# Royalty Reform Solutions

## Options for Delivering a Fair Share of Oil Sands Revenues to Albertans and Resource Developers

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OIL SANDS ISSUE PAPER NO. 5

Amy Taylor

the PEMBINA Foundation

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## About the Pembina Institute

The Pembina Institute creates sustainable energy solutions through research, education, consulting and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy and environmental governance. More information about the Pembina Institute is available at http://www.pembina.org or by contacting info@pembina.org.

## About the Pembina Foundation

The Pembina Foundation for Environmental Research and Education is a federally-registered charitable organization. The foundation supports innovative environmental research and education initiatives to increase understanding within society of the way we produce and consume energy, the impact on the environment and the consequences for communities, as well as options for the more sustainable use of natural resources. The Pembina Foundation contracts the Pembina Institute to deliver on this work.

## About the Author

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Amy Taylor is the Pembina Institute's Director of Ecological Fiscal Reform. Amy has completed numerous projects on ecological fiscal reform including contract work for government and non-profit organizations. She has co-organized and run an international conference on environmental taxation, and has worked with resource sector leaders to advance environmental tax shifting policy in Canada. Amy has completed several projects on tax and subsidy reform. She has also done extensive research on environmental resource accounting within a Genuine Progress Indicator framework. Ms Taylor holds an honours undergraduate degree in Environmental Science and Economics and a Masters in Resource Environmental Management.

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# Royalty Reform Solutions

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## Table of Contents

## List of Figures



## List of Tables

# Royalty Reform Solutions

## Options for Delivering a Fair Share of Oil Sands Revenues to Albertans and Resource Developers

## Just the Facts

### Origins of the Royalty Regime

- The Alberta government established the oil sands royalty regime in 1997 to accelerate oil sands developments beyond 1 million barrels per day by 2020.
- Extremely low royalties (25%) worked to overcome barriers related to high capital costs and encourage the large investments needed to develop the oil sands.

### Rising Oil Sands Production

- Since 1997, capital investments in oil sands projects have increased more than 400%; oil production has increased 130% and the price of bitumen has increased 256%.
- The production goal of 1 million barrels of oil per day from the oil sands was surpassed in 2004, 16 years ahead of schedule.

### Declining Resource Revenues

- The provincial government predicts that resource revenues will decline in the next three years, partly due to the low royalty rates applied to oil sands developments.
- Oil sands royalty revenue is predicted to be the same in 2020 as it was in 2004/2005 despite a tripling of production by that time.

### Ensuring a Fair Share?

- The current royalty regime leaves 53% of net revenue with companies while Albertans retain only 32% of the revenue available from oil sands developments.
- Companies undertaking oil and gas developments in Norway retain 22% of the revenue, while Norwegian citizens — the owners of the resource — receive 78% in revenues.
- 90% of Albertans indicated in a recent poll that Alberta should be a leader in maximizing resource value for its citizens.

### Striking a Balance

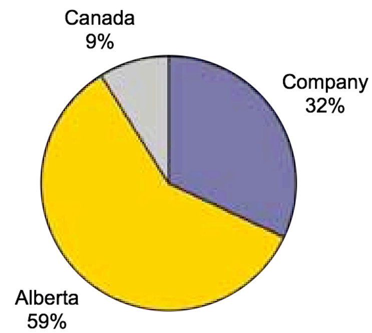
- Restructuring the royalty regime to reflect current economic realities would enable Albertans to earn higher resource revenues while still enabling companies to obtain a fair return on their investments.

## Royalty Reform Solutions: Three Options for a Win-Win Royalty Regime

The Pembina Institute recommends that the oil sands royalty regime be reformed such that governments capture 70% of available revenue through taxes and royalties. This can be done while maintaining an internal rate of return for companies that is greater than 12%.

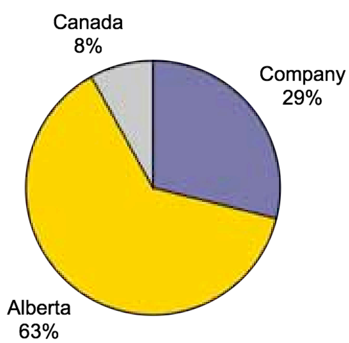
In this report, the Pembina Institute presents three options for royalty reform that meet these criteria; changes should be made for new projects, including those currently in the approval process, immediately and phased in for old projects over time. The charts illustrate the resulting net revenue distribution for each option.

### 1. 55% Net Royalty




- Retain a 1% royalty on gross revenue from oil sands projects until companies have recovered all of their costs including a return allowance.
- Increase the second-tier royalty rate to 55% of net revenue.

**Result:** Albertans receive an additional $9 billion per in situ project and $25 billion per mining project[1], while still enabling companies to retain 32% of the available revenue.

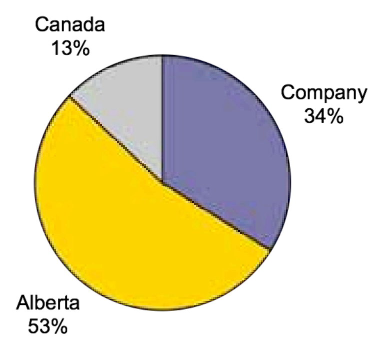



### 2. 3-Tiered Royalty

- Retain a 1% royalty on gross revenue from oil sands projects until companies have recovered all of their costs including a return allowance.
- Increase the second-tier royalty to 30% of net revenue, and introduce a third-tier royalty of 60% of net revenue once a company's profits exceed a specified threshold (the existing return allowance plus 10%).

**Result:** Albertans receive an additional $10.6 billion per in situ project and $29 billion per mining project, while still enabling companies to retain 29% of the available revenue.

### 3. Polluter Pays




- Introduce an environmental levy of $40 per tonne of carbon dioxide emissions to encourage companies to reduce pollutants causing global warming.
- Retain a 1% royalty on gross revenue from oil sands projects until companies have recovered all of their costs including a return allowance.
- Increase the second-tier royalty rate to 40% of net revenue.

**Result:** Albertans receive an additional $7 billion per in situ project and $23 billion per mining project, while still enabling companies to retain approximately 34% of the available revenue.

The Pembina Institute also recommends that **at least 50% of resource revenues from the oil sands be placed into a long term fund** to be used to cushion the Alberta economy from boom and bust cycles, as a store of wealth for future generations and to facilitate a transition to a sustainable energy future for Alberta.

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[1] Figures represent revenues received over the lifetime of a project. See chapter 3 for details.

# 1. Introduction

The Alberta government established the current oil sands royalty regime in 1997 with the aim of accelerating oil sands developments beyond 1 million barrels per day by the year 2020.[2] The terms were set to explicitly favour investors and support a fledgling industry. Ten years later, however, economic conditions have change significantly: oil sands extraction and upgrading technologies have matured, and current and projected oil prices have increased substantially. The price of bitumen (the raw product from oil sands) has increased 256%.[3]

Not surprisingly, capital investments in oils sands projects are soaring in response. Since 1997, capital investments have increased more than 400% and oil production has increased 130%. In fact, the current royalty regime has already exceeded its own objectives for spurring development: production surpassed 1 million barrels per day in 2004, 16 years ahead of schedule. Oil sands production is now forecast to reach 3.5 million barrels per day by 2015 and 4.0 million barrels per day by 2020, accounting for more than 80% of Canadian oil production.[4]

In spite of radically improved economic conditions for oil sands developments, the provincial government has maintained the same low royalty rates introduced in 1997. Now royalties from oil sands production are expected to decline.[5] The provincial government's budget, released on April 19, 2007, predicts a decline in oil sands revenues over the next three years. Looking further ahead, the Alberta Department of Energy estimates that oil sands royalty revenue will be the same in 2020 as it was in 2004/2005 — despite a tripling of production over that time period.[6]

The royalty regime, which is now seriously outdated, is costing Albertans billions of dollars in lost resource revenues. The citizens of Alberta need to start thinking like owners and insist that their manager, the Government of Alberta, gets a better deal for them from the development of their resource.

**This report describes several options that Albertans, when thinking like owners, can consider for reforming the oil sands royalty regime. The reforms are designed to ensure better value to Albertans while maintaining a reasonable profit for oil sands companies.** The options include increasing the existing royalty rates, adding a third tier to the royalty regime, and introducing environmental levies. It is imperative that the Government of Alberta take royalty reform seriously and ensure it "gets it right" in order to provide both Albertans and industry with a fair and stable royalty regime.

