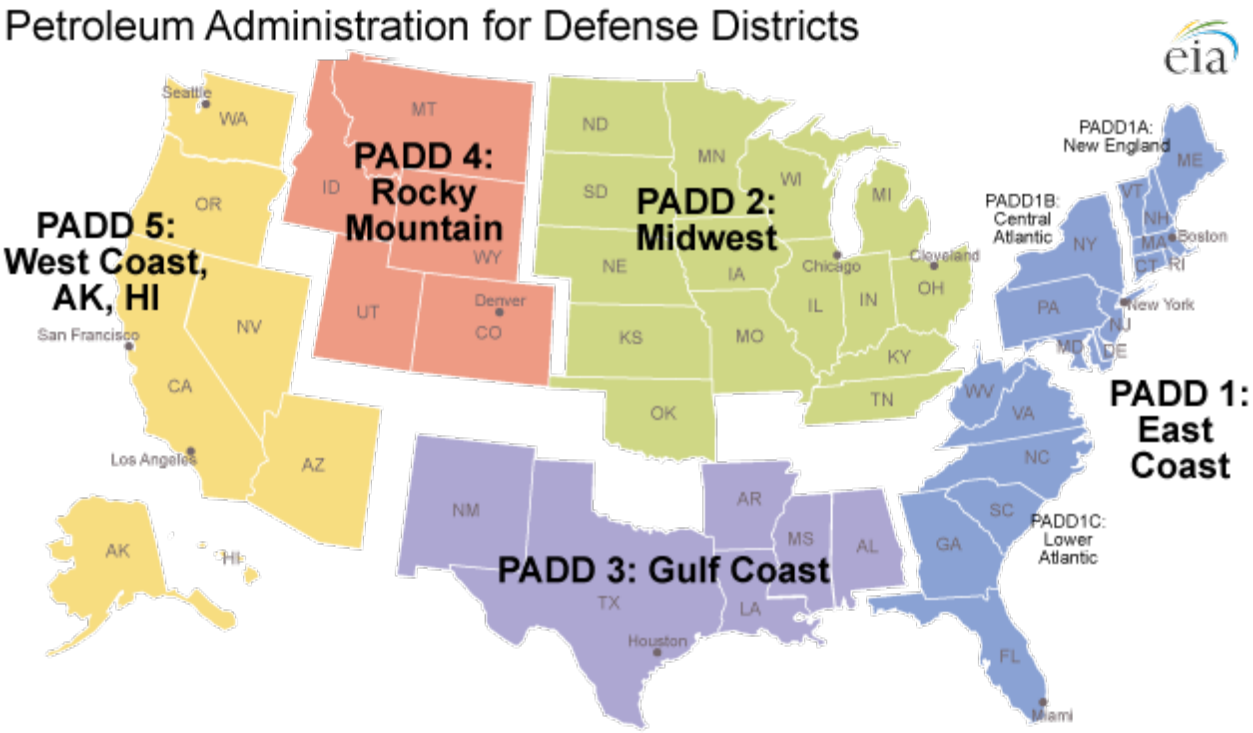
Canada is the largest supplier of foreign oil and petroleum products to the United States, followed by Saudi Arabia, Mexico, and Venezuela. Almost 99 percent of Canadian oil exports are supplied to the U.S. market. The United States imported over 1 billion barrels of crude oil and petroleum products from Canada in 2012, about 16 percent of our consumption and 28 percent of our oil and petroleum product imports. Canada's contribution to our oil and petroleum product imports has grown over time, even though the total amount of crude oil the United States buys from foreign suppliers is falling. Between the 20-year period from 1993 through 2012, Canadian imports of petroleum have increased by 150 percent. (See graph below.)



Source: Energy Information Administration, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=mttimusca1&f=a

The majority of the crude oil imported into the United States from Canada comes via pipeline. There are, however, Canadian crude oil and petroleum products arriving by ship to the East, West, and Gulf coasts and more recently, shipments to U.S. refineries by train, resulting from pipelines reaching near capacity and delays in approving the Keystone pipeline.

