



# **Saskatchewan: Secure Energy Partner, Emerging Economic Powerhouse**

**Discussion Paper**  
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## Saskatchewan: Secure Energy Partner, Emerging Economic Powerhouse

Energy is on everyone's mind these days.

A combination of factors – from high commodity prices to political instability to threats of global terror networks on energy production and distribution infrastructure – have come together in the past few years highlighting the importance of secure, stable supplies of energy to the American economy.

For most Americans, the concept of energy security conjures up the Cold War image of a Faustian bargain with some far off petro-state; providing military security for access to oil.

The realities of the post-Cold War world, however, dictate that stability of energy supply is more important than the cost of that supply. This fact, combined with a positive energy commodity price environment, creates opportunities for energy security closer to home.

Saskatchewan is one such area leading the charge on North American energy security.

### Did you know...

- Saskatchewan produces 428,000 barrels of oil per day; over 280,000 barrels per day exported to U.S.
- Over 39 billion barrels of initial oil in-place
- World leader in CO<sub>2</sub> sequestration for Enhanced Oil Recovery (EOR)
- World's largest producer of uranium; largest uranium mine in the world.
- World's leader in potash production; 35% of world trade.

## Saskatchewan's Importance to U.S. Energy Security

Energy security is the order of the day for American policy makers in light of geopolitical instability which has driven oil prices to record highs in the last five years. Finding secure, stable and expanding supplies of the crude oil and natural gas necessary to fuel America's growing economy has been difficult.

Conventional production in the United States (U.S.) peaked in the early 1970s and access to new prospective areas is not likely to yield new production for more than a decade.

Mexico holds tremendous promise, but the fact that PeMex is closed to foreign investment and exploration expertise all but ensures declining production in the near future.

Venezuela, traditionally one of the top four oil exporters to the United States, is in the process of diversifying its export markets with greater emphasis on Asia and Europe.

And counting on increased production from Iraq or any other Middle East producer is no guarantee when you account for frequent attacks on infrastructure, production declines, questionable reserve estimates and increased demand from geographically closer consumers like China and India.

As a result, the U.S. is opening up to a hemispheric approach to energy security that is anchored in Canada. Increased oil and natural gas production from Saskatchewan is a key component of such a strategy.

*Saskatchewan's strategic significance to U.S. energy security is driven by four key components: oil, natural gas, uranium and pipeline infrastructure.*

### Oil

The current and projected production of Saskatchewan's oil reserves are well known among the Canadian energy industry, domestic energy policy analysts and multinational energy companies operating in Canada. However, the same story is virtually unknown among policy makers in Washington, who are keenly interested in diversification of supply in the face of continued geopolitical instability in many of the world's major oil producing regions.

It is safe to say that when most Americans don't realize that the number one supplier of crude oil imports to the U.S. is Canada, then they sadly have no idea of the growing importance of Saskatchewan to U.S. energy security.

In fact, the Province of Saskatchewan, which produced 428,000 barrels per day (B/d) in 2006, is the second-largest oil-producing province in Canada, accounting for approximately 17% of total Canadian oil production.

Of that total, more than 280,000B/d is exported to the U.S.

To put these numbers in perspective, the U.S. imported more oil on an average daily basis from Saskatchewan in 2005 than it did from major Persian Gulf oil producer Kuwait (227,000B/d), or from the world's third largest oil exporter, Norway (119,000B/d).<sup>1</sup>

Saskatchewan's prolific oil production (156.3 million barrels from 1.2 billion barrels of remaining recoverable reserves in 2006) has increased interest in exploration and production within the province. Currently only 15% of the more than 39 billion barrels of oil initially in-place in Saskatchewan is recoverable based on current conditions.

