



**Minerals Council of Australia**

Potential financial impacts of  
the Resource Super Profits Tax  
on new mining projects in  
Australia

1 June 2010

This report contains 54 pages

8685394 MCA Response to the RSPT Final

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# 1 Executive Summary

## 1.1 Purpose of report

This report has been commissioned by the Minerals Council of Australia (MCA) and summarises KPMG's assessment of the implications for participants in the Australian mining sector from the Australian Government's (**the Government's**) response to the Australian Future Tax System (AFTS) review, with particular emphasis on the proposed Resource Super Profits Tax (RSPT).

## 1.2 RSPT design features

In releasing its response to the AFTS review, the Australian Government described the proposed RSPT as 'world leading'. It is true that the RSPT as proposed is unprecedented in design and scale in comparison to existing resource rent arrangements elsewhere. A unique design feature of the RSPT involves the Government combining a de facto 40% interest in mining projects with a "tax credit" for project losses.

## 1.3 Key findings

There are three key findings:

### *Effective tax rate*

The introduction of the RSPT will result in Australian mining projects having a higher effective tax rate than at present. Australia will have the highest effective tax rate of the resource rich countries the MCA has requested that we benchmark against.

### *Funding complexities*

The theoretical RSPT is predicated on unlimited capital with 40% funding being available at the Long Term Bond Rate (LTBR), which in its practical effect would likely require participants in the Australian mining sector and the capital markets to fundamentally change their approach to funding mining projects, including by accessing debt to fund 40% of project costs at the LTBR<sup>1</sup>. Therefore, the capital markets will need to provide 40% of project funding at a cost equivalent to the LTBR for mining companies to minimise the reduction in project value resulting from the introduction of the RSPT.

The capital markets, and in particular debt markets, will be unable to price funding at the LTBR due to risk and pricing issues. The key issues include sovereign risk, security risk, transaction costs, repayment profile uncertainties and the uncertainty of the value of the tax credit throughout the term of the debt funding. In order to make the RSPT work as proposed, the Government would need to actively intervene and become the purchaser of the debt at the LTBR.

### *Mining investment – short to medium term outcomes*

Mining companies evaluate projects according to post tax risk adjusted returns. The impact of the higher effective tax rate and funding costs above the LTBR will be to reduce net present value (NPV) returns of domestic mining projects under evaluation. This is likely to result in mining companies deferring or cancelling Australian mining projects in the short to medium term.

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<sup>1</sup> Bond & Devereau (1999), 'Generalised R-based and S-based taxes Under Uncertainty', IFS Working Paper W99/9, The Institute for Fiscal Studies.

NPV represents the value of future cash inflows less the cost of investing in the project, discounted for timing and risk, in order to derive a present value for the project. As NPV determines a value today for projects it is a central tool used by investors in appraising long term projects. Importantly, it is an indicator of how much value an investment or project adds to the firm. Where there is a choice between two mutually exclusive alternatives, the one yielding the higher NPV will be selected.

The long run macroeconomic modelling of the RSPT implicitly assumes that any capital outflows from the Australian mining sector as a result of the introduction of the RSPT will be matched by new foreign or local capital inflows into the mining sector. It is unlikely in the short to medium term that new entrants will fill all of the void left by large project deferrals or reallocations to projects offshore because:

- demand will have been met by mining companies that have brought forward investment in more financially attractive projects outside Australia; and
- smaller or new entrants are unlikely to be in a position to develop multi-billion dollar projects.

The implementation issues identified by KPMG Econtech, combined with other risk factors discussed in this report, will mean that the “no economic inefficiency” assumption supported by economic theory, will not hold up in practice, particularly in the short to medium term.

Given the characteristics of the mining sector (i.e. large scale and long life investments), the introduction of the RSPT at 40% means that it will take a long time for the sector to recover.

## 1.4 Modelling findings

KPMG has worked with the MCA to develop whole-of-life financial models for Australian mines across six commodities (iron ore, coal, copper, nickel, bauxite and gold). The models are for “typical” greenfield tier two (second quartile on the industry costs curve) mines<sup>2</sup>.

KPMG has modelled two scenarios at the request of the MCA:

- “Status quo” – This scenario assumes that the corporate tax rate and the royalty rates remain unchanged, and that the current equity funding and gearing levels remain unchanged (i.e. pre introduction of the proposed Government tax changes). All mines are assumed to be 100% equity financed with the exception of iron ore which assumes 10% debt, and all mines debt finance working capital; and
- “RSPT today” – This scenario assumes a 40% RSPT, 28% corporate tax rate and no change in capital structure. This assumes that the tax credit does not affect the cost of equity, the cost of debt or the gearing, so they are all the same as under the status quo scenario, but operate under the new tax arrangements.

