Qualifying Environmental Trusts as Financial Security for Oil Sands Reclamation Liabilities

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Oil Sands Research and Information Network

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REPORT SUMMARY

The Alberta oil sands resource is vast; however, the amount that can be accessed via open-pit mining is limited. The process of extracting oil from bitumen via open-pit mining has now been going on for decades and could be considered a mature industry. Under Alberta law, plans for the suspension, abandonment, remediation and surface reclamation of each oil sands mine and associated processing plant must be in place before the government allows mining to take place. Each operator must also provide some form of financial security to the Government of Alberta to ensure that funding will be in place to pay for suspension, abandonment, remediation and surface reclamation liabilities, in the event that the Approval Holder is unable or unwilling to do so. As a mine approaches its end-of-life, the Approval Holder must increase the amount of financial security provided to Alberta Environment and Sustainable Resource Development, such that by the time the mine has less than six years of reserves left, the entire amount of the estimated clean-up cost is covered by financial security. One of the forms of financial security made available to oil sands operators, effective 2011, is a qualifying environmental trust (QET).

The royalty regime in Alberta for operators of mature oil sands mines (known as the post-payout phase) is such that royalties paid by oil sands operators to the government are calculated based on revenue less 'allowed' costs. Abandonment, remediation and surface reclamation costs are considered allowed costs. However, an Approval Holder cannot deduct allowed costs from royalties after bitumen production is complete; thus any suspension, abandonment, remediation and surface reclamation costs incurred after production are not deductible. On the other hand, the funding of a QET to provide financial security for future suspension, abandonment, remediation and surface reclamation costs is immediately deductible for royalty and income tax purposes. For reasons detailed herein, we expect that as oil sands mines approach their end-of-life, the operators will establish QETs to avoid forfeiting the deduction of their suspension, abandonment, remediation and surface reclamation costs. The suspension, abandonment, remediation and surface reclamation liabilities that have accrued to the oil sands operators are now in the billions of dollars. If even a portion of these are funded by QETs, the effect on the amount of royalties and taxes flowing to the Government of Alberta will be in the hundreds of millions of dollars. Thus, understanding if and when oil sands operators will choose to use QETs is important for the forecasting of government revenues, particularly as oil sands royalties are now the single biggest contributor to Alberta's total royalty revenue.

It should be noted that a QET provides a very strong form of financial security. Various versions of environmental trusts are available to mining companies in jurisdictions throughout the world. They are generally deductible for tax purposes; however, we find almost no use of them anywhere, including other jurisdictions within Canada. In this report we discuss why we believe that oil sands firms will use QETs as the reserves in their mines run down. This is done in the context of Alberta Environment and Sustainable Resource Development's Mine Financial Security Program, introduced in 2011, and the fact that the end-of-life of a number of oil sands mines are in the not too distant future.

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All opinions and errors in this report are solely attributable to the authors.

1 INTRODUCTION

1.1 Requirement for Reclamation and Security

Under Alberta law, plans for the suspension, abandonment, remediation and surface reclamation of open-pit mines and associated processing plants must be in place before the government allows Approval Holders to undertake mining operations in the oil-sands[1]. The law also requires that Approval Holders provide some form of financial security[2] to Alberta Environment and Sustainable Resource Development to ensure that funding is available to pay for reclamation[3]. The amount of financial security required increases over time such that by the time a mine is six years from its end-of-life[4], all of the funds required to pay for the estimated reclamation liabilities related to the mine and plant site are covered by some form of financial security. The amount of security is reassessed every year and the new security amount must be provided by the Approval Holder in June of each year (Alberta Environment 2011a).

1.2 Forms and Amounts of Security in Alberta's Mineable Oil Sands

To facilitate a discussion of QETs in relation to the financial security for reclamation liabilities in the oil sands[5] it is first important to understand the amount that this liability might ultimately be. Open-pit mining and related processing operations cause significant land disturbance and tailings are typically a part of the environmental legacy of oil sands operations.

In 2011, Alberta Environment (now Alberta Environment and Sustainable Resource Development) released new requirements for the provision of financial security for suspension, abandonment, remediation and surface reclamation of oil sands and coal mines and related plant sites[6] (Mine Financial Security Program (MFSP); Alberta Environment 2011a,b). The *Mine Financial Security Program Standard* (MFSP Standard; Alberta Environment 2011a) determines the amount of financial security required for Approval Holders. For the purposes of this report,

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[1] An Approval Holder is an entity that has been granted an approval for oil sands mining and/or processing under Alberta's *Environmental Protection and Enhancement Act* (Government of Alberta 2000a). An Approval Holder may be composed of more than one business entity (e.g., a joint venture like Syncrude).

[2] Financial security is security for reclamation liability in the form of cash or a financial instrument (a list of potential acceptable instruments is provided in section 21 of the *Conservation and Reclamation Regulation* (Government of Alberta 1993)).

[3] The term *reclamation* is used in this report to mean suspension, abandonment, remediation and surface reclamation as defined in the MFSP Guide (Alberta Environment 2011b).

[4] *End-of-life* is defined as the date when there are no more reserves associated with the project. The actual operation, including reclamation, will continue for several years.

[5] This report focuses on mineable oil sands. A separate liability management program managed by the Energy Resources Conservation Board applies to in-situ operations.

[6] Oil sands plant sites were not part of the previous security program; see Morton et al. (2011) for more information on plant site security cost estimates.

only oil sands mines and plant sites are discussed since they are the most likely to be associated with a QET. Under the MFSP, financial security is required for both the oil sands mines and for any associated plant site (e.g., an upgrader). The amount of financial security required is determined on an annual basis. The total expected cost of settling out the reclamation liabilities at any given mine is in the hundreds of millions of dollars, if not more than one billion dollars (depending on the size and nature of the plant site)[7]. This expected cost is known as the MFSP Liability. By the time a mine is within six years of its end-of-life, the entire MFSP Liability must be funded by some form of financial security.

Regardless of the stage-of-life of the mine or the size of the MFSP Liability, to be granted an approval to mine, the MFSP Standard (Alberta Environment 2011a) requires a Base Security Deposit (BSD) in the form of financial security. This amount has been set at $30 million for an oil sands mine without an upgrader and $60 million for a mine with an upgrader. Furthermore, when the MFSP was introduced, financial security already existed for the mines currently in operation. Rather than lowering the financial security for currently operating Approval Holders to the $30 million or $60 million noted above, the Base Security Deposit for those mines was set at the amount of financial security in place as of December 31, 2010 (Alberta Environment 2011b). These amounts are presented in Table 1.

Table 1. Financial Security for Existing Oil Sands Mines.

Canadian Natural Resources Limited, Horizon	$ 61,200,000
Imperial Oil, Kearl	$ 64,655,000
Shell Albian, Jackpine	$ 72,361, 895
Shell Albian, Muskeg River	$ 111,277,441
Suncor, Base Mine	$ 359,096,654
Suncor, Fort Hills	$ 38,958,605
Syncrude, Mildred Lake and Aurora	$ 205,303,024
Total	$ 912,852,619

Source: adapted from Alberta Environment (2011a)

As all of the oil sands mines have more than fifteen years of reserves left to mine, the amount of financial security held by the Alberta Government for the next few years will be, at a minimum,

[7] All figures in this report are C$.

the amounts presented in Table 1[8]. However, in a few years some of the mines will enter the last fifteen years of reserve life. Under the MFSP, Approval Holders must then post financial security equal to 10% of the total MFSP Liability; each year after that, the security required increases an additional 10%[9]. When there are less than six years left until the end-of-life of the mine, the liability is then fully funded via financial security.