The remaining 85%, or approximately 33 billion barrels of oil in-place, can be targeted for production with new and available technologies. And according to the Government of Saskatchewan, "much of this is likely to come through the application of enhanced oil recovery techniques to the province's vast heavy oil deposits."<sup>2</sup>

Enhanced Oil Recovery (EOR) refers to various techniques that can be used to increase total recoverable oil from a particular field. New technologies, such as vapor extraction and carbon dioxide (CO<sub>2</sub>) injection, have the potential for increasing resource recoveries and investment in Saskatchewan.<sup>3</sup> Additionally, the Petroleum Technology Research Centre (PTRC) in Regina, Saskatchewan, is leading an international research project within the Weyburn and Midale oilfields in southeast Saskatchewan that is studying the effectiveness of CO<sub>2</sub> injection and storage in underground, depleted oil fields. The two major CO<sub>2</sub> flood projects implemented in the Weyburn Unit by EnCana Energy and in the Midale Unit by Apache Canada Ltd. are projected to recover a total of 222 million barrels of incremental oil, lengthen each Unit's operating life by at least 25 years, and provide underground storage for close to 35 million tonnes of CO<sub>2</sub> over the life of the projects.

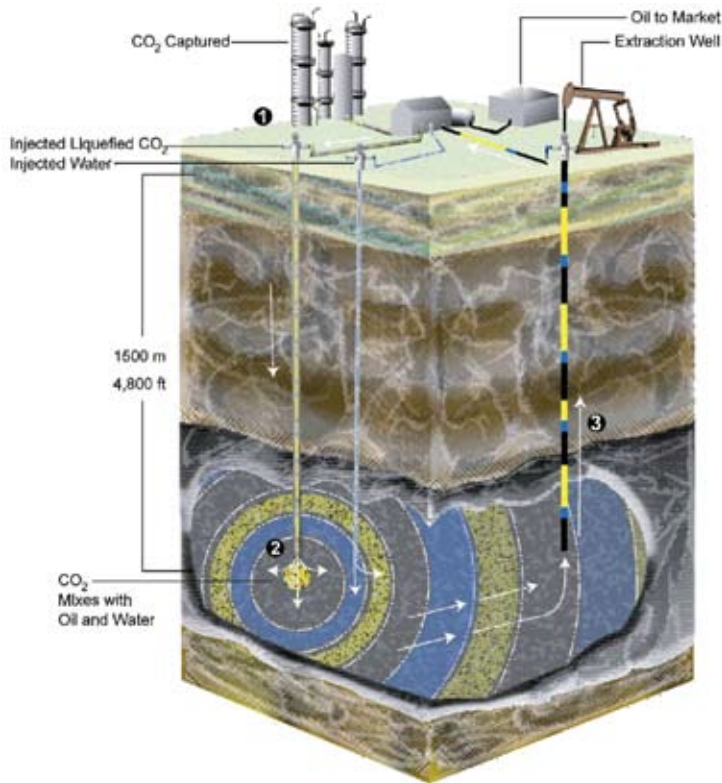
Much of the oil that is being produced in Saskatchewan is heavy oil, which is generally more expensive to produce and priced lower at market than the light sweet crude that is easier to refine. In order to make this crude more attractive to refiners, it is upgraded in one of two state-of-the-art facilities operated by Consumers' Co-operative Refineries Limited in Regina and Husky Energy in Lloydminster. The combined capacity of these facilities is approximately 150,000B/d.<sup>4</sup> Husky is considering the feasibility of increasing the capacity of its Lloydminster upgrader to 150,000B/d, bringing total capacity of the two facilities to approximately 225,000 B/d.

2005 U.S. Crude Oil Imports*			
	Rank	Country	Barrels Per Day
	1	Canada	1,633,378
1	2	Mexico	1,556,041
2	3	Saudi Arabia	1,444,622
3	4	Venezuela	1,240,860
4		Alberta**	1,100,000
5	5	Nigeria	1,076,816
6	6	Iraq	527,463
7	7	Angola	455,901
8		Saskatchewan***	280,000
9	8	Ecuador	275,973
10	9	Algeria	228,381
	10	Kuwait	226,658
	11	United Kingdom	223,619
	12	Russia	199,008
	13	Colombia	156,170
	14	Gabon	127,438
	15	Norway	119,052
	16	Brazil	94,408
	17	Chad	73,830
	18	Equatorial Guinea	67,764
	19	Trinidad and Tobago	63,540
	20	Argentina	56,460