Using parameters under the RSPT today scenario, the project financial modelling shows:

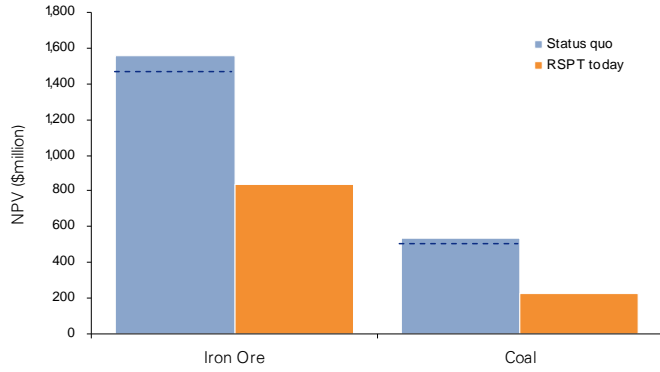
- NPVs calculated on financial models for iron ore, coal and bauxite mines decline relative to the status quo by 46%, 57% and 15% respectively; and
- nickel, copper and gold mines become economically unviable (i.e. negative NPVs) relative to the status quo.

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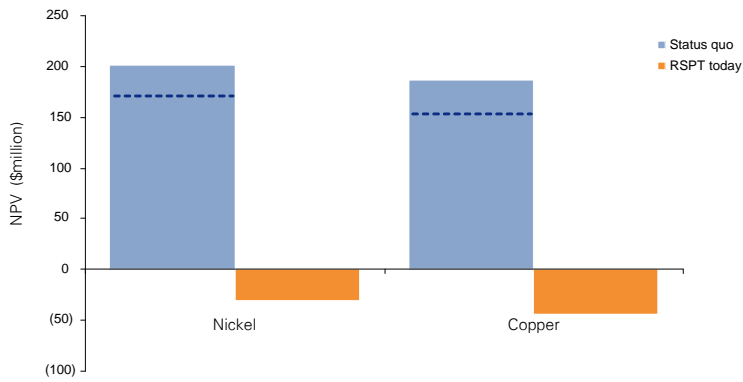
<sup>2</sup> Refer to section 3.1 for a definition of a greenfield tier two mines.

The results of the modelling are summarised in the following charts:

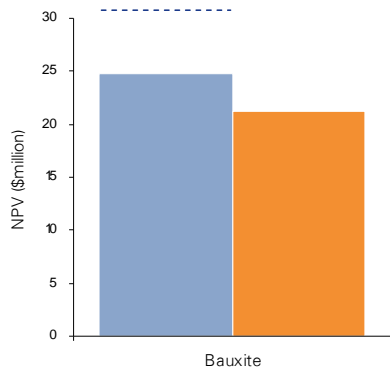
**Bulk Commodities**



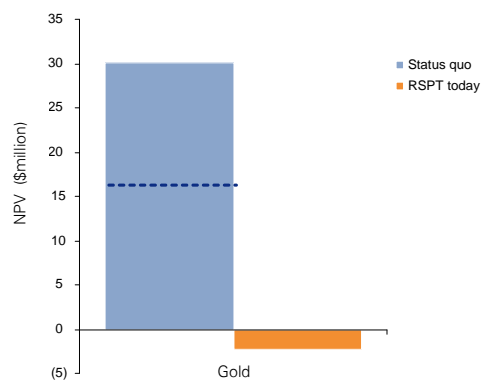
**Base Metals**



**Bauxite**



**Precious Metal**



For completeness, we have illustrated the NPV outcomes if the RSPT was implemented precisely in accordance with economic theory (i.e. a theoretical RSPT). These outcomes are illustrated as a dotted line in the status quo column of the charts set out above. The difference between the dotted line and the RSPT today scenario shows the difference in value of the mining projects as a consequence of the practical inability to implement the RSPT in accordance with theory.

