

Canada's Oil Sands: Responsible development, opportunity and innovation

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CHECK AGAINST DELIVERY

Good morning, everyone. Let me begin by thanking IHS CERA and Chairman Daniel Yergin for inviting me to speak to you today. Dr. Yergin and his team have brought together some of the world's top energy thought leaders for CERAWEEK, and it is an honour to be a part of this event.

Our Global Oil Plenary this morning is called "Strategies in an Era of Recovery." That happens to be a perfect platform for a company with extensive operations amidst one of the world's largest sources of energy. I am speaking of course about the oil sands of Alberta Canada – home to 170 billion barrels of recoverable oil reserves, which is outranked in size only by Saudi Arabia.

As was the case with most resource industries, the past few years have been a roller coaster ride for the oil sands. Development pace was hit hard by the global recession in 2008. Oil sands investments are now in a period of recovery, driven by resurgent world demand for energy resources and by a positive long-term outlook for energy.

Canada's oil sands will be needed to help fulfill a growing desire by the world's population to improve their quality of life. You have likely seen the US Energy Administration's forecast that total world consumption of energy will increase by about 50 percent in the next 30 years, with the largest increase occurring in non-OECD economies. And you're probably familiar with the World Energy Council's estimate that one and a half billion people in the world today live without any access to modern energy services such as electricity.

How will this pressing need for affordable and reliable energy be met while managing environmental impacts? This is one of the great dual challenges of this new century. We believe it will require an integrated set of solutions that includes expanding all economic sources of energy, including renewables. However, over the same 30-year period, oil is forecasted to remain one of the most affordable, reliable and deliverable forms of energy to meet the needs of developed and developing countries.

As I mentioned previously, at 170 billion barrels, Canada's oil sands reserves are truly impressive. But even more important is that they represent half of the total global oil reserves accessible for private sector investment. This underscores the strategic importance of the oil sands in the eyes of countries looking for real solutions to meet their growing energy needs.

While many think of the oil sands as a new unconventional opportunity, the story really began about forty years ago, and my company, which is majority owned by ExxonMobil Corporation, was one of the pioneers. Since the mid-seventies, Imperial Oil has participated directly in the production of more than three billion barrels from the oil sands.

Today, the oil sands are an engine of the Canadian economy, with more than \$200 billion of investment planned over the next two decades. They are also an engine of the US economy. At a rate of 2.4 million barrels per day, Canada is the top foreign supplier of oil to the United States, and about half of this oil comes from the oil sands. The oil sands industry also generates employment throughout North America. In the next 25 years, more than 340,000 new jobs could be created in the U.S. and more than 590,000

created in Canada. These numbers represent a significant contribution to job growth and economic recovery now under way in North America.

With the world's longest undefended border and our close ties of friendship and economic partnership, I have no doubt that the United States will continue to be Canada's main energy customer for decades to come.

Anyone familiar with Canada's oil sands knows there are concerns over its environmental footprint and the costs to produce the resource. There is no question that there are environmental risks in oil sands development. And it is equally true that our industry has been challenged in the court of public opinion, primarily as a result of misinformation about these risks.

The reality is that since commercial oil sands production began in 1968, our industry has made - and continues to make - significant improvements in reducing environmental impact. When it comes to environmental progress, we have a positive story to tell. And the key to this progress has been a strong commitment to technology and innovation.

I've already spoken about the size of the oil sands, and how the resource fits into the global energy picture. In my remaining time, I'll give you a perspective of the oil sands industry; making land use, GHG emissions, water use, and operating costs my reference points. I will also use the example of a "next generation" oil sands mining facility.

It's the Kearl oil sands project, a partnership of Imperial and ExxonMobil now under construction and scheduled to start up in late 2012.

What I hope to leave with you today is an assurance that this resource is being responsibly developed, that tremendous strides are possible with technology, and that oil sands producers are committed to going even further to protect the environment.

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Let's begin with a short background on Canada's oil sands. Oil sands are a natural mixture of sand, water, clay and bitumen. The oil is recovered today through two methods: surface mining and in situ - or in place - oil recovery.

Surface mining is similar to that employed elsewhere in the mining industry. Large trucks and shovels are used to mine the oil sands. Water is then used to separate the bitumen from the sand. Like other mining operations, oil sands mining uses a tailings pond to separate fine solids from the water used in this primary separation process.

In situ operations more closely resemble conventional oil production. A well is used to inject steam into a reservoir to warm the bitumen so that it can be pumped to the surface. The two most common forms of in situ production, steam assisted gravity drainage and cyclic steam stimulation, were originally patented by Imperial Oil. In situ operations have no tailings ponds, and they disturb only 15% of the land relative to a surface mine.