Oil and petroleum product data are categorized within 5 Petroleum Administration for Defense Districts (PADDs) in the United States, which are geographic aggregations of the 50 States and the District of Columbia: PADD 1 is the East Coast, PADD 2 the Midwest, PADD 3 the Gulf Coast, PADD 4 the Rocky Mountain Region, and PADD 5 the West Coast. Due to its large population, PADD 1 is further divided into sub-PADDs, with PADD 1A as New England, PADD 1B the Central Atlantic States, and PADD 1C comprising the Lower Atlantic States. (See map below.) The PADDs were defined during World War II when the Petroleum Administration for War, established by an Executive order in 1942, used these five districts to ration gasoline. Although that Administration was abolished in 1946, Congress passed the Defense Production Act of 1950, which created the Petroleum Administration for Defense using these five districts. The PADDs help users of petroleum data assess regional petroleum product supplies.



Source: Energy Information Administration, http://www.eia.gov/todayinenergy/detail.cfm?id=4890&src=email

Canadian oil imports from Canada into the Midwest and Rocky Mountain regions (PADDs II and IV) arrive via pipeline. The other PADDs also receive Canadian petroleum imports via ship. Due to full capacity on the pipeline system, rail is also being used to move oil sands from Alberta, Canada to the East and Gulf coasts of the United States. An estimated 120,000 barrels of oil per day are being moved by train from Alberta to those regions. That number could reach 200,000 barrels per day by the end of the year when several rail terminals are expected to be completed.

While rail costs are double pipeline tariffs, the lower cost Canadian oil make it profitable to use rail. Last year Canadian light oil traded as low as $68 per barrel and heavy oil at $48 per barrel, while refiners on the U.S. Gulf Coast and northeast were paying overseas prices for their heavy oil feedstock of around $110 per barrel. The large differential made room for the higher priced rail tariff, particularly since pipeline capacity is limited from Canada into the United States. However, that price differential is no longer as great partly due to increased demand by U.S. refineries for Canadian crude that has resulted from the rail shipments.[x]

Since pipeline capacity is also tight within the United States, particularly out of the Bakken in North Dakota, rail is also being used for more interstate transport. The Energy Information Administration estimates that 1.37 million barrels per day of oil and petroleum products were moved by rail during the first half of 2013, an increase from 927,000 barrels per day during the first six months of 2012.[xi]

