

Revenue from Non-renewable Resources

A Review of Experience

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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

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1 Introduction

The Northwest Territories (NWT) is currently pursuing the exploitation of fossil fuel resources and other non-renewable resources, such as diamond mines, to create jobs and resource wealth and thus improve its economy. Resource extraction is seen as a way to reduce Northerners' dependence on the government, which is currently the major employer in the territory. According to the Premier of the NWT, J. Handley,

“Non-renewable resource development, including oil and gas production, development of a Mackenzie Valley gas pipeline, and the continued expansion of the NWT diamond mining sector, can mean the difference between our ongoing dependence on federal transfer payments, and our becoming Canada's first “have” territory.”¹

The Government of Canada is currently responsible for the management of oil and gas resources and the collection of associated royalties in the NWT. The Government of Canada and the Government of the NWT (GNWT) are negotiating the devolution of this power to the territory. Until 1994, relatively little exploration activity was taking place in the Northwest Territories.

There was a moratorium on drilling in the Mackenzie Valley area because of unsettled Aboriginal land claims. The Department of Indian Affairs and Northern Development did not issue any exploration rights between 1977 and 1994. As First Nations complete land claim negotiations, oil and gas production will likely increase. Rights are now being issued annually in all parts of the territory where no opposition exists from Aboriginal people.² As land claims are settled, First Nations gain subsurface rights and the authority to collect royalties from oil and gas developments, which they have been doing with significant success.³

The GNWT released a four-year non-renewable resource development strategy in 2000. This strategy highlights the need for a regulatory regime that would see a portion of non-renewable resource revenues reinvested in the north to reduce its dependence on federal transfer payments.⁴ In light of this objective, information on revenue collection options related to non-renewable resource developments is of particular interest to decision makers in the NWT. It is also useful to consider options for investing a portion of non-renewable resource revenues into non-renewable permanent funds—funds used to accumulate a portion of financial wealth derived from the development of non-renewable resources.

The purpose of this policy brief is to provide information on

1. the various policy tools used by governments to collect revenue from non-renewable resources.

¹ Government of Northwest Territories. 2000. *Towards a Better Tomorrow: A non-renewable resource development strategy for the NWT*, <http://www.gov.nt.ca/FMBS/documents/dox/NRRDS.htm>.

² See www.gov.nt.ca/RWED/mog/oil_gas/issues.htm.

³ For example, the Inuvialuit Regional Corporation used a cash bid system to distribute oil and gas rights and received \$75 million for four parcels of land.

⁴ Government of Northwest Territories. 2000. *Towards a Better Tomorrow: A non-renewable resource development strategy for the NWT*, <http://www.gov.nt.ca/FMBS/documents/dox/NRRDS.htm>.

2. the funds established by a number of governments into which a portion of revenue from non-renewable resource depletion is dedicated.

Chapter 2 of this policy brief presents information on the policies used by a number of regions to collect revenue from non-renewable resource developments. The focus of this chapter is oil and gas developments, but other non-renewable resources (for example, diamonds) are also considered. Chapter 3 describes in detail a number of non-renewable permanent funds established in regions around the world. The report concludes with a glossary of terms.

2 Revenue Collection

This section of the policy brief profiles the experience of a number of jurisdictions in collecting revenue from non-renewable resources. The objective is to show the range of approaches taken to revenue collection and the specific policies employed in this regard. We review experience in a number of jurisdictions both in Canada and elsewhere. We also highlight the kinds of incentives in place in various jurisdictions related to non-renewable resource exploration and development.

Governments employ a number of fiscal policy tools to collect revenue from non-renewable resources. These tools include initial payments for a lease (usually referred to as bonus bids), annual lease payments or rentals, royalties on production, and taxes (capital and income). Production sharing contract (PSC) agreements are also used.

Bonus bids are placed by companies wishing to undertake resource developments. The bids reflect the company's estimate of the value of the resource and what they are willing to pay to develop such resources in exchange for a return on their investment. Governments then award to the highest bidder the right to undertake resource developments. Lease payments and rentals are generally paid annually and are a small portion of overall revenue from non-renewable resource developments. Royalties are paid on the value of production and are often sensitive to changes in such factors as the price of the resource and the cost of extraction. Taxes are collected by different levels of government (federal and state or provincial) on capital investments, income, fuel and purchases. With production sharing contracts, the company undertaking the resource development is contracted to extract and develop the resource in return for a share of the production. Industrialized countries have tended to rely more on tax and royalty systems, and bonus payments are used by many countries to collect early revenue from a project with little administrative effort.⁵

Some policy approaches do a better job of collecting available revenue than others. The amount of revenue available is dependant on the value of the resources and the cost of producing them. The greater the difference between these two factors, the more revenue there is available for collection. In regions where the value of non-renewable resources is well known (i.e., in regions where extensive exploration and resource production has already taken place), a bonus bidding system has proven to be an effective method of resource conveyance.⁶ On the other hand, in regions (such as frontier regions) where information about the quantity and value of resources is minimal, cash bids may not reflect the true value of the resource. They are instead, a best guess at what resources may be available and what they may be worth. In such regions, an alternative approach that relies more on royalties and taxes may be more appropriate and lead to a greater

⁵ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/nft/2003/fispol/index.htm#ch1>.

⁶ Northern Oil and Gas Directorate, Indian and Northern Affairs Canada. 2005. Report prepared by Strategic Value Services.

level of revenue capture. In many cases, a bonus bidding system is combined with royalty payments. This is the case, for example, in Alberta, British Columbia and Alaska.

The bonus bidding with a fixed royalty system allows the bidding system to overcome some of the difficulties in accurately calibrating royalty formulas to ensure that maximum revenue from non-renewable resource developments is obtained. A resource developer will adjust the bid consistent with their estimate of the value of the resource given the royalty and tax obligations known to be in place. On the other hand, a bonus bid with a fixed royalty system fails to capture windfall profits. The challenge of capturing windfall profits requires some type of royalty or tax that is sensitive to changes in price or other factors that affect profit.

Resource sectors are often provided with tax concessions not available to other sectors. Such exceptions are often justified on the basis of increased risk, high costs or the need to attract investment. Tax concessions will often come in the form of exemptions, credits, reductions or accelerated capital cost allowances. For fiscal transparency purposes, the costs of any such incentives should be clearly measured and reported on. The special treatment of resource sectors, in some cases, comes in the form of negotiated agreements between industries and the government regarding the level profits that will transfer to governments after resource developments take place. This was the case, for example, in Alberta in the early years of oil sands developments and for some offshore oil and gas operations in eastern Canada. Indeed, there is a spectrum of fiscal policies related to revenue capture from non-renewable resources. At one end, resource companies are subject to the same tax regime as other industries with the addition of some form of profits tax and royalty payments. At the other end of the spectrum, various policy tools may be employed on a case-by-case basis through negotiated agreements. The more complex and discretionary the system, the more difficult it is to define the basic fiscal regime and achieve transparency.⁷

Another means by which governments obtain revenue from non-renewable resource developments is by direct participation in resource developments. In this case, a government owns equity in a development and reaps revenue as a result. One survey found that 18 of the 40 emerging or developing countries reviewed participated, or had the right to participate, directly in resource ventures. Maximum equity stakes in these countries ranged from 5 to 50%.⁸

In the sections that follow, we present a series of tables that describe the key means of revenue collection from non-renewable resources in a number of regions in Canada and elsewhere. We also present, in table format, important incentives imbedded in the fiscal regime intended to facilitate resources exploration or development.

⁷ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/nft/2003/fispol/index.htm#ch1>.

⁸ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/nft/2003/fispol/index.htm#ch1>.

2.1 Newfoundland/Labrador

The tables below present details on revenue collection and incentives related to offshore oil developments in the Newfoundland/Labrador region of Canada.

Trends/Observations:

- The fiscal regime in Newfoundland/Labrador related to offshore oil and gas is composed of a bonus bid and a royalty on production.
- Royalties for Hibernia and Terra Nova developments were established through negotiations.
- A generic royalty regime now applies to offshore oil developments.
- The government is in the process of developing a generic royalty regime for offshore natural gas developments.
- Rentals and work expenditure bids are refundable against qualifying expenditure and can be carried forward to reduce future royalty payments.
- The province also provides a royalty holiday for new offshore developments.
- The federal government has a number of incentive programs in place for offshore oil and gas developments including Hibernia interest relief, the Atlantic investment tax credit, Canadian exploration expense, and Canadian development expense.

Table 1 Key means of revenue collection from offshore oil and gas in Newfoundland/Labrador

COMPONENT	KEY ATTRIBUTES
Cash Bonus Bid	The bid is the dollar value the bidder is willing to pay in order to acquire the rights to undertake offshore oil and gas developments. ⁹
Issuance Fee	This fee is calculated at \$250 per grid or portion thereof. ¹⁰
Annual Rents	Annual rental fees vary by region and over time. Rental fees in what is designated as “Area A” begin at \$5.00 per hectare and increase by \$5.00 per hectare per year up to \$15.00 per hectare. For regions designated as “Area B,” rental fees begin at \$2.50 per hectare and increase by \$2.50 per hectare per year up to \$7.50 per hectare. ¹¹
Hibernia Royalties	Hibernia royalties are made up of a basic royalty and a net royalty. After production start-up, the basic royalty is equal to 1% of gross revenue. It increases by 1% every 18 months or when production reaches certain levels. The maximum basic royalty is 5%. During the repayment of loans guaranteed by the Government of Canada (see incentives in following table), the basic royalty rate is reduced when crude oil prices are below US \$30 per barrel. The net royalty consists of a two-tier profit sensitive royalty that becomes effective when net royalty payout occurs. The tier 1 net royalty is 30% of net revenue after a return allowance of 15% is achieved. Basic royalty is a credit against this royalty. Therefore, the interest holder pays the higher of the basic royalty or tier 1 net royalty. The tier 2 net royalty is 12.5% of net revenue after a return allowance of 18% plus the consumer price index (CPI) is achieved. The tier 2 net royalty is in addition to any other royalties payable. ¹²
Terra Nova Royalties	Terra Nova royalties are made up of a basic royalty and a net royalty. The basic royalty increases from 1% to 10% of gross revenue as certain production levels are achieved or when simple payout (see glossary) occurs. The 1% royalty applies until the earliest of 50 million barrels cumulative production or simple payout. A 2.5% royalty applies after 50 million barrels until simple payout. A 5% royalty applies after simple payout for the next 100 million barrels. A 7.5% royalty applies for the next 100 million barrels and a 10% royalty applies thereafter. The net royalty consists of a two-tier profit sensitive royalty that becomes effective when net royalty payout occurs. The tier 1 net royalty is 30% of net revenue after a return allowance of 10% plus the CPI is achieved. Basic royalty is a credit against this royalty. Therefore, the interest holders pay the higher of basic royalty or tier 1 net royalty. Tier 2 net royalty is 12.5 % of net revenue after a return allowance of 18% plus the CPI is achieved. The tier 2 net royalty is in addition to any other royalties payable. ¹³

⁹ Canada-Newfoundland and Labrador Offshore Petroleum Board, <http://www.cnlopb.nl.ca/>.

¹⁰ Canada-Newfoundland and Labrador Offshore Petroleum Board, <http://www.cnlopb.nl.ca/>.

¹¹ Canada-Newfoundland and Labrador Offshore Petroleum Board, <http://www.cnlopb.nl.ca/>.

¹² Government of Newfoundland and Labrador. *Hibernia Project Royalty Regime*, <http://www.nr.gov.nl.ca/mines&en/exploration/hibernia.pdf>.

¹³ Government of Newfoundland and Labrador, *Terra Nova Project Royalty Regime*. <http://www.nr.gov.nl.ca/mines&en/exploration/terranova.pdf>.

Table 1 continued

COMPONENT	KEY ATTRIBUTES
Generic Offshore Oil Royalty Regime	The generic offshore royalty regime is comprised of a basic royalty and a net royalty. The basic royalty is payable from the first barrel of oil produced and each and every barrel thereafter. The rate applicable is phased in as certain levels of production are achieved (1% at 50 million barrels, 2.5% at 100 million barrels, 5% at the next 100 million barrels and 7.5% thereafter). The net royalty is payable upon the occurrence of the net royalty payout. When costs are recovered and the tier 1 return allowance is achieved, the tier 1 net royalty rate becomes payable and, as a result, royalties payable for any particular period would be the greater of the basic royalty or the tier 1 net royalty (royalty is 20% with a return allowance of 5% plus Long Term Government of Canada Bond Rate (LTGBR)). The basic royalty is applied as a credit against any tier 1 net royalty payable. When the tier 2 return allowance is achieved, the tier 2 net royalty rate becomes applicable. The tier 2 royalty is in addition to any other royalties payable (rate is 10% and return allowance of 15% plus LTGBR). The tier 2 net royalty is in addition to any other royalties payable. ¹⁴
Provincial Corporate Income Tax	Most of the large companies involved in offshore oil projects are headquartered outside of Newfoundland and Labrador (mainly in Alberta and Ontario) and are thus beyond its tax jurisdictions. Instead it is the federal government and the provinces in which the companies are headquartered that receive this revenue. ¹⁵
Federal Corporate Income Tax	The 2006 corporate income tax rate for the resource sector is 22%. ¹⁶
Federal Surtax	A federal surtax of 1.12% applies to all corporations. This surtax will be eliminated in 2008.

¹⁴ Government of Newfoundland and Labrador, Department of Natural Resources. 2006. *Oil and Gas Report*. http://www.nr.gov.nl.ca/mines&en/oil/oil_gas_report_jan06.pdf.

¹⁵ Mapleleafweb. *Canada-Newfoundland Conflict over Offshore Oil and Gas: The discovery of oil brings new federal-provincial tensions*. <http://www.mapleleafweb.com/features/constitution/federalism/newfoundland-labrador/conflict-offshore-oil.html>.