#### *Impact on effective tax rates*

KPMG has used the financial models to calculate indicative effective tax rates for greenfield tier two mines on a project basis under the RSPT today scenario. The effective tax rates over the lives of the projects are summarised below:

Effective Tax Rate	Iron Ore	Coal	Nickel	Copper	Bauxite	Gold
Status quo	43.6%	41.1%	34.3%	34.4%	50.1%	34.6%
RSPT Today	54.7%	55.0%	55.1%	55.0%	54.0%	54.1%

#### *Comparison with international effective tax rates*

A comparison of international effective tax rates is included in the following tables and discussed in section 5. The effective tax rate (ETR) column reflects indicative ETRs for projects in a particular year of production<sup>3</sup> (as opposed to life of project rates above), which are contrasted with the corporate tax rate (CTR).

Iron Ore	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	56.9%
Canada (Quebec)	profits-based	14.0%	net income	29.9%	40.2%
Brazil	ad valorem	2.0%	Sales	34.0%	37.8%
China	unit-based	\$4.20	per tonne, 25 CNY ~ A\$4.20	25.0%	31.1%

Coal	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	52.2%
Indonesia	ad valorem	13.5%	f.o.b. value or sales revenue	28.0%	47.4%
India	per unit & ad valorem	\$9.40	180 Rs / tonne + 5% price ~ A\$9.40 / tonne	34.0%	47.0%
South Africa	ad valorem	7.0%	unrefined, sales (5% refined)	34.6%	43.7%
Canada (Saskatchewan)	ad valorem	15.0%	Mine mouth value	28.0%	38.8%
Canada (Alberta)	profits-based	13.0%	Two tier; 1% on op. income, 12% on cuml net profit	28.0%	37.4%
Canada (Ontario)	profits-based	10.0%	profit > C\$500,000	27.0%	34.3%
China	unit-based	\$0.60	per tonne, 2.4 CNY ~ A\$0.60	25.0%	25.9%

Nickel	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	52.8%
Brazil	ad valorem	2.0%	Sales	34.0%	36.9%
Canada (Ontario)	profits-based	10.0%	profit > C\$500,000	27.0%	34.3%

<sup>3</sup> We have completed the indicative project ETR calculations using data and outputs from the fifth year of production in the mine models. We selected this year as a reasonable representation due to the inherent difficulty in estimating life of project ETRs for foreign jurisdictions. Refer section 5.4.7 for further explanation.

Copper	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	52.7%
USA (Arizona)	ad valorem	2.0%	market price (2% minimum)	42.0%	44.8%
Canada (Quebec)	profits-based	14.0%	net income	29.9%	39.7%
USA (Nevada)	profits-based	5.0%	net proceeds	35.0%	38.3%
Canada (B.C.)	profits-based	13.0%	Two tier; 2% on op. income, 13% on cumulative net profit	28.5%	37.8%
Chile	ad valorem	5.0%	Sales	17.0%	27.0%

Bauxite	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	53.4%
Brazil	ad valorem	2.0%	Sales	34.0%	38.7%

Gold	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	53.5%
South Africa	ad valorem	7.0%	unrefined, sales (5% refined)	34.6%	45.4%
Argentina	ad valorem	3.0%	Sales	35.0%	39.6%
Brazil	ad valorem	1.0%	Sales	34.0%	35.6%

The above ETR calculations are indicative only, as they do not identify all potential tax concessions or benefits available to the project throughout the life of the project, such as tax holidays, percentage depletion allowances, processing allowances and R&D concessions (which may act to lower the ETR in foreign jurisdictions, particularly the US and Canada), and do not include property and lease charges and taxes, sales taxes or differences in payroll and employee taxes between those included in operating expenses in the mine model.

The mine models on which these findings are based include revenue and expense data which has been sourced from independent services and parties that are consistent with a typical second quartile mine. KPMG also confirmed with MCA members that the data provided by independent services was appropriate for the respective mine models and that it accurately reflects industry norms. Modelling assumptions were sourced from publicly available information to the extent possible. Where information gaps were identified, relevant inputs were provided by MCA members on behalf of the MCA.

Internationally, the tax treatment of oil and gas typically differs from the tax treatment of mineral resources. International practice is that petroleum is almost invariably taxed at higher rates than mineral resources.

## 1.5 Limitations & reliance

The conclusions presented in this report are based on KPMG's understanding of the proposed tax changes as at 1 June 2010. The conclusions in this report may change where design elements of the RSPT change from those currently proposed.

The financial modelling results are based on parameter instructions provided by the MCA and have been verified by the MCA. The MCA has advised that the financial model outputs are consistent with current modelling practices within the mining sector for assessing project viability, in particular the use of NPVs for assessing project viability. Our report does not consider existing projects.



