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THE ENVIRONMENTAL IMPLICATIONS OF THE DISCOVERY AND DELIVERY OF NEW ENERGY RESOURCES IN THE CANADIAN CONTEXT

David Luff[†]

INTRODUCTION

Let me begin by thanking the organizers of the Conference for inviting CAPP to come and speak today. We believe that our industry – the upstream oil and gas industry in Canada – has some exciting stories to share. We believe that, when it comes to environmental performance, we are leaders not only in Canada but also in the world. We recognize and understand that there is a lot of room for improvement, but what I would like to do today is to focus on the positive steps taken by the upstream gas and oil industry and what we are doing to improve our performance.

First, I would like to give you an overview of the industry in Canada. I will talk about natural gas, crude oil and oil sands and some of the environmental policy issues that we are facing as an industry and as a country. Second, I will talk about our environmental stewardship initiatives: what we are doing right now, and where we see opportunities for improvement.

THE CANADIAN PETROLEUM INDUSTRY: AN OVERVIEW

The upstream industry is a significant contributor to the Canadian economy. We are a world leader in the production of oil and natural gas, with demonstrated high performance in protecting the environment. Canada is the world's third largest natural gas producer,¹ and the fourteenth largest crude oil producer.² We employ about a half a million people across the country.³ Our industry invested last year about CAN\$27 billion in

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¹ See *CAPP: Industry Facts and Information*, at http://www.capp.ca/default.asp?V_DOC_ID=6 (last visited July 8, 2002).

² *Id.*

³ This is "total employment impact." The number actually employed by the industry,

Canada, making us the largest single private-sector investor in the country.⁴ We export 50 percent of our natural gas production and about 60 percent of our oil to the United States.⁵

Canada and the U.S. have a long history of working together in the exploration of oil and natural gas in North America. Last year, we drilled a little over 18,000 wells, spent \$27 billion on infrastructure, and paid CAN\$15 billion in payments, royalties, fees and taxes to Canada's federal and provincial governments.⁶

Natural Gas

We exported 3.5 trillion cubic feet of natural gas last year, and we are, by far, the largest exporter of natural gas to the United States.⁷ We provide 94% of imports to the U.S., representing about 15 percent of the natural gas consumption in the United States.⁸

Canada has significant, untapped reserves of natural gas. The Canadian supply basins include the Western Canadian Sedimentary Basin (Alberta), Atlantic Canada, (which includes the Grand Banks and the Scotian Shelf), Northern Canada, and the interior of British Columbia. Natural gas reserves, especially those in Atlantic Canada and northern Canada, will become important to the overall natural gas stream. As drilling technology moves forward and coal-bed methane becomes feasible, these reserve numbers could increase dramatically. If we can unlock the potential for coal-bed methane, it would dramatically open up the shallow gas reserves that are primarily in western Canada.

There is strong demand for natural gas both in Canada and in the United States. Demand is currently growing at a rate of about two and a half percent per year.⁹ Much of this new demand is a result of natural gas becoming the

whether directly or indirectly, is around 242,000. See *Industry Facts and Information: Canada*, at http://www.capp.ca/default.asp?V_Doc_ID=603 (last visited July 8, 2002).

⁴ *Id.*

⁵ *See id.*

⁶ *Id.*

⁷ See *Country Analysis Brief: Canada*, at <http://www.eia.doe.gov/emeu/cabs/canada.html> (Feb. 1, 2002)

⁸ *See id.*

⁹ Between 1994 and 1999, U.S. natural gas demand grew at .9 percent per year. However, between 2000-2003, demand growth is anticipated to be at 3.4 percent per year. See *U.S. Natural Gas Markets: Recent Trends and Prospects for the Future – Executive Summary*, at <http://www.eia.doe.gov/oiaf/servicerept/naturalgas/> (last visited July 9, 2002). Natural Gas consumption in Canada grew at approximately a 1.9 percent rate between 1996 and 2000. See *Industry Facts and Information: Canada*, at http://www.capp.ca/default.asp?V_Doc_ID=603 (follow link to data for last five years) (last visited July 8, 2002).

transition fuel of choice for electricity generation, which is important if we are to reduce our greenhouse gas emissions.

The majority of the increase in activity levels in Canada (wells drilled and our overall production) relates directly to the demand here in the United States. The number of wells drilled over the past ten years bears a striking resemblance to the increase in market demand, and is also linked directly to the price of the commodity. Last year we drilled about 9,000 natural gas wells, increasing the number of wells in Canada to about 18,000.¹⁰ We have a very good natural gas transport infrastructure in North America, as our supply basins are connected directly to the demand centers in the United States. Line capacity is, at the present time, sufficient, and the numerous infrastructure connections between the supply basins and the demand centers suggest that our future will be bright.