The forms of financial security allowed in Alberta are listed in Section 21 of the *Conservation and Reclamation Regulation* (Government of Alberta 1993). They are as follows:

- cash;
- cheques and other similar negotiable instruments payable to the Minister of Finance and Enterprise;
- Government guaranteed bonds, debentures, term deposits, certificates of deposit, trust certificates or investment certificates assigned to the Minister of Finance and Enterprise;
- irrevocable letters of credit, irrevocable letters of guarantee, performance bonds or security bonds in a form acceptable to the Director;
- qualifying environmental trusts within the meaning of subsection 248(1) of the *Income Tax Act (Canada)*;
- any other form that is acceptable to the Director.

At the time of the introduction of the MFSP, qualifying environmental trusts (QETs) were added to the above list, as they were not specifically mentioned in the original legislation. At present, virtually all of the financial security is in the form of an irrevocable letter of credit (LOC). For reasons to be discussed later, QETs will likely form a significant part of the financial security as the end-of-life of the mines approach.

1.3 The Origin of Qualifying Environmental Trusts in Canada

Funds set aside in a trust arrangement to ensure that a specific environmental liability will be paid for in the future are known as an environmental trust. Various versions of environmental trusts exist in tax jurisdictions throughout the world. Funds put into them are usually deductible for income tax purposes, which is the case in Canada for Qualifying Environmental Trusts (QETs). A QET is an environmental trust as defined by the *Income Tax Act* (ITA; Government of Canada 1985, subsection 248(1)).

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[8] Note, new mines coming into effect after December 31, 2010 such as Total's Joslyn North Mine will increase the total amount of security held by the province – see http://environment.alberta.ca/03388.html for current security amounts.

[9] Refer to the description in the MFSP Guide for more detailed explanation of how the deposit requirements work (Alberta Environment 2011b; section 4.3).

According to the ITA:

> A QET refers to a trust resident in a province and maintained at that time for the sole purpose of funding the reclamation of a site in the province that had been used primarily for, or for any combination of, the operation of a mine, or the deposit of waste, where the maintenance of the trust is or may become required under the terms of a contract entered into with Canada or the province. It does not include a trust that relates to the reclamation of a well.[10]

The origin of QETs in Canada came about in response to what was considered an unfair tax situation for a number of smaller mining companies that were compelled to set aside financial security as a condition of being allowed to carry-on mining operations. In the past, there have been problems with mining operations going bankrupt and leaving costly and long-lived environmental clean-up costs. As a result, some provincial and territorial governments began to demand that funds be put aside to pay for the future decommissioning and clean-up of a mine before allowing mining operations to commence. These firms then argued that they were being put into an unfair tax situation. As these were smaller firms, typically one-mine operations, it was likely that the companies would not be able to deduct significant portions of their clean-up costs for income tax purposes as much of the clean-up would not occur until after the mine was no longer generating revenue. Furthermore, the entire amount of the expected pre-tax cost of the clean-up would be tied up for the entire life of the operation. As a result, the Government of Canada established QETs under the *Income Tax Act* as described above. The establishment of QETs in Canada went as follows:

1. Several Provincial and Territorial Governments decided to compel certain companies to establish an environmental trust as a condition of approving a mining project
2. These companies argued that this was unfair vis-à-vis income taxes and appealed to the federal government to change the tax laws; it could even preclude them from undertaking the project
3. QETs are established in Canada under the ITA

Thus, although one might think of a QET as a policy instrument to encourage the establishment of environmental trusts in Canada, it actually came about as a way to create neutrality in the tax code. To date, very few QETs have been established in Canada, numbering only a dozen or so. British Columbia and the Northwest Territories have been the most active in demanding fully funded environmental trusts prior to mining and hence, this is where virtually all of the QETs to date have been established. Given that the QETs established to date are associated with smaller,

[10] This definition is paraphrased from subsection 248(1) of the ITA. Although this paper does not discuss reclamation issues as they pertain to pipelines, as of January 1, 2012 the scope of QET deductibility for income tax purposes has been expanded to include financial security required for pipelines.

often single-mine, firms the amounts are relatively low, with the few that we have found to date in the $10 million to $20 million range. In all cases, the firms were in a situation where they were forced to set aside full funding. When firms are forced to do this, the only tax effective option is to establish a QET.

1.4 Letters of Credit as Financial Security

As noted above, with the introduction of the MFSP in Alberta in 2011, one of the optional forms of financial security now available to oil sands mining operations is a Qualifying Environmental Trust (QET; Government of Alberta 1993, section 21). At present, almost all of the financial security in the oil sands is being provided by irrevocable letters of credit (LOCs). LOCs are provided by banks and in the context of oil sands financial security, they give the Director of Alberta Environment and Sustainable Resource Development the discretion to collect cash from the bank writing the LOC if there is concern about the Approval Holder's ability or willingness to meet its reclamation obligations[11]. LOCs are currently a relatively inexpensive form for Approval Holders to provide financial security. Banks will charge an Approval Holder, on an annual basis, a percentage of the total face-value of the LOC it provides to Alberta Environment and Sustainable Resource Development. Given the size of the firms operating in the oil sands, we expect that banks are currently charging only a few percentage points (per year) to provide LOCs in Alberta.

A disadvantage of LOCs is that only the annual amount charged by the bank to the Approval Holder is deductible for royalty and income tax purposes (see section 4.1 for further discussion of drawbacks to LOCs). For example, if a bank charges an approval holder $1.2 million for a $60 million LOC, only the $1.2 million is deductible. For QETs, the entire amount of cash paid into the QET is deductible for royalty[12] and income tax purposes[13]. The main reason Approval Holders do not utilise this significant deduction is that establishing a QET requires the setting aside of the cash to fund it. For example, establishing a $60 million dollar QET literally means setting aside $60 million in cash. As will be explained in more detail in subsequent sections, when oil sands mines approach the end-of-life, the advantage of using LOCs versus QETs diminishes. In brief, if firms continue to use LOCs they will forfeit a significant portion of the deductions that are available to them via a QET. As a result, Approval Holders will likely provide much of their financial security in the form of a QET as mine reserves diminish. From the perspective of the Government of Alberta, as firms start to use more and more QETs, royalty and tax revenues from Approval Holders will be significantly reduced[14].

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[11] The Director may also convert existing security to cash if the Approval Holder does not renew the Letter of Credit.

[12] As an "allowed cost"

[13] ITA 20(1)(ss)

[14] See McKenzie (2011) for a full discussion of the role that oil sands royalties play with regards to revenues for the Province of Alberta.

1.5 General Requirements of a Suitable Form of Reclamation Security

The International Council on Mining and Metals (ICMM) undertakes regular surveys of its members to assess their opinions of different forms of reclamation security. Earlier on, there was a marked preference for so-called "soft" assurances – such as a corporate guarantee based on a credit rating or a balance-sheet test, self-funding of the obligation with control over funds, parent company guarantees or a pledge of assets. It must be noted here that all of these place no cost on the company in excess of its regular operations. By the time the 2004 survey was undertaken, the majority of respondents recognised that they had to satisfy public expectations and that tougher instruments would serve the purpose. These include letters of credit, bank guarantees, deposit of securities, bonds and cash trust funds.