The financial modelling conducted as part of this engagement is focussed at a project level with start dates in the short to medium term. Financial modelling approaches at the project level may vary between companies and, importantly, may vary significantly from approaches adopted for broader macroeconomic modelling, such as the modelling undertaken by KPMG Econtech for Treasury. The modelling undertaken for Treasury seeks to assess the long-term impacts of tax reform on the broader Australian economy and applies taxation economics principles not necessarily applied to project level modelling. It is important for readers of this report to understand the assumptions and approaches adopted under different modelling scenarios. The assumptions and approaches used in this report are disclosed in section 3 of the report.

## 2 Background and analysis

### 2.1 Purpose

The purpose of this report is to provide KPMG's assessment of the implications for participants in the Australian mining sector from the Government's response to the AFTS review, with particular emphasis on the proposed RSPT.

The key issues that we have addressed in the report are:

- the impact in the short and medium term on the profitability of mining projects from the introduction of the RSPT and other proposed tax changes; and
- the effective tax rate for the mining sector under the RSPT as compared to other resource rich countries with which the Australian mining sector competes internationally.

In this report we investigate whether some of the theoretical design elements of the RSPT, being the provision of the "tax credit" and the use of the 'risk-free' rate (allowance rate or LTBR), to fund the Government's 40% share of the project cost can be fully applied in practice.

KPMG developed financial models of greenfield tier two mines across six commodities for the purpose of modelling the RSPT in the period September 2009 to January 2010, and refined them in February 2010 to May 2010. MCA engaged KPMG to prepare these mine models as an independent third party so as to ensure that members did not need to share confidential and commercially sensitive information amongst each other when assessing the effects of the Government's policy announcements. The modelling illustrates likely changes in project values as a result of the introduction of the RSPT.

The financial models calculate the effective tax rates for "typical" greenfield tier two mines that will arise after the introduction of the RSPT. We have calculated indicative effective tax rates for other resource rich countries with which the Australian mining sector competes internationally for mining capital by using data and outputs from the fifth year of production in the financial models. These calculations enable a comparison of relative tax costs across countries.

This report also addresses the differences in approach to taxation in these competing countries, including in their differentiation of the taxation of mining and oil and gas.

We have not considered issues relating to the transition of existing mines into the RSPT in this report.

## 2.2 Introduction to the RSPT

Profits taxes are widely seen as more efficient than other taxes applied to the mining industry, such as royalties<sup>4</sup>. The RSPT is a profits tax that has the characteristics of a resource rent tax, which seeks to tax economic rents. An economic rent can be defined as “that part of profit which exceeds the risk adjusted required return on capital”<sup>5</sup>. The RSPT is designed to be an “allowance for corporate capital” rent based tax<sup>6</sup>.

KPMG has not identified a national mineral resources taxation regime anywhere in the world that is based solely on a resource rent tax regime similar to the proposed Australian RSPT, although there are some isolated examples where resource rent taxes have been applied to mining profits. Therefore, the application of the RSPT, both in design and scale, would be internationally unprecedented.

Details of the proposed operation of the RSPT are included in “The Resource Super Profits Tax: *a fair return to the nation*” (**the RSPT Guide**), released on 2 May 2010. The key features of the RSPT are outlined in the table below.

Key features of the RSPT	
<b>Commencement date</b>	1 July 2012
<b>Rate</b>	40% of RSPT net profit
<b>Application</b>	Applies to all mining and petroleum projects except projects under the PRRT regime which will be subject to “opt in” arrangements to be developed
<b>Interaction with State royalties</b>	State royalty regimes will remain, however entities will be eligible to obtain a refundable credit
<b>Taxing point</b>	To be determined as part of the consultation process
<b>The income tax treatment of RSPT</b>	Deductible for income tax purposes
<b>Treatment of capital costs</b>	Depreciation plus RSPT allowance at the LTBR
<b>Treatment of losses</b>	Transferrable to other projects or may be carried forward as part of RSPT capital account
<b>Undeducted project expenditure and losses at project closure</b>	Transferrable to other projects or refundable at the RSPT rate on a “reasonable basis”

Source: The RSPT Guide, 2 May 2010

For the purposes of discussions in this paper we will refer to all profits that provide a return on invested capital above the LTBR as “**RSPT taxable profits**”.

