

## Chapter 5

# The Kearl Oil Sands Cases: Climate Change in Environmental Assessment and in the Courts

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### Introduction

The primary duty of federal environmental assessment panels is to give considered advice about whether proposed projects will have significant adverse effects.<sup>1</sup> Two cases decided by the Federal Court of Canada in 2008 concerning Imperial Oil's Kearl oil sands project in north-eastern Alberta<sup>2</sup> have important implications for how federal panels discharge this duty. The cases clarify that panels must provide logical, coherent reasons explaining their conclusions about the "significance" of environmental effects. In particular, they are now required to provide a cogent rationale for their conclusions about the climate change effects of projects that produce substantial greenhouse gas emissions and about the mitigation measures that should be applied to such projects.<sup>3</sup>

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<sup>1</sup> *Canadian Environmental Assessment Act*, S.C. 1992, c. 37 (CEAA), and in particular ss. 4, 16 and 34. See also Canadian Environmental Assessment Agency, *Reference Guide for the Canadian Environmental Assessment Act: Determining Whether a Project is Likely to Cause Significant Adverse Effects* (November 1994), at p. 183: "The central test in the Act is whether a project is likely to cause significant adverse environmental effects" (emphasis in original). See the Agency's Web site at [www.ceaa-acee.gc.ca](http://www.ceaa-acee.gc.ca).

<sup>2</sup> *Pembina Institute for Appropriate Development v. Canada (Attorney General)* (2008), 35 C.E.L.R. (3d) 254 (F.C.) ("Kearl #1"), and *Imperial Oil Resources Ventures Ltd. v. Canada (Minister of Fisheries and Oceans)* (2008), 36 C.E.L.R. (3d) 153 (F.C.) ("Kearl #2").

<sup>3</sup> The first Kearl case (Kearl #1, *supra*) dealt with several issues other than greenhouse gas emissions. These issues are beyond the scope of this chapter, but include panels' duties to assess the "feasibility" of mitigation measures and to assess the effects of projects on species at risk. Tremblay-Lamer J. dismissed these grounds of review, although the court made several comments that will help guide future assessment panels considering these same issues. For example, the court affirmed earlier cases decided under the *Environmental Assessment and Review Process Guidelines Order*, SOR/84-467 (the "EARPGO", predecessor to the CEAA) holding that "possibilities for future research and development do not constitute mitigation measures": Kearl #1, *supra*, at para. 25.

## The Kearl Project and Oil Sands Mining Generally

The Kearl project is a proposed open-pit oil sands mine and processing facility located approximately 70 km north of Fort McMurray, Alberta. The mine is expected to operate until the year 2060. At full capacity, it will produce 300,000 barrels per day of bitumen.

Bitumen is the technical term for the product extracted from the oil sands; it is a thick, heavy petroleum substance, similar to tar. The oil sands deposit in Alberta is enormous, underlying roughly a quarter of the province and containing proven reserves of over 175 billion barrels of oil.<sup>4</sup>

Oil sands deposits within 100 meters of the surface are generally strip-mined from open pits. Bitumen comprises only 10-12% of the deposits — the remainder is a mixture of sand, silt, clay and water. Approximately four tonnes of material must be mined to produce one barrel (159 liters) of oil.

Bitumen is extracted from the mined oil sands through a process that uses hot water to wash the oil from the sand. This process is very energy intensive. Extracting a barrel of bitumen following surface mining requires between 2 and 4.5 barrels of fresh water and roughly 250 cubic feet of natural gas to heat that water (enough natural gas to heat a Canadian home for almost 1 ½ days). An additional 500 cubic feet of natural gas is needed to upgrade each barrel of bitumen to a synthetic crude oil that can be refined into useable petroleum products like gasoline and diesel.

Because of the energy intensity of these processes, the greenhouse gas emissions from producing a barrel of oil sands crude oil are approximately three times higher than emissions from producing a barrel of conventional crude. The Kearl project alone will produce an average of 3.7 million tonnes (Mt) of greenhouse gases each year,<sup>5</sup> equivalent to the annual emissions of 800,000 passenger vehicles in Canada. For comparison, the total emissions for the entire province of Newfoundland and Labrador in 2006 amounted to 9.4 Mt.<sup>6</sup>

Oil sands production is the single largest contributor to Canada's growth in greenhouse gas emissions. The sector's emissions are projected to increase substantially as total production increases. The Government of Canada's submissions to the panel reviewing the Kearl project noted as follows:

<sup>4</sup> The factual background material in this section is taken from the affidavit of Simon Dyer, affiant for the Pembina Institute. Pembina Institute has published several excellent reports on environmental issues associated with the oil sands, including Dan Woynillowicz *et al.*, *Oil Sands Fever: The Environmental Implications of Canada's Oil Sands Rush* (November 2005), available online at [www.pembina.org/pubs](http://www.pembina.org/pubs) (accessed March 11, 2009).