¹⁶ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

Table 2 Key incentives (deductions and credits) related to offshore oil and gas in Newfoundland/Labrador

COMPONENT	KEY ATTRIBUTES
Rental Refunds	Rentals are refunded annually to a maximum of 100% of the rental paid in that year. Carry forward to reduce rentals otherwise payable in ensuing rental years applies. ¹⁷
Refundable Work Expenditure Bid	The amount of money the bidder commits to spend on exploration within the first period of the exploration licence term is recoverable against payments otherwise due. ¹⁸
Hibernia Interest Assistance Loan Agreement	This agreement is an original provision of the November 1990 Hibernia Development Plan Agreements between companies and the Government of Canada. If crude oil prices are below US \$25 per barrel, interest assistance loans are available to cover up to 50% of interest payments for qualifying loans.
Generic Offshore Royalty Regime Royalty Holiday	There is no royalty payable on the first two million barrels or equivalent of production for the project. After two million barrels of production, a basic royalty of five percent is payable.
Canada/Newfoundland Offshore Development Fund	This fund supports infrastructure costs directly or indirectly related to the exploration, development, production or transportation of oil and gas in the offshore area of Newfoundland. ¹⁹
Atlantic Investment Tax Credit (AITC)	The AITC is an investment tax credit that promotes economic development in the Atlantic provinces and the Gaspé region. Eligible investments include qualifying buildings, machinery and equipment used or leased by the taxpayer. A business is allowed to deduct 10% of eligible costs from its federal income tax liability. The incentive is available to all sectors, though firms engaged in resource activities such as mining and offshore oil and gas have been the largest recipients of this tax credit. ²⁰
Canadian Exploration Expense (CEE)	CEE is deductible at a rate of 100%. For the oil and gas sector, CEE includes certain intangible costs incurred to determine the “existence, location, extent or quality” of a crude oil or natural gas reservoir not previously known to exist. ²¹
Canadian Development Expense (CDE)	CDE is deductible at a rate of 30% on a declining balance basis. For the oil and gas sector, CDE includes the costs of drilling, converting or completing a well, building a temporary access road or preparing a site to the extent such costs are not CEEs. ²²

¹⁷ Canada-Newfoundland and Labrador Offshore Petroleum Board, <http://www.cnlopb.nl.ca/>.

¹⁸ Canada-Newfoundland and Labrador Offshore Petroleum Board, <http://www.cnlopb.nl.ca/>.

¹⁹ Public Accounts of Canada, personal communication, October 8, 2004.

²⁰ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

²¹ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

²² Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

Table 2 continued

COMPONENT	KEY ATTRIBUTES
Scientific Research and Experimental Development (SR&ED) Tax Credit	This investment tax credit is designed to support investments by Canadian industry in scientific research and experimental development. Companies can reduce the taxes they have to pay by claiming a credit equal to 20% of the cost of eligible research and development. Smaller Canadian-controlled companies can claim 35%. ²³
Canadian Oil and Gas Property Expense (COGPE)	COGPE is deductible at a rate of 10% and includes the costs of acquiring an oil and gas well in Canada, an interest or right to explore, drill, or extract petroleum or natural gas, or a qualifying interest or right in oil and gas production. ²⁴
Federal Capital Cost Allowance	This allowance is a deduction against income for depreciating property; Class 41 covers oil and gas equipment and allows a 25% write-down of equipment on a declining balance basis.

2.2 Nova Scotia

The tables below present details on revenue collection and incentives related to offshore oil developments in Nova Scotia.

Trends/Observations:

- The main avenue for revenue collection from offshore oil and gas developments in Nova Scotia is through a system of royalties.
- Royalties for offshore oil and gas developments in Nova Scotia are based on revenues and profits.
- Royalty is initially an increasing percentage of gross revenues and then switches to increasing percentages of net revenues. Royalty rates increase with profitability. Once net revenue royalty levels are reached, royalty can not be less than a specified level of gross revenues.²⁵
- Negotiated royalty regimes apply to the Sable Offshore Energy Project and the Cohasset-Panuke Project.
- A generic royalty regime applies to other offshore oil and gas developments.
- Lower royalties are provided for developments in new areas, which are considered higher risk.

²³ Government of Canada, Commissioner of the Environment and Sustainable Development. 2000. *Report of the Commissioner of the Environment and Sustainable Development*. http://www.oag-bvg.gc.ca/domino/reports.nsf/html/c0menu_e.html.

²⁴ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/actvty/pubs/rsc_1e.html.

²⁵ Government of Nova Scotia, Department of Energy. 2005. *Offshore Petroleum Royalties Act*. <http://www.gov.ns.ca/energy/AbsPage.aspx?ID=1243&siteid=1&land=1>.

- Licences are awarded based on work expenditure bids, which describe the amount of money a company is willing to spend on exploration.
- Nova Scotia provides additional deductions for small oil or high risk developments.
- The federal government has a number of incentive programs in place for offshore oil and gas developments including the Atlantic investment tax credit, Canadian exploration expense, and Canadian development expense.

Table 3 Key means of revenue collection from offshore oil and gas in Nova Scotia

COMPONENT	KEY ATTRIBUTES
Sable Offshore Energy Project Royalty Regime	Tier 1 royalty is equal to 1% of gross revenue and is in place for a 36-month period. Tier 2 royalty is equal to 2% of gross revenue and is in place until simple payout. Tier 3 royalty is equal to 5% of gross revenue until simple payout based on 12.5% LTBR. Once tier 3 payout has occurred, tier 4 net revenue royalty begins at a rate of 30% net revenue until simple payout based on 45% LTBR. Tier 5 net revenue royalty is equal to 35% of net revenue. ²⁶
Generic Royalty Regime	Tier 1 gross revenue royalty is equal to 2% of gross revenue until simple payout based on 5% LTBR. Tier 2 gross revenue royalty is equal to 5% gross revenue until simple payout based on 20% LTBR. Tier 3 net revenue royalty is 20% net revenue until simple payout based on 45% LTBR. Tier 4 net revenue royalty is 35% net revenue. ²⁷
Small Oil Royalty Regime	Tier 1 gross revenue royalty is 2% of gross revenue until the later of two years or simple payout based on 5% LTBR. Tier 2 gross revenue royalty is 5% gross revenue until the later of three years or simple payout based on 20% LTBR. Tier 3 net revenue royalty is the same as the tier 3 base regime. Tier 4 net revenue royalty is the same as the tier 4 base regime. ²⁸
High Risk Royalty Regime	Tier 1 gross revenue royalty is the same as tier 1 of the base regime. Tier 2 gross revenue royalty is the same as the tier 2 base regime. Tier 3 net revenue royalty is 20% of net revenue. ²⁹
Provincial Income Tax	The provincial corporate income tax rate is 16%.
Federal Surtax	A federal surtax of 1.12% applies to all corporations. This surtax will be eliminated in 2008.
Federal Income Tax	The 2006 corporate income tax rate for the resource sector is 22%. ³⁰

²⁶ Government of Nova Scotia, Department of Energy. 2005. *Offshore Petroleum Royalties Act*. <http://www.gov.ns.ca/energy/AbsPage.aspx?ID=1243&siteid=1&land=1>.

²⁷ Government of Nova Scotia, Department of Energy. 2005. *Offshore Petroleum Royalties Act*. <http://www.gov.ns.ca/energy/AbsPage.aspx?ID=1243&siteid=1&land=1>.

²⁸ Government of Nova Scotia, Department of Energy. 2005. *Offshore Petroleum Royalties Act*. <http://www.gov.ns.ca/energy/AbsPage.aspx?ID=1243&siteid=1&land=1>.

²⁹ Government of Nova Scotia, Department of Energy. 2005. *Offshore Petroleum Royalties Act*. <http://www.gov.ns.ca/energy/AbsPage.aspx?ID=1243&siteid=1&land=1>.

³⁰ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/actvty/pubs/rsc_1e.html.

Table 4 Key incentives (deductions and credits) related to offshore oil and gas in Nova Scotia

COMPONENT	KEY ATTRIBUTES
Additional deductions for Small Oil or High Risk	For projects that fall under the small oil or high risk regimes, in addition to successful exploration costs, unsuccessful exploration costs associated with the project may be allowable deductions for royalty purposes. ³¹
Canada/Nova Scotia Development Fund	This fund supports infrastructure costs directly or indirectly related to the exploration, development, production or transportation of oil and gas in the offshore area of Nova Scotia. ³²
Atlantic Investment Tax Credit (AITC)	The AITC is an investment tax credit that promotes economic development in the Atlantic provinces and the Gaspé region. Eligible investments include qualifying buildings, machinery and equipment used or leased by the taxpayer. A business is allowed to deduct 10% of eligible costs from its federal income tax liability. The incentive is available to all sectors, though firms engaged in resource activities such as mining and offshore oil and gas have been the largest recipients of this tax credit. ³³
Canadian Exploration Expense (CEE)	CEE is deductible at a rate of 100%. For the oil and gas sector, CEE includes certain intangible costs incurred to determine the “existence, location, extent or quality” of a crude oil or natural gas reservoir not previously known to exist. ³⁴
Canadian Development Expense (CDE)	CDE is deductible at a rate of 30% on a declining balance basis. For the oil and gas sector, CDE includes the costs of drilling, converting or completing a well, building a temporary access road or preparing a site to the extent such costs are not CEEs. ³⁵
Scientific Research and Experimental Development Tax Credit (SR&ED)	This investment tax credit is designed to support investments by Canadian industry in scientific research and experimental development. Companies can reduce the taxes they have to pay by claiming a credit equal to 20% of the cost of eligible research and development. Smaller Canadian-controlled companies can claim 35%. ³⁶

³¹ Government of Nova Scotia, Department of Energy. 2005. *Offshore Petroleum Royalties Act*. <http://www.gov.ns.ca/energy/AbsPage.aspx?ID=1243&siteid=1&land=1>.

³² Public Accounts of Canada, personal communication, October 8, 2004.

³³ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

³⁴ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

³⁵ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

³⁶ Government of Canada, Commissioner of the Environment and Sustainable Development. 2000. *Report of the Commissioner of the Environment and Sustainable Development*. http://www.oag-bvg.gc.ca/domino/reports.nsf/html/c0menu_e.html.

Table 4 continued

COMPONENT	KEY ATTRIBUTES
Canadian Oil and Gas Property Expense (COGPE)	COGPE is deductible at a rate of 10% and includes the costs of acquiring an oil and gas well in Canada, an interest or right to explore, drill, or extract petroleum or natural gas, or a qualifying interest or right in oil and gas production. ³⁷
Federal Capital Cost Allowance	This is a deduction against income for depreciating property; Class 41 covers oil and gas equipment and allows a 25% write-down of equipment on a declining balance basis.

2.3 Alberta Oil Sands

The tables below present details on revenue collection and incentives related to oil sands developments in Alberta.

Trends/Observations:

- The royalty regimes for early oil sands developments in Alberta were determined through negotiated agreements between industry and the provincial government.
- The generic royalty regime, which is sensitive to profit levels, applies to new oil sands initiatives.
- The provincial government has a number of incentive initiatives in place related to oil sands developments.
- The most significant federal incentive is the accelerated capital cost allowance, which allows companies to write off 100% of investments in the year they are incurred.

³⁷ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

Table 5 Key means of revenue collection from oil sands in Alberta

COMPONENT	KEY ATTRIBUTES
Negotiated Agreements	Prior to the generic royalty regime for oil sands, each company operating in the oil sands negotiated an individual agreement with the government that determined the level of royalties paid to the province. The negotiated agreements were replaced by the generic royalty regime in 1997. At present, there are some 68 active oil sands projects. Of these, 63 are paying royalties under the <i>Oil Sands Royalty Regulation, 1997</i> (“the OSRR97”) and five are paying royalties under negotiated Crown Agreements.
<i>Oil Sands Royalty Regulation, 1997</i> (Generic royalty regime)	All oil sands projects are eligible for the <i>Oil Sands Royalty Regulation, 1997</i> . Prior to a project’s payout date, the applicable royalty is 1% of gross revenue. After a project payout, the applicable royalty is equivalent to the greater of 25% of net revenue or 1% of gross revenue. All costs (operating and capital) are 100% deductible in the calculation of the royalty in the year in which they are incurred. Oil sands royalties are paid based on the price of bitumen (not the relatively higher valued synthetic crude oil).
Bonus Bids	Bonus bids are paid by corporations to the government during a bidding process to obtain permits and leases to undertake oil sands developments. The value of the bid reflects the firms expectations of the value of the property (mineral rights).
Corporate Income Tax	As of April 1, 2006, Alberta’s general corporate income tax rate was 10%.
Federal Surtax	A federal surtax of 1.12% applies to all corporations. This tax will be eliminated in 2008.
Federal Income Tax	The 2006 corporate income tax rate for the resource sector is 22%. ³⁸

³⁸ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

Table 6 Key incentives (deductions and credits) related to oil sands in Alberta

COMPONENT	KEY ATTRIBUTES
Oil Sands Research and Development (R and D)	Certain research and development costs are deductible in the calculation of the royalty.
Gas Consumed in Oil Sands Schemes and Experimental Oil Projects	The Crown royalty share of gas consumed as fuel in commercial oil sands schemes or experimental oil projects may be waived.
Fuel Tax Exemption	Tax exemptions and rebates on fuel used for off-road commercial purposes.
Canadian Exploration Expense (CEE)	CEE is deductible at a rate of 100%. For the oil and gas sector, CEE includes certain intangible costs incurred to determine the “existence, location, extent or quality” of a crude oil or natural gas reservoir not previously known to exist. ³⁹
Canadian Development Expense (CDE)	CDE is deductible at a rate of 30% on a declining balance basis. For the oil and gas sector, CDE includes the costs of drilling, converting or completing a well, building a temporary access road or preparing a site to the extent such costs are not CEE. ⁴⁰
Scientific Research and Experimental Development (SR&ED) Tax Credit	This investment tax credit is designed to support investments by Canadian industry in scientific research and experimental development. Companies can reduce the taxes they have to pay by claiming a credit equal to 20% of the cost of eligible research and development. Smaller Canadian-controlled companies can claim 35%. ⁴¹
Federal Accelerated Capital Cost Allowance	A deduction against income for depreciating property; oil sands projects qualify for a 100% deduction of all capital costs in the year the costs are incurred.

2.4 Alaska

The tables below present details on revenue collection and incentives related to oil and gas developments in Alaska.

Trends/Observations:

- The state of Alaska uses both a royalty and bidding system to collect revenue from oil and gas developments.
- Another key means of revenue generation is a tax on production.
- The key incentive in Alaska relates to exploration.

³⁹ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

⁴⁰ Department of Finance. 2003. *Improving the Income Taxation of the Resource Sector in Canada*. http://www.fin.gc.ca/activty/pubs/rsc_1e.html.

⁴¹ Government of Canada, Commissioner of the Environment and Sustainable Development. 2000. *Report of the Commissioner of the Environment and Sustainable Development*. http://www.oag-bvg.gc.ca/domino/reports.nsf/html/c0menu_e.html.