\* Source: Energy Information Administration: [http://tonto.eia.doe.gov/dnav/pet/pet\\_move\\_impcus\\_a2\\_nus\\_epc0\\_im0\\_mbb1\\_m.htm](http://tonto.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_epc0_im0_mbb1_m.htm)

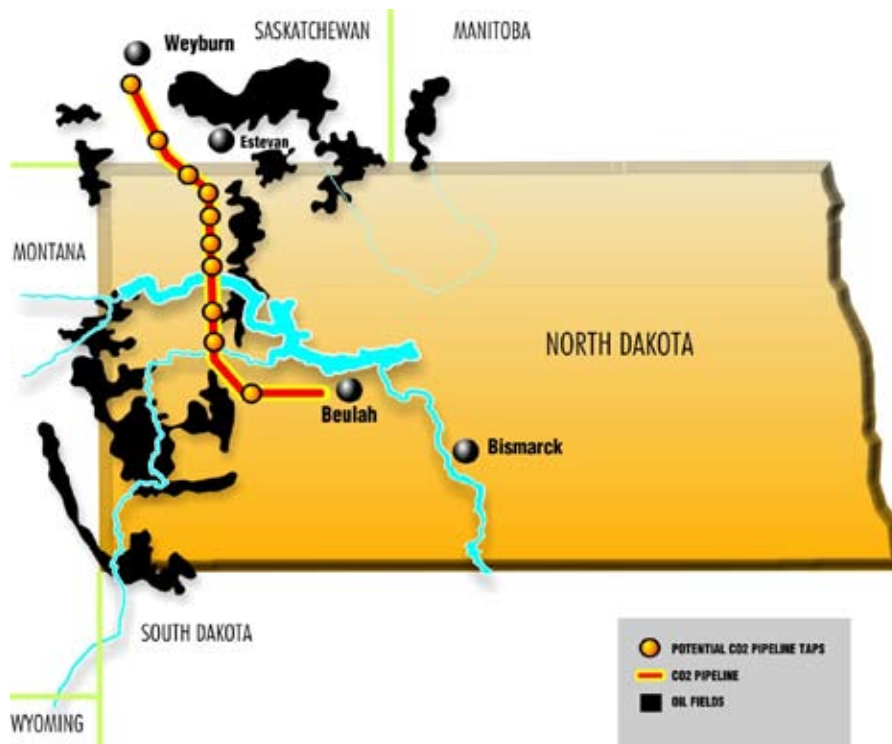
\*\* Source: Government of Alberta: [http://www.oilsandsconsultations.gov.ab.ca/docs/FACT\\_Oil\(6\).pdf](http://www.oilsandsconsultations.gov.ab.ca/docs/FACT_Oil(6).pdf)

\*\*\* Source: Saskatchewan Industry and Resources



1. CO<sub>2</sub> is injected, along with water, deep underground (1,500 metres at the Weyburn field) into a depleted oil field.
2. In an operating strategy that alternates gas and water injection, CO<sub>2</sub> injection increases reservoir pressure and oil fluidity, enabling oil to escape from rock pores and flow more readily toward production wells.
3. Much of the injected CO<sub>2</sub> is pumped to the surface together with oil and water, then separated and re-injected. At the end of the enhanced oil recovery period, virtually all injected and recycled CO<sub>2</sub> is permanently stored.