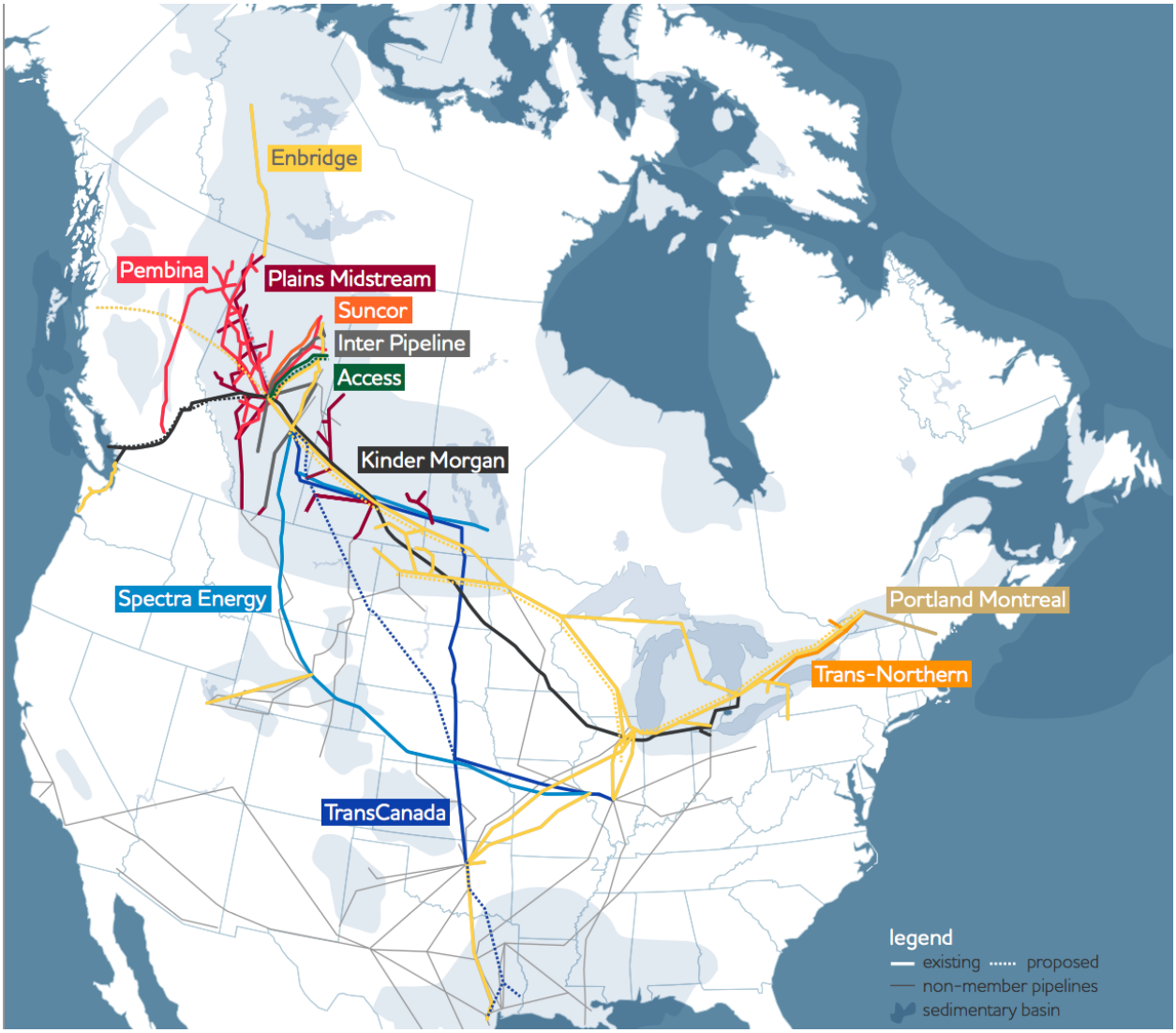
Oil and Petroleum Product Imports from Canada by PADD Region

(thousand barrels)

	2011	2012
East Coast	212,204	197,827
Midwest	594,353	664,085
Gulf Coast	57,774	43,319
Rocky Mountain	82,068	97,670
West Coast	74,205	78,484
Total	1,020,604	1,081,385

Source: Energy Information Administration, http://www.eia.gov/dnav/pet/pet_move_impcp_a2_r10_ep00_ip0_mbbl_a.htm