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[2] Prior to the introduction of the royalty regime in 1997, royalty terms were negotiated on a project by project basis between companies and the government.

[3] Energy Utilities Board, *Alberta Energy Resource Industries Monthly Statistics, ST3* (Calgary, Alberta: Alberta Energy and Utilities Board, 2006).

[4] See http://www.capp.ca/default.asp?V_DOC_ID=1169 for this and other projections related to oil production.

[5] Alberta Finance. *Budget 2007 Fiscal Plan* (Edmonton, Alberta: Alberta Department of Finance, 2007).

[6] Alberta Department of Energy. *Prosperity for Our Future Generations* (Edmonton, Alberta: Alberta Department of Energy, 2005).

## 1.1 Thinking Like an Owner

In Alberta, the vast majority of non-renewable resources — including oil sands — are owned by the citizens of the province.[7] The Government of Alberta, through the Department of Energy, is responsible for managing these resources on behalf of Albertans.[8] In exchange for a portion of the revenues, oil sands companies lease the right from the provincial government to develop the resource and sell the product on behalf of Albertans.[9] While these companies incur development costs associated with building mines and other facilities to extract the bitumen, they are not the owners of the resource. The role of companies is to act as resource developers on behalf of the owners, Albertans.

As the resource manager, the provincial government is responsible for ensuring that the citizens of Alberta — the owners of the resource — receive the maximum benefit for the development of the oil sands. The government collects Albertans' share of the resource revenue on an annual bases through royalties, which are levied on the revenue that companies earn through the sale of the resources, taxes and lease sales.[10] After paying royalties and taxes, the companies are left with a profitable return on their investment — in effect, their *commission* for extracting and selling oil on behalf of Albertans.

In setting the *commission rate,* the government's job is to strike the optimal balance between providing a fair return to resource developers on their investment and maximizing revenues to the citizens of the province.

The current royalty regime for oil sands sets a rate that is too low, as it forces Albertans to pay exorbitant commissions — more than 50% — to companies for developing the resource. In other words, the government is currently allowing oil sands developers, many of which are foreign owned, to take home more than their fair share of revenues at Albertans' expense.

## 1.2 An Outdated Regime

The current royalty regime was designed to overcome barriers related to high capital costs[11] and encourage the large investments needed to develop the oil sands resources by collecting minimal

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[7] A portion of oil and gas resources are privately (rather than publicly) owned. For privately owned resources, royalties are paid to individual land owners. This research project is concerned with publicly owned oil sands resources.

[8] Only 2.6% of the area covered by oil sands are privately owned. The remaining area is on public lands, and therefore are owned by all the citizens of the province. Source: Alberta Energy, personal communication, September 2005.

[9] For an assessment of issues associated with the current process for granting rights to resource developers, see: Woynillowicz, Dan, Peggy Holroyd and Simon Dyer. *Haste Makes Waste: The Need for a New Oil Sands Tenure Regime* (Calgary, Alberta: The Pembina Institute, 2007). This report is available at: www.oilsandswatch.org.

[10] Governments also obtain revenue through lease sales. In the case of the oil sands, lease sales take place through a sealed auction bidding process in which companies will bid an amount equal to what they are wiling to pay to obtain the development rights. Their bid reflects their assessment of the value of the resource taking into account what they will be required to pay in royalties and taxes.

[11] A typical oil sands mining and upgrading project that delivers 100,000 barrels of oil per day requires $4.5 billion in capital expenditure. This figure does not include typical capital investment overruns. Source: Mitchell, Robert et al. *Alberta's Oil Sands: Update on the Generic Royalty Regime* (Edmonton, Alberta: Alberta Department of Energy, Unitar 183, 1998).

royalties until developers have recovered their costs.[12] The result, as will be described below, are excessively low royalty rates for Albertans, and high rates of return for oil sands companies (31% for in situ projects and 18% for mining projects).

Oil sands developments in Alberta are subject to the *Oil Sands Royalty Regulation, 1997*, which is commonly referred to as the “generic royalty regime.” The provincial government implemented the regime in 1997 following the recommendations of the National Task Force on Oil Sands Strategies,[13] which were released in the spring of 1995. The government had a number of objectives in mind when it developed and implemented this royalty regime:[14]

- Accelerate the development of the oil sands.
- Facilitate development of the oil sands by private sector companies.
- Ensure that oil sands development is competitive with other petroleum development opportunities on a world scale.

To meet these objectives, the government structured the royalty regime to encourage development. Oil sands developers are required to pay a low 25% royalty on net project revenue *only after* the company has recovered *all* project costs incurred during the year — including 100% of capital, operating and development costs — and the company has earned a rate of return on its investment.[15] In the event that these conditions are not met, for example when investments are high due to project start-up, project expansion or cost over-runs, the developer is required to pay a minimum 1% royalty on the project’s gross revenue.[16] The regime applies to new projects and expansions to existing projects, and companies can choose whether to pay royalties on bitumen or on the more refined synthetic crude oil.[17]

The 25% royalty on net project revenues for oil sands developments is a “resource rent royalty,” meaning it is a royalty levied on the economic rent associated with a project.[18] Economic rent is the difference between the value of a resource and the cost of producing it, including a return on investment. Resource rent royalties, if properly established, provide a means to transfer a consistent share of economic rent from oil sands developers to citizens. While the resource rent royalty is an appropriate policy tool for delivering revenue from oil sands developments to Albertans, the low 25% royalty rate puts corporate interests ahead of citizens’ interest.

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[12] Mitchell, Robert et al. *Alberta’s Oil Sands: Update on the Generic Royalty Regime* (Edmonton, Alberta: Alberta Department of Energy, Unitar 183, 1998).

[13] In 1993, the Alberta Chamber of Resources convened the National Task Force on Oil Sands Strategies, a collective of oil industry and government representatives who drafted a framework that would create the conditions necessary to make the oil sands an economically attractive resource.

[14] Masson, Richard and Bryan Remillard, *Alberta’s New Oil Sands Royalty System* (Edmonton, Alberta: Alberta Department of Energy, 1996).

[15] The return allowance is equal to the Government of Canada Long Term Bond Rate (LTBR) which is currently around 5.75% (see benchmark bond yields at www.bankofcanada.ca/en/rates/bond-look.html for more information).

[16] Pigeon, Marc-Andre. *Tax Incentives and Expenditures Offered to the Oil Sands Industry* (Ottawa, Ontario: Parliamentary Research Branch, 2003).

[17] This distinction has implications for royalties as the value of bitumen is much lower than the value of synthetic crude oil. In 2009 when Suncor and Syncrude switch to paying royalties on bitumen instead of paying on synthetic crude oil, royalty revenues are expected to drop substantially.

[18] In Canada, other resource rent royalties include the Canadian Frontier Lands Petroleum Royalty Regulation, Newfoundland’s offshore oil royalty regime and the offshore oil royalty regime in Nova Scotia.

Because resource rent royalties are levied on net revenues and thus account for the cost of resource production, they can be set higher than *ad valorem* royalties that are based on gross revenues (such as those applied to natural gas and conventional oil in Alberta) without significantly impacting the economic viability of a project. However, the Alberta government has set an exceedingly low resource rent royalty rate for oil sands. At 25% of net revenue, the rate set for oil sands is below the high end of the *ad valorem* rates that apply to conventional oil (up to 40% of gross revenue) and natural gas (up to 35% of gross revenue) in the province. This extremely low royalty rate means that companies are earning excess commissions at the expense of the owners of the resource — Albertans.

# 2. Modelling Alternatives

What could the royalty regime deliver to Albertans if the government updated the structure to reflect today's economic realities and Albertan's interest in maximizing the revenues from their resource?

To explore the implications of different royalty structures for citizens and companies, the Pembina Institute developed "net cash flow" models of typical oil sands projects — i.e., projects involving either mining and upgrading or in situ technology.

A company's share of the net cash flow (revenues after expenses) from a project represents its profits. These profits are the commission companies receive for undertaking resource developments on behalf of Albertans. The Alberta government's share of the net cash flow is commonly known as resource revenues. These revenues are the value that Albertans obtain from resource developments as the owners of the resource.

The Pembina Institute used the models to test the implications of three alternative royalty structures on the annual flow of net revenue for each project from the project developer to: 1) the federal government through income taxes, and 2) the provincial government through income taxes and royalties.