80% of Canada's oil sands are located too far below the surface to use mining techniques. And so 80% of the resource will ultimately be developed using in situ

methods – methods that won't result in the images of surface mining that are currently used to mobilize opposition to oil sands development.

At our Kearl oil sands mine, we are progressing the use of new technologies to speed up the separation of fine tailings from water. Tailings will be returned to the mined-out areas much quicker than legacy oil sands mining sites. Over the life of the development, we are also working additional options to reduce the size of the tailings area. Kearl will also reclaim land faster – in fact we have already started to reclaim land impacted by the project construction.

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Now let's look at greenhouse gas emissions. Anti-oil sands campaigners have consistently claimed that oil sands production results in at least three times the level of GHG compared with conventional oil production.

This past September, IHS CERA published a study that has gone a long way to clarifying the issue. The study found that oil sands crudes imported to the United States result in GHG emissions that, on a wells-to-wheels basis, are on average 6% higher than the average crude oil consumed in the country. I think everyone can agree that 6% is a far cry from 300%.

But, that doesn't mean we're satisfied with our current performance. We are committed to further reducing our GHG emissions and we're confident we're on the right track.

As an industry we've already reduced per-barrel GHG emissions by nearly 40% since 1990 and we believe the key to further improvement lies in advances in oil sands technologies.

At Kearl, we've adopted technologies that will significantly reduce GHG emissions. Our proprietary paraffinic froth treatment technology will remove enough of the fine solids to produce a crude oil suitable for sales, without needing an upgrader. Kearl will be the first mining operation where bitumen is processed once, rather than twice in an upgrader and a refinery. This reduces life-cycle GHG emissions.

To summarize, Kearl will use advanced mining techniques, energy-saving cogeneration and produce diluted bitumen without an upgrader. The September IHS CERA study indicates that our Kearl project will result in life-cycle greenhouse gas emissions no greater than the average of oil refined in the United States.

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Now let's look at water use.

The oil sands industry uses water, as does virtually every other industry today. But we are an efficient and responsible user of this precious resource. For over 40 years, our industry has invested in research to improve our water use and we have a track record in this area that we are very proud of.

Consider the numbers. Today it takes between 2 and 6 gallons of water to produce 1 gallon of fully refined gasoline from oil sands. Some of the new production processes

that are coming on stream at in situ oil sands operations will reduce this even further. Comparing this to other sources of available transportation energy, it takes an average of about 100 gallons of water to produce a gallon of corn ethanol in the United States. Cellulosic ethanol will require about 10 gallons of water. And the average of all conventional crudes processed in the U.S. today uses between 3 and 7 gallons of water to make a gallon of gasoline.

Let's look at other industries. It takes 2 ½ gallons of water to produce a single sheet of paper, more than 17 gallons to produce a single apple, and 36 gallons to make a cup of coffee.

Today, oil sands producers recycle between 80 and 95% of water used and continue to look for new ways to reduce our fresh water use. At Imperial's Cold Lake in situ facility, we reuse about 95% of our produced water and use 88% less fresh water per barrel than we did in the 1970s. At Kearl, our advanced tailings separation technologies will allow greater recycling of water and will reduce freshwater demand. We will also use a water storage system to allow continued operations without water withdrawal from the Athabasca River during low-flow periods.

While these new environmental technologies are exciting, you may wonder about their impact on oil sands cost of supply, which is already higher than other oil resources. Progress is being made here as well. We expect that our Kearl mine will have cash operating costs similar to established in-situ operations such as our Cold Lake facility.

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From its very beginnings, the story of the oil sands has been one of continuous development of new, more efficient, more environmentally effective technologies. Investing in research and technology is critical to achieving sustainable development of our industry.

At Imperial Oil, between 60 and 80 million research dollars are focused each year on developing innovative oil sands technologies. Many of our industry peers are also making substantial technology investments.

Canada's oil sands developers have made a collective commitment to improve our environmental footprint. Late last year, six major oil sands mining developers, including ourselves, joined forces in a unique technology-sharing agreement that will see the group exchange proprietary research in order to speed up the reclamation of mining tailings ponds, and ultimately eliminate them.

If you detect a sense of optimism in me, you'd be right. Our industry is making solid progress. We are relentlessly pursuing energy efficiencies, best practices and new technologies to reduce emissions, conserve water, improve land use, speed up reclamation, and reduce the marginal cost of production.

We're getting better at talking to our stakeholders and responding to our critics. And we know we have a positive story to tell. North Americans should not have to choose between energy security, economic well-being, and a clean environment. It's not an either-or-proposition. A healthy environment and a strong economy are both important and all of us should expect nothing less. Thank you very much.