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Analysis

Good for the Economy? An Ecological Economics Approach to Analyzing Alberta's Bitumen Industry

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ABSTRACT

Competing claims about the economic, social and environmental impacts of bitumen projects make Alberta's oilsands industry highly contentious. This paper uses a case study of a major bitumen project, Shell Canada's Jackpine mine expansion, to examine the evidence considered by government decision-makers in the project approval process. The project was determined to be "in the public interest" based primarily on its economic benefits, despite significant adverse environmental and social impacts. The paper evaluates the evidence that was presented to support this decision, using three criteria drawn from ecological economics: efficient allocation, just distribution, and sustainable macroeconomic scale. It finds that the evidence presented is, in fact, insufficient to justify the project on any of the three criteria. Furthermore, other studies of the bitumen industry cast doubt on the likelihood that the project would satisfy these criteria if further analysis were conducted. It concludes by recommending several measures that could help to improve decision-making on bitumen projects in the future.

1. Introduction

Alberta's bitumen industry is highly contentious, both within Canada and internationally. The industry produced 2.4 million barrels of oil per day in 2015 from the third largest oil reserve in the world. It is widely considered "the cornerstone of the provincial economy" (Alberta, 2009, p. 3), "a key driver of the Canadian economy" (Alberta, 2012), and "the economic engine for the country for the foreseeable future" (Cooper, 2012). Nevertheless, in 2015, over 100 respected North American scientists issued an open letter calling for a moratorium on new bitumen developments until the environmental and social impacts can be addressed (Homer-Dixon et al., 2015). Proposals for pipelines intended to carry bitumen to other countries have been met with national and international protests. Aboriginal groups have launched multiple court challenges against oilsands projects (Droitsch and Simieritsch, 2010), and their concerns were echoed by the United Nations Special Rapporteur on the Rights of Indigenous Peoples (Anaya, 2014). Debates about whether Alberta's bitumen should be considered "dirty oil" have raged for years as the European Union considers whether it should restrict imports. The Canadian government is reported to have spent millions of dollars on advertising and outreach activities in Canada and internationally, trying to sway public opinion towards the industry (Lukacs, 2015).

Before bitumen mines can be constructed or expanded, companies must receive approval from both the federal and provincial governments.[1] Typically, the Canadian Environmental Assessment Agency and Alberta Energy Regulator strike a Joint Review Panel (JRP) that is tasked with evaluating the project with respect to applicable legislation. Under the federal *Canadian Environmental Assessment Act*, approval may be granted to a project that "is likely to cause significant adverse environmental effects," as long as those effects are "justified in the circumstances" (Canadian Environmental Assessment Act, 2012, s. 52). Under the provincial *Oil Sands Conservation Act*, approval is granted to projects that are found to be "in the public interest" (Oil Sands Conservation Act, 2000, s. 10[3]). The provincial *Responsible Energy Development Act General Regulation* requires the regulator to consider the social, economic, and environmental impacts of a project before granting such approval (Responsible Energy Development Act General Regulation, 2013, s. 3).

But how do decision-makers weigh competing claims to discern whether a project's benefits outweigh its negative effects, and whether it is in the public interest? What information do they consider, and what criteria do they use to evaluate this information? What process do they follow in coming to a decision? And, most importantly, can citizens trust that their political representatives are making good decisions, based on the best evidence available?

The answers to some of these questions are opaque. The actual decision-making discussions are not public; specific bitumen projects are not generally debated in government legislatures and project approvals

[1] In-situ bitumen projects, the fastest growing type of oilsands projects, must also receive provincial approval; however, they do not automatically trigger a federal approval process.

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are often not accompanied by explanations. However, available documentation does provide significant clues. The project approval process includes an Environmental Impact Assessment (EIA) conducted by the company, written submissions from affected parties including Aboriginal and environmental groups and government agencies, and public hearings involving all these parties. All this documentation, including full transcripts of the hearings, is publicly available on the website of the Canadian Environmental Assessment Agency. The JRP's final report, which details the information it heard, its assessment of this information, and its recommendation, is also publicly released upon completion. Since the JRP is tasked with gathering evidence on behalf of both the federal and provincial governments, this documentation offers valuable information as to the evidence considered in the final approval decisions. It also offers an opportunity for others to evaluate the validity of these decisions.

This paper uses a case study of a specific bitumen project, Shell Canada's Jackpine mine expansion, to evaluate the basis for the project's approval. How was the project justified? Did decision-makers use the best possible evidence to reach their conclusions? Does the evidence present a convincing case that the project is indeed "in the public interest?"

This paper focuses on these questions from an economic perspective only, setting aside broader political concerns that have been raised about the role of the bitumen industry in shaping provincial and federal decision-making processes (e.g. Hiemstra, 2013; Nikiforuk, 2010). In defining what "in the public interest" might mean from an economic perspective, it adopts ecological economics' three policy goals: efficient allocation, just distribution, and sustainable macroeconomic scale (Costanza and Folke, 1997; Daly, 1992). After describing the case study and the justification offered by the JRP for its approval, the paper evaluates the project on each of these three criteria. It finds that the evidence provided in the approval process and cited by the JRP is, in fact, insufficient to make a convincing case for the project on any of the three grounds. Drawing on studies of other bitumen projects and the industry as a whole, it then shows that there are reasons to doubt that these criteria would be satisfied if additional information were available. It concludes by recommending several measures that could help improve decision-making on such projects in the future.