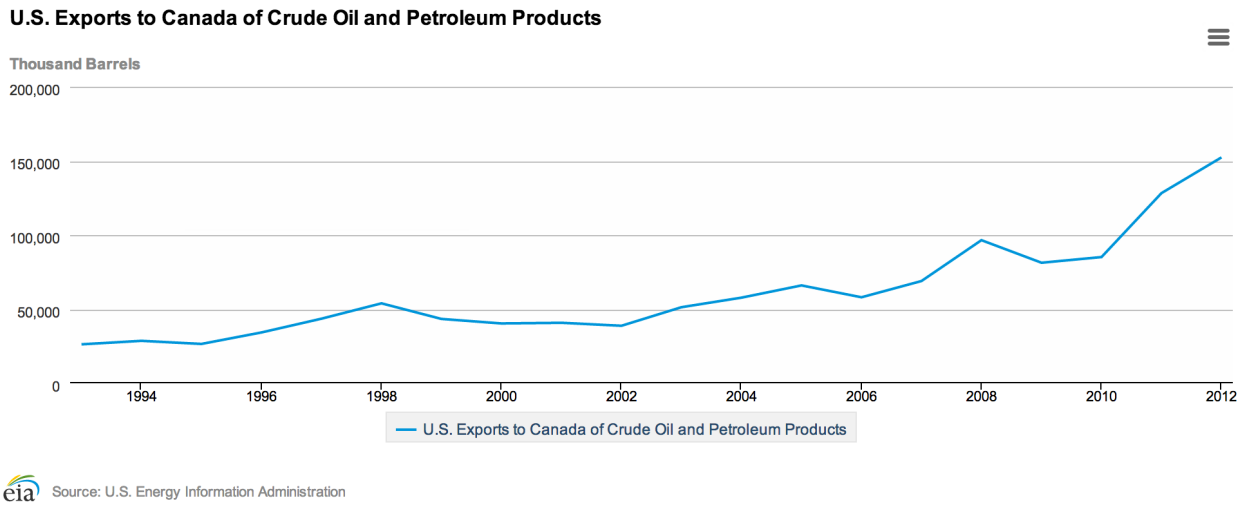
While the Midwest receives the largest amount of Canadian petroleum imports, some of those imports are piped to other regions, particularly to the Gulf coast. The following graph depicts the liquid fuel pipelines from Canada to the United States.



Source: *http://www.cepa.com/wp-content/uploads/2013/06/cepa-liquids-may-30.pdf*

U.S. Oil and Petroleum Product Exports to Canada

Similar to natural gas, U.S. oil and petroleum product exports to Canada more than doubled since 2007, reaching 152,312 thousand barrels in 2012. As with natural gas, oil and petroleum product exports to Canada are based on pipeline movements, direction of flows and location of supplies. That is, it may be easier for a region in Canada to get its oil supplies from the United States than to move the oil between Canadian regions.