### Weyburn CO<sub>2</sub> Storage Project<sup>5</sup>

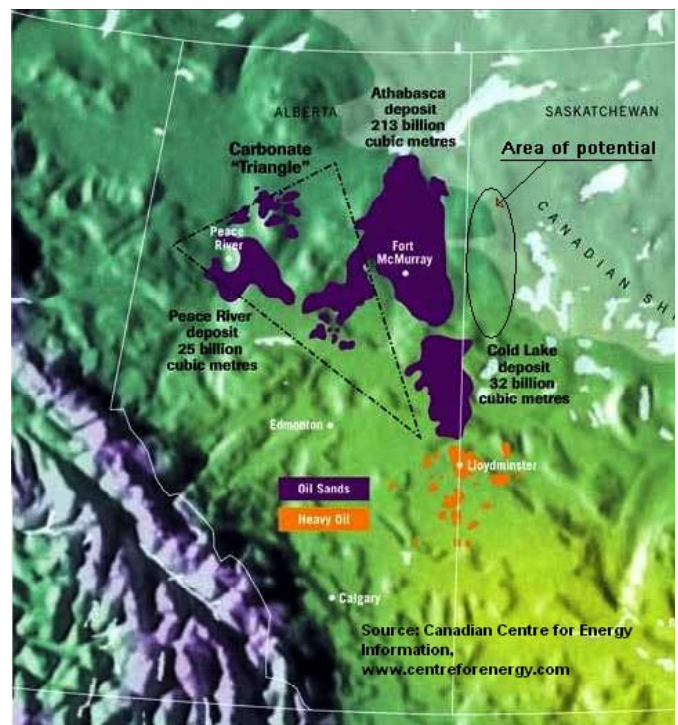
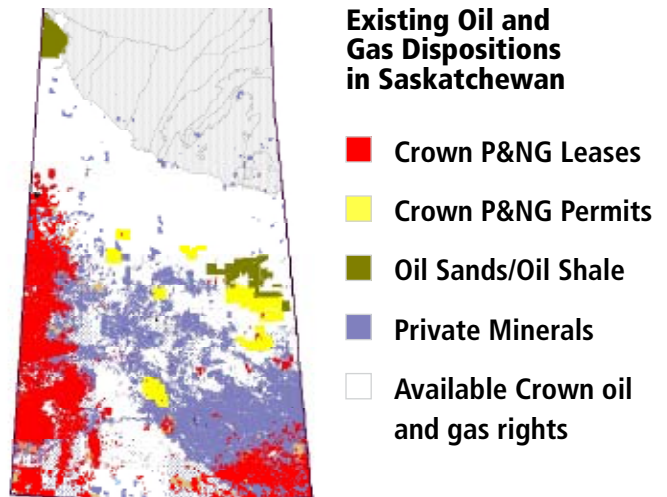


## Oil Sands

There is presently one company that is participating in the exploration of Saskatchewan's oil sands potential. The area of potential is less than 50 kilometers away from Suncor's Firebag bitumen project in Alberta (projected to produce 140,000B/d by 2010). EnCana's Borealis project, which may produce 100,000B/d when fully on stream, is even closer.<sup>6</sup> In the past two years, the company has drilled test wells that confirm the presence of bitumen on its acreage. The preliminary results from Phases I and II of the exploration program are encouraging.

Saskatchewan recently announced changes to the regulations regarding the disposition and administration of Crown-owned oil sands rights that are designed to encourage more exploration of the province's oil sands resources as well as ensuring that the regulatory framework is competitive with Alberta. With the first-ever public offering of Crown oil sands rights under a competitive bid system taking place in August, 2007, more exploration companies will become involved in finding eastward extensions of the massive Athabasca oil sands deposit at a grassroots-level into Saskatchewan.

Saskatchewan Industry and Resources estimates the area in the province with oil sands potential as being approximately 10,000 square miles as compared to 55,000 square miles of known economic oil sands deposits in Alberta.



## Natural Gas

Opportunities for expanding Saskatchewan's natural gas production may even be brighter than that of expanding oil production at least in the short term.

Remaining recoverable natural gas reserves in Saskatchewan are estimated at 2.8 trillion cubic feet. With vast amounts of undeveloped land in the province's gas-prone areas, there is significant potential for the discovery and development of additional gas.

Just as demand for crude oil and refined products is increasing, so too is the demand for natural gas. And natural gas produced in Saskatchewan to meet that demand is generally cheaper than that of the more prospective U.S. natural gas basins. Given the extensive existing pipeline infrastructure

of the province, increased imports from Saskatchewan may well prove cheaper and more secure than reliance on advancing liquefied natural gas (LNG) technology in the U.S.