For each alternative scenario of the reformed royalty structure, the models also calculate the internal rate of return (IRR) for project developers. The internal rate of return is a measure commonly used to estimate the economic viability (or profitability) of an investment option. It is essentially the expected rate of economic growth associated with a particular investment option. The higher the IRR, the more viable or profitable the investment. Therefore, the IRR is a key measure influencing investment decisions.

Detailed assumptions (such as those listed in Table 1) about project cycles, future oil prices and various economic factors used in the models are described in the Pembina Institute's report, *Models for Oil Sands Royalty Reform.*[19]

**Table 1: Models for Oil Sands Royalty Reform: Key Inputs**

| **Key Inputs** | |
|---|---|
| • Natural gas price | • Operating costs |
| • Oil price | • Natural gas consumption |
| • Bitumen price | • Exchange rate |
| • Transportation costs | • Inflation |
| • Capital costs | • Production phases |
| The complete set of assumptions is included in the report, *Models for Oil Sands Royalty Reform*. | |

[19] All assumptions are based on National Energy Board Supply Cost Models.

## 2.1 The Status Quo: High Commissions for Resource Developers

Figure 1 shows the allocation of net cash flow from a typical oil sands project (in situ or mining) modelled on the current royalty regime. Under the existing structure, the resource developer accrues the largest share (53%) of the available net revenue, the federal government obtains 15% of the net revenue through income taxes, and Albertans retain only 32% of the net revenue through the provincial government's royalties and income taxes.

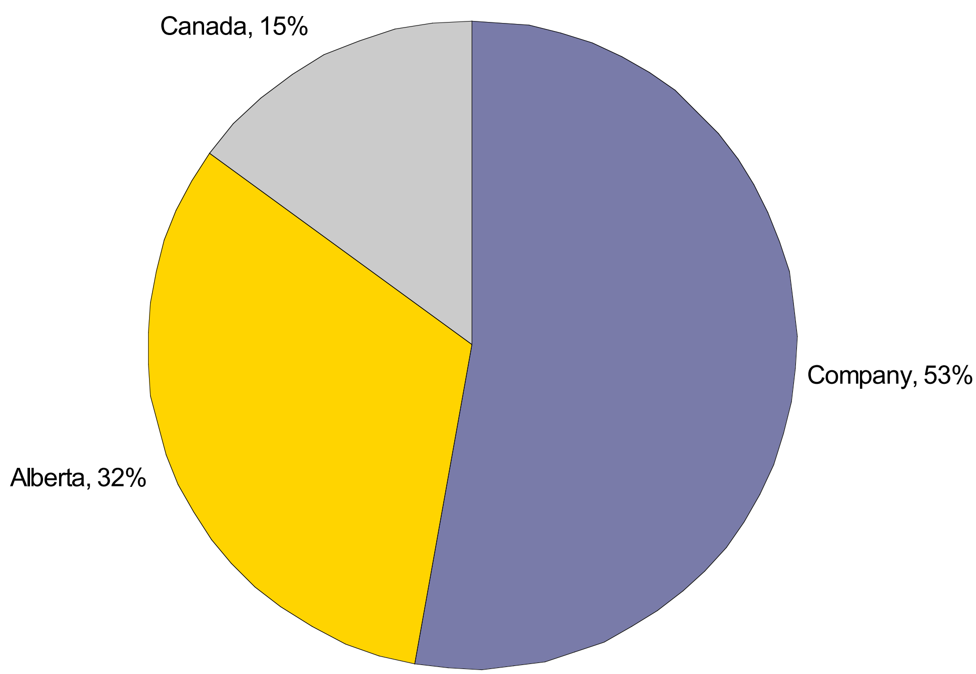


**Figure 1: Distribution of the total net revenue of an oil sands project**

As illustrated in Figure 2, for every barrel of oil a company produces using in situ technology and sells on the open market under the current royalty regime, the company retains an average commission of $13.80 while the provincial and federal governments obtain average resource revenues of $8.54 and $3.95, respectively.

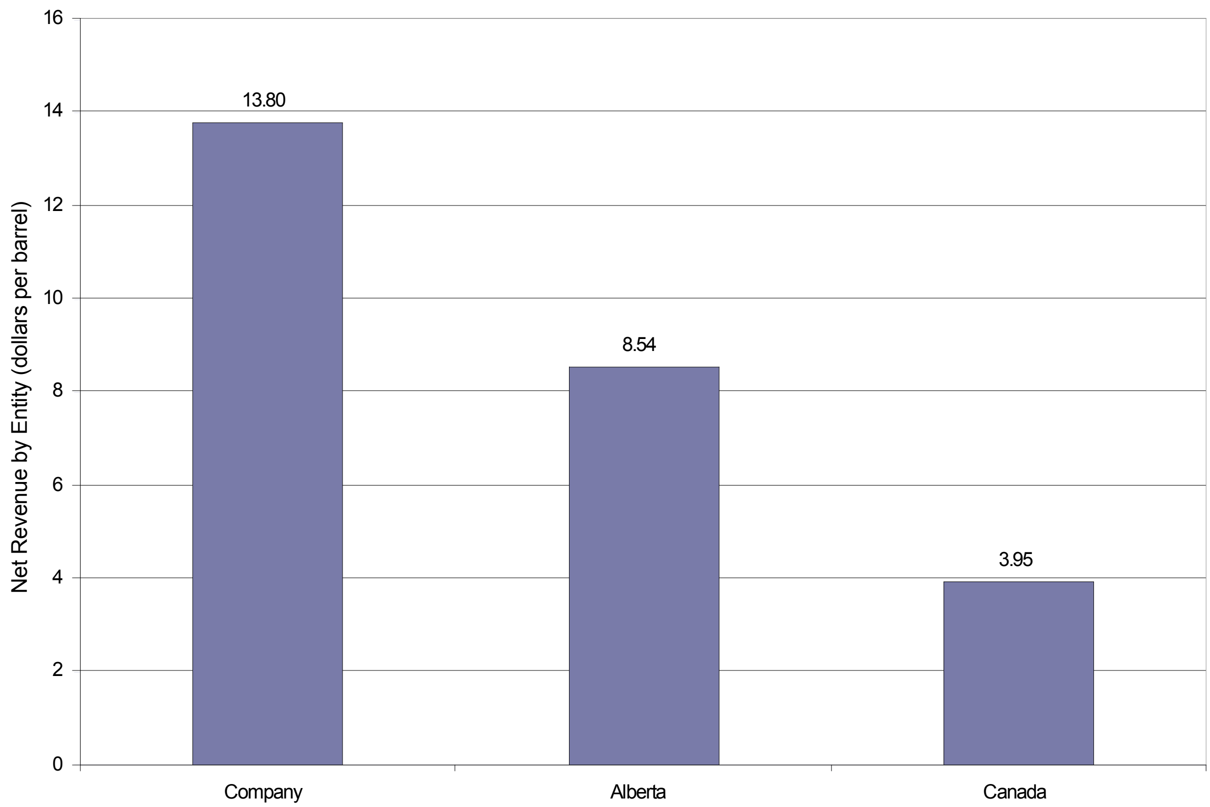


**Figure 2: Total net revenue per barrel of oil from an oil sands in situ project under the current royalty regime**

Figure 3 illustrates the scenario for bitumen produced through mining. In this case, the relative distribution of net revenues remains the same, but total net revenues from market sales are higher. On average, companies engaged in surface mining operations retain a commission of $25.79 per barrel of oil, while the provincial and federal governments obtain $15.70 and $7.40 per barrel of oil, respectively.