A general opinion that most companies expressed was an expectation of clarity in the governments' requirements and frustration with governments' lack of familiarity with norms in providing financial surety. In the same vein, industry expects consistency in norms across a country, with no significant differences between national and provincial authorities, and across departments. Companies also expect reclamation costs to be estimated based upon realistic numbers rather than numbers at the upper end of the spectrum. Further, they desire clear guidelines to estimate these factors, with the assurance that these will not be revised without proper review and consultation. A similar view also applies to technical standards which determine the amount of reclamation work, and thus influence costs indirectly. The industry expects that these should be practicable and economically feasible. The industry also expects that any payments toward a reclamation security be treated equitably for the purpose of tax.

The ICMM studies also evaluated the perceptions of governments (Table 2). The 1998 study concluded that governments required securities that would give them adequate assurance of reclamation while also ensuring the competitiveness of the industry. Particularly, governments seek to ensure that the security covers the full cost of reclamation and can be readily accessed by the government should the need arise, thereby minimising, if not eliminating, the burden on the government. As a consequence, most governments prefer payment early in the life-cycle of the project, or at least staggered over the life-cycle. For a more extensive discussion of environmental trusts in an international context see Appendix 1.

Table 2. Government and Industry Perspectives on Financial Security.

Industry	***Government***
Minimal commitment of resources and low transaction costs	Polluter-pays principle
Security should reflect current economic conditions and financial position of the company, and provide for return of unused funds	Security should ensure full funding of reclamation over the life-cycle of the project and minimise portfolio risk

Industry	*Government*
Form of security should allow for flexibility in time of payment	Form of security should drive early reclamation
The security should not be subject to punitive taxation, overt or covert	The security should allow no loop-holes, and should be possible to audit regularly

1.6 Security and Fiscal Regimes in Other Jurisdictions

Appendix 2 presents a review of the security and fiscal regimes in a number of mining jurisdictions across the world. It was observed from this review that most, although not all, require some form of security in place to ensure reclamation. Jurisdictions that require security usually mandate its provision before the proponent starts ground-work at the site. Some jurisdictions permit or require review by a third party in determining the amount of security required. However, significant variation is observed between jurisdictions in terms of the form of security that is accepted by the regulator. Although a few jurisdictions accept trusts, most accept only straight cash, bank guarantees or bonds. The regulatory regime, in most jurisdictions, is also remarkably similar in specifying the reclamation activities that the security is expected to cover; these include the technical and physical aspects of closing the mine, decommissioning plants and equipment and, in some cases, also extend to cover post-closure aspects of reclamation.

In reviewing the security regimes governing mining across the world, their treatment of royalties and taxes was also studied, to understand the inter-play of reclamation security payments, taxes and royalties. It was observed that while most jurisdictions require operators to pay both royalties on production and taxes on income, most do not make any provision for the deduction of security payments. Some jurisdictions are, however, in the process of negotiating or legislating such treatment, or have a partial refund in place. Funds put in place for reclamation are returned to the proponent in most jurisdictions once reclamation is complete, while some retain the funds for a pre-defined period post closure, to account for contingent liabilities. In a few cases, the regulators provide for a return of funds based on progressive reclamation.

1.7 Financial Institutions Providing Qualifying Environmental Trusts in Canada

There are very few financial institutions that provide management or stewardship services for qualifying environmental trusts in Canada, and the instances of their use have been limited to date. Currently, these do not include the major Canadian banks, and are, for the most part, companies that provide insurance or financial advisory services to mining companies.

2 QETS AND THE FISCAL REGIME

2.1 QETs and Royalties

Royalties are a key component of the fiscal framework in Alberta since they comprise a large portion of government revenues. At present, Alberta uses a royalty structure tied to the price of oil. For the purposes of this report, we will assume that Approval Holders contemplating the use of a QET are in the post-payout phase of operations with regards to royalties[15]. This will be the case for any oil sands project approaching end-of-life. In the post-payout phase, royalties are paid on the amount of revenue received less allowed costs of production. The *Mines and Minerals Act* (Government of Alberta 2000b) outlines the allowed costs that are used to determine the amount of royalties. At present, the amount of cash deposited into a QET will be considered a "payment required by the crown to secure reclamation of project lands" and can, therefore, be deducted when determining royalty amounts[16]. While fees paid to obtain an LOC are also deductible for royalty purposes, the face value of the LOC is not deductible. Because the fees associated with obtaining an LOC are a small fraction of the face value, the reduction in royalties resulting from the use of an LOC will be much smaller than a QET.

From the perspective of the Approval Holder, the ability to deduct amounts placed into a QET is a significant advantage. If operators were limited to only being able to deduct amounts paid for reclamation, then it is unlikely that there would be any benefit since a significant portion of reclamation activities take place after production has ceased and there are no corresponding revenues to offset such expenditures. With a QET, all amounts placed into the QET can be deducted while a project is actively producing, thus freeing up significant cash flows for the company in the form of reduced royalties. The downside for the Approval Holder is that they must provide the full amount of cash to fund a QET. These funds could be put to alternate purposes, which may have higher potential returns.

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[15] See Government of Alberta, *Oil Sands Royalty Regulation, 2009* (Government of Alberta 2009), for full detail on the pre- and post-payout phases of oil sands projects. It is also important to note that a "project" for Alberta Energy's royalty calculation purposes is not necessarily the same as the activity subject to the *Environmental Protection and Enhancement Act* approval and MFSP security.

[16] See item 22 of the Schedule in *Oil Sands Allowed Costs (Ministerial) Regulation* (p. 29, Government of Alberta 2008). Amounts paid for reclamation are also considered Fundamental Costs and if a QET were set-up in the pre-payout phase of an oil sands project the cost of the QET would effectively extend the pre-payout phase of a project. We do not discuss this possibility in the analysis presented herein.

It should also be noted that royalties do interact with the overall tax obligation of the corporation. The amount of royalties paid is partially offset by the deductibility of royalty payments when determining taxable income for Federal tax purposes. The initial implication for the use of QETs as a security mechanism is that it will result in a significantly reduced royalty and tax stream for the Government of Alberta[17].

2.2 QETs and Income Taxes

To limit potentially abusive tax practices by taxpayers, the ITA strictly limits the tax deductibility of reclamation provisions even though current financial reporting standards require estimates of future reclamation costs be expensed while production is ongoing[18]. In general, only actual (not estimated) amounts paid for reclamation are deductible. To mitigate the impact of non-deductible reclamation reserves, the ITA has adopted provisions to allow tax-favoured treatment of funds put into QETs. Under the ITA, a company is allowed to deduct the amount placed into a QET from their income in the current year. Earnings within the trust are taxed at the corporate tax rate rather than the higher rate that usually applies to trusts. When funds are taken out of the QET, the withdrawn amount is added to taxable income at that time; however, the corporation will receive a deduction at the same time for expenditures on reclamation activities. Note that since taxes are applied to both the earnings within the trust as well as withdrawals from the trust, there is at present an element of double-taxation of income from a QET. This is discussed in further detail in section 5.1.

3 QETS AS RECLAMATION SECURITY

Reclamation security amounts owing under the MFSP are calculated annually based on the assets and liabilities as of December 31. The Approval Holder then submits their MFSP Annual Report and new security by June 30 of the following year, and would indicate how much of the reclamation security amount would be paid as a QET (Alberta Environment 2011a).