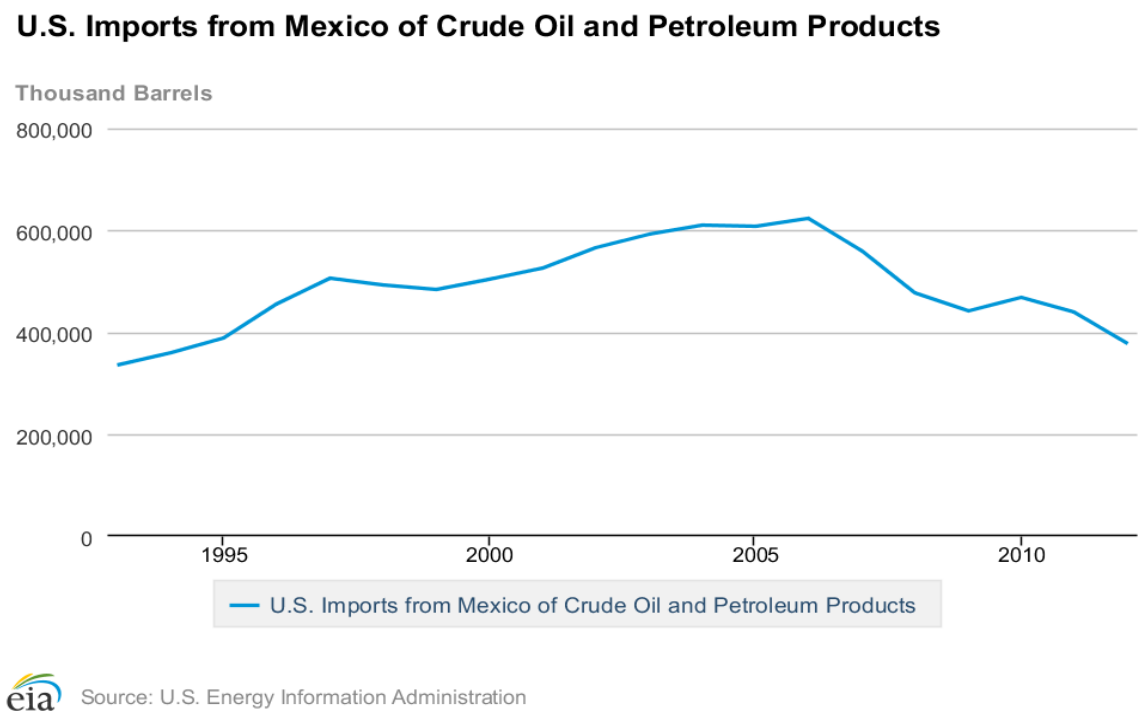


Source: Energy Information Administration, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MTTEXCA1&f=A

U.S. Oil and Petroleum Product Trade with Mexico

Mexico is the third largest supplier of oil and petroleum products to the United States supplying almost 400 million barrels in 2012. Our imports from Mexico peaked in 2006 at 622 million barrels. Mexico exports about 85 percent of their oil exports to the United States via tanker. Most Mexican crude oil exports into the United States are of the Maya blend, which is a heavy crude that U.S. Gulf Coast refineries can process.

Similar to natural gas, U.S. exports of oil and petroleum products to Mexico have doubled since 2007 and were almost 207 million barrels in 2012.



Oil and Petroleum Product Imports from Mexico
(thousand barrels)

	2011	2012
East Coast	3,459	3,045
Midwest	3,608	0
Gulf Coast	425,644	369,734
Rocky Mountain	0	0
West Coast	7,541	5,913
	440,252	**378,692**

Source: Energy Information Administration, http://www.eia.gov/dnav/pet/pet_move_impcp_a2_r30_ep00_ip0_mbbl_a.htm

Energy Independence Nears

The International Energy Agency (IEA) in its World Energy Outlook 2012[xii] is predicting that the United States will become the world's largest oil producer by 2017, overtaking both Saudi Arabia and Russia. The IEA is not the only agency with this prediction; Citigroup Inc. indicated that the United States will achieve this goal before the end of this decade. The IEA also expects that North America will become a net oil exporter by 2030, the United States will become almost energy independent by 2035 and OPEC will be exporting 90 percent of its oil to Asia, changing the security dynamics in the Middle East.[xiii]

These accomplishments can only come about if the United States maintains a well working energy system where markets are allowed to work and where we are allowed to trade with neighboring countries without artificial impediments. 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.

Net oil imports are now just 35 percent of oil consumption, the same as they were in 1973, when the oil embargo took place. But, since Canada and Mexico are supplying over 60 percent of our net oil imports, in reality our energy dependence on non-North American oil is just 14 percent. With increasing oil production here and in Canada, that ratio can decrease further as long as impediments to production and energy transport are removed.

Due to hydraulic fracturing and the shale oil and gas revolution, the United States is already the world's largest natural gas producer and the world's largest liquid fuels producer. The milestones that IEA cited can be reached as long as we act with prudence.

A Diverse, Flexible, and Secure Energy Supply

Energy Independence is just one factor in securing a safe and reliable energy future. We must also have a diverse and secure energy system that allows for the flexible functioning of markets.

Natural gas has become an increasingly important fuel in the United States as it is displacing coal in the electric generation sector and backing up intermittent renewable energy when its resource (the wind or the sun) is not available to generate power. Natural gas is displacing coal in the generation sector due to its low cost and due to onerous regulations promulgated by the EPA that forces premature retirements of existing coal-fired power plants and as proposed EPA regulations would result in no new coal-fired construction since the technology to control carbon dioxide emissions from those plants is not commercially available. Other uses of natural gas are also on the horizon as a transportation fuel and as

exports of liquefied natural gas (LNG). Auto manufacturers are beginning to release dual fuel vehicles (Chevy Impala, light trucks, etc); and the Department of Energy has approved a number of LNG export terminals.