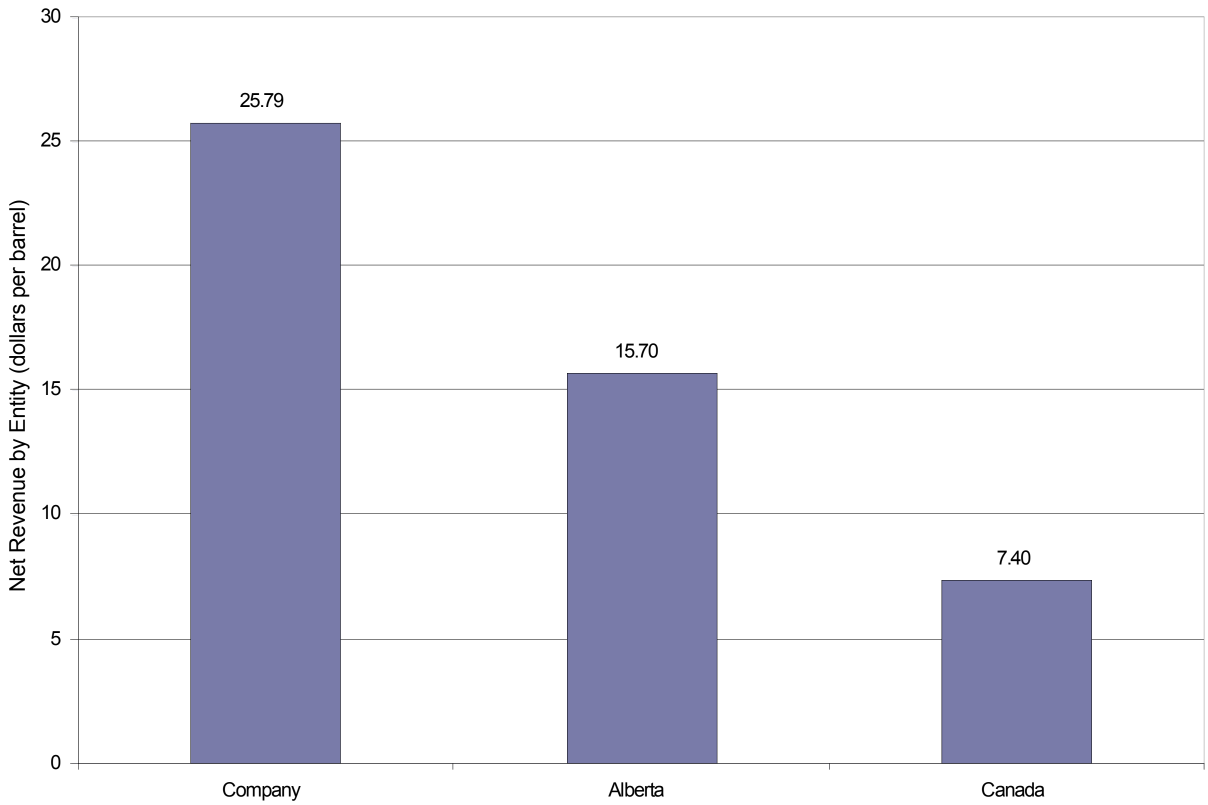


**Figure 3: Total net revenue per barrel of oil from an oil sands mining project under the current royalty regime**

Under the current royalty regime, the internal rate of return (IRR) earned by resource developers is also very high: 31% after taxes and royalties[20] for an in situ project and 18% for a mining project.

Clearly, the current royalty regime allows companies to keep the greatest share of revenues and to obtain exceedingly high rates of return, to the detriment of Alberta citizens.

## 2.2 Criteria for Reform: A Fair Share for Albertans

It is time for the provincial government to update the royalty regime and ensure Albertans are receiving a fair share of oil sands revenues. The low royalty rates preserved under the current royalty regime are an outdated remnant of the government's successful efforts to develop the fledgling oil sands industry in the late 1990s. Under favourable economic conditions, oil sands

[20] All IRRs reported in this document are after taxes and royalties.

production has surpassed expected rates of growth. Yet Albertans continue to subsidize the industry by foregoing billions in resource revenues each year as a result of low royalty rates.

It is the government's responsibility to update the royalty regime quickly, decisively and fairly in order to build investment certainty for resource developers and deliver a fair share of revenues to Albertans, on whose behalf they manage the oil sands resource. The only regime that will withstand the test of time is one that provides a fair commission to companies undertaking oil sands development while maximizing Albertans' share of the returns.

What is a fair commission for resource developers that will also allow Albertans to maximize their share of the returns? Under the current royalty regime, the provincial government pays oil sands companies an extremely generous commission — 53% of the net resource value. In comparison, the Norwegian government limits commissions for oil and gas companies to approximately 22% of net revenues,[21] making it a world leader in retaining resource value on behalf of its citizens.

Albertans expect their government to do a better job of managing the oil sands on their behalf. In a recent poll, 90% of respondents indicated that Alberta should be a leader in maximizing resource value for its citizens.[22]

The Pembina Institute's analysis suggests that a commission rate of around 30% would be appropriate. At this level, the IRR on oil sands investments continue to be unequivocally attractive for resource developers under a variety of different royalty structures (23% to 26% for in situ projects and 12% to 15% for mining projects),[23] while retaining maximum benefit for citizens.

At this level of commission, around 70% of the resource revenue would be retained by governments (federal and provincial) on behalf of Albertans and Canadians.

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[21] Ole Gunnar Austvik, "An Alternative Perspective: The Norwegian Example" (paper presented at the Power for the People: Determining Our Energy Future conference, Parkland Institute, November 17–19, 2006).

[22] Pembina Institute. *Albertan's Perception of Oil Sands Development: Poll, Part 2: A Fair Share for Albertans* (Calgary, Alberta: The Pembina Institute, 2007).

[23] 12% was selected as the floor for acceptable IRR ranges based on the an Alberta Department of Energy assessment of the oil sands royalty regime identifying an IRR of 12.2% as representing breakeven economics in the oil sands. (Source: Alberta Department of Energy. *Technical Royalty Report, OS#1: Alberta's Oil Sands Fiscal System — Historical Context and System Performance (*Edmonton, Alberta: Department of Energy, 2007).) A 25% to 30% commission was identified as the lowest target that maintains IRR above 12% for all three royalty structures evaluated in this paper. This rate also compares favourably with the Norwegian best-practice standard. Note, however, that because IRR is sensitive to the precise structure of royalty systems, an IRR exceeding 12% is easily obtained for in situ projects and may also be obtained for mining projects, even when commissions are lower than 25-30%.

# 3. Options for Reform

There are a number of options available for reforming the oil sands royalty regime to ensure that 70% of the available revenue is captured by government. The Pembina Institute examined a number of such options, including increasing the 25% net royalty rate, adding a third tier to the royalty regime and introducing an environmental levy. Each of these options for reform is discussed in more detail below. *Models for Oil Sands Royalty Reform* contains detailed results from the modelling of these options.

## 3.1 A 55% Net Royalty

As described above, the current royalty regime for oil sands involves a 1% royalty on gross revenue until the resource developer has recovered all of its costs, including a return on investment. The royalty rate then increases to 25% of a project's net revenue. The 1% royalty is an important part of this regime. It ensures that Albertans receive a minimum return on the development of their resource. At the same time, according to the National Task Force, the 1% royalty is unlikely to cause an otherwise economically viable project to become uneconomical.[24] It is also important to note that increasing the 1% royalty on gross revenue would increase the amount of time it takes for companies to reach the relatively higher 25% royalty on net revenue. Indeed, the 25% royalty on net revenue is the main policy tool for obtaining resource revenue from oil sands projects over the long run. The Pembina Institute therefore targets changes to the net revenue (resource rent royalties), rather than that on gross revenue, as the key means of obtaining higher value for Albertans.

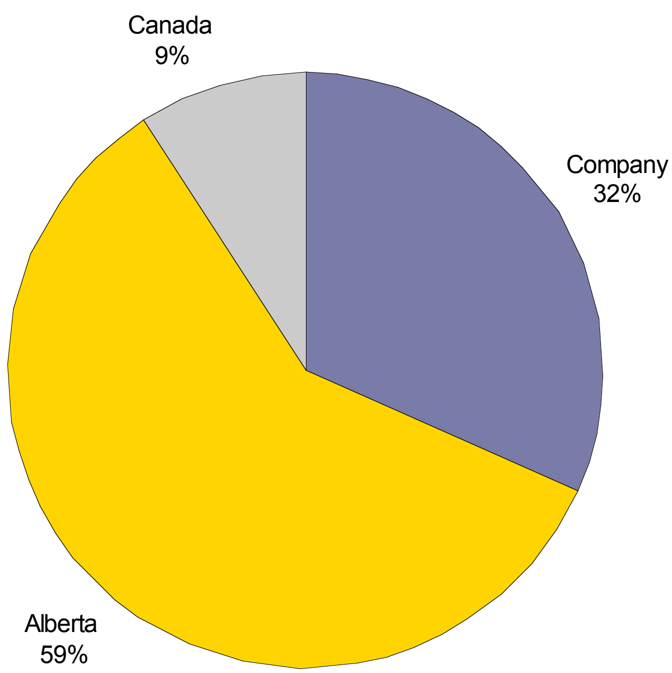


**Figure 4: Distribution of net revenue from an oil sands project with 55% royalty on net revenue**

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[24] Alberta Department of Energy. *Technical Royalty Report, OS#1: Alberta's Oil Sands Fiscal System — Historical Context and System Performance* (Edmonton, Alberta: Department of Energy, 2007).