2. The Case Study: Shell's Jackpine Mine Expansion

In 2013, Shell Canada Limited, a subsidiary of Royal Dutch Shell, received approval to significantly expand its existing Jackpine bitumen mine. The mine is located north of Fort McMurray, Alberta, within the Athabasca bitumen deposit. The region already contains a number of existing and approved open-pit bitumen mines. The Jackpine expansion will add additional mining, processing and tailings disposal areas affecting about 130 km^2 of land and requiring the diversion of 22 km of the Muskeg River (Canada, 2013a). It will result in the production of an additional 100,000 barrels of bitumen per day (Canada, 2013b).

Shell initially submitted its project application in 2007. Its EIA was deemed complete in 2010 and the Joint Review Panel was established in 2011. In 2012, the JRP invited public input and held three weeks of public hearings in Fort McMurray and Edmonton. It issued its decision report in July 2013, based on the EIA and supplemental reports submitted by Shell, written submissions from several intervenors (Aboriginal groups and individuals, environmental organizations, provincial and federal government agencies, the local municipality, and other companies), and testimony provided during the public hearings.

In its report, the JRP concluded that despite "significant adverse project effects… the Project is in the public interest" (Canada, 2013a, p. 2). This finding resulted in provincial approval of the application. Federal approval followed in December 2013, with the governor-in-council's finding that the "significant adverse environmental effects" of the project were "justified in the circumstances" (Canada, 2013b). This federal approval was not accompanied by any further explanation of the government's decision. The analysis in this paper therefore relies on the evidence presented in the JRP's report.

In support of its recommendation to approve the project, the JRP cites "significant economic benefits for the region, Alberta, and Canada" (Canada, 2013a, p. 2). These benefits are later spelled out in detail:

> The Project is an expansion of an existing project and is in an area where the government of Alberta has identified bitumen extraction as a priority use. Shell stated that the Project will result in the recovery of about 325 million cubic metres of dry bitumen over its approximately 40-year life. The municipal, provincial, and federal governments will all receive significant financial benefits as a result of the Project. The Project will provide major and long-term economic opportunities to individuals in Alberta and throughout Canada, and will generate a large number of construction and operational jobs.
>
> [(Canada, 2013a, p. 4)]

The JRP's discussion of the social and economic effects of the project is based on Shell's own analysis of the economic benefits, described in the socio-economic assessment that Shell completed as part of the EIA. According to the EIA, Shell used project-specific data and input-output modelling to calculate the impacts on employment, government revenue, and GDP, and to determine the geographical impacts of project expenditures. The JRP cites Shell's projections of the economic benefits: $7–10 billion increase in provincial GDP, 12,410 work years of employment during construction, 750 ongoing jobs, $23–24 million in annual property taxes, and a total of $17 billion in federal and provincial royalties and taxes (Canada, 2013a).

However, the JRP report also states that "the project would likely have significant adverse environmental effects on wetlands, traditional plant potential areas, wetland-reliant species at risk, migratory birds that are wetland-reliant or species at risk, and biodiversity" (Canada, 2013a, p. 2). In combination with other projects in the region, there would be additional significant adverse effects on old-growth forests and related species, caribou, and "Aboriginal traditional land use (TLU), rights, and culture" (p. 2–3). The JRP further finds that many of these impacts cannot be mitigated, despite Shell's commitment (as required by law) to reclaim the disturbed areas. In addition, the report notes uncertainties regarding "groundwater modelling, bitumen recovery, tailings management, and reclamation" (p. 4). The report cites a variety of additional negative impacts, but accepts that mitigation measures and adaptive management efforts on the part of Shell and other parties will be sufficient to address them.

In the end, it appears that the economic arguments in favour of the project carried the day. While the JRP's report, and the federal government's subsequent approval, were accompanied by a number of requirements aimed at mitigating the adverse impacts of the project as much as possible, they acknowledged that there is no way to mitigate several of the impacts and that these impacts will be significant. Nevertheless, these impacts were deemed to be "justified" and the project was found to be "in the public interest" based, presumably, on the economic benefits cited: bitumen extraction, economic growth, employment, and government revenues.

3. Evaluating the Evidence: Is the Project in the Public Interest?

Is the analysis conducted by the JRP really adequate to conclude that the project is in the public interest? The first step in answering this question is to define what "in the public interest" might mean from an economic perspective. Economic theory typically offers efficiency as the primary criterion for making such a determination. Many economists and policy-makers would also include distributional impacts in their considerations. Ecological economists, however, point out that a third criterion is often missing from policy deliberations: the economy must operate within the limits of the biosphere's capacity to provide resources and process wastes.