Table 7 Key means of revenue collection from oil and gas in Alaska

COMPONENT	KEY ATTRIBUTES
Oil and Gas Royalties	The State of Alaska can take its share of oil production in kind or in value. When the government takes its royalty share in kind (RIK), it assumes possession of the gas and oil. The Commissioner of Natural Resources may sell the RIK gas or oil in a competitive auction or through a non-competitive sale negotiated with a single buyer. When the government takes its royalty in value (RIV) the lease holders remit cash payments. The royalty rate varies, according to the lease agreement, from 12.5% to 60%, but is most often 12.5%.
Bonus Bids	Alaska uses a bonus bid system to lease certain state-owned lands for oil and gas exploration and development. Each sale involves a specific group of leases. Sealed bids are accepted for each lease offered in the sale, and the highest bid acquires exploration and development rights, subject to the terms of the lease. It is worth noting that in the early 1980s Alaska had a few lease sales that involved a net profit share (NPS) percentage versus a bonus bid. For NPS leases, the lessee would share with the state a percentage of the profit after all expenses were recovered. The person who bid the highest NPS rate won the lease bid. The NPS rate ranged from 30% to 79.6%.
Oil and Gas Settlements	Oil and gas companies paid settlements to compensate for previous issues related to the value of resources used in calculating royalty payments.
Property Tax	The Property Tax Group is responsible for assigning a value to all petroleum exploration, production and pipeline transportation property in Alaska. The oil and gas property tax rate is 2% of the assessed value.
Corporate Income Tax	Alaska levies a corporate net income tax based on federal taxable income with certain Alaska adjustments. Tax rates are graduated from 1% to 9.4% in increments of \$10,000 of taxable income. The 9.4% maximum rate applies to taxable income of \$90,000 or more.
Production Taxes	All oil and gas production in Alaska, except the federal and state royalty share, is subject to the state's production taxes. These taxes comprise the oil and gas production tax and a hazardous release surcharge levied only on oil. For the oil production tax, the tax rate depends on the age and level of production of the well. The statutory tax rate for oil is 12.25% of its value at the point of production for the first five years of field production, and 15% thereafter. There is a minimum tax of US \$0.80 per taxable barrel.
Rents	Rents are paid on leases, which permit exploration and development. Rent amounts are prescribed in the lease agreement and are paid on a per acre basis. Most of the leases have a provision that, once the lease goes into production, lease payments can be used as a credit against royalty obligations.
Exploration Licences	A licence is awarded to the applicant who has committed the most money to an exploratory program. The recipient of a licence must post a bond in the amount of the work commitment and pay a US \$1/acre licence fee.
Federal Payments	Oil and gas corporations operating in Alaska are subject to federal corporate income tax. They also pay royalties on federal lands and on the outer continental shelf (OCS) offshore Alaska. The state of Alaska receives a portion of the federal royalty payments ranging from 27% for OCS to 90% for onshore production.

Table 8 Key incentives (deductions and credits) related to oil and gas in Alaska

COMPONENT	KEY ATTRIBUTES
Exploration Incentive Credit (EIC) Program I	Credits, of up to 50% of costs, are available for drilling exploratory wells and geophysical work on state-owned land.
Exploration Incentive Credit (EIC) Program II	EICs, of up to 25% of costs, are available for exploratory drilling, drilling a stratigraphic test well and geophysical work on land in the state that is not state owned.
Royalty Reductions	If a field or pool has not previously produced, the royalty can be lowered to 5%. For producing fields or pools, the royalty may be reduced to a minimum of 3%.
Discovery Royalty	This measure permits reduced royalties for wells in the Cook Inlet and North Slope sedimentary basin that have discovered oil or gas in a previously undiscovered oil or gas pool, however current lease language does not permit this benefit.
Shallow Gas Leasing	Non-competitive leases are available to explore for and develop natural gas ⁴² reservoirs if the field is within 3,000 feet of the surface. Under this program, there is no bonus payment and annual rental payments remain at the minimum level.
Cook Inlet Royalty Reduction	This program grants a 5% temporary royalty on the first 25 million barrels of oil and the first 35 billion cubic feet of gas produced in the first ten years of production from six specified fields in the Cook Inlet sedimentary basin.
Cook Inlet Platform Royalty Reduction	For most platforms in Cook Inlet, a per barrel per day threshold was established. If production were to fall below this threshold for a calendar quarter the royalty rate would be dropped from 12.5% to 5%. If production were to increase above this threshold for a calendar quarter the royalty rate would incrementally increase to the original 12.5%.

2.5 Norway

The tables below present details on revenue collection and incentives related to oil and gas developments in Norway.

Trends/Observations:

- Norway does not have a bonus bid system or royalties related to oil and gas developments.
- The key sources of revenue for Norway are a profits tax (special tax) and state interest in oil and gas developments.
- Norway also has income taxes and a CO₂ tax.
- Norway provides incentives for exploration and allows for accelerated write-offs of capital investments.

⁴² Also applies to coalbed methane.

- Policies related to revenue disclosure, regulations and fiscal policy are considered best practices in Norway.⁴³

Table 9 Key means of revenue collection from oil and gas in Norway

COMPONENT	KEY ATTRIBUTES
State Directed Financial Interest (SDFI)	The SDFI was established in 1985, and is incorporated into most licences awarded after that year. Under the SDFI arrangement, the state pays a share of all investment and operating costs in a project, corresponding to its direct interest. It also receives a corresponding proportion of production and other revenues on the same terms as other licences. In the spring of 2001, Petoro AS ⁴⁴ was established as a state-owned trust company to manage the SDFI on behalf of the state. ⁴⁵
Statoil Dividends	In the hydrocarbon sector, the government has the largest presence on the Norwegian continental shelf through ownership of Statoil, majority shares in Norsk Hydro and its explicit participation through the SDFI. As of the end of March 2006, the state owned 70.9% of Statoil and 43.8% of Hydro. ⁴⁶
CO ₂ Tax	A carbon dioxide tax is levied at a rate of NOK 0.79 (CAD \$0.14) in 2006 per litre of oil (including NGL/condensate) or scm of gas burned. ⁴⁷
Acreage Fee	Licensees pay area fees after an initial period of holding the licence (the initial period may vary, but six years is not uncommon). The rate per kilometre increases each year for a number of years until it reaches a top level that continues for the rest of the licence period. The intention of the fee is to encourage sale or relinquishment of acreage not actively explored/developed by licensees. The area fee will be amended in January 2007 to strengthen this incentive. ⁴⁸
Income Taxes	The corporate income tax rate in Norway is 28%. Taxes are levied on a consolidated basis, so losses from one field may offset taxable income in another field (i.e. there is no ring fence (see glossary) between licences). The 28% corporate tax is levied on net income from petroleum activities. Net income is calculated by deducting all costs relating to the petroleum activities from all income relating to these activities; capital expenditures are depreciated on a straight line basis over six years.

⁴³ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/nft/2003/fispol/index.htm#ch1>.

⁴⁴ Note that Petroro AS is not an oil and gas company as the company's internal budget is granted from the State budget, not the petroleum cash flow of the portfolio.

⁴⁵ Note that the SDFI system enables the State to tailor its share of net income from a license. Thus, a very promising license may have a high SDFI share, while a lance with little prospectivity may have no SDFI share.

⁴⁶ Hakon Knoff, personal communication, April 24, 2006.

⁴⁷ Hakon Knoff, personal communication, April 24, 2006.

⁴⁸ Hakon Knoff, personal communication, April 24, 2006.

Table 9 continued

COMPONENT	KEY ATTRIBUTES
Special Taxes	A special tax of 50% is also levied on the petroleum industry. The special tax is levied on net income from petroleum activities. Net income is calculated by deducting all costs relating to the petroleum activities from all income relating to these activities. Capital expenditures are depreciated on a straight line basis (see glossary) over six years. To shield a normal return on capital from the special tax, an additional uplift (see glossary) allowance of 7.5% of investment each year for four years may be deducted from the corporate tax basis, before multiplying this by the 50% special tax rate.

Table 10 Key incentives (deductions and credits) related to oil and gas in Norway

COMPONENT	KEY ATTRIBUTES
Accelerated Investment Depreciation	Investment is subject to depreciation on a straight line basis over six years from the date the investment took place. Expenditure is depreciated at a rate that is faster than the normal life span for an investment. This gives the companies a net present value gain on their tax allowances compared to “life span” depreciation. ⁴⁹
Expenditure Deduction	Expenditure related to oil and gas operations can be deducted based on the value of the assets. Investments qualify for uplifts which shield a normal rate of return against the special tax. Thus, the average tax on petroleum activities on the Norwegian Continental Shelf (NCS) is lower than the 78% marginal tax rate.
Exploration Costs	Exploration costs are fully deductible in the year they are incurred.
Losses	Losses may be carried forward with interest. The tax value of losses from exploration may be reimbursed in relation to the tax assessment.

2.6 North Sea

The tables below present details on revenue collection and incentives related to oil and gas developments in the North Sea.

Trends/Observations:

- North Sea oil and gas developments are subject to rentals, taxes and a “supplementary charge” on profits.
- Ring Fence Corporate Taxation in the North Sea limits a company’s ability to consolidate income or deductions for tax purposes across different activities, projects, or licence areas. This means that losses from one project can not reduce the amount of tax paid on another project. In the longer term, absence of ring-fencing may yield higher government revenue by encouraging more exploration and development, at the cost of some

⁴⁹ Hakon Knoff, personal communication, April 24, 2006.

additional risk to government revenue and some possible postponement of early revenues.⁵⁰

- Oil companies operating in the North Sea pay a higher tax rate than other businesses in the United Kingdom. Specifically, oil companies operating in the North Sea pay a combined tax rate of 50% (corporate tax plus supplemental charge) compared to a corporation tax rate of 30% for other businesses.⁵¹
- Key incentives in the North Sea related to oil and gas developments include incentives related to exploration, early production and capital investments.

Table 11 Key means of revenue collection from oil and gas in the North Sea

COMPONENT	KEY ATTRIBUTES
Ring Fence Corporate Taxation	The current rate of corporate tax is 30%. The ring fence prevents taxable profits from oil and gas extraction in the UK and UK Continental Shelf (UKCS) being reduced by losses from other activities or by excessive interest payments.
Supplementary Charge	This is an additional charge of 20% (10% prior to January 2006) on a company's ring fence profits excluding finance costs. The supplementary charge was implemented on April 17, 2002.
Petroleum Revenue Tax (PRT)	This is a special tax on oil and gas production from the UK and UKCS. It is a field-based tax charged on profits arising from individual oil fields. The current rate of PRT is 50%. The PRT seeks to tax a portion of the super-profits from UK oil and gas production. PRT does not apply to fields given development consent on or after March 16, 1993. PRT is deductible as an expense against corporation tax and the supplementary charge.
Traditional Seaward Production Licence Rental Fees	A traditional seaward production licence grants the holder exclusive rights to search, bore for and get petroleum in specified areas on the UKCS. A rental payment is payable on the licensed area, proportional to the acreage covered and escalating each year after the initial term.
Exploration Licence Rental	An exploration licence grants the holder non-exclusive rights to acquire geophysical data and collect shallow geological samples on the UKCS in areas not held under a production licence. A modest annual rental payment is made during the lifetime of the licence.

⁵⁰ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/nft/2003/fispol/index.htm#ch1>.

⁵¹ Government of the United Kingdom. *Pre-Budget Report 2005: North Sea Oil Taxation*. http://www.ukbudget.co.uk/prebudget2005/northseaoiltax/pbr2005_northseaoiltaxation.cfm.

Table 11 continued

COMPONENT	KEY ATTRIBUTES
Promote Licence Rental	A promote licence offers the licensee the opportunity to assess and promote the prospectivity of the licensed acreage for an initial two-year period without the stringent entry checks required as part of a traditional seaward production licence. For the period of this assessment, to a maximum of two years, the licence rental fee will be 10% of the rental fee for the traditional licence (i.e., 15 pounds per square kilometre). However, promote licensees will not be approved as operators (and therefore will not be permitted to carry out exploration activities, such as drilling of wells) until they have passed those checks and also made a firm commitment to complete an agreed term work programme.
Frontier Licence Rental	A frontier licence allows companies to apply for relatively large amounts of acreage and then relinquish three-quarters of that acreage after an initial screening phase during which the normal rental fees will be discounted by 90%. Additionally, the exploration and development periods will be extended by two years over and above those stipulated for the traditional licence. This type of licence is available solely for difficult/unexplored areas (especially the deepwater areas west of the Shetlands).

Table 12 Key incentives (deductions and credits) related to oil and gas in the North Sea

COMPONENT	KEY ATTRIBUTES
Capital allowances	Capital allowances are 100% first-year allowances for qualifying capital expenditures.
Ring Fence Expenditure Supplement (RFES)	Since 2002, an uplift has been available to preserve the value of tax relief for exploration and appraisal expenditure that cannot be relieved against taxable income in the year in which it was incurred. Such expenditure is increased by 6% per year for a maximum of six years. This benefit is now available for all ring fence expenditure incurred on or after January 1, 2006. RFES replaces the previous exploration expenditure allowance regime. ⁵²
Deferral of First Year Expenditure	Where a company carries on a ring fence trade in a period that begins on or after January 1, 2006 and has incurred expenditure qualifying for first year allowances in the year ended December 31, 2005 then an election may be made to treat that expenditure as having been incurred on the first day of the accounting period beginning on or after January 1, 2006. The expenditure to which this applies can fall under the plant and machinery allowances code, the mineral extraction allowances code, or the research and development allowances regime. The ability to defer first year allowances will mitigate the increase in the rate of SCT by allowing the expenditure to be relieved against expenditure taxable at the higher rate. ⁵³

⁵² Government of the United Kingdom. *Pre-Budget Report 2005: North Sea Oil Taxation*. http://www.ukbudget.co.uk/prebudget2005/northseaoiltax/pbr2005_northseaoiltaxation.cfm.

⁵³ Government of the United Kingdom. *Pre-Budget Report 2005: North Sea Oil Taxation*. http://www.ukbudget.co.uk/prebudget2005/northseaoiltax/pbr2005_northseaoiltaxation.cfm.

2.7 Australia Offshore

The tables below present details on revenue collection and incentives related to offshore oil and gas developments in Australia.

Trends/Observations:

- The Australian government collects revenue from offshore oil and gas developments through a system of royalties and taxes.
- A noteworthy feature of the offshore fiscal regime in Australia is that royalties are not applied at the same time as the major tax initiative—the resource rent tax.
- Certain regions are liable for the resource rent tax and other regions are liable for royalties.
- The major offshore incentive in Alberta relates to exploration expenditures. Exploration expenditures qualify for a 150% deduction against taxes due.