What are some of the drivers that affect natural gas supply? There are many of them, but price is near the top of the list. The level of demand is a reflection of economic growth, electricity generation and weather. Cold weather in the winter increases demand for natural gas to heat homes, while in the summer, electricity generated through natural gas cools those same homes. Three issues that affect supply are (1) access to the resource, (2) the timeliness of approvals to get access to that resource, and (3) the cycle time from geophysical exploration through production and transmission to the burner tip. These factors are all critical in meeting the demand. However, in order to ensure that we obtain that supply in a timely manner, we look for the most effective and efficient regulatory framework that we can find in order to move that gas as quickly as possible.

When it comes to the supply side, costs are also important. If the costs are too great, then a basin or a reservoir may not be developed because the anticipated return on capital employed will not make the venture profitable. Finding and development costs, operating costs and transportations costs are all part of that picture.

Oil and Oil Sands

The Canadian crude oil industry makes a significant contribution to meeting demand in the United States. As the second largest exporter of oil to the United States, we provide 1.4 million barrels per day.¹¹ That comes out to about 15 percent of the oil imports to the United States and about 9 percent of total U.S. oil consumption.¹²

¹⁰ *See id.*

¹¹ *See Industry Facts and Information: Canada, supra note 9.*

¹² *Id.*

It is not surprising to find that our crude oil supply basins are the same as those for natural gas. What is different, however, is that the maturity of the western Canadian sedimentary basin for oil compared to that of natural gas. Today, we have produced about 60 percent of the conventional oil from the western Canadian basin, whereas on the natural gas side, about 60 percent of our natural gas capacity has yet to be produced.

In Canada, the future for oil and oil sands is bright. However, it is particularly so in Alberta, as the province produced about 1.5 million barrels per day of oil last year.¹³ Since 1996, \$21 billion in commercial oil sands projects have been approved; \$11 billion of these projects have been completed, and the other \$10 billion will be finished within the next four years. Another \$30 billion in projects, still in development, are going through the beginnings of engineering and the provincial regulatory and approvals process.¹⁴

To put the magnitude of the oil sand opportunities in western Canada in perspective, there is six times as much oil sands recoverable today with current technologies than all of Canada's conventional oil and gas combined.¹⁵ There is more oil in the oil sands deposits in northeastern Alberta than there is in Saudi Arabia,¹⁶ so when we are talking about secure, friendly supply basins, we believe Canada is number one. Furthermore, our supply basins are directly connected to U.S. markets.

The demand for crude oil in both Canada and the U.S. continues to grow at about one and a half percent per year.¹⁷ The number of oil wells drilled in Canada rose from 2,000 wells per year in 1990 up to 8,000 wells in 1997.¹⁸

ENVIRONMENTAL ISSUES IN THE PETROLEUM INDUSTRY

With all of those production facts as a backdrop, I will talk about a few of the environmental policy issues our industry faces.

We believe that if our industry cannot demonstrate performance in the environmental arena, we will lose our "license to operate." This relates specifically to public policy and to regulatory decision-making that surrounds such issues as climate change, cumulative effects and Aboriginal issues.

¹³ See *Industry Facts and Information: Alberta*, at http://www.capp.ca/default.asp?V_DOC_ID=675 (last visited July 9, 2002).

¹⁴ About \$60 billion has been earmarked for investment in Alberta's crude oil production industry between 1996 and 2010. See ALBERTA ENERGY, NORTH AMERICAN OIL RESERVES 2000 3 (2001).

¹⁵ See *Industry Facts and Information: Canada*, *supra* note 9.

¹⁶ *Id.*

¹⁷ See *Conventional Oil*, at http://www.capp.ca/default.asp?V_DOC_ID=689 (follow link to data for last five years) (last visited July 9, 2002).

¹⁸ See *id.*

From a technical perspective, the license to operate comes from the regulator. Ultimately, however, it comes from the stakeholders in the communities adjacent to where we work. If we do not have credibility or standing in those communities, or if we cannot demonstrate that we can produce oil and natural gas in ways that respect and recognize their concerns, the public will not allow us to operate. Thus, issues surrounding ANWR and other environmentally sensitive areas are critical as part of that discussion.

Climate Change

Climate change is very significant. As an industry, the issue is “doing the right thing;” for Canada, it is a matter of insuring that the citizens of our country make an informed decision, and there are many questions that have yet to be answered. What will be the impacts on our country if we try to achieve the targets that have been set for us? What will be the impact on our economy? How will this affect the various regions of the country, or on particular industries? What is the relationship between Canada and the United States if, as our largest trading partner, the U.S. does not ratify Kyoto? How will we work together to find a solution to this problem? Our industry strives to be as efficient as possible in the generation and the production of oil and natural gas. We believe that we are creating technological advances that will reduce greenhouse gas emissions and that, by collaborating with others, we can move in the right direction on the issue of climate change.