<sup>5</sup> Measured in carbon dioxide equivalent.

<sup>6</sup> Environment Canada, *National Inventory Report: Greenhouse Gas Sources and Sinks in Canada, 1990-2006*, Table A10-1 (December 2008), available online at [www.ec.gc.ca/pdb/ghg/inventory\\_report/2006\\_report/ta10\\_1\\_eng.cfm](http://www.ec.gc.ca/pdb/ghg/inventory_report/2006_report/ta10_1_eng.cfm) (accessed March 11, 2009).

With the expected increase of oil sands developments to reach 2.7 million barrels per day by 2015 . . . the potential GHG [greenhouse gas] emissions from the oil sands activities could exceed 100 Mt per year. Based on the [Environment Canada] GHG Inventory (2004) the production of the oil sands could account for approximately 10% of the nation's total GHG emissions.<sup>7</sup>

## The Environmental Assessment of the Kearl Project

The Kearl project was subject to environmental assessment under Alberta legislation and under the *Canadian Environmental Assessment Act* (“CEAA”). A federal assessment was triggered by Imperial Oil’s application for a *Fisheries Act*<sup>8</sup> authorization to harmfully alter, disrupt or destroy fish habitat while constructing and operating the Kearl project.<sup>9</sup> In mid-2006, the federal Minister of Environment and the Alberta Energy and Utilities Board agreed to establish a joint federal-provincial review panel to assess the environmental impacts of the project.

The panel held hearings in November 2006. A coalition of environmental groups, including the Pembina Institute and the Toxics Watch Society of Alberta, was represented by counsel and made submissions at the hearings. In their submissions, the coalition recommended that any approval be subject to several conditions to address the project’s adverse environmental impacts. To address climate change impacts, the coalition recommended that Imperial Oil be required to reduce or offset the project’s greenhouse gas emissions to meet a target that would be significantly below the project’s planned emissions at start-up,<sup>10</sup> and progressively tightened over subsequent years to achieve “carbon neutral” production by 2020 (*i.e.*, net zero emissions, achieved through reductions and offsets).<sup>11</sup>

The coalition argued this condition was required because the Kearl project would make “unacceptably large and insufficiently mitigated contributions to increasing greenhouse gas pollution and climate change”.<sup>12</sup> The coalition pointed to the strong scientific consensus that greenhouse gas emissions from human activities are likely to cause catastrophic environmental, economic and human impacts worldwide by the end of the present

<sup>7</sup> *Government of Canada Submissions to the Kearl Panel* (October 1, 2006), available online at [www.ceaa.gc.ca/050/DocViewer\\_e.cfm?DocumentID=18846](http://www.ceaa.gc.ca/050/DocViewer_e.cfm?DocumentID=18846) (accessed March 11, 2009), at p. 079, para. 5.119.

<sup>8</sup> R.S.C. 1985, c. F-14.

<sup>9</sup> The various triggers for federal environmental assessment are set out in s. 5(1) of CEAA — in this case, the relevant trigger was s. 5(1)(d).

<sup>10</sup> The environmental coalition noted that Imperial Oil’s planned greenhouse gas intensity was 38-44 kg per barrel of bitumen (measured in carbon dioxide equivalent). The planned intensity for similar oil sands mining projects is considerably lower, at 32.85 kg per barrel for the PetroCanada/UTS Fort Hills Oil Sands Mine and 31.5 kg per barrel for the Shell Jackpine Mine — Phase 1 project. See *Oil Sands Environmental Coalition Submissions to the Kearl Panel*, October 12, 2006 (“OSEC Submissions”), at pp. 13-14.

<sup>11</sup> OSEC Submissions, *ibid.*, at p. 8.

<sup>12</sup> OSEC Submissions, *ibid.*, at p. 11.