Table 13 Key means of revenue collection from offshore oil and gas in Australia

COMPONENT	KEY ATTRIBUTES
Petroleum Resources Rent Tax (PRRT) ⁵⁴	The PRRT applies to petroleum produced in Australia's offshore areas beyond coastal waters, with the exception of the North West Shelf (NWS) production licence areas and associated exploration permits to which petroleum royalties and crude oil excise apply; and the Joint Petroleum Development Area, which lies in the waters between Australia and East Timor and is subject to arrangements made under Production Sharing Contracts (see relevant section below). PRRT ⁵⁵ is levied at a rate of 40% of a project's taxable profit. Taxable profit is the project's income after all eligible project and exploration expenditures, including a compounded amount for carried forward expenditures, have been deducted from all assessable receipts. PRRT payments are deductible for company income tax purposes. ⁵⁶
Crude Oil Excise ⁵⁷ and Resource Rent Royalties (RRR)	<p>Crude oil excise is imposed on crude oil produced in the NWS production area, in state and territory waters and in onshore areas. Crude oil excise does not overlap with the profits-based PRRT or RRR regimes. The rate of excise applied depends on the annual rate of production of crude oil, the date of discovery of the petroleum reservoir and the date on which production commenced.⁵⁸ The first 30 million barrels produced from a field is excise exempt.</p> <p>Crude oil excise (and onshore petroleum royalty) is waived where a state or territory government introduces an RRR on petroleum development in its jurisdiction and where a revenue sharing agreement is negotiated with the Australian government. RRR is profits based, similar in principle to PRRT, and based on 40% of net cash flow with revenue shared between the state and Australian government. RRR currently only applies to petroleum produced on Barrow Island, offshore Western Australia.</p>

⁵⁴ In 1987, the Australian Government introduced a profit based Petroleum Resource Rent Tax (PRRT) to replace royalties and crude oil excise in most areas of Australian Government waters. Australian Government, Department of Industry, Tourism and Resources. 2006. *Petroleum Taxation*. <http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=6D2AF7FC-107C-458D-A517020002784895>.

⁵⁵ Applies to all offshore petroleum production including crude oil, condensate, natural gas, LPG and ethane.

⁵⁶ Australian Government, Department of Industry, Tourism and Resources. 2006. *Petroleum Resource Rent Tax – Overview*. <http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=4A1DE71A-BF9F-4DED-B1667CC766651FA7>.

⁵⁷ Australian Government, Department of Industry, Tourism and Resources. 2006. *Crude Oil Excise*. <http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=0A1DFEF5-65BF-4956-BED26886A87192F9>.

⁵⁸ Australian Government, Department of Industry, Tourism and Resources. 2006. *Petroleum Taxation*. <http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=6D2AF7FC-107C-458D-A517020002784895>.

Table 13 continued

COMPONENT	KEY ATTRIBUTES
Offshore Petroleum Royalties	<p>Offshore petroleum royalties are imposed on petroleum produced in the NWS production area. Offshore petroleum royalties do not overlap with the PRRT or RRR regimes.⁵⁹ Royalty is payable to the Australian government on the value of all petroleum production from the NWS project area and is shared with the Western Australia government. Royalty is levied as a percentage of the wellhead value, which is calculated by subtracting excise, allowances for post-wellhead capital assets and depreciation, and operating costs, such as processing and transportation, from sales receipts. The royalty rate for the NWS is set at between 10 and 12.5% of the wellhead value depending on the size of the area covered by the production licence.⁶⁰</p> <p>The states and the Northern Territory governments also impose offshore petroleum royalties of between 10 and 12.5% of the wellhead value of production in their coastal waters. Revenues are shared with the Australian government. Currently, only Western Australian coastal waters have operating petroleum projects. Crude oil excise also applies in state and territory waters.</p>
Income Tax	Income tax is collected solely by the federal government in Australia. Business income is taxed at a flat rate of 30%.

Table 14 Key incentives (deductions and credits) related to offshore oil and gas in Australia

COMPONENT	KEY ATTRIBUTES
Uplifts for Expenditure Deductions	In 2004 the government introduced a taxation incentive to encourage petroleum exploration in Australia's remote offshore areas. The measure allows an immediate uplift to 150% on PRRT deductions for exploration expenditure incurred in designated offshore frontier areas. The 150% uplift applies to pre-appraisal exploration expenditure in the initial term of the exploration permit granted for a designated area, and applies to the annual offshore acreage releases for 2004 to 2008. ⁶¹
Statutory Caps on Effective Lives for Taxation Purposes	In the 2002/03 budget, the Australian government introduced a statutory cap for taxation purposes of 15 years for oil and gas assets, even though the actual effective life of those assets could be significantly longer.

⁵⁹ Australian Government, Department of Industry, Tourism and Resources. 2006. *Petroleum Taxation*. <http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=6D2AF7FC-107C-458D-A517020002784895>.

⁶⁰ Australian Government, Department of Industry, Tourism and Resources. 2006. *Australian Government Royalty*. <http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=C809D7AC-7276-4B3F-B275E359297C2515>.

⁶¹ Australian Government, Department of Industry, Tourism and Resources. 2006. *Mineral and Petroleum Exploration and Development in Australia: A Guide for Investors*. <http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=A3A43FFB-65BF-4956-B403189CE7973AF8>.

2.8 Botswana (Botsana)

The tables below present details on revenue collection related to diamond developments in Botswana.

Trends/Observations:

- Diamond mining in Botswana is characterized by a high degree of government stake in productions.
- The government of Botswana owns 50% of diamond mining operations in the country. There are no fully private mining operations in the country.
- The government receives revenue from diamond mining through dividends, royalties and taxes.
- By some estimates, Botswana's government takes about 75% of diamond mining profits through taxes, royalties and dividends. The tax legislation is considered transparent, relatively simple, and characterized by low tax rates.⁶²
- There are no incentives related to diamond mining in Botswana. Incentives are not necessary, as Debswana is the only company in the country permitted to mine diamonds, and the company is 50% owned by the Botswana government.
- Botswana has the fastest growing economy in Africa, attributed mainly to growth in the diamond mining sector.

⁶² Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/nft/2003/fispol/index.htm#ch1>.

Table 15 Key means of revenue collection from diamonds in Botswana

COMPONENT	KEY ATTRIBUTES
Ownership	All diamond mining in Botswana is controlled by the De Beers-Botswana Mining Company (Debswana). It is a private unlisted company, with the government of Botswana and De Beers each holding 50% ownership. All mining is done by Debswana; there are no private diamond mining operations in the country. ⁶³
Royalties	Royalties are 10% of the sales of diamonds. ⁶⁴
Taxes	Taxes are 25% based on taxable income. ⁶⁵
Dividends	The government receives a variable dividend in addition to tax and royalty. The amount of the dividend is calculated to bring the government's aggregate revenue up to a contractually agreed share of positive net cash flow. The dividend paid to the private shareholder (De Beers) consists of whatever cash remains after the government has received the amount due to it. The variable dividend enables the government to take in excess of 70% of the profits of Debswana (rather than the 35% that would result from statutory tax and royalty). ⁶⁶
Minority Interests	The government retains the right to acquire a minority interest in new mines. This is generally up to a maximum of 15%, and will be on commercial terms with the government paying its pro-rated share of costs incurred. ⁶⁷

2.9 Timor-Leste

The Timor Sea Treaty, which came into effect in April 2002, describes the basis for the development of major oil and gas deposits in the Timor Sea between Australia and East Timor in the area named the Joint Petroleum Development Area (JPDA). The Treaty states that exploration and production activity in the JPDA is to be administered by the Designated Authority, established by the Australian and East Timorese governments. The Treaty outlines agreement on a range of issues including administration of the area and the way in which taxation and resource royalty flows from petroleum production will be distributed between the two countries.⁶⁸

The tables below present details on revenue collection related to oil and gas developments in the region between Timor-Leste and Australia.

⁶³ Information on Debswana is available at <http://en.wikipedia.org/wiki/Debswana>

⁶⁴ See the following website for additional information: <http://www.nationsencyclopedia.com/Africa/Botswana-MINING.html>.

⁶⁵ Hazelton, Ralph. 2002. *Diamonds: Forever or For Good? The Economic Impact of Diamonds in South Africa*. The Diamonds and Humans Security Project. http://action.web.ca/home/pac/attach/diamonds_3e.pdf.

⁶⁶ Hazelton, Ralph. 2002. *Diamonds: Forever or For Good? The Economic Impact of Diamonds in South Africa*. The Diamonds and Humans Security Project. http://action.web.ca/home/pac/attach/diamonds_3e.pdf.

⁶⁷ See the following website for additional information: <http://www.mbendi.co.za/indy/ming/af/bo/p0005.htm>.

⁶⁸ Australian Government, Australian National Accounts. 2003. *Statistical Treatment of Economic Activity in the Timor Sea*. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/D2B3766DE85BB120CA256DF100006921>.

Trends/Observations:

- Oil and gas developments in much of the area between Timor-Leste and Australia are subject to production sharing contracts established between the two countries.
- Production sharing contracts are individually designed and details of the underlying policies are often not clearly described in government policy statements and laws.⁶⁹ It is thus generally difficult to obtain information on this type of policy arrangement.
- Revenue is obtained from oil and gas developments in the Timor-Leste region through a combination of royalties, taxes and direct interest in developments.
- The Timor Sea Treaty entitles Timor-Leste to 90% of oil and gas revenues obtained from the JPDA. Australia receives the remaining 10% of revenues.

Table 16 Key means of revenue collection from offshore oil and gas in Timor-Leste

COMPONENT	KEY ATTRIBUTES
Royalty	Petroleum produced within the JPDA is subject to fiscal terms outlined in a production sharing contract (PSC). Terms include a royalty of 5% of gross production, a 30% tax on profits from the contractor's share of production and a profit-sharing scheme giving 60% to the contractor and 40% to the Timor Sea Designated Authority (TSDA). ⁷⁰ Interest in the amount of 11% is added to the balance of unrecovered costs.
Participating Interest	Timor-Leste has the right to take up to 20% participating interest in a project within 60 days of the declaration of commercial discovery. ⁷¹
Profit Sharing Scheme	TSDA revenues are shared 90% with East Timor and 10% with Australia. ⁷²
Supplemental Petroleum Tax (SPT)	An SPT of net 22.5% of contractor cash flows applies where the contractor's after tax rate of return exceeds 16.5%.
Income Tax	Companies are liable for a 30% corporate income tax rate. ⁷³

⁶⁹ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/nft/2003/fispol/index.htm#ch1>.

⁷⁰ Pin, Yee Kai. 2005. "E Timor PM: No Immediate Plans to set up National Oil Co.," *Dow Jones Newswire*, September 2. Available online at <http://www.timor-leste.gov.tl/emrd/pressarticle.htm>.

⁷¹ Government of Timor-Leste, Oil, Gas and Energy Directorate. *Timor-Leste Petroleum Fiscal Regime*. http://www.timor-leste.gov.tl/emrd/Timor_Leste_fiscal_regime_example_model_23November05.xls.

⁷² Brooks, Veronica. 2003. "Australia, E Timor Bed Down Gas Development Deals," *Dow Jones Newswires*, March 6. Available online at <http://www.etan.org/et2003/march/01/06oilgas.htm>.

⁷³ Government of Timor-Leste, Oil, Gas and Energy Directorate. *Timor-Leste Petroleum Fiscal Regime*. http://www.timor-leste.gov.tl/emrd/Timor_Leste_fiscal_regime_example_model_23November05.xls.

Table 17 Key incentives (deductions and credits) related to offshore oil and gas in Timor-Leste

COMPONENT	KEY ATTRIBUTES
Depreciation of Costs	Exploration costs are depreciated straight line over five years. Development costs are depreciated straight line over ten years. ⁷⁴
Cost Recovery with an Uplift	Companies are able to recover all costs before paying royalties including an uplift equal to the United States 30-year bond rate.
Past Incentives from 1989 Treaty	The 1989 incentive agreement, in which Timor-Leste had no say, offered companies \$2.27 back for every dollar invested, in addition to ordinary profits. This cost the East Timorese people \$1 billion compared with what they would get under more usual oil and gas contracts. ⁷⁵
Preliminary Seismic Research and an International Campaign to Attract Interest	The Timor-Leste government has collected 6,600 km of seismic data. The East Timor Government went on a tour in 2005 to sell the results of this data, which they claimed “revealed the presence of potential petroleum structures over the entire area.” ⁷⁶

2.10 Revenue Collection Relevance to Canada’s North

In the series of tables presented above, we describe the experience of a number of jurisdictions in collecting revenue from non-renewable resources. As was revealed in the review, a range of policies are currently in use to collect revenue from non-renewable resource developments. Some regions rely more heavily on taxes, while others focus on royalties, bonus bids, production sharing contracts or lease payments. Most regions employ a mix of these various policy options. As was stated earlier, industrialized countries have tended to rely more on tax and royalty systems, and bonus payments are used by many countries to collect early revenue from a project with little administrative effort.⁷⁷

Some policy approaches do a better job of collecting available revenue than others. In regions where the value of non-renewable resources is well known, a bonus bidding system has proven to be an effective method of resource conveyance.⁷⁸ In regions where information about the quantity and value of resources is minimal, cash bids may not reflect the true value of the resource. In such regions, an alternative approach that relies more on royalties and taxes may be more appropriate and lead to a greater level of revenue capture. Many regions have pursued a system of bonus payments in combination with royalties. The challenge of capturing windfall

⁷⁴ Government of Timor-Leste, Oil, Gas and Energy Directorate. *Timor-Leste Petroleum Fiscal Regime*. http://www.timor-leste.gov.tl/emrd/Timor_Leste_fiscal_regime_example_model_23November05.xls.

⁷⁵ “Oil and hope will gush out from the Timor Sea,” *Sydney Morning Herald*, July 6, 2001. Available online at <http://www.etan.org/et2001c/july/01-07/06oiland.htm>.

⁷⁶ Wong, Gillian. 2005. “East Timor Launches oil, gas roadshow,” *Business Week Online*, September 2. Available online at <http://www.timor-leste.gov.tl/emrd/pressarticle.htm>.

⁷⁷ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. “Fiscal Challenges in Oil-Producing Countries: An Overview.” In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/ft/2003/fispol/index.htm> - ch1.

⁷⁸ Northern Oil and Gas Directorate, Indian and Northern Affairs Canada. 2005. Report prepared by Strategic Value Services.

profits requires some type of royalty or tax that is sensitive to changes in price or other factors that affect profit.

The above tables also highlight the kinds of incentives in place in various jurisdictions related to non-renewable resource exploration and development.

In the series of bullets below we summarize some of the key strengths and weaknesses of the policy approaches taken by regions within Canada and elsewhere to collect revenue from non-renewable resources. Following this, we put the review of the policy approaches into a northern Canadian perspective.

Strengths:

- Simple systems that provide a high degree of transparency (as in Norway) or that use a combination of complementary policies to obtain revenues (e.g., Alaska has a bidding system as well as royalty payments and taxes).
- Transparency in terms of the amount of revenue collected and also the value of expenditure (foregone revenue) associated with various incentive programs.
- Policies that capture windfall profits (e.g., the policy approach in the North Sea).
- Countries that capture a high degree of revenue from resource developments through a transparent and relatively simple system of taxes and royalties (Norway and the North Sea are leaders in this area).
- The use of the polluter pay principle (e.g., the carbon tax in Norway).