The company will be able to retrieve funds placed into the QET once per year following submission and approval of the MFSP security estimate. It is currently unclear as to how the actual mechanics of withdrawals from the QET will occur in practice. However, assuming the government has been designated the beneficiary of the Trust, it appears likely that the Alberta Environment and Sustainable Resource Development Minister (or designate) would have to direct the trustee of the QET to provide a return of cash to the Approval Holder (or joint venture partner if applicable) such that the amount remaining in the QET is equal to the amount specified by the Approval Holder in the MFSP Annual Report.

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[17] The ability to use a QET has two potential influences on reducing royalties. First, it can be used as a tax planning device for royalty purposes by allowing an Approval Holder to contribute to a QET when royalty rates are relatively high due to the prevailing price of oil, and withdraw when royalty rates are lower. Second, it allows a company to deduct reclamation costs for royalty purposes that would not be otherwise deductible after production ceases.

[18] See Schneider (2011) for more on how environmental liabilities are reported under International Financial Reporting Standards.

4 COSTS OF LOCS AND QETS FOR APPROVAL HOLDERS

4.1 Letters of Credit

As previously discussed, almost all of the financial security for oil sands mines is now covered by LOCs. We do not know exactly how much this costs the Approval Holders, but assume it is in the 1% to 2% range (Gerard 2000, Kirschner and Grandy 2003). The largest current oil sands security is for Suncor's Base Mine at $359 million. For a new mine with an upgrader, the Base Security Deposit (BSD) is $60 million. There are two components to the cost of an LOC. The obvious one is the annual charge paid to the bank for guaranteeing the estimated cost of the environmental liability. For a 2% rate on $60 million, the annual cost is $1.2 million. This annual $1.2 million cost is deductible for royalty and income tax purposes. Assuming an oil price of $85 per barrel of oil, after royalty and tax deductions, the annual cost of providing an LOC as financial security for a $60 million BSD is approximately $0.6 million[19]. Given the relatively high costs of operating in the oil sands, $0.6 million does not represent a major expense given it is essentially funding a $60 million liability. Thus, as long as the rates the banks charge to write LOCs are low, they will be a relatively inexpensive way for Approval Holders to provide financial security. However, as mines approach their end-of-life, the financial security required becomes higher, while the firm's assets (the remaining reserves in the ground) become lower. Both of these factors might make banks charge more for providing LOCs, making other funding options more attractive.

With an LOC the bank is counting on the Approval Holder to uphold its legal requirement as to the environmental damage caused by its mining activities. The Director of Alberta Environment and Sustainable Resource Development can call upon the bank to provide the cash amount of the LOC if there is any concern as to whether the Approval Holder will renew financial security or will not perform the reclamation work. Banks do not generally enter into this type of arrangement unless they are pledged some form of explicit or implicit collateral. Thus, a firm using an LOC is tying up at least a portion of the capital required for financial security. Hence, the second component of the cost is the cost to the Approval Holder of having the collateral component of the LOC tying up capital. We expect that as the end-of-life of a mine approaches, the collateral component will increase. This is because the assets in the ground are close to being depleted and the financial security required will be at its highest.

[19] This discussion is generalizable to any oil price at which an Approval Holder is reasonably profitable. $85 per bbl was chosen as it was the forecast price as per the International Energy Agency at the time of preparing the analysis presented herein.

At present, LOCs are likely the most desirable way (from the Approval Holder's perspective) for oil sands firms to fund the financial security component of their MFSP Liability. This may remain the case for a long time, particularly with the largest firms such as Shell and Imperial Oil, which have a relatively easy time providing the collateral component of an LOC arrangement[20]. However, for firms with most of their up-stream production tied to the oil sands, as the end-of-life of their mines approach and the financial security component of the MFSP liability increases, LOCs will become an increasingly expensive means of financing MFSP liabilities.

Regardless of how many hundreds of millions of dollars a bank is willing to cover via an LOC, the royalty and tax treatment of LOCs versus QETs should ultimately drive firms to set-up QETs. As discussed in section 1.4, when LOCs are used for financial security, only the amount paid to the bank is an allowed cost with regards to royalties. If an oil sands firm uses LOCs until the end-of-life of the mine, it will never have the opportunity to deduct the full cost of the mine and plant site reclamation. Some of these activities can take place before the production ceases and the related costs will be deductible, but a significant portion of the work will take place after production ceases. With no production there are no royalties to be paid and any allowed costs will have no royalty revenues to be expensed against. The only way to ensure that the full amount can be deducted is to fund the financial security via a cash investment[21]. The most tax-effective method to do this is via a QET. From the perspective of the Government of Alberta, the continued use of LOCs would benefit royalty revenues, as much of the cost of mine clean-up would never be deducted from revenue when calculating royalty payments.

4.2 Cost of Establishing a QET

The upfront cost of a QET is equal to the cash given to a trustee by the Approval Holder to fund it. Contributions to a QET are 'allowed costs' for royalty purposes and are deductible for income tax purposes. Thus, royalties and income taxes are immediately reduced by contributions to a QET. The ongoing cost of a QET is driven by the cash tied up in it. Firms generally apply a 'cost of capital' when cash is tied up for a period of time. In the case of a QET, the cash could be tied up for one year or decades, depending upon how early in the life of the mine the QET is established and how long the reclamation takes.

Figure 1 presents the initial impact of establishing a $200 million QET. We present the $200 million amount because this is the amount used in the MFSP Guide as an example of a total MFSP liability relating to an oil sands mine (Alberta Environment 2011b; p. 27). The actual

[20] We believe the cost of capital will be a significant determinant as to the form of financial security provided. For most companies, the cost of capital will be much higher than the after-tax returns provided by a QET. Because of this, most companies will find it beneficial to invest their capital in operations rather than in a low-yielding QET. They will instead use an LOC to provide financial security until there is a risk of losing the deductibility of reclamation expenses for royalty and tax purposes. Larger companies will typically have a lower cost of capital relative to smaller operators.

[21] In Alberta, oil sands projects are "ring fenced" for royalty purposes. This means that costs from one oil sands project cannot be transferred to another royalty producing property.

MFSP liabilities for currently approved oil-sands mines could be significantly more. In Alberta, royalty rates vary from 25% to 40% of net revenue, as oil prices range from $55 to $120 per bbl[22]. Thus, as the oil price increases, the benefit to an Approval Holder of establishing a QET increases as well.

