

TAKING ON THE OIL SANDS CHALLENGE

Canada's oil sands reserves are needed now, and they can be developed responsibly

PERSPECTIVES

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The oil sands of northern Alberta are undergoing rapid growth. Nearly \$100 billion will be spent in the coming decades to produce this resource which contains almost 175 billion barrels – a reserve second only to Saudi Arabia's in size. This development has made the oil sands one of the most widely discussed energy stories.

Recent polls suggest that Canadians are divided about this energy opportunity. Most agree that oil sands development has benefited our economy. At the same time, many are concerned about the impact of development on the environment.

Because bitumen is embedded in sand and clay, it takes more energy and water to extract the resource than conventional oil. Oil sands development contributes to greenhouse gas emissions and has a visible impact on the land for a period of time.

These are legitimate concerns – and ones that industry shares. We are steadfastly committed to reducing our environmental footprint and are achieving significant



Imperial's in situ operation at Cold Lake, Alberta, has a relatively small environmental footprint.

progress on all fronts. Yet some are calling for a temporary halt to development while others argue that no further development should be permitted.

In a perfect world halting or delaying development might be a valid choice, but the world we live in is far from perfect.

Consider the global energy outlook. World demand for energy continues to grow. And even with rapid increases in renewable energy, the world will depend on hydrocarbon fuels to satisfy most of its demand, at least for the foreseeable future. We will need oil – and more of it.

Canada has the good fortune of having a world-class resource. All told, about 13 percent of the world's known oil reserves are buried in the oil sands. And while many of the world's resources are in regions where political and civil stability are weak, making supply highly vulnerable, Canada has the added advantage of possessing an enormous energy supply in a stable political environment. We are a resource-rich country in a resource-hungry world. And oil sands development is an essential piece of the puzzle.

While this energy outlook is promising for Canada, the industry faces environmental challenges. These are complex issues that will take strong commitment to resolve.

Take the issue of greenhouse gases, for example. Oil sands production currently accounts for about four percent of Canada's total greenhouse gas emissions – or less than one-fifth of one percent of global emissions. By 2015, the oil sands are expected to produce three million barrels a day, representing three-quarters of Canada's total oil output. By then, the oil sands will grow to eight percent of Canada's total emissions.

Our industry is focused on finding and developing ways to reduce emissions. One such way is through energy efficiency. Imperial Oil, for example, is a founding sponsor of the Imperial Oil-Alberta Ingenuity Centre for Oil Sands Innovation at the University of Alberta. This centre brings together some of the best scientific and engineering minds to seek breakthrough technologies associated with all aspects of oil sands development, including more energy-efficient ways to extract and upgrade the resource.

Extracting oil sands consumes large amounts of water, but we are steadily improving our efficiency. For example, nearly 40 years of technical innovation at Imperial have helped to pioneer state-of-the-art water recycling techniques at our Cold Lake operation. Today Cold Lake recycles 95 percent of the produced water that is recovered with the oil, helping to reduce requirements for fresh water. And research is ongoing to develop new solvents-based processing techniques that will allow companies to further lower freshwater use.

A lot of attention has focused on operations that involve open-pit mining. This recovery method is used where deposits are found near the surface. Certainly, these projects have a visible impact on the land. But we

are working hard to minimize this impact, reclaiming the land as we go. Moreover, only 20 percent of the resource can be developed using open-pit mining. Increasingly in the future, the focus will shift to the other 80 percent of the oil sands which lie deep underground. These reserves are recovered through “in situ” technologies that pump the oil to the surface from centrally located well clusters (Cold Lake is one such operation). Not only do these operations avoid the need for tailings ponds, the land they use can be reclaimed much more quickly because of smaller surface disturbance.

Because of the location of the resource, most oil sands development will occur in Canada’s boreal forest. Estimates are that current and future mining operations will disturb one-tenth of one percent of this 3.2 million square kilometre area. The industry recognizes the need to do more when it comes to protecting land and wildlife in this environmentally important region, and is developing and implementing new technologies and best practices – some of which are discussed in this issue.

There’s no question that the environmental issues associated with oil sands development are pressing. However, tough issues have a way of getting solved when we apply human ingenuity and technological innovation. Throughout our industry’s history, technology has enabled us to resolve many environmental challenges. From directional drilling that lightens our footprint to world-class systems that identify new energy efficiencies to advanced catalysts that convert heavier crudes into cleaner fuels – our industry has long operat-



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ed at the technological frontier.

In the future, we will continue to face tough challenges when it comes to developing oil sands. Our work is not done. We must constantly look for ways to do things better, especially with regard to our environmental footprint. And here our goal is simple: In 100 years, we want no evidence that we were ever there.

In the end, the oil sands should be recognized for what they are – an enormous historic energy opportunity for all Canadians. If we do this right – as we are confident we will – the legacy we leave future generations will be one we can take pride in. ■