Weaknesses:

- Complex and discretionary policies such as negotiated agreements that lend themselves to low revenue capture rates and also lack of transparency (e.g., early agreements for oil sands developments in Alberta and negotiated agreements in Australia).
- Regions that have implemented low royalty and tax rates that result in less than optimal revenue capture rates (e.g., the royalty regime in Alberta allows companies to pay only a 1% royalty until all project costs including operating, capital and research and development are written off). This is especially worrisome given the high profitability of the oil and gas sector.
- Very few regions have built in the polluter pay principle or required minimal environmental performance standards to be met in order to qualify for incentive programs. The exception to this is Norway, which has a carbon tax.
- Providing permanent incentives for exploration and development. Incentives are often permanent features of the fiscal regime related to non-renewable resource developments (i.e., they don't have sunset clauses). Instead they should be provided on a temporary basis with a date of expiry announced when the incentive is established. For example, the federal government in Canada provides a 100% accelerated capital cost allowance for oil sands projects in Alberta. This incentive was implemented when costs were higher and fuel prices were lower. It is no longer needed to make the industry profitable yet it remains in place.

Northern Perspective:

The Northwest Territories has one of the fastest growing economies in Canada due to increases in diamond mining and oil and gas activities. This rate of growth is expected to continue and even increase in the future. If the Mackenzie Gas Project (MGP) is approved, it will provide oil and gas companies with access to areas throughout the Mackenzie Valley, in the Beaufort Sea and in the Northern Islands, where gas reserves have already been and continue to be discovered.

The federal government is currently responsible for managing petroleum rights, issuing licenses, and setting and collecting oil and gas royalties for subsurface rights in the Northwest Territories.⁷⁹ The Government of Canada and the Government of the NWT (GNWT) are negotiating the devolution of this power to the territory. Under devolution, the federal government will transfer to the NWT legislative powers and administrative responsibilities for lands and natural resources including powers to levy and collect resource revenues.

In the NWT, the collecting and setting of royalties is currently authorized by the *Canada Petroleum Resources Act* and prescribed by the Frontier Lands Petroleum Royalty Regulation (RFLPRR). Leases are awarded to companies based on work bids which describe the amount of money the company is willing to spend on exploration. At project start up, the FLPRR requires industry to pay a basic royalty that is equal to 1% of gross revenue. This rate increases by 1% every 18 months until project payout. The maximum basic royalty is 5% of gross revenue or 30% of net revenue, whichever is greater.⁸⁰

After oil and gas revenues are collected by the Federal Government, they are shared with groups that have settled land claim agreements. The following table outlines the existing royalty sharing agreements within the NWT. The Government of Canada is currently negotiating resource revenue sharing with the Deh Cho (an interim agreement is currently in place), Akaticho and Métis.⁸¹

⁷⁹ See www.gov.nt.ca/RWED/mog/oil_gas/issues.htm.

⁸⁰ INAC. 2006. *Discussion Paper: The Frontier Lands Petroleum Royalty Regulations, Proposed Amendments*. http://www.ainc-inac.gc.ca/oil/roy/regrev/discus_e.pdf.

⁸¹ INAC. 2006. *Discussion Paper: The Frontier Lands Petroleum Royalty Regulations, Proposed Amendments*. http://www.ainc-inac.gc.ca/oil/roy/regrev/discus_e.pdf.

Table 18 Summary of existing royalty sharing agreements within the NWT⁸²

ABORIGINAL GROUP	AGREEMENT	ON FIRST \$2 M OF ROYALTIES (%)	ON ANNUAL ROYALTIES LESS THAN \$2 M (%)
Gwitch'in	Gwitch'in Land Claim Agreement	7.5	1.5
Sahtu Dene & Metis	Sahtu Land Claim Agreement	7.5	1.5
Tlicho	Tlicho Land Claim Agreement	10.5	2.1
Deh Cho	Interim Resource Development Agreement	12.3	2.5
Total		37.7	7.5

The Northwest Territories has a number of unique characteristics (described in the bullets below). These features should be taken into consideration when establishing a regime for revenue capture from non-renewable resources. The ultimate objective should be to establish a set of policies that maximizes the long-term benefit for the citizens of the territory, the owners of the resource wealth.

- **Sparse population:** With a population of just 43,000, the Northwest Territories is sparsely populated. These inhabitants are spread across 33 communities with great distances between them.
- **Lack of economic diversity and resiliency:** The Northwest Territories has one of the least diverse economies in Canada. This makes it relatively more vulnerable to boom and bust economic cycles.
- **Sensitive environment:** The relatively more sensitive nature of the environment in Canada's north means that negative impacts from resource developments have a greater effect on the landscape.
- **Higher cost of living:** Territorial infrastructure and socio-economic needs cost significantly more than elsewhere in Canada.
- **Limited capacity to raise revenue through taxes:** The Northwest Territories has a more limited capacity to raise revenue through use of personal income and sales taxes. This is mainly due to the small population and limited degree of economic activity taking place in the territory. While the territorial government has the constitutional authority to raise these taxes, they are hesitant to do so since as was stated above, the cost of living is already higher for northern residents than in the rest of Canada.

⁸² Adapted from: INAC. 2006. *Discussion Paper: The Frontier Lands Petroleum Royalty Regulations, Proposed Amendments*. http://www.ainc-inac.gc.ca/oil/roy/regrev/discus_e.pdf (page 3).

In the series of bullets below, we describe important revenue capture features for the NWT. The discussion is informed by the unique characteristics for the NWT described above as well as the type and range of policies in place in other jurisdictions and the strengths and weaknesses of those policies. We focus on revenue capture features as they relate to oil and gas resources, although many of the points would apply to other non-renewable resources as well.

- **Use cash bids to obtain revenue early in a project:** As was described previously, currently in the NWT, oil and gas leases are awarded to companies based on work bids rather than cash bids. This means that the government does not obtain any revenue from the issuance of a petroleum license. Under the *Canada Petroleum Resources Act*, the federal government could instead use the highest cash bonus bid as the sole criterion for awarding exploration licenses. This is the approach taken in a number of other regions, including Alberta.
- **Place emphasis on appropriate policy instruments:** In regions where the value of the resource is still somewhat unknown (i.e., extensive exploration has not taken place,) as in oil and gas in Canada's NWT, the revenue obtained through a cash bidding system may not reflect the actual value of the resource. Because of this, heavy reliance on a bidding system may not be the most appropriate means of revenue collection. To ensure that the revenue obtained from non-renewable resource developments reflects the fair market value of the resource, a cash bidding system should be used in combination with taxes and/or royalties.
- **Obtain maximum revenue:** Because we are dealing with non-renewable resources, it is especially important that policies be designed to obtain maximum revenue from oil and gas developments. The oil and gas royalty regime in the NWT requires only 1% of gross revenues to be paid in royalties for the first 18 months of production. Lower royalty rates in the territory are often justified by the federal government on the basis of higher exploration and development costs relative to Alberta or British Columbia. However, an analysis of wells in the Deh Cho First Nation territory revealed that all producing wells are less than 60 kilometres north of the Northwest Territories border.⁸³ In Alberta and British Columbia, a significant amount of oil and gas activity is taking place, yet oil and gas producers in these jurisdictions pay considerably higher royalty rates.⁸⁴ Royalties, taxes and leases in the NWT for oil and gas should be designed to maximize revenue generation and ensure fair compensation to the citizens of the NWT.
- **Capture windfall profits:** Revenue capture regimes should be designed to capture windfall profits from oil and gas developments during times of high fuel prices. The North Sea royalty regime is designed to capture such profits and the state of Alaska is currently considering a revamp of their oil and gas royalty and tax regime that would ensure the state obtains higher revenues during times of high fuel prices.

⁸³ Petr Cizek. Value of Deh Cho Oil and Gas Production and Royalties. Prepared for Deh Cho First Nations, August 18, 2003.

⁸⁴ Cizek, Petr. *Value of Deh Cho Oil and Gas Production and Royalties*. Prepared by Cizek Environmental Services for Deh Cho First Nation, 2003.

- **Incentives should be temporary:** Tax or royalty breaks that are offered to the oil and gas industry for undertaking resource developments in the NWT should be temporary in nature, if provided at all. Currently in the NWT, to encourage oil and gas exploration, up to \$5 million in costs per eligible well can be treated as a “Qualified Frontier Exploration Expense” (QFEE). These expenses then qualify for a 25% royalty credit.⁸⁵ Establishing a sunset date for the QFEE is a recommendation coming out of the discussion paper on FLPRR⁸⁶. Incentives should also be contingent upon achieving minimum levels of environmental performance. This is especially important given the highly sensitive nature of the landscape in Canada’s northern regions and the fact that proponents of the MGP are currently proposing to use decades-old technology for activities such as drill waste disposal.
- **Employ alternative policy options:** The process for obtaining revenues from oil and gas developments in the Northwest Territories is complicated by the current process of authority transfer from the federal government to the territorial government. Elaborate agreements specify that as revenues from certain taxes collected by the territorial government increase, federal transfer and grant payments are reduced. Thus, increasing royalty rates in the Northwest Territories will not necessarily result in more revenue for the territory as a whole. This situation will change once the transfer of authority is complete (at which time it will be important for the territory to establish a regime that maximizes revenue generation). In the meantime, however, raising royalty rates is not the only means to obtain revenues in the region. The Northwest Territories government has several other options, including introducing a system of taxes and fees that would not be subject to federal clawback. For example, the Northwest Territories government could consider implementing a surtax on high-profit resource corporations, a hydrocarbon production tax, a carbon tax or a capital investment tax.⁸⁷ All of these mechanisms could help the territorial government capture more revenue from oil and gas production.
- **Ensure high environmental performance:** The *Canadian Petroleum Resources Act* allows the government to specify “any terms and conditions” for the issuance of an exploration lease. Such leases could thus be awarded based not only on cash or work bids, but also on environmental performance. This would provide an incentive for companies to achieve high environmental performance.
- **Use of polluter pay principle:** The Earth’s Arctic region is the most vulnerable to human-caused changes in climate. If the MGP goes forward, its upstream emissions will result in at least a doubling of the NWT’s current greenhouse gas (GHG) emissions, resulting in an even greater contribution to climate change. The polluter pay principle should be employed to ensure that companies pay for all of the environmental

⁸⁵ INAC. 2006. *Discussion Paper: The Frontier Lands Petroleum Royalty Regulations, Proposed Amendments*. http://www.ainc-inac.gc.ca/oil/roy/regrev/discus_e.pdf.

⁸⁶ INAC. 2006. *Discussion Paper: The Frontier Lands Petroleum Royalty Regulations, Proposed Amendments*. http://www.ainc-inac.gc.ca/oil/roy/regrev/discus_e.pdf.

⁸⁷ Cizek, Petr. *Bankrupting the North with Resource Extraction: A Royalty Rip-off*. Yellowknife, NWT, 2003.

externalities of their projects. The polluter pay principle can be achieved through use of environmental taxes, user fees, posting of bonds or auctioning of permits.⁸⁸

- **The need for transparency:** Even after devolution occurs, non-renewable resource revenue collection and distribution could be very complex in the NWT. Different regions and even communities within the same region have different access and benefits agreements with oil and gas companies that are often confidential. It is likely that the ad hoc project by project, company by company negotiation process could become quite cumbersome if a project such as the MGP is approved. Creating a proactive revenue collection scheme that will be clear and straightforward will enable better transition when it comes time for devolution. In addition, because of the different settlement regions, there should be clear rules that make it straightforward for communities to benefit from development and for companies to have defined rules prior to development. The costs of any incentives should be clearly measured and reported on. The more complex and discretionary the system, the more difficult it will be to define the basic fiscal regime and achieve transparency.⁸⁹
- **Protect against boom and bust cycles:** Smaller populations make for less diverse and resilient economies that are more sensitive to boom and bust economic cycles. In the Northwest Territories communities need protection from large developments that can cause significant, temporary and unsustainable spikes in economic performance. A key component in providing this stability is to develop appropriate resource management regimes. As will be described in the next chapter of this brief, investing a portion of resource revenues into a long term non-renewable permanent fund is an important approach employed by a number of regions that rely on revenue from non-renewable resources (especially those associated with large and unpredictable price swings).

⁸⁸ A useful precedent has been set with the establishment of the Environmental Studies Research Fund that is used to finance research projects related to social and environmental impacts of oil and gas developments and is funded by levies paid by frontier lands interest holder (see <http://www.canlii.org/ca/regu/sor87-641/> for details).

⁸⁹ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/nft/2003/fispol/index.htm> - ch1.

3 Non-renewable Permanent Funds

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 supply of the resources is exhaustible.⁹⁰ Regions where the economy lacks diversity, such as in the NWT, and that rely on resource revenues for a large share of total revenues are particularly vulnerable to unpredictable changes in the prices of non-renewable resources.

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 sharp and unpredictable variations in non-renewable resource prices and associated revenues. Policy makers must also consider how much non-renewable resource income to spend on the present generation and how much to save for future generations.⁹¹ Several jurisdictions have established non-renewable permanent funds (NPFs) to address these and other challenges. NPFs are funds into which a portion of revenues from the development of non-renewable resources is placed on a continuous basis. These funds increase in value over time as non-renewable resources are depleted.

The benefits of NPFs are substantial. These funds provide insurance against declining revenues from resource production as non-renewable resources are depleted over time. They also ensure that future generations will benefit from the production of resources today. They can be used to help mitigate boom and bust cycles, provide economic diversification to rural communities, and facilitate a transition to renewable resources in the future. In addition, money accumulated in NPFs can help to lessen future risk and liability associated with environmental impacts.

Funds that are established to offset reductions in natural resource wealth and compensate future generations are generally referred to as savings funds. Funds that are intended to mitigate boom and bust economic cycles that result from fluctuating resource prices are generally called stabilization funds. In many cases, non-renewable permanent funds are established for reasons related to both savings and stabilization.

NPFs have been mismanaged in some countries, especially when resource prices are high and the temptation to spend is great. The success lies in the management of funds that have fixed rules around accumulation and withdrawal to minimize fund depletion when revenues are low and to maximize fund accumulation in times of revenue surplus.

⁹⁰ Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino. 2003. "Fiscal Challenges in Oil-Producing Countries: An Overview." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino, International Monetary Fund. <http://www.imf.org/external/pubs/ft/2003/fispol/index.htm> - ch1.

⁹¹ Fasano, Ugo. 2000. *Review of the Experience with Oil Stabilization and Savings Funds in Selected Countries*. International Monetary Fund. IMF Working Paper 00/112. <http://www.imf.org/external/pubs/ft/wp/2000/wp00112.pdf>.

In the series of tables below, we present details of a number of non-renewable permanent funds in place around the world. The examples demonstrate the different features and objectives of the various funds as well as the kinds of non-renewable resources to which they are associated.

2.1 Norway's Government Pension Fund

The table below provides details on Norway's Government Pension Fund.