To increase the value Albertans receive for the development of their oil sands resource, while still ensuring an appropriate commission for oil sands companies, we simulated an increase in the royalty on net revenue from 25% to 55%. This change increases the share of net revenue available to Albertans from oil sands developments from 32% to 59%. As illustrated in the Figure 4, this reform provides companies with a 32% commission for developing the resource.

Increasing the royalty rate to 55% of net revenues would equate to an additional $9 billion dollars in resource revenues for Albertans over the life of an average in situ project, while still delivering an IRR of 26% to the resource developer. Figure 5 demonstrates the shift in net revenue per barrel of in situ production from resource developer to Albertans that would occur as a result of this reform.[25]

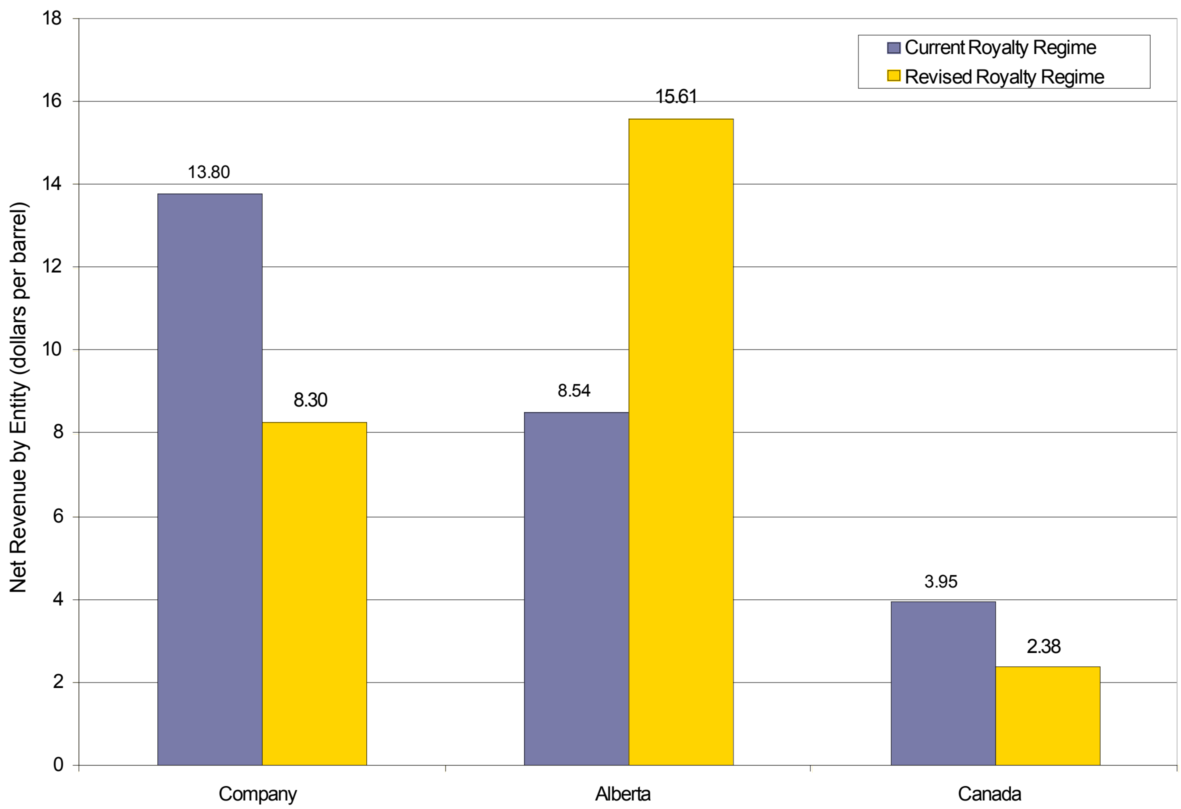


**Figure 5: Shift in net revenue per barrel from companies to Albertans for in situ projects**

[25] The decline in federal income tax revenue is because royalties are deductible for income tax purposes so higher royalty payments means higher deductions for income tax purposes.

For mining projects, increasing the royalty from 25% to 55% of net revenue would deliver an additional $25 billion dollars per project in resource revenues to Albertans over the life of each project, while still providing resource developers with an IRR of 15%. Figure 6 demonstrates the shift in the net revenue per barrel of mining production from resource developer to Albertans that would occur as a result of this reform.

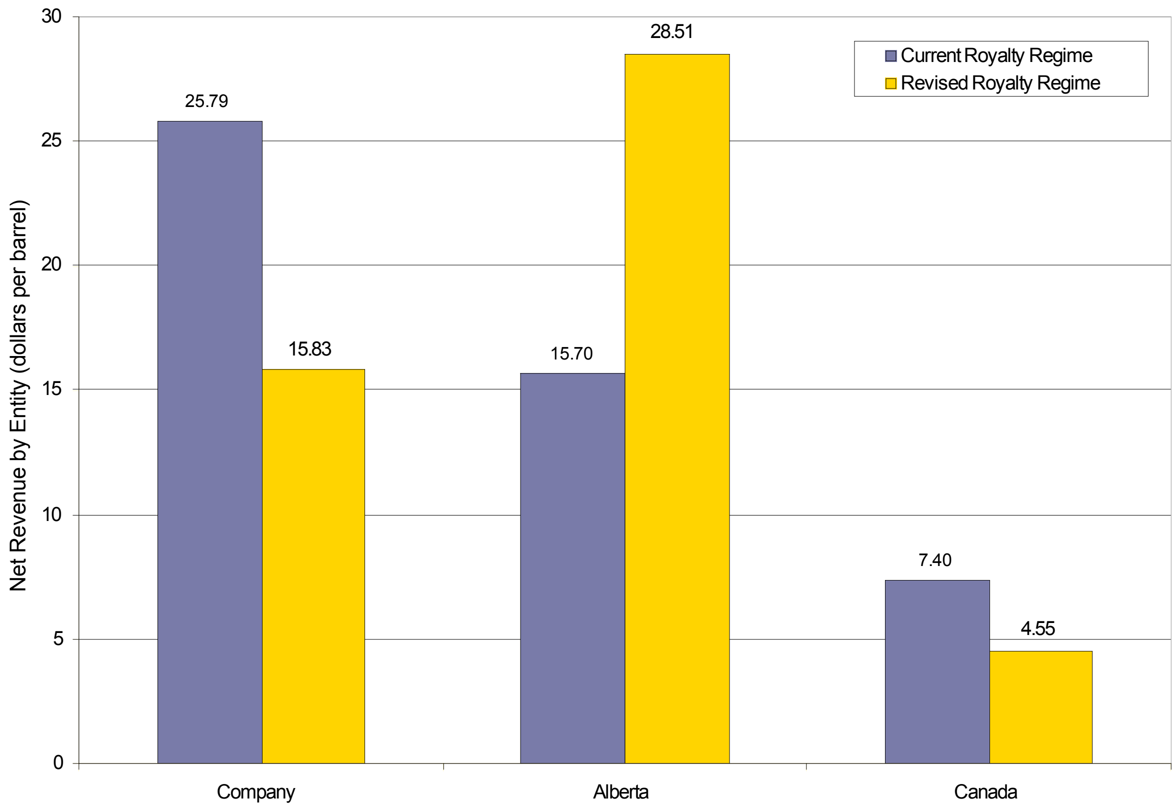


**Figure 6: Shift in net revenue per barrel from companies to Albertans for mining projects**

## 3.2 A Tiered Royalty

The current oil sands royalty regime has two tiers: the 1% royalty on gross revenue and the 25% royalty on net revenue. Another option for reforming this regime is to add a third tier royalty. The third tier royalty would be paid by companies once they had reached a specified rate of return on their investment (above the existing return allowance). A majority of Albertans (88 per cent) support linking oil sands royalty payments to the take-home profits of companies allowed to develop the resources. [26]

Companies pay the 25% royalty on net revenue once they have recovered all of their costs plus a return allowance equal to the long-term bond rate (approximately 6%). In a similar fashion, companies could pay an even higher royalty rate once they have recovered all of their costs, the existing return allowance (long-term bond rate), plus a higher return on investment.