Cumulative Effects

The issue of the cumulative effects of our activities will be the next big concern. What is the cumulative effect of all of our land-based activities, whether it is oil and gas activity, forestry, mining, or any of the other users of the land or emitters into the air shed? What model will we use to determine cumulative effects as they relate to air, land and water? There are those who talk about establishing thresholds as it relates to cumulative effects, but there is little to no agreement on what the base model should look like.

Aboriginal Issues

As per our Constitution, the treaty rights of Aboriginal people must be protected.¹⁹ In the early part of last month, the National Energy Board, our national regulatory authority, issued a memorandum of guidance that

¹⁹ See Constitution Act, 1982, s. 35, Schedule B to the Canada Act 1982 (U.K.), 1982, c. 11.

stipulates quite clearly how we as an industry and how governments across Canada must consult with Aboriginal people to ensure that their rights have been addressed as part of our applications.²⁰

From a purely environmental policy point of view, there is a distinct advantage to working with Aboriginal people, marrying the best of traditional environmental knowledge with today's science.

What the Industry is Doing

The members of CAPP are very concerned about environmental, health and safety issues, and we take these challenges seriously. Two years ago, we initiated what we call our "stewardship initiative." The focus of this initiative is to continuously improve our performance as it relates to environment, health and safety. It involves meeting and working with all of our stakeholders across the country, whether those individuals work in the fishing or the cattle industries, whether they are from the Aboriginal or non-Native communities, and working together to maintain our "license to operate."

Through our stewardship initiative, we have developed "best practices" in a number of key areas. We look to our members to use those in their day-to-day operations. We are setting goals to reduce emissions and improving air quality, and we are moving to benchmark our performance.

What are some of the things that we are doing when it relates this environmental protection? We are using the newest techniques, including low-impact seismic drilling, to reduce our environmental footprint in both space and time. When it comes to drilling, new drill-bit technologies allow us to drill wells more quickly and efficiently, so we are on the land for smaller time frame. Directional drilling allows us to drill more wells from single locations rather than taking up more of the land base. The use of coil tubing allows companies to drill wells in a more effective way; micro turbine technology allows us to generate electricity and reduce our flare emissions.

We are also very concerned about the back-end of our cycle as it relates to reclamation and remediation. Ultimately, reclamation and remediation begins with good planning and construction at the front end. If that step is done correctly, and if you operate the site with care, the reclamation is much easier.

²⁰ See Memorandum of Guidance from the National Energy Board (Canada) to Companies Subject to the Jurisdiction of the National Energy Board, Federal and Provincial Government Departments and Agencies and Representatives of Aboriginal Peoples, File No. 3600-A000-16 (Mar. 4, 2002) (available online at http://www.neb.gc.ca/pubs/index_e.htm#ConsultationAboriginalPeoples).

What are some of the results we have achieved? Since 1996, we have seen a 38 percent reduction in solution gas flaring,²¹ a 38 percent reduction in carbon dioxide emissions per unit of production for oil sands,²² and a 74 percent reduction in benzene emissions.²³ Our goal is to reduce the amount of lands used for oil and gas activities by five percent.

CONCLUSION

In summary, our industry's "license to operate" – obtaining it, maintaining it and enhancing it – directly relates to our environmental performance. The cumulative effects of our industry on the environment will affect our ability maintain that license. Therefore, not only do we have to think about our industry and what we are doing, we must also concern ourselves with all the other industries that use land, air shed and water resources, so we can work together to improve our collective environmental performance.

It does come down to sustainability. We do have to be able to demonstrate that we can continue to operate in a sustainable manner. The forest industry in our country and yours has spent a lot of time in working on a formula for sustainable yield timber harvesting. Indeed, the timber industry is moving toward the goal of actually being certifiably able to achieve its own targets and goals.²⁴ We are far behind as an industry, and we endeavor to catch up. We need to do some real work and real effort in this area, and we must be able to verify that we can improve our performance.

Again, let me thank you for inviting CAPP to attend this conference. Thank you very much.

²¹ See *Flaring and Venting*, at http://www.capp.ca/default.asp?V_DOC_ID=768 (last visited July 9, 2002).

²² Syncrude Canada, the world's largest supplier of oil from oil sands, expects to reduce its own carbon dioxide emissions by 38 percent over the next five years. See *Energy Efficiency and CO₂*, at <http://www.syncrude.com/enviro/energy.html>.

²³ See *Benzene Emissions*, at http://www.capp.ca/default.asp?V_DOC_ID=770 (last visited July 9, 2002).

²⁴ See *Canadian Sustainable Forestry Coalition: Certification Status in Canada*, at <http://www.sfms.com/status.htm> (last visited July 9, 2002).