Trends/Observations:

- Norway's fund is consistently pointed to as a successful fund for its growth and transparency. For example, East Timor's non-renewable resource fund is touted as the "Norway Plus" fund.⁹² Updates, above and beyond annual and quarterly reports, are regularly provided by the Norges Bank.
- Norwegian petroleum sector revenues are predicted to be at their peak now and will likely decline over the coming decades. In the past there have been questions as to, one, whether current petroleum revenues should be used to solve current problems rather than pursuing the high risk of investing almost half of the funds in the international stock market, and, two, whether the investment policy of the fund is ethical (some of the companies that used to be invested in were either directly or indirectly associated with arms and tobacco trades).
- Not only has the fund consistently grown with a healthy diversity of investments and satisfactory interest rates, but there are now ethical guidelines on how the revenue can be invested. The Ministry of Finance sets a benchmark portfolio against which Norges Bank attempts to seek the highest return, while keeping exposure to risk at a minimum.⁹³
- In November 2004, ethical guidelines were included in the new regulations for the management of the fund. In early 2006, as per suggestions from the ethical council, stocks from companies that traded in intercontinental ballistic missiles and nuclear missiles were removed from the fund's portfolio.

⁹² Alkatiri, Mari. 2004. "Nation Building in Timor-Leste." Keynote address presented at the South East Asia Australia Offshore Conference, June 7–9 in Darwin, Australia. Available online at <http://www.etan.org/et2004/june/08-14/09alk.htm>.

⁹³ Norges Bank, 2006a. Norges Bank Investment Management. http://www.norgesbank.no/english/petroleum_fund/.

Table 19 Details of Norway's Pension Fund

THE GOVERNMENT PENSION FUND (STATENS PENSJONSFOND) (WAS THE NORWAY PETROLEUM FUND)	
Type	Savings and Stabilization
Objective	The purpose of the fund is to invest part of the surplus generated by the Norwegian petroleum sector. It was established to counter the effects of a decline in petroleum sector revenues in the future (as resources are depleted) and to respond to the impact of variable petroleum prices.
Description	Established in 1990 and activated in 1995, this fund is administered by the Norges Bank.
Accumulation Rules	If there is a budget surplus, the surplus is transferred to the fund.
Withdrawal Rules	If there is a budget deficit, the deficit is financed by the fund.
Investment Rules	Of the fund's portfolio, up to 50% can be invested in the international stock market (in 2003, 40% was invested in stocks). The fund's capital is invested in non-Norwegian financial instruments (i.e., bonds, equities, money market instruments and derivatives), in 42 developed and emerging equity markets and in 31 currencies for fixed income investments.
Value	It reached value of over NOK 1.4 trillion (CAN \$248 billion) in the fourth quarter of 2005. Return in 2005 was 22.5% on the fund's equity portfolio and 3.8% on the fixed income portfolio.
References and Sources of Information	<p>"Norwegian petroleum fund fills up on back of rising oil prices to total NKR1400bn," <i>European Pensions and Investment News</i>, March 13, 2006. Available online at http://www.epn-magazine.com/news/fullstory.php/aid/2033/Norwegian_petroleum_fund_fills_up_on_back_of_rising_oil_prices_to_total_NKr1400bn.html</p> <p>Davis, Jeffrey, Rolando Ossowski, James Daniel, and Steven Barnett. 2001. <i>Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications</i>. International Monetary Fund. IMF Occasional Paper 205. http://www.imf.org/external/pubs/nft/op/205/index.htm</p> <p>Norges Bank, 2006. http://www.norgesbank.no/english/petroleum_fund/</p> <p>Norwegian Ministry of Finance. 2006. "Exclusions from the Government Pension Fund – Global." Press release, January 5. http://odin.dep.no/fin/english/news/news/006071-070714/dok-bn.html</p> <p>Wikipedia: <i>The Government Pension Fund of Norway</i>. 2006. http://en.wikipedia.org/wiki/The_Petroleum_Fund_of_Norway</p>

The graph in Figure 1 demonstrates how Norway's Government Pension fund has grown consistently since it was established.

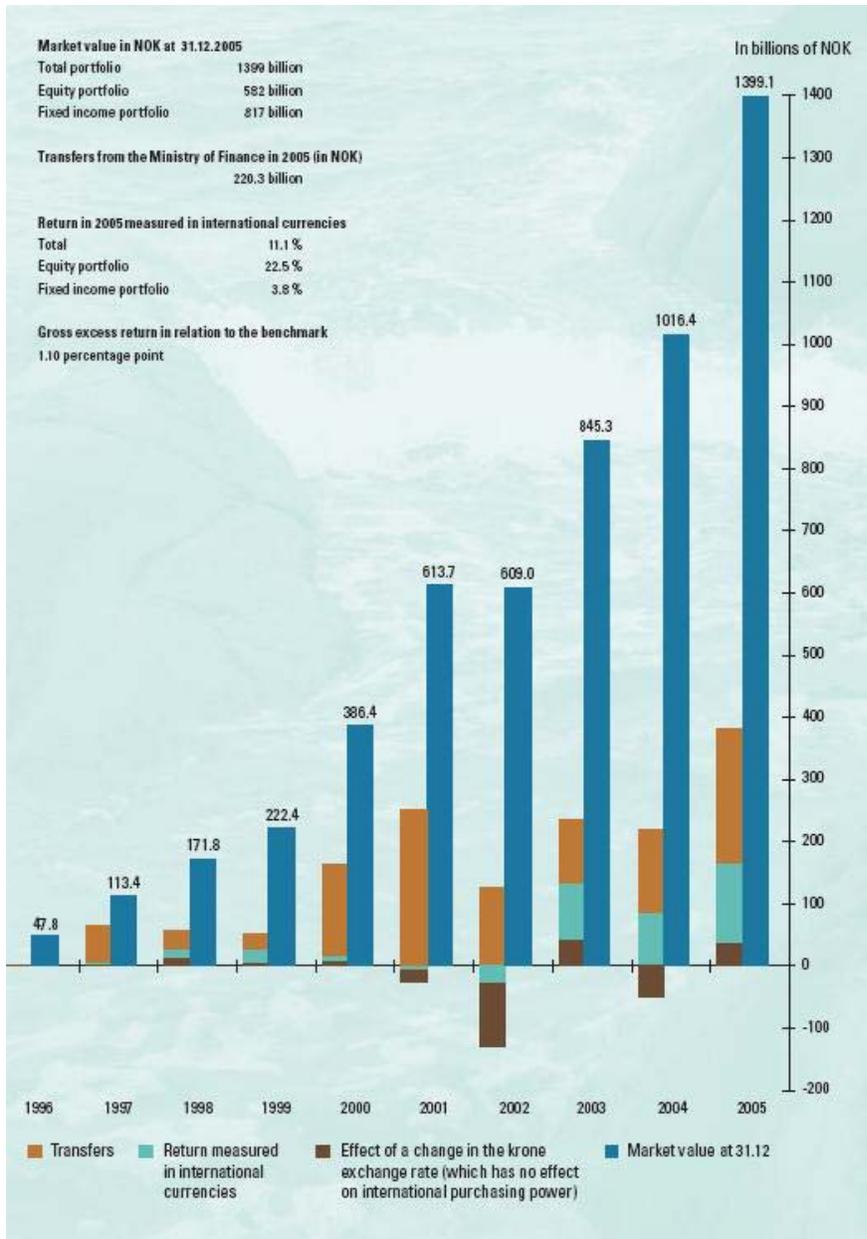


Figure 1 Norway's Government Pension Fund activity 1996–2006⁹⁴

3.1 Alaska Permanent Fund

The table below provides details on Alaska's Permanent Fund.

Trends/Observations:

- Each year every Alaskan receives a dividend cheque from the Alaskan Permanent Fund. The distribution of dividend cheques has resulted in strong citizen support for the establishment

⁹⁴ Norges Bank, 2006b, The Government Petroleum Fund – key figures 2005. http://www.norgesbank.no/nbim/pension_fund/size-return/key-figur/index.html.

and maintenance of this fund.

- Initially the Alaska Permanent Fund Dividends (PFDs) were provided in different amounts to residents based on their number of years of residence in Alaska. This feature, which was initially suggested to reward longevity and provide stability, was declared unconstitutional under the equal protection clause of the Alaska constitution. The program as it is currently structured was passed by the legislature with a special first year dividend of \$1,000—funded by a special appropriation.⁹⁵
- The Board of Trustees has proposed changing the Permanent Fund’s management system to a Percent of Market Value (POMV) approach, but this would require an amendment to the state constitution. The POMV proposal would allow the Legislature to withdraw no more than 5% of the fund’s value each year, similar to private endowments that use only a fixed percentage of the value yearly. The fund has historically produced a rolling average return of at least 5% after inflation, so limiting withdrawals to no more than 5% would provide for automatic and guaranteed inflation proofing and stabilize the yearly withdrawals.⁹⁶ Currently, only the principal is inflation-protected.
- Some elected officials have suggested that 50% of the 5% would go to the dividend program and 50% would go to the state as an additional source of revenue. Others have suggested allocating more to the dividend, as 50% will likely result in a smaller dividend in the near term when compared with business as usual.⁹⁷ Critics are concerned that dividend amounts will go down, fear that money would be taken out of the principal in bad years, and ideologically believe that the state should not receive any money directly from the fund. Also, most Alaskans are generally hostile to the idea of allowing the government to tamper with the fund. The smallest dividend payment ever made was US \$331.29 in 1984. The largest was US \$1,963.86 in 2000. Typically payments have varied between US \$600 and US \$1,500.⁹⁸
- Another issue is the possibility of the fund becoming the vehicle for the state of Alaska to take an equity position in a gas pipeline. This would expose the fund principal to the risks associated with pipeline approvals and development, as well as the risks associated with return on investment. Currently, there are ongoing discussions about a \$4 billion investment for a 20% stake in a proposed Alaskan gas pipeline.⁹⁹

⁹⁵ Goldsmith, Scott. 2001. “The Alaska Permanent Fund Dividend Program.” Paper presented at the conference on Alberta: Government Policies in a Surplus Economy, September 7, in Edmonton, Alberta.

⁹⁶ Goldsmith, Scott Personal Communication. May 1, 2006.

⁹⁷ Goldsmith, Scott. Personal Communication. May 1, 2006.

⁹⁸ Harrison, Gordon. 2002. Alaska’s Constitution: A Citizen’s Guide, 4th Edition. Alaska Legislative Affairs Agency. http://w3.legis.state.ak.us/infodocs/constitution/citizens_guide.pdf.

⁹⁹ Goldsmith, Scott. Personal Communication. May 1, 2006.

- In addition, Alaska has been criticized for not employing a long-term budgeting perspective; relying on an undiversified tax structure; and depending on oil revenues, which are highly unpredictable.¹⁰⁰

Table 20 Details of Alaska’s Permanent Fund

ALASKA PERMANENT FUND	
Type	Savings
Objective	<p>To preserve a portion of Alaska’s oil wealth for current and future generations.</p> <p>The mission of the Alaska Permanent Fund Corporation is “To maximize the value of Alaska’s Permanent Fund through prudent long-term investment and protection of principal to produce income to benefit all generations of Alaskans.”¹⁰¹ The 1976 state law establishing the Permanent Fund (AS 37.13), states that the fund was created to provide a means of conserving a portion of the state’s revenue from mineral resources to benefit all generations of Alaskans; to maintain safety of principal while maximizing total return; and to be a savings device managed to allow maximum use of disposable income for purposes designated by law.</p>
Description	<p>The Permanent Fund is an investment fund designed to turn non-renewable resources into a sustainable source of revenue. The fund was established in the Alaska Constitution by a vote of the people in 1976. Each year the fund receives 25% of the state’s oil royalties into principal. The Constitution specifies that the principal of the fund may not be spent, but that the Legislature may spend the realized earnings as it chooses. In 1980, the Alaska Permanent Fund Corporation was created to manage the fund’s assets separately from the State’s Treasury Division. The corporation is guided by a six-member Board of Trustees, appointed by the governor.</p>
Accumulation Rules	<p>At least 25% of all mineral lease rentals, royalties, royalty sale proceeds, federal mineral revenue sharing payments and bonuses received by the state are placed in the fund each year. The principal is used for income-producing investments specifically designated by law as eligible for permanent fund investments. All income from the permanent fund is deposited in the general fund unless otherwise provided by law.¹⁰²</p>

¹⁰⁰ Government Performance Project: Alaska. 2005. <http://results.gpponline.org/StateCategoryCriteria.aspx?id=94&relatedid=2>.

¹⁰¹ Alaska Permanent Fund Corporation. *Mission, Goals and Objectives*. <http://www.apfc.org/theapfc/missiongoals.cfm?srchhighlight=mission>.

¹⁰² Harrison, Gordon. 2002. *Alaska’s Constitution: A Citizen’s Guide*, 4th Edition. Alaska Legislative Affairs Agency. http://w3.legis.state.ak.us/infodocs/constitution/citizens_guide.pdf.

Table 20 continued

ALASKA PERMANENT FUND	
Withdrawal Rules	The balance of the realized earnings account in the fund is available for Legislative appropriation at any time. The principal of the fund, which includes unrealized gains, may not be spent. To date, the Legislature has only chosen to spend fund earnings on the Permanent Fund Dividend Program, which since 1982 has distributed a portion of the fund’s realized earnings to eligible Alaskans. Each year half of the realized earnings averaged over five years is distributed as dividends. Then a portion of the balance is transferred to the principal for inflation proofing. Unspent earnings then remain in the realized earnings account to be reinvested. In 2005, the dividend paid out was US \$845.76.
Investment Rules	The Board’s goal is to invest for maximum total return while protecting principal. The Board has set an investment target of a 5% return after inflation. The asset allocation in April 2006 was 53% equities, 29% fixed income, 10% real estate, 4% private equity and 4% absolute return.
Value	The Alaska Permanent Fund reached an unaudited value of US \$34 billion on March 15, 2006.
References and Sources of Information	<p>Laura Achee, Alaska Permanent Fund Corporation, personal communication, April 26, 2006.</p> <p>Alaska Department of Revenue, Permanent Fund Dividend Division. 2006. http://www.pfd.state.ak.us/index.aspx</p> <p>Harrison, Gordon. 2002. Alaska’s Constitution: A Citizen’s Guide, 4th Edition. Alaska Legislative Affairs Agency. http://w3.legis.state.ak.us/infodocs/constitution/citizens_guide.pdf</p> <p>Alaska Permanent Fund Corporation. 2006. http://www.apfc.org/</p> <p>Wikipedia: <i>Alaska Permanent Fund</i>. 2006. http://en.wikipedia.org/wiki/Alaska_Permanent_Fund</p> <p>Goldsmith, Scott. 2001. “The Alaska Permanent Fund Dividend Program.” Paper presented at the conference on Alberta: Government Policies in a Surplus Economy, September 7, in Edmonton, Alberta.</p> <p>Goldsmith, Scott. 2002. “The Alaska Permanent Fund Dividend: An Experiment in Wealth Distribution.” Paper presented at the Ninth Congress of Basic Income European Network, September 12–14 in Geneva, Switzerland.</p>

Figure 2, below, describes the investment allocations for the Alaska Permanent Fund.