[26] Pembina Institute. *Albertan's Perception of Oil Sands Development: Poll, Part 2: A Fair Share for Albertans* (Calgary, Alberta: The Pembina Institute, 2007).

The Pembina Institute modelled the impact of a tiered royalty that would result in approximately 70% of the value of the oil sands resource being captured by governments through taxes and royalties. The tiered royalty regime would include the following:

- a pre-payout royalty of 1% of gross revenue;
- a pre-payout return allowance equal to the long term bond rate;
- a tier one post-payout royalty of 30% of net revenue;
- a post-payout return allowance of 10%;
- a tier two post-payout royalty of 60% of net revenue.

Under this scenario, companies pay a 30% royalty on net revenue when they have recovered all costs plus a return allowance equal to the long-term bond rate. Companies pay a 60% royalty on net revenue when they have recovered all costs, a return allowance equal to the long-term bond rate and an additional return on investment of 10%.

Implementing the tiered royalty would increase Albertan's net revenue share from 32% to 63%, while delivering a commission of 29% to the resource developer (see Figure 7).

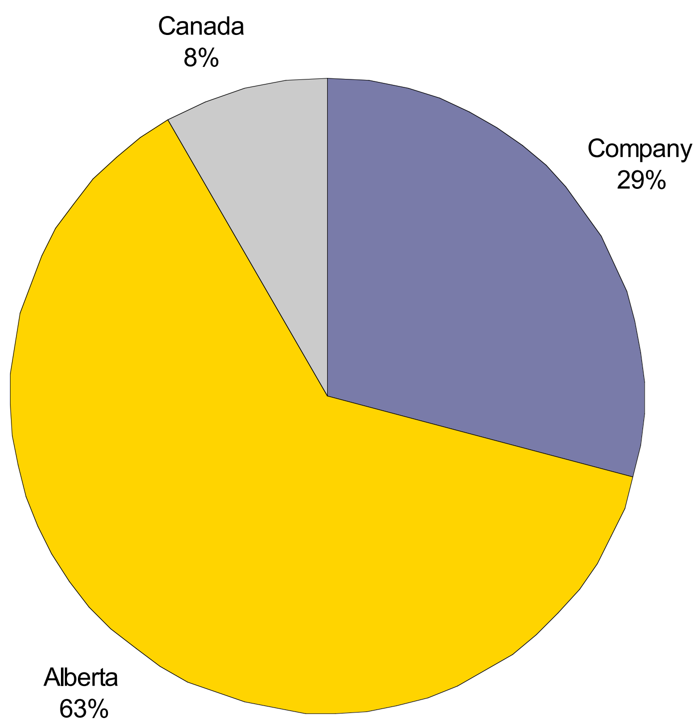


**Figure 7: Distribution of net value from an oil sands project with tiered royalty**

For in situ projects, the tiered royalty regime would deliver an additional $10.6 billion dollars in royalties to Albertans over the life of each project, while providing resource developers with an IRR of 25%. Figure 8 demonstrates the shift in net revenue per barrel of in situ production from resource developers to Albertans that would occur because of this reform.

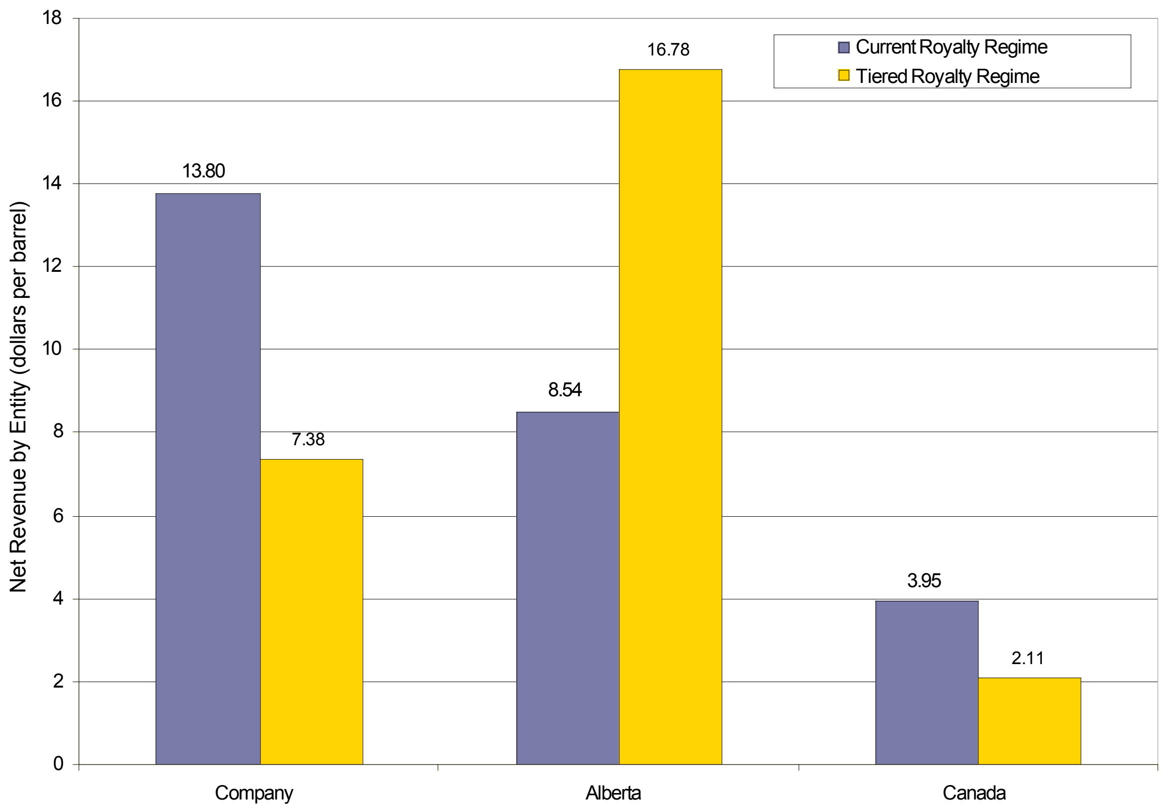


**Figure 8: Shift in net revenue per barrel from companies to Albertans for in situ projects**

For mining projects, the tiered royalty regime would deliver an additional $29 billion dollars in royalties to Albertans over the life of each project, while providing resource developers with an IRR of 14%. Figure 9 demonstrates the shift in revenue per barrel of mining production from resource developers to Albertans that would occur because of this reform.