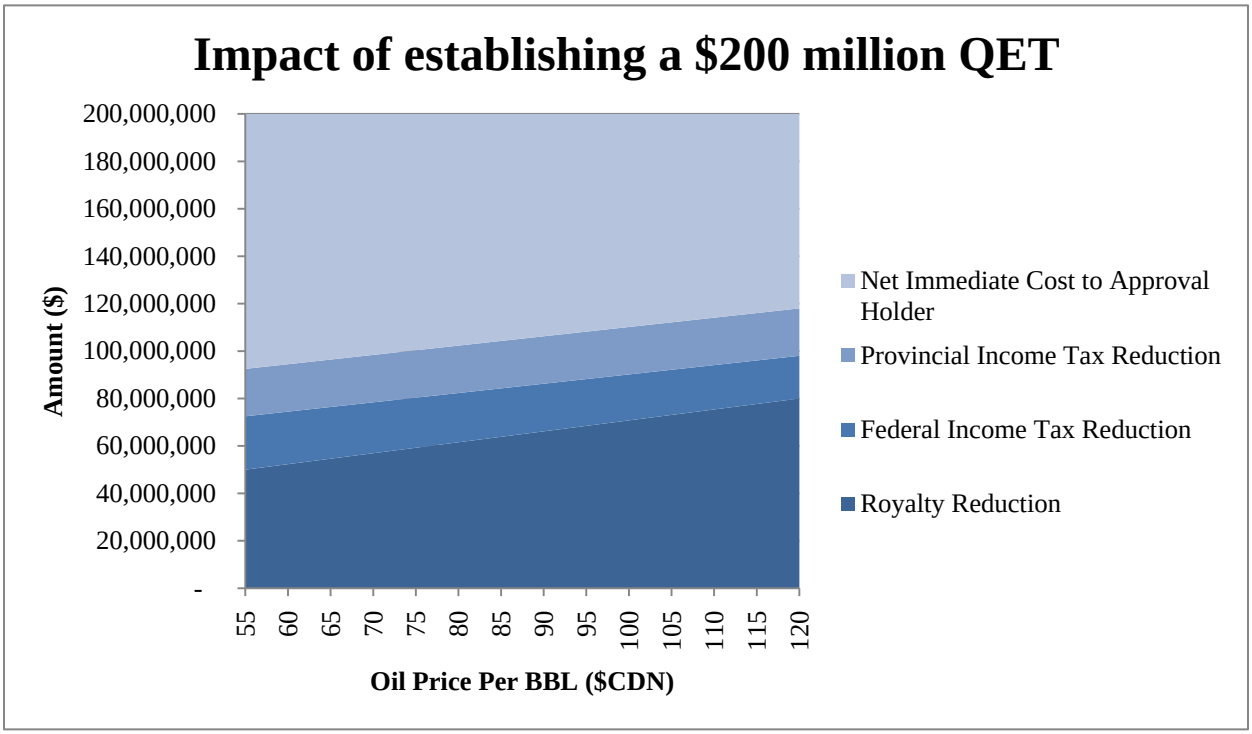

Figure 1. Initial Impact of Establishing a $200 Million QET.

The area in Figure 1 that is the darkest shade of blue presents the royalty reduction associated with establishing a QET, which begins at $50 million and goes up to $80 million if oil is at $120 per bbl. The next two shaded areas present the federal and provincial income tax reductions. The lightest area represents the net cost to the Approval Holder, which ranges from $107.5 million with oil at or below $55 per bbl down to $82 million when oil is at or above $120 per bbl. Thus, as oil prices increase, the immediate cash cost to an Approval Holder of establishing a QET is reduced, making QETs more and more compelling as a form of financial security. On the other hand, as the government royalty rate increases, the cash cost to the Government of Alberta (due to foregone royalty revenues) increases.

[22] There is also a minimum royalty rate that ranges from 1% to 9% of gross revenues as oil prices move between $55 and $120 per bbl. The analysis presented herein assumes that a company establishing a QET will have high enough net revenues such that the minimum royalty rate does not come into effect. For the specific formulas used in calculating royalty rates for the oil sands see *Oil Sands Royalty Regulation, 2009*: pp. 47-48.

As is evident in Figure 1, there is a one-off benefit from setting up a QET. However, this is offset by the fact that the Approval Holder is tying up a large amount of capital. A possible range of annual costs related to establishing a QET of $200 million is presented in Table 3. The ongoing cost of a QET is the time-value of money due to tying up the amounts required as the net initial cash cost to the Approval Holder. If we assume an annual cost of capital of 10%, the implicit cost ranges from $10.75 million to $8.20 million per year, depending on the oil price when the QET is established. This annual cost stops when the Approval Holder is returned the amount in the QET. The cost is somewhat offset by the fact that earnings are generated by the funds held in the QET, but these earnings will likely be low. Trustees managing QETs have a fiduciary responsibility as to managing a QET and the investment strategy is generally low risk.

Table 3. Ongoing Cost of Funding a QET.

Price of Oil $/bbl	Initial Cash Cost (from Figure 1)	Implicit annual cost of QET investment (at 10% cost of capital)	Annual cash return on QET fund (at 0.5% after-tax return)	Ongoing net cost of funding QET
55	107,500,000	10,750,000	1,000,000	9,750,000
60	105,538,455	10,553,846	1,000,000	9,553,846
65	103,576,910	10,357,691	1,000,000	9,357,691
70	101,615,365	10,161,537	1,000,000	9,161,537
75	99,653,820	9,965,382	1,000,000	8,965,382
80	97,692,275	9,769,228	1,000,000	8,769,228
85	95,730,730	9,573,073	1,000,000	8,573,073
90	93,769,185	9,376,919	1,000,000	8,376,919
95	91,807,640	9,180,764	1,000,000	8,180,764
100	89,846,095	8,984,610	1,000,000	7,984,610
105	87,884,550	8,788,455	1,000,000	7,788,455
110	85,923,005	8,592,301	1,000,000	7,592,301
115	83,961,460	8,396,146	1,000,000	7,396,146
120	82,000,000	8,200,000	1,000,000	7,200,000

Low risk investments traditionally generate relatively low returns[23]. Furthermore, as described in section 2.2, any QET earnings are subject to income taxes within the trust as well as royalties plus taxes when they are returned to the Approval Holder. In today's environment, a QET might net after-tax returns of around 0.5% to 2% per year. At 0.5% the annual net return on a $200 million QET would be $1 million.

The key question raised by the costs and benefits of a QET presented in Figure 1 and Table 3 is whether and when an Approval Holder will switch from using an LOC to a QET. As already mentioned in section 2.1, this will cause a great deal of uncertainty and potentially lower royalty revenues for the Government of Alberta. LOCs currently present a relatively inexpensive way for firms to fund their financial security requirements. However, as oil reserves decrease and financial security requirements increase banks may demand more collateral. Combined with the royalty and tax benefits of QETs versus LOCs, QETs become more compelling as a means of financial security for Approval Holders as the reserves left in their mines are depleted.

5 POTENTIAL ISSUES AND IMPLICATIONS

5.1 Double Taxation on QET Income

Earnings generated by funds in a QET are subject to double-taxation under the ITA. For most trusts, income earned within a trust is taxed for Federal tax purposes at a rate of 29%. Once tax has been paid on these amounts within the trust, those earnings become part of the capital of the trust and may be withdrawn from the trust on a tax-free basis. However, QETs are treated somewhat differently than most trusts. As was noted previously, deposits into a QET reduce the reported taxable income of a company in the year the deposit is made. The ITA also allows a company to elect to use the federal corporate tax rate of 15% rather than the 29% statutory rate normally used for trusts[24]. Both the amount placed into a QET, and the after-tax earnings from the QET, increase taxable income in the year they are removed from a QET. Thus, income generated by a QET is subject to double-taxation. This double-taxation of QET income will result in an effective federal tax rate on QET earnings of approximately 27.75%[25].

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[23] The primary limitation on QETs investments results from the ITA. Up until December 31, 2011, investments in a QET could only be invested cash, guaranteed investment certificates (GIC) issued by a bank or trust company incorporated in Canada, or government bonds (see ITA subsection 248(1) and section 204). As of January 1, 2012 allowable investments have been expanded to include rated corporate bonds issued by publically listed companies, and "securities" listed on a designated stock exchange. It should be noted that investments in debt obligations or equities of parties related to the approval holder are not permitted. It is unclear what role, if any, the government will have as beneficiary of the Trust in terms of selecting or restricting investments forms.

