

STATELINE MIDWEST ISSUE BRIEF

● ● ● MIDWEST-CANADA RELATIONS

Power of two: Canada, U.S. rely on one another in interconnected energy relationship

By 2035, the United States could be close to energy self-sufficient. This is one of the conclusions of the 2012 edition of the “World Energy Outlook,” issued by the International Energy Agency in November 2012.

Abundant tight oil and shale gas resources and the technologies to extract them — coupled with improvements in vehicle fuel efficiency and other advances in energy conservation — are responsible for this change, according to the report. By 2020, the United States will become a net exporter of natural gas; around that time, too, it will produce more oil than any other country.

Canada is the largest supplier of energy to the United States, meeting more of this country’s energy needs than Saudi Arabia and Venezuela combined.

Whether or not these forecasts are met, though, the U.S.-Canada energy relationship is likely to continue for some time. As a 2011 report by the Congressional Research Service notes, the two countries “effectively comprise a single integrated market for oil and gas.” While the CRS report focused on key fossil fuels, the energy relationship also encompasses renewable energy, such as hydropower.

Midwest at heart of energy trading partnership

Today, Canada is the largest supplier of energy to the United States, meeting more of this country’s energy needs than Saudi Arabia and Venezuela combined. Canadian energy imports met 9 percent of U.S. energy demand in 2010.

Every day, more than 2.5 million barrels of Canadian crude oil are shipped to the United States, an amount equal to nearly 22 percent of U.S. imports. (The United States also sends oil to Canada, but this is most often in the form of refined products such as engine additives.)

Most Canadian crude oil goes to the PADD II region,

QUICK FACTS: CANADA’S ENERGY EXPORTS TO THE UNITED STATES

- » Canadian exports meet 20 percent of the U.S. demand for crude oil and products.
- » The province of Alberta is Canada’s leading petroleum producer. In 2010, the province exported approximately 1.4 million barrels of oil a day to the U.S., representing 15 percent of U.S. crude oil imports.
- » Canadian power satisfies 1 percent of U.S. electricity demand.
- » Nearly all of Manitoba’s electricity is generated from hydropower. The province exports about half of the hydroelectricity it generates.
- » Canadian exports provide 14 percent of U.S. natural gas demand.
- » Ontario has a diverse energy mix — the province’s generation capacity currently includes nuclear power (33 percent), hydropower (29 percent), coal (10 percent) and wind (just over 4 percent).
- » Ontario has the capacity to import or export about 4,800 megawatts of electricity at any time.
- » Canada provides 22 percent of the U.S. demand for uranium used to fuel nuclear reactors. Saskatchewan is the second-largest uranium producer in the world, and the second-largest oil producer in Canada.

which includes the 11 Midwestern states and four other states; this region received 1.9 billion barrels of crude per day in 2010. Alberta, which is Canada’s largest source of crude oil, sends nearly a quarter of its energy exports to Illinois, a major pipeline hub and refining center.

One part of the two countries’ long-standing energy relationship, however, is beginning to change. Traditionally, Canada has been a net exporter of natural gas to the United States, and it still is. But, due to a rise in U.S. production of domestic shale gas, the country’s demand for foreign imports has been on the decline. Meanwhile, natural gas from the United States has become a major energy source for eastern Canada.



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Demand for oil spurs pipeline expansion efforts

Outside of North America, demand for oil will continue to grow — in Europe and especially in Asia. This is one reason that companies in Canada are looking to add pipeline capacity within that country's borders in order to reach ports in British Columbia for direct transport to Asian markets.

But the United States remains Canada's most important energy partner.

Most Canadian oil and gas reaches U.S. markets through a series of pipelines, and the proposed expansion of one route has attracted the attention of policymakers across the Midwest while also making news around the world.

The Keystone XL project would create a pipeline that extends from Alberta to the Gulf Coast. The pipeline's owner has applied for a presidential permit to complete this project.

Supporters say Keystone XL would relieve bottlenecks in the pipeline system and strengthen the nations' energy partnership. They add that pipelines are a safe way to bring oil to the United States, and have a smaller carbon footprint when compared to other transportation alternatives (trucks, for example).

And as long as the United States needs oil, they say, why not purchase it from Canada — a stable, democratic neighbor?

Another key aspect of the U.S.-Canada energy relationship is the interconnected North American electricity grid, which delivers power to nearly all of Canada and the United States. Annual two-way electricity trade had a value of over \$2.5 billion in 2010.

Keystone XL, though, has been met with stiff opposition. One concern is that the pipeline would increase U.S. consumption of fossil fuels. Another concern is the specific product that would be shipped through this new pipeline — crude from Canada's oil sands. This oil produces more emissions than most conventional crude, and the extraction process itself leaves a larger carbon footprint.

Objections to the new pipeline have also centered on landowner rights, the location of the route and the possibility of spills.

A look at the interconnected electricity grid

Another key aspect of the U.S.-Canada energy relationship is the interconnected North American electricity grid, which delivers power to nearly all of Canada and the United States.

Annual two-way electricity trade had a value of over \$2.5 billion in 2010. And though Canada supplies just 1 percent of total U.S. electricity needs, some individual states use much more. For example, 10 percent of Minnesota's electricity comes

Value of energy imports to Midwestern states from Canada, 2010 (in U.S. dollars)

State	Crude oil	Electricity	Natural gas
Illinois	\$18.0 billion	*	\$2.9 billion
Indiana	\$554 million	\$290,000	\$418,000
Iowa	*	*	\$731 million
Kansas	\$1.6 billion	*	\$7.5 million
Michigan	\$2.4 billion	\$214 million	\$1.7 billion
Minnesota	\$3.9 billion	\$319 million	\$1.2 billion
Nebraska	*	*	*
North Dakota	\$32 million	\$4.5 million	\$72 million
Ohio	\$4.6 billion	*	\$2.0 million
South Dakota	*	*	\$1.3 million
Wisconsin	\$8.7 million	*	\$48 million
<i>* Data is not available</i>			
<i>Source: Canadian Centre For Energy Information</i>			

Value of energy exports to United States (in U.S. dollars), by province*

Province	Crude oil	Electricity	Natural gas
Alberta	\$37.6 billion	\$8.9 million	\$14.1 billion
Manitoba	\$371 million	\$311 million	\$22.1 million
Ontario	**	\$443 million	\$500 million
Saskatchewan	\$8.1 billion	\$3.7 million	\$226 million
<i>* Some oil and gas may be merely piped through a province before entering the U.S.</i>			
<i>** Data is not available/</i>			
<i>Source: Canadian Centre for Energy Information</i>			

from Canada, much of it hydroelectric power.

In fact, Canada has vast hydropower resources. About two-thirds of the electricity that Canada contributes to the interconnected electric grid comes from hydropower; this source accounts for about 60 percent of all electric generation in Canada.

In 2010, the United States exported 19 terawatt hours of electricity to Canada, which in turn exported more than twice that amount to the United States. (A terawatt hour could power more than 1 million average American homes for one month.)

Several provinces are net exporters of electricity to the United States, including Manitoba and Ontario; Alberta and Saskatchewan are net importers.



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