*Adding to the advantage of Saskatchewan natural gas are the following "Low-Cost Operations" benefits:*

- Most of Saskatchewan's natural gas is produced from relatively shallow (less expensive to drill) reservoirs.
- Land acquisition costs are low in Saskatchewan.
- Saskatchewan's gas is dry, sweet and requires limited processing.
- Producers have access to an extensive collection and transmission system.<sup>7</sup>

## Pipeline Infrastructure

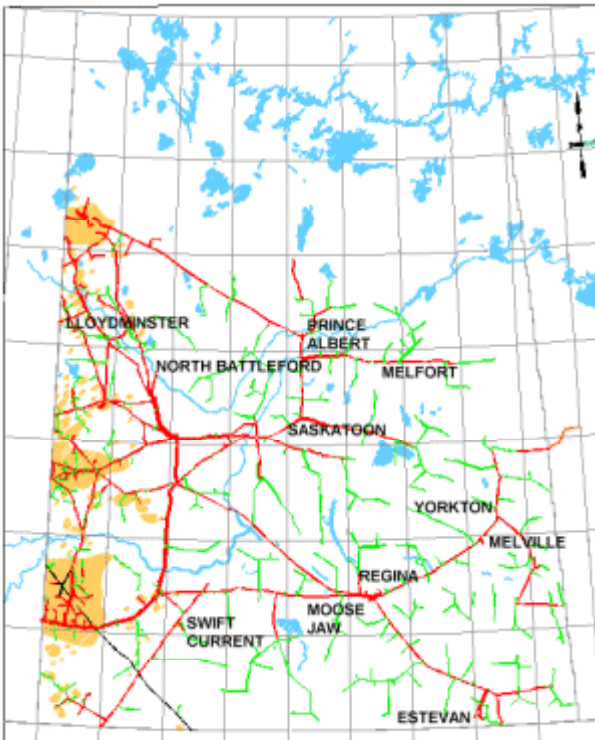
A key component favoring increased oil and natural gas production is Saskatchewan's existing physical infrastructure. Saskatchewan is literally crisscrossed by major oil and natural gas pipelines, as well as having an extensive local collection infrastructure for smaller operators to get their products to market.

These infrastructural advantages eliminate a key barrier to entry for small- to medium-sized producers. Additionally, this infrastructure is also critical to the expansion plans for Canadian companies who seek to do business on both ends of the pipeline. For example, Husky Energy, which produces oil from the oil sands in Alberta, recently announced plans to acquire a refinery in Lima, Ohio, which will be connected to Husky's oil fields and its upgrader by pipelines running through Saskatchewan.

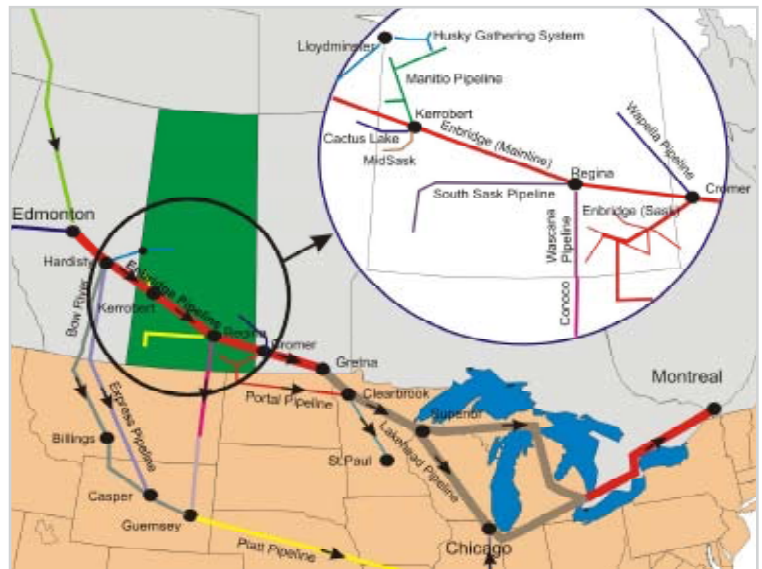
## Pipeline Facts:<sup>8</sup>

- SaskEnergy Inc. and its subsidiary, TransGas Limited operates one of the largest natural gas pipeline collection and distribution networks in North America (14,000 km transmission and 64,000 km distribution). The TransGas transmission system enables producers to get quick turnaround from drilling to market.
- TransGas interconnects with TransCanada Pipelines, Foothills Pipe Lines Ltd., and Williston Basin Interstate Pipeline to enable producers to reach customers throughout Canada and the U.S.