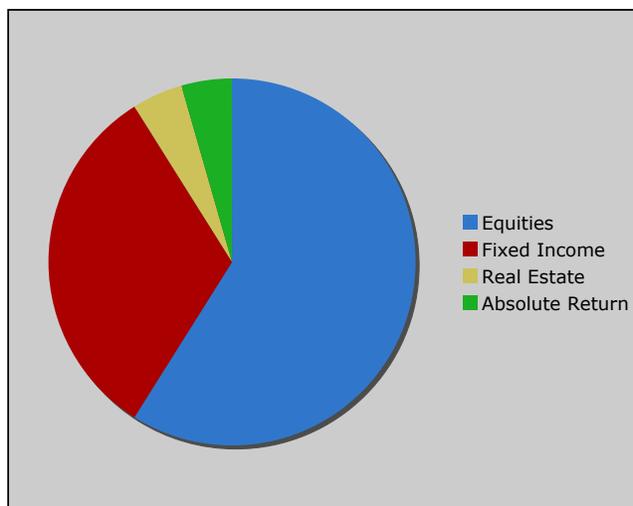


Figure 2 Alaska permanent fund target assets allocation in 2006¹⁰³

3.2 State Oil Fund of the Republic of Azerbaijan

The table below provides details on the State Oil Fund of the Republic of Azerbaijan (SOFAZ).

Trends/Observations:

- Azerbaijan’s oil fund resulted from an oil strategy that was implemented in 1994 (the fund itself was established in 1999). Samir Sharifov, Executive Director of the State Oil Fund estimates SOFAZ will be worth between \$130 billion and \$200 billion in 20 years.¹⁰⁴
- Azerbaijan’s oil production is expected to peak in 2009–2012, with a steady decline thereafter. The country’s main oil production project, in the Caspian Sea, will end by 2025–2030. Expected total revenue from this project is US \$160 billion.¹⁰⁵
- Specifics for how SOFAZ revenues will be spent are laid out in the government’s “The Long-term Strategy of Oil and Gas Revenue Management of Azerbaijan,” written in 2004. The Strategy sets objectives for the use of oil and gas revenues to 2025; addresses the development of infrastructure, non-oil sectors and regions; poverty reduction and social problems and recommendations to strengthen Azerbaijan’s economy are also included.¹⁰⁶

¹⁰³ Produced based on information from: Achee, Laura, Alaska Permanent Fund Corporation, Personal Communication. April 26, 2006.

¹⁰⁴ “Azerbaijanis examine permanent fund in anticipation of oil riches,” *Anchorage Daily News*, July 13, 2005. Available online at <http://www.oilfund.az/inside.php?nID=103>.

¹⁰⁵ Ismayilov, Rovshan. 2006. “Azerbaijan seeking oil money investment strategy,” Eurasianet, April 19. Available online at <http://www.isn.ethz.ch/news/sw/details.cfm?ID=15538>.

¹⁰⁶ State Oil Fund of the Republic of Azerbaijan. 2004. *Annual Report*. http://www.oilfund.az/reports/rep_eng/2004.pdf.

- There are widely held concerns that there are not clear rules regarding how much of the fund will be saved annually and what proportion will be used for government programs. In 2006, most of the fund’s revenues will be spent on budget deficit and social welfare projects.¹⁰⁷
- There appears to be a need for more effective and long-term management of this fund to ensure that it meets its intended objectives. It also seems that there could be future changes in the fund management, as Azerbaijan representatives have recently been investigating similar funds elsewhere. For example, a delegation from Azerbaijan visited Alaska in 2005 to learn about the operation of the Alaska Permanent Fund.¹⁰⁸

Table 21 Details of the Republic of Azerbaijan’s State Oil fund

STATE OIL FUND OF THE REPUBLIC OF AZERBAIJAN (SOFAZ)	
Type	Savings and Current Social Program Funding
Objective	The purpose of the fund is to secure long-term benefits from the country’s hydrocarbon resources, and to invest in addressing the socioeconomic needs of the current population and the country’s infrastructure improvements: “To ensure intergenerational equality of benefit with regard to the country’s oil wealth, whilst improving the economic well-being of the population today and safeguarding economic security for future generations.”
Description	SOFAZ was established in accordance with the Decree of the President of the Republic of Azerbaijan on December 29, 1999. SOFAZ’s activities are overseen by a Supervisory Board, which consists of both representatives of executive and legislative powers including government ministers and members of the Parliament.
Accumulation Rules	SOFAZ is funded through the sale of hydrocarbons by the Republic of Azerbaijan. The State Oil Company of Azerbaijan (SOCAR) deducts expenditures associated with the sale of profit oil (85.9% in 2004) under Production Sharing Agreements, including transportation costs, independent surveys, banking expenses, customs costs, marketing and insurance, prior to transferring net proceeds to SOFAZ. Income also comes from acreage fees (2.9% in 2004) from foreign investors in hydrocarbon development; performance bonuses (7.0% in 2004) paid by investors to the State Oil Company or an authorized state body; dividends and profits from the Republic of Azerbaijan’s share in oil and gas agreements; revenues from transportation of hydrocarbons (4.0% in 2004) over the Republic’s territory; revenues from SOFAZ’s assets (0.2% in 2004); and revenues from asset transfers from investors to a state body.

¹⁰⁷ Ismayilov, Rovshan. 2006. “Azerbaijan seeking oil money investment strategy,” Eurasianet, April 19. Available online at <http://www.isn.ethz.ch/news/sw/details.cfm?ID=15538>.

¹⁰⁸ “Azerbaijanis examine permanent fund in anticipation of oil riches,” *Anchorage Daily News*, July 13, 2005. Available online at <http://www.oilfund.az/inside.php?nID=103>.

Table 21 continued

STATE OIL FUND OF THE REPUBLIC OF AZERBAIJAN (SOFAZ)	
Withdrawal Rules	<p>SOFAZ may be used to improve socioeconomic conditions in the country, and improve infrastructure. All SOFAZ expenditures, except for operating expenditures, are incorporated as part of an annual consolidated government budget presented to the Parliament for approval. In compliance with this law, SOFAZ can only execute the expenditures envisaged by its budget. Execution of expenditures is through the state treasury.</p> <p>The assets of the fund have been used to fund national projects including the building of housing and improvement of socio-economic conditions for refugees and internally displaced persons who were forced to flee their native lands, and Azerbaijan's equity share in the Baku-Tbilisi-Ceyhan oil pipeline project.</p>
Investment Rules	<p>The fund is invested conservatively with a focus on high-grade paper and other secure financial investments. A portion of the fund is also managed by reputable foreign fund managers (Deutsche Bank AG and Calriden Bank). Currently, assets are being placed in foreign government securities, debt securities issued by foreign governmental agencies, debt securities issued by financial institutions and banks, deposits and money market instruments, and structured securities (including mortgage bonds issued by the foreign countries). The fund's average annual asset management revenues in 2001–2004 were nominally 3.1%, while the real income was 1.3%.</p>
Value	<p>The assets of the SOFAZ were at 1330,2 million manats (approximately CAD \$1.3 million) as of March 31, 2006.</p>
References and Sources of Information	<p>State Oil Fund of the Republic of Azerbaijan. 2006. http://www.oilfund.az/about.php</p> <p>State Oil Fund of the Republic of Azerbaijan. 2006. <i>SOFAZ Revenue and Expenditure Statement for January-March 2006</i>. http://www.oilfund.az/inside.php?nID=136</p> <p>State Oil Fund of the Republic of Azerbaijan. 2004. <i>Annual Report</i>. http://www.oilfund.az/reports/rep_eng/2004.pdf</p> <p>State Oil Fund of the Republic of Azerbaijan. 2003. <i>Annual Report</i>. http://www.oilfund.az/reports/rep_eng/2003.pdf</p> <p>Ismayilov, Rovshan. 2006. "Azerbaijan seeking oil money investment strategy," Eurasianet, April 19. Available online at http://www.isn.ethz.ch/news/sw/details.cfm?ID=15538</p> <p>Laura Achee, Alaska Permanent Fund Corporation, personal communication, April 26, 2006.</p>

3.3 East Timor Petroleum Fund

The table below provides details on the East Timor Petroleum Fund.

Trends/Observations:

- The East Timor government is looking to Norway for guidance on their non-renewable permanent fund.
- East Timor president, Mari Alkatiri, traveled to Oslo, Norway in May of 2005 to meet with the Norges Bank to learn about the administration of their petroleum fund.

- In 2005, the Norwegian Petroleum Directorate committed to provide assistance in developing the governmental petroleum management program in East Timor over a six-year period.

Table 22 Details of East Timor's Petroleum Fund.

PETROLEUM FUND FOR TIMOR-LESTE	
Type	Savings
Objective	The Petroleum Fund is intended to contribute to the wise management of petroleum resources for the benefit of Timor-Leste's current and future generations.
Description	This fund has recently been established and is modeled after Norway's Government Pension Fund.
Accumulation Rules	Revenue derived through taxes, royalties, production sharing contracts, and direct participation in oil and gas developments are deposited into the fund.
Withdrawal Rules	The Timor-Leste Parliament will set a ceiling when the state budget is approved. The ceiling will correspond to the amount necessary to finance the deficit on the budget excluding petroleum reserves; the sum of all transfers from the fund to a state budget account cannot exceed this ceiling. The Central Bank is entitled to deduct, by direct debit of the Petroleum Fund, management expenses according to the operational management fund agreement.
Investment Rules	The invested financial assets from the fund are decided based on the state budget, creating a link between the budget approved by Parliament and the development of the fund. Of the total amounts in the fund, 90% must be invested in prescribed financial instruments.
Value	Not available.
References and Sources of Information	Timor-Leste Institute for Reconstruction Monitoring and Analysis. 2005. Petroleum Fund Law, preliminary English translation of Portugese original. http://www.laohamutuk.org/Oil/PetFund/PFActPassedEn.pdf . Page 7.

3.4 Chile Copper Stabilization Fund

Current detailed information on Chile's Copper Stabilization Fund was not readily available for this report. E-mails and phone calls to government representatives requesting information on the fund went unanswered. The table below presents the best available information.

Trends/Observations:

- Chile is the world's leading copper producer. Copper accounts for one-third of Chile's \$US 15 billion annual exports, but less than 10% of government revenues. In 1999, copper averaged \$US 0.69, sinking to \$US 0.61 in March, the lowest in real terms since the Great Depression.^{109, 110}

¹⁰⁹ Attwood, J. 1999. As Copper Loses Its Luster... Other Sectors Keep on Shining (int'l edition). Businessweek Online. http://www.businessweek.com/1999/99_39/c3648244.htm.

¹¹⁰ Davis, Jeffrey, Rolando Ossowski, James Daniel, and Steven Barnett. 2001. *Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications*. International Monetary Fund. IMF Occasional Paper 205. <http://www.imf.org/external/pubs/nft/op/205/index.htm>.

- From 1987 until 1998 the fund was growing. Following this there were significant withdrawals, in part because of lower copper prices, but also because funds were used to subsidize domestic oil and gas consumption.¹¹¹ When copper prices have been high, this fund has worked well for the Chilean economy; however, in times of low copper prices (in the late 1990s and early 2000s), economic downturn has meant that the fund has suffered. Now that copper prices are again on the rise, the IMF directors have commended the government's restraint on spending and commitment to replenish the fund.¹¹²
- The major copper companies in Chile are state owned and in the past have been shut down for periods of time in order to comply with environmental regulations. Copper smelting emits arsenic and carbon monoxide, which have together polluted both air and water near the mines in Chile.

¹¹¹ Davis, Jeffrey, Rolando Ossowski, James Daniel, and Steven Barnett. 2001. *Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications*. International Monetary Fund. IMF Occasional Paper 205. <http://www.imf.org/external/pubs/nft/op/205/index.htm>.

¹¹² Davis, Jeffrey, Rolando Ossowski, James Daniel, and Steven Barnett. 2001. *Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications*. International Monetary Fund. IMF Occasional Paper 205. <http://www.imf.org/external/pubs/nft/op/205/index.htm>.

Table 23 Details of Chile's Copper Stabilization Fund

CHILE'S COPPER STABILIZATION FUND	
Type	Stabilization
Objective	To counteract the effect of the variability of copper prices.
Description	This fund was established in 1985. Whenever the price of copper increases the government directs a proportion of the increased revenue into the fund. In years where copper prices fall below "normal" levels these resources will then be used.
Accumulation Rules	Accumulation and withdrawal rules are not calculated using a constant price; rather they use a reference price that is determined annually by the authorities. In practice the reference price has been set lower than the moving average price. When the average moving price is exceeded by between \$US 0.04 and \$US 0.06 per pound, 50% of the revenue is deposited into the fund; when the price is exceeded by more than \$US 0.06 per pound, 100% of the revenue is deposited.
Withdrawal Rules	Symmetric to accumulation rules. These rules do not take into account the possibility that the fund could be depleted over a prolonged period of low prices for copper.
Investment Rules	Current investment rules are unknown to the authors.
Value	In 1999, the value of the fund was \$US1.6 billion.
References and Sources of Information	<p>Attwood, J. 1999. As Copper Loses Its Luster...Other Sectors Keep on Shining (int'l edition). Businessweek Online. http://www.businessweek.com/1999/99_39/c3648244.htm.</p> <p>Fasano, Ugo. 2000. <i>Review of the Experience with Oil Stabilization and Savings Funds in Selected Countries</i>. International Monetary Fund. IMF Working Paper 00/112. http://www.imf.org/external/pubs/ft/wp/2000/wp00112.pdf</p> <p>Davis, Jeffrey, Rolando Ossowski, James Daniel, and Steven Barnett. 2001. <i>Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications</i>. International Monetary Fund. IMF Occasional Paper 205. http://www.imf.org/external/pubs/nft/op/205/index.htm</p> <p>Country Studies US: <i>Chile: Mining</i>. Library of Congress. http://countrystudies.us/chile/71.htm</p>

Figure 3, below, shows the vagary of copper prices over the last decade.