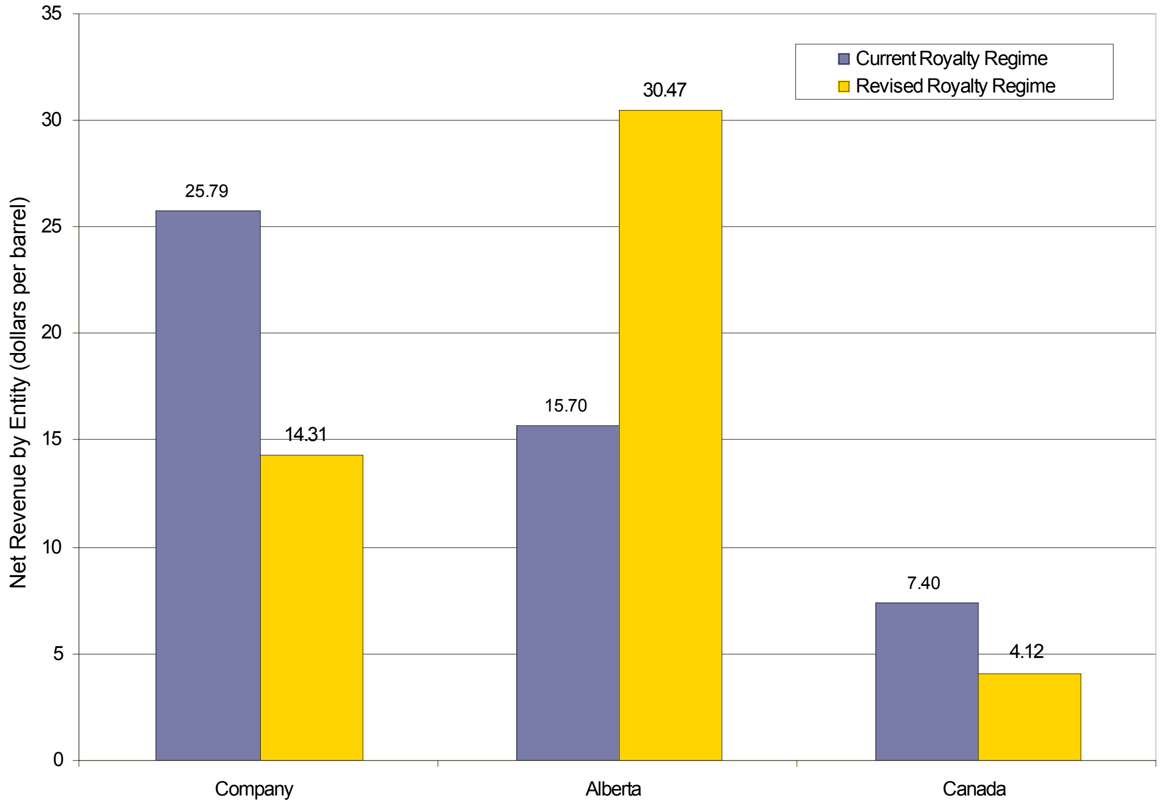


**Figure 9: Shift in net revenue per barrel from companies to Albertans for mining projects**

## 3.3 Polluter Pays

The third and final option for royalty reform that the Pembina Institute investigated combines increased royalties with an environmental levy based on the polluter pays principle. This principle requires those who cause environmental damage to pay the costs associated with those damages. In a recent poll, an overwhelming majority (94 per cent) of respondents indicated that the government should require companies to abide by this principle.[27]

The polluter pays reform option increases the royalty rate on net revenue from 25% to 40% and introduces an environmental levy of $40 per tonne of carbon dioxide emissions.[28] The levy on carbon dioxide emissions should not be seen as a substitute for higher royalties but as a means of internalizing environmental costs which companies are currently not required to pay. To ensure a

[27] Pembina Institute. *Albertan's Perception of Oil Sands Development: Poll, Part 2: A Fair Share for Albertans* (Calgary, Alberta: The Pembina Institute, 2007).

[28] The carbon dioxide levy is included in the models as a deductible expense for income tax purposes.

fair share for Albertans, such charges should be in addition to increased royalties, as is demonstrated here. The objective is to provide an incentive to companies to reduce emissions, thereby reducing environmental impacts and associated levy payments. Figure 10 illustrates the distribution of the net revenue that results from this reform option.[29]

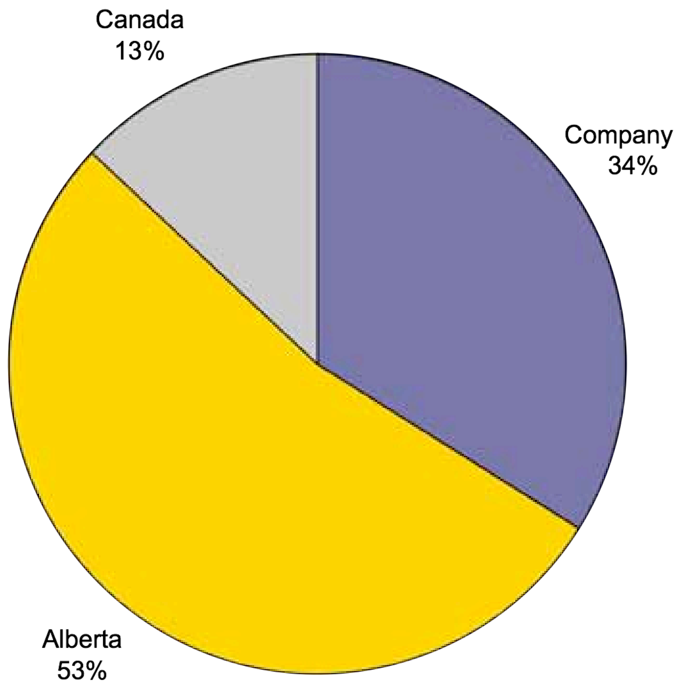


**Figure 10: Distribution of net value from an oil sands project with polluter pays reform**

[29] This option assumes an annual improvement in greenhouse gas emissions intensity of 2% (compared to an assumption of 1% in the default model). The assumption is consistent with both Alberta's *Specified Gas Emitters Regulation* and the federal *Regulatory Framework for Air Emissions* which stipulate annual intensity improvements of 2% for new facilities, beginning with their fourth year of operation. The federal regulation also requires existing facilities to meet annual intensity improvements of 2% from 2011 onwards, in addition to one-time intensity improvements required in 2010.

Implementing the polluter pays reform option for in situ projects would deliver an additional $7 billion dollars per project to Albertans over the life of each project (through royalties and the environmental levy), while providing resource developers with an IRR of 23%. Figure 11 demonstrates the shift in the net revenue per barrel of in situ production from resource developers to Albertans that would occur as a result of the polluter pays reform.

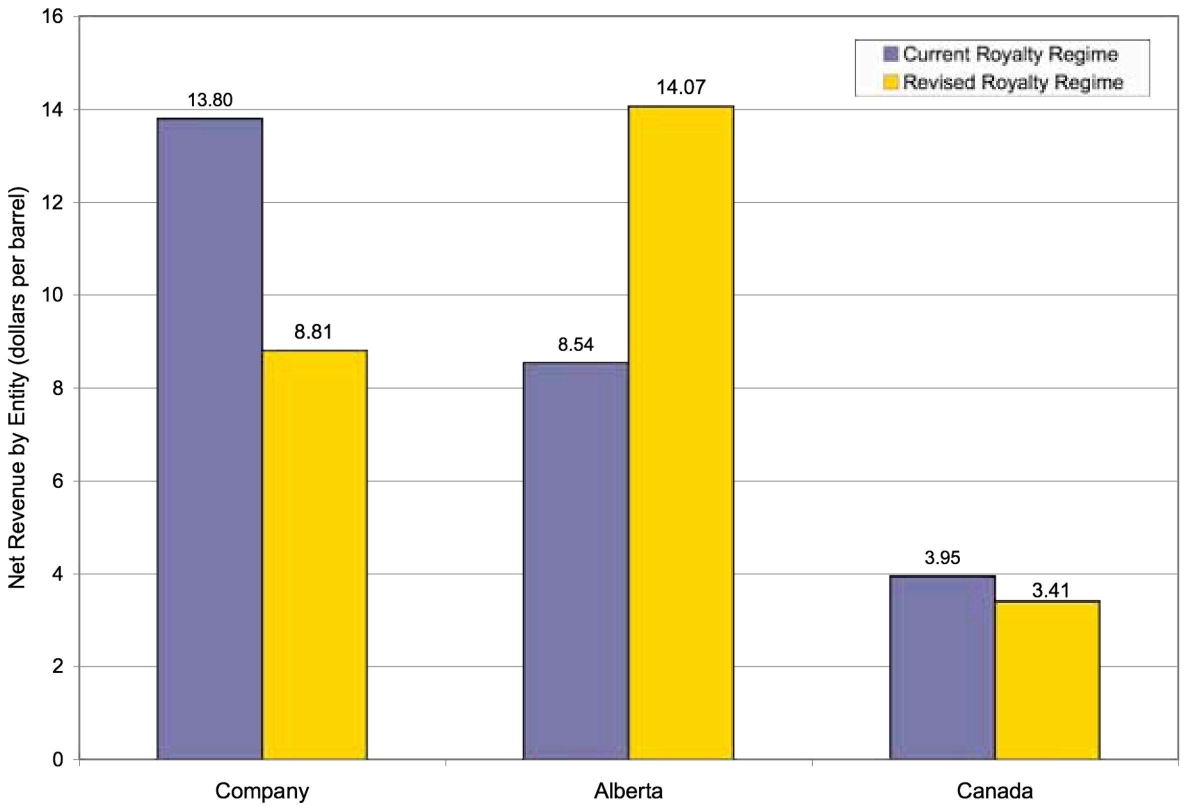


**Figure 11: Shift in net revenue per barrel from companies to Albertans for in situ projects**

For mining projects, introducing the polluter pays reform would deliver an additional $23 billion dollars per project to Albertans over the life of each mining project (through royalties and the environmental levy), while providing resource developers with an IRR of 12%. Figure 12 demonstrates the shift in the net revenue per barrel of production from resource developers to Albertans that would occur as a result of the polluter pays reform.