[24] All income tax calculations presented herein are based on 2012 tax rates.

[25] Income for federal tax purposes will be reduced upon withdrawal by any provincial royalties due upon withdrawal from a QET (see section 4.2). The figures here have not been adjusted to account for these royalties since they are dependent upon the price of oil. It is also likely that the project will not be producing when funds are withdrawn from a QET and would hence not be subject to royalties.

Alberta corporate taxes are generally computed upon the basis of income calculated for Federal tax purposes with limited adjustments, hence earnings in a QET are subject to double-taxation at the provincial level as well. This results in an effective provincial tax rate of 19% on income from a QET[26].

Therefore, income on funds placed into a QET is subject to a combined tax rate of 46.75%; whereas other trusts are generally taxed on income at a combined 39% rate. As a result, the tax deferral advantages of being able to deduct QET deposits from income will be partially offset by taxes on the earnings from such funds.

5.2 Impact of QETs on Government Royalty Revenue

Perhaps the largest impact of QET adoption on the fiscal regime will be to introduce a significant reduction in the amount of royalty revenue that would be received if QETs were not available. In addition, the price of oil will play a large role in determining the timing of QET contributions. Since royalties are based upon the price of oil, it will be advantageous for a company to engage in tax planning by contributing during periods of relatively high oil-prices and withdraw funds when oil prices are relatively low. Alberta Energy has indicated that only "mandatory" contributions to a QET will be deductible for royalty purposes, voluntary contributions would not qualify. While this would seem to limit the ability of a firm to engage in tax planning, the restrictions on the deductibility of voluntary contributions will be irrelevant with respect to security required under the MFSP as firms still have significant discretion over the form of financial security provided (i.e., LOC or QET).

[26] The Alberta Corporate Tax Act (ACTA; Government of Alberta 2000c) does not explicitly mention Qualifying Environmental Trusts, nor does it make direct reference to the applicable sections of the federal ITA dealing with QETs. Since Section 4 of ACTA states that the provisions of the federal ITA apply for the purposes of determining corporate taxes in Alberta unless specifically otherwise provided for in ACTA, we presume that the federal provisions dealing with the deductibility of QETs for tax purposes will apply at the Alberta level as well. We do note that there is some ambiguity surrounding the taxation of income within the QET; however, since QETs are again not mentioned directly in ACTA we believe they will be treated like an ordinary trust for Alberta corporate tax purposes. Double taxation will still occur at the Alberta level since capital disbursements from a QET are to be included as income under 12(1)(z.1) of the federal ITA.

A secondary issue arises from the fact that royalties are only applicable to "other net proceeds" if there is actual production occurring. If production has ceased and funds are subsequently withdrawn from the QET, there is currently no mechanism under existing statutes or regulations to recover potential over-contributions made to a QET during production. A worst case scenario can be envisioned where a portion of the reclamation expenses may be deducted for royalty purposes twice[27].

The recent introduction of QETs to the MFSP and their related impact on royalties is currently not well understood. Alberta Energy is actively reviewing the regulations surrounding royalties and environmental expenses. While QETs provide a potentially useful mechanism for allowing a company to realize the benefits of reduced royalty payments, they are not a perfect mechanism. Other mechanisms, such as allowing a company to "carry-back" post-production reclamation expenses to reclaim royalties paid during the final years of production[28] may be a good alternative. Consideration could also be given to the "deferred royalty" mechanism used by the Government of Canada in their administration of the FLPRR[29].

5.3 Multiple Security Providers

Currently, several oil sands operations are joint ventures whose individual joint venture partners provide a portion of the total security required from the Approval Holder. For example, Syncrude Canada Ltd.'s total MFSP security owed in 2011 (under the old security regime) was $205,303,024; Table 4 shows the amounts provided by the joint venture partners as their share of the total (Ministry of Environment 2011).

Table 4. Syncrude Canada Ltd. Joint Venture Partner Security Payment Amounts.

Joint Venture Partner	Security Amount
Canadian Oil Sands Ltd.	$75,428,331
Imperial Oil Limited	$51,325,756
Suncor Energy Inc.	$24,636,363

[27] This could occur if a contribution to a QET was made and deducted from royalties while production was occurring. If a portion of the reclamation work was expensed during the production period it could also be deducted for royalty purpose. Normally if a withdrawal was made from the QET during production to cover these reclamation costs the amount withdrawn would be subject to royalties since it is considered "other net proceeds". However, if the withdrawal from the QET is deferred until after production is completed, the withdrawn amounts would not be subject to royalties. Thus costs for a portion of the reclamation could potentially be deducted twice.

[28] This would allow a refund of royalties paid in prior years subject to the minimum amount of royalties required. Additional mechanisms would have to be adopted to mitigate potential tax planning opportunities inherent in any carry-back regime.

[29] For further information see Section 6 of the *Frontier Lands Petroleum Royalty Regulations* (Government of Canada 1991).

Joint Venture Partner	Security Amount
1527191 Alberta Ltd.	$18,538,863
Nexen Oil Sands Partnership	$14,843,409
Mocal Energy Ltd.	$10,265,151
Murphy Oil Company Ltd.	$10,265,151
TOTAL	$205,303,024

This has two implications for the use of QETs as financial security:

- The joint venture partners with the smaller shares of the total security deposit may choose not to use a QET if there is a threshold value below which it does not make financial sense to establish and maintain one.
- The government will be required to enter into separate QET agreements with each joint venture partner that does decide to use this form of security.

The ability of government to forecast royalty and tax revenues becomes even more difficult if the companies within the joint venture choose different approaches to providing security (i.e., some choose not to use a QET while others do use a QET).

5.4 Multiple Security Types

The MFSP Guide (Alberta Environment 2011b) states that government prefers that financial security is provided as a single instrument; however, we believe it is likely that Approval Holders will use a combination of LOCs and QETs. Under MFSP calculations, the amount of security that an Approval Holder must provide is likely to be higher than the actual cost of reclamation. This is due to two factors. First, MFSP calculations are based upon the costs of engaging a third-party to carry out reclamation activities. Companies who elect to do a portion of the work themselves may be able to obtain lower costs as they do not have to pay for the third-party profit margin. Second, the MFSP calculation ignores the time value of money. Amounts reported under the MFSP are not discounted into current dollar values; as such the amount required under the MFSP is most likely greater than the actual cost.

Given that companies have strong incentives to avoid overfunding a QET, it is likely that QETs will only be funded up to the amount that an Approval Holder actually expects to spend, with the balance being funded via an LOC.

This means additional administrative work for the government to track and, if required, to convert to cash, multiple security instruments.

6 CONCLUSIONS

The main conclusion we take from the discussion presented herein is that Alberta will become the first jurisdiction in the world in which environmental trusts (in the form of QETs) are commonly used as a form of financial security to ensure that firms meet their reclamation obligations. This is largely driven by the royalty structure in place for oil sands operators, whereby payments made for financial security are deductible for royalty purposes and that these operators would forfeit this deduction if they do not fully fund their environmental liability while they are still generating net revenues from their oil sands mining projects.