Thus, it is important to have available sources of natural gas at the ready without bottlenecks within the system. As an example, consider the New England energy market this past winter when temperatures plummeted and heating fuel demand increased. Because the system in the Northeast was stressed, it led to natural gas prices in the $30 to $36 range per million Btu and to electricity prices to $225 to $260 per megawatt hour.[xiv] Energy diversity of resource and geographical location is important for security of supply. If demand increases in one area of the country, a flexible energy system can handle the problem by receiving supplies from other locations. Having a strong delivery system that crosses borders with enough available capacity can help alleviate such problems.

Diversification of supply is a prudent strategy to a solid and secure energy system. Sound resource planning means that "you do not put all your eggs in one basket." More pipelines provide greater capacity to move energy supplies to where they are most needed. A strong delivery system that crosses borders is akin to having a good highway system. It is important to ensure that the United States has an energy system that provides access to energy resources to enable a flexible, reliable, and stable market place.

Conclusion

Petroleum imports from Canada to the United States increased by almost 7 percent in 2012 from 2011 levels. These imports are mainly moved via pipeline to the United States, though the ports on the U.S. coasts also receive Canadian oil imports by ship, and more recently petroleum has been shipped by rail. Clearly without these imports, the east coast and Midwest would suffer the most in terms of limited petroleum supplies. Since pipelines are the least expensive and safest transportation mode, it would be beneficial to the United States to increase that capacity in order to access Canadian oil reserves--- the third largest in the world at 173 billion barrels.[xv]

Natural gas imports from Canada are piped into 31 entry points in the United States. These imports help to meet demand in many of the northern U.S. states that use it to heat homes and to generate electricity. For security of supply and diversity of supply reasons, we need to ensure that the North American energy system is sufficiently flexible for markets to work and to encourage the development of new energy supplies.

[i] Institute for Energy Research, North American Energy Inventory, December 2011, http://www.instituteforenergyresearch.org/wp-content/uploads/2013/01/Energy-Inventory.pdf

[ii] U.S. Department of Transportation, Pipeline Basics, http://primis.phmsa.dot.gov/comm/PipelineBasics.htm?nocache=8264

[iii] Bureau of Transportation Statistics, U.S. Oil and Gas Pipeline Mileage, http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_01_10.html

[iv] U.S. Department of Transportation, http://primis.phmsa.dot.gov/comm/Index.htm?nocache=4323

[v] The Manhattan Institute, Pipelines are the Safest for Transportation of Oil and Gas, June 2013, http://www.manhattan-institute.org/html/ib_23.htm#.UmVe-nCsiSp

[vi] Oil On the Tracks: How Rail Is Quietly Picking Up the Pipelines' Slack, October 8, 2012,http://www.desmogblog.com/2012/10/02/oil-tracks-how-rail-quietly-picking-pipeline-s-slack

[vii] The Hill, Canadian ambassador: Path to energy independence is through Keystone XL, October 22, 2013, http://thehill.com/blogs/e2-wire/e2-wire/329933-canadian-ambassador-path-to-energy-independence-is-through-keystone-xl

[viii] Energy Information Administration, Natural Gas Annual, Table 12, Interstate movements and movements across U.S. borders of natural gas by state, 2011, http://www.eia.gov/naturalgas/annual/pdf/table_012.pdf

[ix] Treehugger, Vermont Bans Fracking: We Can Live Without Oil and Natural Gas, But Cannot Without Clean Water, May 18, 2012, http://www.treehugger.com/energy-policy/vermont-bans-fracking-can-live-without-natural-gas-cannot-without-clean-water.html

[x] Christian Science Monitor, Oil by train runs out of track, April 27, 2013, http://www.csmonitor.com/Environment/Energy-Voices/2013/0427/Oil-by-train-runs-out-of-track

[xi] Energy Information Administration, Rail delivery of U.S. oil and petroleum products continues to increase, but pace slows, July 10, 2013, http://www.eia.gov/todayinenergy/detail.cfm?id=12031