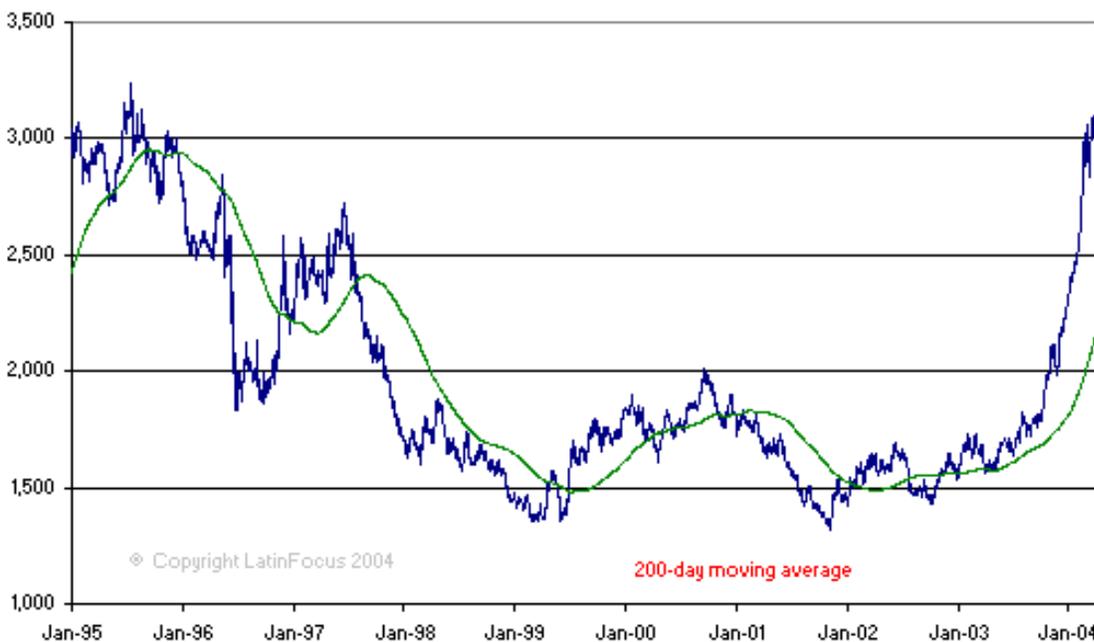


Figure 3 Copper Grade A, daily cash seller and settlement prices in US\$ per metric tonne and 200-day moving average¹¹³

3.5 Venezuela Macroeconomic Stabilization Fund

Current detailed information on the Venezuelan Macroeconomic Stabilization Fund (MSF) was not readily available for this report. E-mails and phone calls to government representatives requesting information on the fund went unanswered. The table below presents the best available information.

Trends/Observations:

- Venezuela has seen large fluctuations in oil prices. For example, public sector oil revenues fell from 27% of GDP in 1996 to less than 13% of GDP in 1998 before rising again to more than 22% of GDP in 2000.¹¹⁴
- Venezuela's original fund has been changed significantly since Hugu Chavez (the current Prime Minister) came into power. Where it used to be more of a stabilization fund, it is now used primarily for social programs. While before use of the fund required approval from congress, now the fund can be used at the president's discretion.¹¹⁵ This fund has been criticized for having less success than other stabilization funds as its "ultra-

¹¹³ London Metal Exchange and LatinFocus calculations. 2006. <http://www.latin-focus.com/latinfocus/countries/chile/chlcopper.htm>.

¹¹⁴ Davis, Jeffrey, Rolando Ossowski, James Daniel, and Steven Barnett. 2001. *Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications*. International Monetary Fund. IMF Occasional Paper 205. <http://www.imf.org/external/pubs/nft/op/205/index.htm>.

¹¹⁵ Análitica Mensual. July 1999. La reforma del fondo de estabilizacion: un aumento de la discrecionalidad del gasto. Venezuela Análitica Publicaciones. <http://www.analitica.com/vam/1999.07/reportajes/>.

presidential system allows the executive to allocate transfers from the fund without meaningful legislative oversight.”¹¹⁶

- The fund’s operations have now been integrated with central government operations. This has caused some problems:

*Because the central government remained in deficit in 1999 and early 2000 despite the strong recovery in oil prices, it could only make deposits into the fund with recourse to other financing. In particular, the buildup of gross assets in the fund was financed in part by domestic borrowing. Moreover, the operation of the MSF did not prevent the implementation of an expansionary expenditure policy as oil prices rose in 2000.*¹¹⁷

- In the past if oil revenues fell, social programs would be cut. Currently, under new management guidelines there is a guarantee that, regardless of the price of oil, social programs will receive funding.

¹¹⁶ Global Policy Forum. *Protecting the Future: Constitutional Safeguards for Iraq’s Oil*. 2005. <http://www.globalpolicy.org/security/oil/2005/05safeguards.htm>.

¹¹⁷ Davis, Jeffrey, Rolando Ossowski, James Daniel, and Steven Barnett. 2001. *Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications*. International Monetary Fund. IMF Occasional Paper 205. <http://www.imf.org/external/pubs/nft/op/205/index.htm>. Page 26.

Table 24 Details of Venezuela's Macroeconomic Stabilization Fund

VENEZUELA'S MACROECONOMIC STABILIZATION FUND (MSF) (FONDO DE ESTABILIZACIÓN MACROECONÓMICA EVITA DISMINUCIÓN DE LA INVERSIÓN SOCIAL)	
Type	Stabilization
Objective	To insulate the budget and the economy from fluctuations in oil prices.
Description	Established in 1998, modified in 1999 and 2005.
Accumulation Rules	<p>Since 1999, 50% of all revenue above a reference value.</p> <p>This fund started out with relatively rigid rules for accumulation and withdrawal, as contributions to the fund included oil revenues above a reference value based on a five-year moving average. In 1999 a change was made to trigger accumulations based on an oil price of \$US 9 per barrel. Of all revenue over this reference value, 50% is to now be deposited into the fund.</p>
Withdrawal Rules	<p>Transfers to the federal budget are based on the reference value set; resources can be drawn from the fund if the oil revenues are below the reference value. A minimum of 20% of the revenue over this price will go to the fund. The remaining 80% is used to fund government social and infrastructure programs. Currently 50% of the government is funded by these revenues.</p> <p>Withdrawals of up to \$US 751 million can be made on a discretionary basis with government authorization and legislative approval. The government has to notify the National Assembly's Permanent Finance Commission and the Auditor General as to when the fund's resources will be used. There are no clear criteria as to when this will happen.</p>
Investment Rules	Unavailable.
Value	The current value of this fund is unknown to the authors.
References and Sources of Information	<p>Analítica Mensual. July 1999. <i>La reforma del fondo de estabilizacion: un aumento de la discrecionalidad del gasto</i>. Venezuela Analítica Publicaciones. http://www.analitica.com/vam/1999.07/reportajes/</p> <p>Davis, Jeffrey, Rolando Ossowski, James Daniel, and Steven Barnett. 2001. <i>Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications</i>. International Monetary Fund. IMF Occasional Paper 205. http://www.imf.org/external/pubs/nft/op/205/index.htm.</p> <p>"Managing Hydrocarbon Wealth: A look at Natural Resource Funds," <i>First Citizens Bank Economic Newsletter</i>. March 2005, vol. 8, no. 1. http://www.simplyfirst.net/enews/05_03_01.html.</p> <p>Ibarra, C. March 31, 2006. <i>Fondo de Estabilización Macroeconómica evita disminución de la inversión social</i>. Gobierno Bolivariano de Venezuela. http://www.minci.gov.ve/reportajes1.asp?id=247</p>

3.6 Trinidad and Tobago Interim Revenue Stabilization Fund

Current detailed information on the Trinidad and Tobago Interim Revenue Stabilization Fund (IRSF) was not readily available for this report. E-mails and phone calls to government representatives requesting information on the fund went unanswered. The table below presents the best available information.

Trends/Observations:

- Preliminary calculations suggest that, at the current level of projected public spending, the government may need to start drawing on the revenue stabilization fund in just seven years to finance deficits with the savings fully depleted by 2020 and lack of resources soon after resulting in increased deficits.¹¹⁸

Table 25 Details of Trinidad and Tobago’s Interim Revenue Stabilization Fund

TRINIDAD AND TOBAGO INTERIM REVENUE STABILIZATION FUND (IRSF)	
Type	Stabilization
Objective	The original purpose of the fund was to cushion the nation against any unexpected drop in petroleum prices and at the same time strengthen the public sector savings effort to allow for intergenerational transfers. In the 2004–05 budget statement, the Minister of Finance proposed to broaden the objectives of the IRSF to include revenue stabilization, inter-generational equity and strategic investments.
Description	The fund was established in 1999 primarily for the purpose of supplementing revenue in periods of shortfall arising from a sustained fall in energy prices by setting aside a significant proportion of the windfall revenue from the energy sector.
Accumulation Rules	Of surplus resource revenue, 60% is deposited into the fund. In 2005, an allocation estimate of approximately TTD \$1,356.9 million (CAD \$244 million) was transferred to the fund.
Withdrawal Rules	The current withdrawal rules are unknown to the authors.
Investment Rules	The current investment rules are unknown to the authors.
Value	Total allocations to the IRSF now stand at TTD \$ 2.7 billion (CAD \$479 million).
References and Sources of Information	<p>“Managing Hydrocarbon Wealth: A look at Natural Resource Funds,” <i>First Citizens Bank Economic Newsletter</i>. March 2005, vol. 8, no. 1. http://www.simplyfirst.net/enews/05_03_01.html.</p> <p>Enill, Conrad, Ministry of Finance of Trinidad and Tobago. 2005. <i>Brief for Minister of Finance Mid-Year Review</i>. Available online at http://www.finance.gov.tt/documentlibrary/downloads/10/Brief for Minister of Finance Mid-year Review2005 (Senate).doc .</p> <p>Valley, Kenneth, Statement by Minister of Trade & Industry of Trinidad and Tobago at the 2nd World Trade Policy Review (1998-04). September 2005, WTO Headquarters. Geneva, Switzerland.</p>

¹¹⁸ “IMF 2005 article IV Consultation: Beware ‘boom bust’ cycle,” *The Trinidad Guardian*. August 18, 2005. http://www.guardian.co.tt/archives/2005-08-18/news_2.html.

3.7 Non-renewable Permanent Fund for the NWT

Federal and territorial leaders and project proponents have promised Northerners many benefits associated with oil and gas development. However, there is no clear mechanism in place to ensure that there are direct benefits for *all* Northerners (there are obviously benefits to those who would be employed as a result of development). Women and elders are two demographics with unclear potential benefits. In addition, the pace and scale of potential development is still undetermined, as are the social and environmental conditions that Northerners would like to see maintained or improved should development continue.

A non-renewable permanent fund for the NWT would be a benefit to all Northerners and to Canadian taxpayers (who are currently on the hook for a \$500 million federal subsidy to deal with the social consequences of the MGP, if approved). This fund could be set up to mitigate boom and bust cycles, provide a store of wealth for future generations and facilitate a transition to a more diversified economy.

If the MGP proceeds, northern gas would flow directly to southern markets. Presently there are no defined plans to provide natural gas to communities that lie along the proposed MGP route. A percentage of the interest earned from a non-renewable permanent fund could also provide financial resources to manage local energy needs in communities throughout the NWT. For example, small communities could benefit substantially from renewable energy investments to eliminate their dependence on diesel power. Investments such as these would still be valuable after gas reserves begin to decline and would give communities certainty in energy prices and reliability.

From the review of non-renewable permanent funds conducted above, it is useful to highlight the key strengths and weaknesses of the funds. These observations can provide guidance in the establishment of a non-renewable permanent fund in the NWT.

Strengths:

- Clear and consistent accumulation and withdrawal rules.
- Transparency and communication strategy to inform constituents of the fund's activities.
- Diversified investment portfolio.
- Scenario modeling to plan for the future—checking against resource value, reserve depletion, and competing markets.

Weaknesses:

- Overly flexible withdrawal rules (there is a great temptation to spend earnings when profits are high while there is a risk that financial resources could be insufficient when deficits are realized).

Northern Perspective:

In the series of bullets below, we describe a policy approach to establishing a non-renewable permanent fund for Canada's NWT.

- **Take a long term approach to revenue accumulation:** The establishment of a non-renewable permanent fund is especially warranted in the NWT given the sensitive environmental conditions of the territory, the desire to have long-term residents and the

lack of diversity in the economy. By translating resource wealth into financial wealth, over the long term the NWT will have a store of funds that can be used to: a) provide wealth to future generations who will not have the benefit of the oil and gas resources, b) invest in alternative sectors to diversify the economy, c) implement local energy options to reduce dependence on diesel and provide energy security to communities, and d) protect local economies from boom and bust cycles.

- **Ensure clear accumulation and withdrawal rules:** Consistent deposits of resource revenue into a NWT fund, combined with strict withdrawal rules that will ensure growth over time are essential to a successful fund.
- **Use of future scenario modeling:** The NWT has an opportunity to map out when and where resource development might take place and what the potential range of associated revenue generation could be. Future scenario modeling, which is used for example in Norway, is an effective tool to determine how long the period of fund growth will be and at what point the rate of earnings will decline and when oil and gas revenues will likely cease to exist. With this information, the NWT can plan accordingly to ensure that the resource wealth earned will translate into future diversified economic opportunities.
- **Diversified investment portfolio:** If a large portion of the fund is invested in domestic oil and gas, there is a risk that the fund could suffer because of reduced resource revenue as well as reduced capacity to earn investment income. A diversified portfolio, such as in Norway, will ensure that the fund is not dependent on the success of any one industry or currency.

There is only one chance for the NWT to obtain economic benefits from the development of its non-renewable resources. A well-managed fund could provide economic and social benefits for current and future generations.

Glossary of Terms

Capital Cost Allowance—a tax deduction that Canadian tax laws allow a business to claim for the loss in value of capital assets due to wear and tear or obsolescence.

Deduction—An amount that may be subtracted from income that is otherwise taxable.

Gross Revenue—Total revenue that is subject to tax.

Net Revenue—Total revenue (gross revenue) less all eligible expenses.

Ring Fence—The practice of isolating a designated pot of money from outside risk. The ring fence prevents taxable profits from oil and gas extraction in one region from being reduced by losses from other activities or excessive interest payments in another region by treating ring fenced activities as a separate trade.

Royalty—A payment received for the right to exploit a taxpayer's ownership of natural resources.

Royalty Holiday—Oil or gas production that is exempt from royalty payments.

Simple Payout—The point at which project revenues first reach or exceed the sum of allowed exploration costs, capital costs, operating costs and royalties paid.

Straight Line Depreciation—The simplest and most commonly used, straight line depreciation is calculated by taking the purchase or acquisition price of an asset subtracted by the salvage value divided by the total productive years the asset can be reasonably expected to benefit the company [called “useful life” in accounting jargon].

Uplift—The extent to which a project or sector benefits from tax incentives. Assigning an uplift to eligible expenditures increases the deduction of those expenses by the value of the uplift.