It is clear that the use of QETs will place additional administrative burden on government compared to LOCs, including:

- Negotiating conditions of multiple QETs. To reduce this burden it is recommended that government develop a standard template QET as it has done with LOCs.
- Developing an administrative system to direct the QET Trustee to return cash to the company providing the QET.
- Tracking and reporting on multiple security instruments instead of one LOC per Approval Holder or joint venture partner.

A further implication of QETs is that, given the sheer size of the liabilities accrued in oil sands mining and processing, it may have a material impact on royalty and tax revenues for the Government of Alberta. As the timing of when a QET is established is up to each individual firm, it also has the potential to cause some reduction in government cash-flows. We expect that certain assumptions have been made in anticipation of this. However, on-going communication between government and the firms involved in oil sands open-pit mining is advisable, to ensure that these assumptions are indeed accurate and to make changes in royalty and tax revenue forecasts if these assumptions change. This will be particularly important as the currently operating mines approach their end-of-life which, for some of them, is now in the not too distant future.

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8 GLOSSARY OF TERMS AND ACRONYMS IN THIS REPORT

8.1 Terms

Approval Holder

An entity that has been granted an Approval for oil sands mining and/or processing under the *Environmental Protection and Enhancement Act*.

Director

The Alberta Environment and Sustainable Resource Development staff member designated as Director under the *Environmental Protection and Enhancement Act* who issues the *Environmental Protection and Enhancement Act* approval for the mine or plant.

Financial Security

Security for an environmental liability in the form of cash or financial instrument

Qualifying Environmental Trust

The following is a paraphrased version of the description of a "qualifying environmental trust" as per the ITA (Government of Canada 1985, section 28):

> A "qualifying environmental trust" refers to a trust resident in a province and maintained at that time for the sole purpose of funding the reclamation of a site in the province that had been used primarily for, or for any combination of, the operation of a mine, or the deposit of waste, where the maintenance of the trust is or may become required under the terms of a contract entered into with Canada or the province. It does not include a trust that relates to the reclamation of a well.

Upgrader

An upgrader is a process facility that breaks down the long-chain hydrocarbons constituting bitumen, by the application of heat and pressure, to produce shorter chain liquid hydrocarbons, and saturates them with hydrogen, to produce synthetic crude oil. By-products of the process include coke and gaseous hydrocarbons.

8.2 Acronyms

ACTA	*Alberta Corporate Tax Act*
BSD	Base Security Deposit
CABREE	Centre for Applied Research on Energy and the Environment
CRA	Canada Revenue Agency
FLPRR	*Frontier Lands Petroleum Royalty Regulations*
ICMM	International Council on Mining and Metals
ITA	*Income Tax Act (Canada)*
LOC	Letter of Credit
MFSP	Mine Financial Security Program
OSRIN	Oil Sands Research and Information Network
QET	Qualifying Environmental Trust

APPENDIX 1: Environmental Trusts in an International Context

General Description

The International Council on Mining and Metals (ICMM) describes an environmental trust as a "fund set up by a company in an amount that is determined to be sufficient to cover specific reclamation costs which are contained in the decommissioning plan" (Miller 2005). The fund amount is set by a function of the expected annual reclamation costs, investment policy and expected real rates of return.

Structure

An environmental trust is set up based upon a government-approved decommissioning plan that includes an estimation of the cost of reclamation[30]. Such funds are usually structured so as to give the government or other administrative authority reasonable assurance that sufficient funds will be available to meet expected reclamation costs. The terms and conditions governing the operation of a fund have to be stated in a trust agreement administered by the trustee.

Companies with more than one mine often seek to combine the funds required for individual operations into a single cash trust fund. However, each mine should be assessed individually and the security required should reflect the costs and risks associated with reclaiming that site. This is to ensure that funds deposited for one operation are not used for another, the cost of whose reclamation might have originally been miscalculated.

Estimating the costs of reclamation is an intricate task and must, therefore, be based on careful engineering and technical studies accompanied by formal risk assessments to take into account the probabilities and consequences of alternative scenarios.

Administration

The ICMM recommends that the very design of the fund should encourage mining companies to manage their reclamation programs in an active and responsible manner. To this end, it specifies that an environmental trust should operate in a manner similar to a pension fund. In other words, it needs to be under the control of a third party trustee and should have an investment manager, to channel the funds in accordance with a pre-defined investment policy. While the trustee is normally an independent third party, such as a trust company, the investment manager is selected by the mining company. Some jurisdictions give the mining company the option of managing the fund internally.

Operation

Contributions to an environmental trust are normally structured as a series of payments over a specified time period. Money deposited in the trust is invested under the direction of an

[30] In Alberta, the amount is dictated by the MFSP, in which financial security is based upon an undiscounted third-party cost to complete the reclamation.

investment manager, under an investment policy that optimizes the risk-return ratio, while emphasizing the nature of the fund as a long-term player.

The operation of the environmental trust is normally subjected to a regular audit review, every three to five years, to ensure appropriate disbursement and use of funds in keeping with the approved de-commissioning plan. Such an audit, undertaken by a panel with the requisite technical, engineering, legal and actuarial expertise, would include the preparation of financial statements and a technical review of work performed. It can also include, if necessary, a re-assessment of reclamation requirements and funding contributions.

Withdrawals can be made from the trust only to cover reclamation costs outlined in the decommissioning plan. Upon periodic review or satisfactory completion of the decommissioning plan, any surplus funds remaining are returned to the operator of the facility, after suitable tax adjustments.

The ICMM suggests that payments into an environmental trust should preferably be treated as a tax deductible expense when paid, while income earned from investments need to be tax sheltered until it is withdrawn or otherwise disbursed.

Advantages and Disadvantages

The advantage of environmental trusts *vis-à-vis* other forms of funding reclamation is that the company does not wholly relinquish control over the funds it deposits. Any surpluses created in the trust through over-contribution or exceptional earnings are returned to the company after one of the periodic reviews or after the successful completion of the decommissioning plan. This also provides an incentive for the company to ensure sound management of the fund. Since environmental trusts are more visible than the alternatives, they help foster greater confidence in the government and the public about the adequacy of funds for reclamation.

On the other hand, due to the long time-frames involved, the parameters used to estimate reclamation costs need to be determined with great care. Since reclamation funding normally involves large sums of money, a transition period might also be necessary to allow the company enough time to build up the financial wherewithal.

APPENDIX 2: Security and Fiscal Regimes in Selected International Jurisdictions.