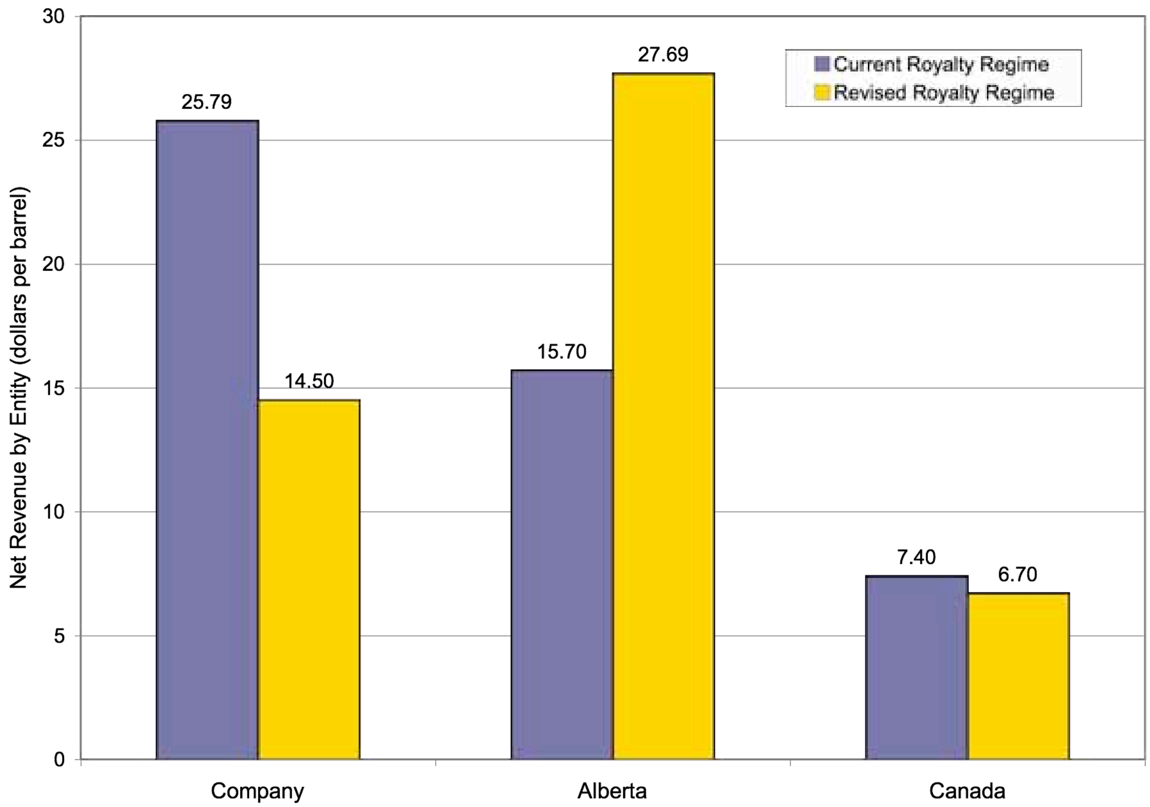


**Figure 12: Shift in net revenue per barrel from companies to Albertans for mining projects**

## 3.4 Revenue into a Long Term Fund

There are several options for reforming the oil sands royalty regime in Alberta, as described above. The various reforms investigated in this report demonstrate that Albertans can obtain significantly more revenue from oil sands projects while still offering resource developers an IRR greater than 12%. An important consideration for both the government and the public is what to do with the revenue earned from the development of publicly owned non-renewable resources.

Regions that rely on oil, gas and other non-renewable resources for a substantial share of their revenue face two key problems: the revenue stream is uncertain and volatile, and the resource supply is exhaustible.[30] In light of these factors, policy makers must decide how to adjust government fiscal policy (spending in particular) to cushion the domestic economy from the

[30] Davis, Jeffrey et al. *Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications* (Washington, DC: International Monetary Fund, 2001).

sharp and unpredictable variations in oil prices (which are beyond the control of domestic policy makers) and associated revenues. Policy makers must also consider how much oil income to spend on the present generation and how much to save for the benefit of future generations. Several jurisdictions have established non-renewable permanent funds (NPFs) to address these and other challenges.[31]

The Pembina Institute recommends that the government place 50% of all revenues from oil sands development into a dedicated long-term fund, such as the Alberta Heritage Savings Trust Fund. This fund, which would grow over time as the government deposits resource revenues into it, could be used to help protect the economy from boom and bust cycles, facilitate a transition to a sustainable energy future and be a store of wealth for future generations. A Canada West Foundation study found that it would be possible for the government to save 50% of revenues from all oil and gas developments and, if it did so, such a fund would accumulate "$55 billion by 2015 that could be used to aid the Alberta economy in moving beyond its dependence on conventional oil and gas resources."[32]

[31] Both Alaska and Norway place revenues from oil and gas developments into long term funds. Alaska's Permanent Fund, into which 25% of oil and gas revenues are placed annually, is worth over $40 billion (http://www.apfc.org/). Norway's Pension Fund, into which 100% of oil and gas revenues are placed annually, is worth over $300 billion (http://www.norgesbank.no/english/petroleum_fund/).

[32] Kneebone, Ronald. "The Feasibility of a 50% Savings Rule for Alberta" in *Seizing Today and Tomorrow: An Investment Strategy for Alberta's Future*, eds. Roger Gibbons and Robert Roach (Calgary, Alberta: Canada West Foundation, 2006).

# 4. Conclusion

Alberta faces a different economic reality today than in 1997 when the government introduced the existing oil sands royalty regime. Since that time, the price of oil (and bitumen) has increased substantially, massive capital investments in the oil sands have taken place and oil sands production has sky-rocketed. Despite these drastic changes, the royalty regime has remained stagnant and consequently has become dismally out of date.

The oil sands royalty regime needs to be updated to reflect today's economic reality and to deliver a better deal for Albertans. This means maximizing the value provided to Albertans for the development of their resource while leaving an appropriate commission with companies. A win-win royalty regime is possible.

**The Pembina Institute recommends that the oil sands royalty regime be reformed such that the government captures no less than 70% of the value of the resource through taxes and royalties.** Changes to royalty rates should be made to new projects, including those that are currently in the approval process, immediately and be phased-in overtime for existing projects.

**The Pembina Institute also recommends that at least 50% of resource revenues from the oil sands be placed into a long term fund to be used to cushion the Alberta economy from boom and bust cycles, as a store of wealth for future generations, and to facilitate a transition to a sustainable energy future for Alberta.**

**Table 2: Summary of Royalty Reform Options**

| | Existing Regime | 55% Net Royalty | Tiered Royalty | Polluter Pays |
|---|---|---|---|---|
| **Share of Net Value** | | | | |
| Company | 53% | 32% | 29% | 34% |
| Alberta | 32% | 58% | 62% | 53% |
| Canada | 15% | 9% | 8% | 13% |
| **Net Value per Barrel: In Situ Operations** | | | | |
| Company | 13.80 | 8.30 | 7.38 | 8.81 |
| Alberta | 8.54 | 15.61 | 16.78 | 14.07 |
| Canada | 3.95 | 2.38 | 2.11 | 3.41 |
| **Net Value per Barrel: Mining Operations** | | | | |
| Company | 25.79 | 15.83 | 14.31 | 14.50 |
| Alberta | 15.70 | 28.51 | 30.47 | 27.69 |
| Canada | 7.40 | 4.55 | 4.12 | 6.70 |
| **Internal Rate of Return** | | | | |
| In situ | 31% | 26% | 25% | 23% |
| Mining | 18% | 15% | 14% | 12% |

As has been described in this report, there are a number of ways in which the oil sands royalty regime could be reformed to increase the value received by Albertans while still maintaining an internal rate of return for oil sands companies that is higher than 12%. Greater revenue can be obtained by increasing the 25% net royalty, by adding a third tier to the royalty regime or by implementing environmental levies consistent with the polluter pays principle. Table 2 summarizes the options for royalty reform investigated in this report and compares them to the existing oil sands royalty regime.