Natural Gas Pipeline System



Oil Pipeline System



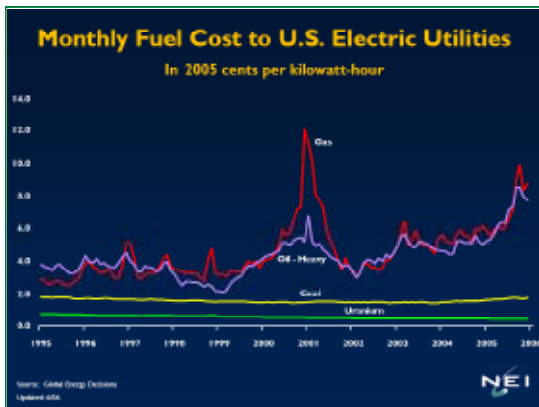
## Uranium

Increased electricity production from nuclear power is critical to increased energy security for major energy importers and consumers like the United States and economically and politically important for major uranium producers like Saskatchewan.

Skyrocketing coal and natural gas prices, high-profile concern about links between carbon dioxide levels and conventional energy production, increased interest in automobiles that partially run on stored electricity from household outlets and the perpetual electioneering about reducing America's dependence on "foreign oil" are driving a nuclear power renaissance.

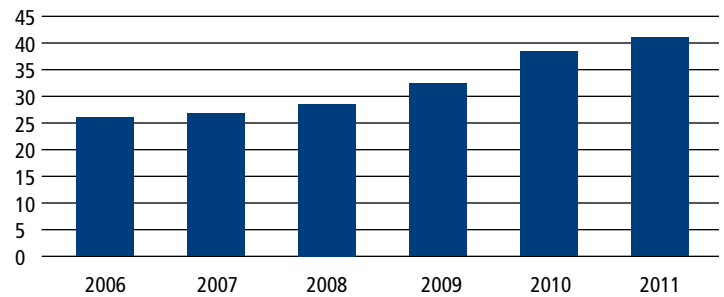
Politicians from both parties are beginning to realize a shift in the public's perception of nuclear power, largely based on concerns over greenhouse gas emissions from other energy sources.

Recently, several U.S. companies, including Dominion and TXU, have begun the regulatory process for expanding their existing nuclear power plant capacity. As such, Saskatchewan is ideally positioned to take advantage of the increased American interest in nuclear power as well as that from other energy-hungry nations like China and India.



## Saskatchewan Uranium Production

2006 – 2011  
(millions lbs U3O8)



## Saskatchewan Uranium Facts:<sup>9</sup>

- Saskatchewan is the world's largest uranium producer and is recognized as a long-term stable source of uranium.
- Saskatchewan is home to the world's largest uranium-producing company and the world's largest uranium mine.
- The Athabasca Basin, in northern Saskatchewan hosts the highest-grade uranium deposits in the world.
- Production in 2006 was 25.6 million pounds U3O8 and is projected to climb to 41 million pounds by 2011, a 60% increase in just five years.

## Natural Resources Fuel Saskatchewan's Economic Growth

Natural resources are the key to Saskatchewan's economic growth and rising international standing. In addition to the direct benefits to the provincial treasury, there are other side benefits that likely fall to companies operating on the American side of the border as well.

Not only does this run on natural resources exacerbate the lack of qualified workers made scarce by these massive energy projects throughout Saskatchewan and Alberta,

it has the positive effect of creating job opportunities for people on this side of the border.

Everything from pipe to drilling equipment to truck tires used in the Saskatchewan energy patch has some relationship to a job in the U.S. As a result, Saskatchewan's benefits from its natural resources wealth will eventually make themselves felt across the border as well.