Jurisdiction	Ontario	Nevada	Colorado
Requirement for security	Mandatory; the security is to be determined as part of a closure plan to be submitted before approval	Mandatory (sites smaller than 5 acres or producing <36,500 tons are exempt); volume of funds decided by NDEP and BLM/USFS; no third party review; amount may be reviewed and revised periodically	Mandatory, periodic review and revision of security
Kinds of security	Trusts permitted; Corporate financial tests constitute 67% of funds held for security	Trusts permitted; a corporate guarantee for 75% of security by the state is possible; letters of credit predominate	Cash, treasury bonds, bank bonds, self-bonds
Regulatory Regime	Ontario Regulation 240/00 section 4; Mine Reclamation Code ***Covers*** - mining infrastructure, underground mines, adits, open pits, tailings storage facilities, surface and ground water monitoring, acid drainage, physical stability, re-vegetation, long-term care	1872 Federal Act to Promote the Development of Mineral Resources; Nevada Revised Statutes 519A Land Reclamation ***Covers*** - removal of all plant equipment; demolition and disposal of infrastructure; stabilization and re-grading of surfaces; erosion control; re-vegetation; process fluid stabilization; interim fluid management	Colorado Surface Coal Mining Reclamation Act, 1973
Royalties	Additional mining tax - 10% (2006)	2004 – NA 2007 – 8% proposed	Only federally imposed
Tax Harmonisation	Both provincial and federal taxes; no tax breaks	Both state and federal taxes; financial security payments deductible for tax purposes; financial security payments accounted as expenses; payments can be staggered over a number of years	
Fund Administration	Funds returned to company at the end of rehabilitation; some funds might be returned under progressive rehabilitation; some funds retained for long-term care	Funds not released for on-going reclamation; release of funds possible as discrete reclamation steps are completed; some funds retained if a long-term obligation exists	Security deposited in "reclamation security" escrow accounts

Jurisdiction	Sweden	European Union	Western Australia
Requirement for security	Voluntary; financial security part of licensing procedure; periodic review not required except for permit renewal; permitting authority may increase the security required	Financial security should be in place prior to start of operations; estimated based on third-party costs; review every five years with an appropriate revision of the security	Mandatory for exploratory and reclamation licences; department reviews estimated closure costs at the time of submission; no third party review
Kinds of security	Bank guarantee, pledge of assets, cash funds	Financial deposit or equivalent, including industry-sponsored mutual guarantee funds	Bank guarantees, bonds, any other accepted by minister (section 126 of WAMA 1978)
Regulatory Regime	Minerals Act 1992, Environmental Code 1998; no clear provisions on the basis for estimation of security	EU Directive 2006/21/EC on the Management of Waste from Extractive Industries Article 14 ***Covers*** – all waste arising from prospecting, extraction, treatment and storage of mineral resources, including working of quarries, including post-closure procedures and monitoring	Western Australia Mining Act (WAMA) 1978
Royalties	2010 – No royalty		Two systems – flat rate [62c construction, 100c metallurgical] per tonne, ad valorem [2.5-7.5% of gross invoice value]
Tax Harmonisation		No provisions with regard to taxes	At present, apparently non-deductible

Jurisdiction	Sweden	European Union	Western Australia
Fund Administration	Funds not released for progressive reclamation. All funds released when reclamation is complete.	Funds to be released when the competent authority approves closure or takes over operator's responsibilities	Provisions for progressive closure uncertain; full bond amount returned upon complete reclamation

Jurisdiction	Victoria	Queensland	Papua New Guinea
Requirement for security	Mandatory rehabilitation bond required by the time work on-site begins; determined by minister for resources in consultation with Department of Sustainability and Environment; no third party review; amount reviewed every 2 to 10 years	Mandatory rehabilitation program with financial security necessary for large projects; financial security alone required for smaller projects; environmental authority required to certify the level of security; third party review permitted but not required; amounts reviewed with licence renewal	No provision for mining financial security to date; 2005 draft of law proposes a mine closure trust fund; exemptions proposed if security would be uneconomical or benefits outweigh risks of working without security; security and fund to be established before start of activities; security to be reduced in proportion to accumulation in trust fund; security to be reviewed periodically
Kinds of security	Only bank guarantees	Cash, bank guarantee and insurance bonds; more instances of cash as security, but bank guarantees dominate in terms volume of funds	Proposed kinds – bank guarantee, parent company guarantee, insurance policy, cash deposit, offshore mine closure trust fund. Environmental bond requires – bank guarantee, insurance policy, any other at director's discretion

Jurisdiction	Victoria	Queensland	Papua New Guinea
Regulatory Regime	Mineral Resources (Sustainable Development) Act 1990, Extractive Industries Development Act 1995; ***Covers*** – no clear specifications	Queensland Mineral Resources Act (1989 am. 2000), Environmental Protection Act (1994 am. 2000); Code of Environmental Compliance ***Covers*** - removal of plant and equipment; re-contouring waste dumps and pits; capping storage of tailings and other hazardous materials; breaching dams and restoring water courses; making slopes and openings safe; replacing topsoil; re-vegetation; monitoring water and air quality, erosion rates, and vegetation; conducting contaminated land surveys; implementing site management plans	Mining Act 1992 – no provision for reclamation; as of 2009, amendments being prepared to make reclamation mandatory; environmental bond required for all permits under Environment Act ***Covers*** – Technical and physical rehabilitation aspects of premature mine closure; trust fund to cover decommissioning, rehabilitation and post-closure monitoring
Royalties	2.75% on average; 0% for gold, and depending on energy content for coal	Varies depending on material – normally 2.5% to 5%	2006 – 2% ad valorem
Tax Harmonisation	Tax coverage of security funds not stated in legislation	10% goods and services tax on all taxable supplies can be reclaimed if the administering authority makes a claim on the financial security	Contributions to financial security for mine-closure treated as expenditure and tax deductible. Funds withdrawn for other purposes are taxable. Rehabilitation costs during commercial production are treated as direct operating costs.

Jurisdiction	Victoria	Queensland	Papua New Guinea
Fund Administration	Funds not released for on-going reclamation; partly released for successful progressive reclamation; wholly returned after successful rehabilitation	Funds not released for on-going reclamation, released at licence renewal; liability re-assessment will not include work completed; security remains in place until the authority is satisfied that no further claim is likely	Interest accumulated in fund to be used for reclamation; security unavailable for on-going reclamation; proponent responsible for additional reclamation after closure (supported by original security or a specific fund)

Jurisdiction	South Africa	Botswana	Ghana
Requirement for security	Rehabilitation and financial security for the same mandatory; to be established before approval. Estimation based on third party costs with 12.5% for general administration and 10% for contingency; annual review and revision of security	Provision of security voluntary to date, although reclamation is mandatory; security necessary before the mining title is granted	Level of financial security based on full reclamation costs; no specification when security should be provided; bi-annual review and revision of security, based on reclamation carried out
Kinds of security	Trust fund, bank guarantee (letter of credit), cash deposit, any other at the director's discretion; major miners use trust funds	No specifications; still under discussion	No provision for trusts; 80% to 90% of funds for most projects provided by a bank guarantee, with the remainder in cash; only one instance of insurance

Jurisdiction	South Africa	Botswana	Ghana
Regulatory Regime	Minerals and Petroleum Resources Development Act 2002; National Environmental Management Act 1998 ***Covers*** – Removal of infrastructure, sealing of voids, rehabilitation, water management and post-closure maintenance	Mines and Minerals Act 1999 – requires proponent to make adequate financial provisions for compliance ***Covers*** – not specified	Mining and Minerals Law 2006, Environmental Assessment Regulations 1999 ***Covers*** – All aspects of closure, including transfer of immovable assets to the local authority, return of the site to pre-mining land use, and physical & chemical stability of site
Royalties	2010 – EBIT based formula	Precious Stones – 10% Metals – 3%	6% proposed in 2010 (3% levied at the time)
Tax Harmonisation (Federal/ Provincial/ Both)	The financial security includes a 14% VAT, but contributions to a trust fund are tax deductible as running costs. The trust funds are exempt provided that they are used for rehabilitation.	Tax concessions under discussion	
Fund Administration	The security may not be paid incrementally; financial security not available for on-going rehabilitation; some amount may be retained for latent or residual impacts	No procedures in place	Funds not available for on-going reclamation; security retained for three years after complete reclamation and then returned in full; can be retained up to seven years in case of potential for acid mine drainage

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