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

[xiii] Reuters, U.S. to overtake Saudi as top oil producer: IEA, November 12, 2012,http://www.reuters.com/article/2012/11/12/us-iea-oil-report-idUSBRE8AB0IQ20121112

[xiv] Nuclear Energy Institute, Why Nuclear Energy Is Critical to American Energy Diversity, March 5, 2013, http://neinuclearnotes.blogspot.com/2013/03/why-nuclear-energy-is-critical-to.html

[xv] Energy Information Administration, International Energy Outlook, Table 6, http://www.eia.gov/forecasts/ieo/table6.cf

Mary J. Hutzler

Distinguished Senior Fellow

Mary J. Hutzler is a Senior Fellow at IER. Until she left Government in 2006, she was a top energy analyst for the U.S. Government, having spent more than 25 years at the Energy Information Administration (EIA), where she specialized in data collection, analysis, and forecasting.

Beginning in 2004, Hutzler worked as the Associate Director of Statistical Programs at the Bureau of Transportation Statistics (BTS), serving 14 months as the Associate Director and 6 months as the Acting Director of BTS. In the latter job, Hutzler ran the bureau's daily operations, briefed Administration officials and Congressional staff, and managed BTS's data and analysis programs. As Associate Director, Hutzler managed large-scale freight and travel surveys and all analytical research, including new statistical methods and estimation of transportation data.

In 2001, Hutzler was named by President Bush to lead the EIA as Acting Administrator. In this role, she testified before Congressional committees, briefed policymakers on energy issues, held press conferences on EIA products, and interacted with energy organizations on controversial issues dealing with EIA data collections. In recognition of her achievements, Hutzler received a 2004 Presidential Rank Award, an honor by which the president "recognizes and celebrates a small group of career senior executives."

Before and after her stint as the acting administrator and deputy administrator of EIA, which lasted from June 2001 to March 2003, Hutzler was director of the EIA's Office of Integrated Analysis and Forecasting. As such, she planned, directed, and managed all mid- and long-term analysis and forecasting at EIA, as well as the production of EIA's annual forecasting publications. Hutzler oversaw development of the National Energy Modeling System, for which she received a Presidential Rank Award in 1999. She also produced numerous studies for both Congress and the Administration on various key topics, such as the Kyoto Protocol, low-sulfur diesel rules, the depletion of oil and gas reserves, and Renewable Portfolio Standards.

Hutzler received her B.A. in mathematics from Adelphi University, her M.A. in applied mathematics from the University of Maryland, and completed her course work and exams for a D.Sc. in operations research at George Washington University.

Committee on Energy and Commerce
U.S. House of Representatives
Witness Disclosure Requirement - "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

1. **Your Name:**	Mary J. Hutzler		
2. **Are you testifying on behalf of the Federal, or a State or local government entity?**		**Yes**	**No** X
3. **Are you testifying on behalf of an entity that is not a government entity?**		**Yes** X	**No**
4. **Other than yourself, please list which entity or entities you are representing:**	Institute for Energy Research		
5. **Please list any Federal grants or contracts (including subgrants or subcontracts) that <u>you or the entity you represent have received</u> on or after October 1, 2011:**	None		
6. **If your answer to the question in item 3 in this form is "yes," please describe your position or representational capacity with the entity or entities you are representing:**	Distinguished Senior Fellow		
7. **If your answer to the question in item 3 is "yes," do any of the entities disclosed in item 4 have parent organizations, subsidiaries, or partnerships that you are not representing in your testimony?**		**Yes** X	**No**
8. **If the answer to the question in item 3 is "yes," please list any Federal grants or contracts (including subgrants or subcontracts) that were received by the entities listed under the question in item 4 on or after October 1, 2011, that exceed 10 percent of the revenue of the entities in the year received, including the source and amount of each grant or contract to be listed:**	None		
9. **Please attach your curriculum vitae to your completed disclosure form.**			

Signature: Mary J. Hutzler **Date:** 10/24/13