## The Road Ahead

In his 2006 State of the Union speech, President George W. Bush declared that “We have a serious problem. America is addicted to oil, which is often imported from unstable parts of the world.”<sup>10</sup> He then set out an ambitious goal “to replace more than 75 percent of our oil imports from the Middle East by 2025.”<sup>11</sup> In order to reach this goal the President is counting on technological breakthroughs in renewable energy resources like ethanol, solar and wind energy.

While this was an important political statement and perhaps a laudable goal, it misses the critical point that not all imports are created equal.

There is an important distinction to be made when comparing oil imports from your largest trading partner to those from countries that actively work to block U.S. foreign policy objectives. In other words, you must consider the source of the imports and judge whether it is in the overall interest of the U.S. to conduct business with these suppliers.

The reality of the future of U.S. oil imports is that, absent some game-changing technology that replaces the need for fossil fuels for transportation, the U.S. will need to import more oil in 2025 than it does today. Whether the U.S. is able to reduce imports from the Middle East depends on what other sources are available.

Saskatchewan is well on its way to making more crude oil available for export to the U.S. This additional crude will no doubt be in a position to help offset the imports from “unstable parts of the world” that President Bush wants to curtail. As such energy imports from Saskatchewan should be viewed as an integral component in U.S. energy security strategy.

With any opportunity comes responsibility. In this case, the responsibilities extend to both sides of the border. Saskatchewan has a vested interest in not only expanding its relationship with its largest trading partner, the U.S., but also in diversifying its markets by courting other investors as well. American policy makers and business leaders should see this as a sign of the free market at work – not one of courting our economic competitors for political gain.

At the same time, both American politicians and business leaders should be keenly aware of the opportunities for investment and increased energy security offered through increasing our commercial and political connections in Saskatchewan. They have an opportunity to lead by example, encouraging U.S. investment in the Saskatchewan energy sector, which will not only benefit workers on both sides of the border but will also strengthen cross-border relations and domestic energy security.

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1. [http://tonto.eia.doe.gov/dnav/pet/pet\\_move\\_impcus\\_a2\\_nus\\_ep00\\_im0\\_mbbldpd\\_a.htm](http://tonto.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_ep00_im0_mbbldpd_a.htm)

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3. Trevor Dark “Saskatchewan Oil and Gas,” Government of Saskatchewan, Ministry of Industry and Resources, October 2006. <http://www.ir.gov.sk.ca/adx/asp/adxGetMedia.asp?DocID=3352,3087,2936,Documents&MedialD=15728&Filename=Oil+%26+Gas+2006.pdf>

4. “Providing Solutions for Energy Security,” Government of Saskatchewan, Ministry of Industry and Resources at 2. <http://www.ir.gov.sk.ca/adx/asp/adxGetMedia.asp?DocID=4299,3087,2936,Documents&MedialD=16081&Filename=Energy+2006.pdf>

5. Jazrawi et al., “IEA Weyburn CO<sub>2</sub> Monitoring and Storage Project,” Sponsored by EnCana Corp. and Petroleum Technology Research Centre. <http://www.iea.org/Textbase/work/2004/zets/conference/presentations/thambimuthu.pdf>

6. Ian McKinnon “EnCana Plans Higher Oilsands Output, Weighs Partners,” Bloomberg November 7, 2005. <http://www.bloomberg.com/apps/news?pid=10000082&sid=aUzfCUIhL8ic&refer=canada>

7. Ibid

8. “Providing Solutions for Energy Security,” Government of Saskatchewan, Ministry of Industry and Resources at 3. <<http://www.ir.gov.sk.ca/adx/asp/adxGetMedia.asp?DocID=4299,3087,2936,Documents&MedialD=16081&Filename=Energy+2006.pdf>>

9. Jay Fredericks, “Saskatchewan: Uranium,” Government of Saskatchewan, Ministry of Industry and Resources October 2006 at 1. <<http://www.ir.gov.sk.ca/adx/asp/adxGetMedia.asp?DocID=3352,3087,2936,Documents&MedialD=15748&Filename=Uranium+2006.pdf>>

10. “Bush: U.S. Must Break Oil Addiction,” February 1, 2006. <http://www.cbsnews.com/stories/2006/01/31/politics/main1260701.shtml>

11. Ibid.



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