<sup>4</sup> For example, refer to International Council on Mining & Metals, Commonwealth Secretariat, *Minerals Taxation Regimes: A review of issues and challenges in their design and application*, February 2009.

<sup>5</sup> Parker D, Executive Director, Revenue Group, The Treasury, address to Minerals Council of Australia’s Biennial Tax Conference 2009, 17 September 2009.

<sup>6</sup> See: *Australia’s future tax system, Report to the Treasurer, December 2009*, part 2, page 231 recommendation 45.

## 2.3 The theory of the RSPT

The RSPT Guide does not provide a detailed discussion of the theory underlying the RSPT, while the discussion in “*Australia’s future tax system, Report to the Treasurer, December 2009*” (the **AFTS Report**) is limited to a comparison with other rent-based taxes<sup>7</sup>.

It is important to understand the theory that underlies the RSPT before it is examined. Our summary of the concept and theory is contained below.

### Theory of the RSPT

The RSPT is proposed to operate with a 40% rate to tax RSPT taxable profits as follows:

- The Government, through its tax credit for 40% of accumulated project losses and undeducted capital expenditure should a project be closed, is effectively taking a 40% interest in every resource project in Australia.
- The Government is not proposing to fund its contribution to the joint venture up front. Instead, the project owners will (in effect) lend the Government its share of project capital costs and, where revenues are insufficient to meet operating costs, its share of operating costs.
- As a 40% interest holder, the Government will take 40% of project profits, reduced by a notional interest charge calculated at the LTBR.
- As the Government is guaranteeing 40% of the project costs by providing the tax credit, owners should be able to raise 40% of the project capital at an equivalent cost to the LTBR. Assuming the funding costs equal to the LTBR, the Government commences taking profits when the RSPT profits exceed the LTBR.

The RSPT will have the effect of reducing profits available to mining companies because the Government is taking 40% of the project’s profits (to the extent that those profits exceed the LTBR). However, the theory underlying the RSPT is that the reduction in profits should not deter investment in these mining projects because the return on funding that is used to fund the balance of the project (i.e. the 60% retained by the mining company) is unchanged.

For the theory to hold true in practice, the following must occur:

- mining companies must be able to fund 40% of the project costs at a cost equivalent to the LTBR to fund the Government’s de facto 40% interest in the mining project; and
- the funding must be designed to allow increases and decreases in project borrowing equal to 40% of accumulated project losses and undeducted capital expenditure.

A direct effect of any inability of mining companies to secure funding for the Government’s de facto 40% interest in the mining project at a cost equivalent to the LTBR would be the need to adjust upwards the discount rate applied in evaluating the potential return of a project. This would reduce the NPV return on the project relative to the theoretical RSPT as proposed by the Government.

<sup>7</sup> Reference is made at page 222 to Boadway & Bruce, which is a reference to the paper, Boadway R, Bruce N. 1984. *A general proposition on the design of a neutral business tax*. J. Public Econ. 1984, vol. 24 issue 2, pages 231-239.

## 2.4 Funding mining projects

Project owners can generally fund their projects in two ways, through shareholder equity and/or project finance/debt.

Currently, sources of funding for investment opportunities in the mining sector varies:

- “junior” mining companies will generally be more reliant on equity to fund their projects; and
- “senior” mining companies will have greater access to project funding and will therefore fund their projects with a combination of debt and equity (although it should be noted that access to debt has been significantly impacted by the Global Financial Crisis).

We have included in Appendix A to this report a detailed discussion about the cost of capital for companies, which is a function of a company’s cost of equity and cost of debt.

As discussed at section 2.3 above, the theoretical RSPT proposed by the Government is predicated on the following:

- mining companies must be able to fund 40% of the project costs at a cost equivalent to the LTBR to fund the Government’s de facto 40% interest in the mining project; and
- the funding must be designed to allow increases and decreases in project borrowing equal to 40% of accumulated project losses and undeducted capital expenditure.

However, a key concern is that it will not be possible to achieve this theoretical RSPT in practice.

The capital and debt markets will be unable to price funding at the LTBR due to risk and pricing issues. The key issues include sovereign risk, security risk, transaction costs, repayment profile uncertainties and the uncertainty of the value of the tax credit throughout the term of the debt funding. In order to make the RSPT work as proposed, the Government will need to actively intervene and become the purchaser of the debt at the LTBR.

The debt markets can be expected to innovate and develop over time so that mining companies can, by virtue of the tax credit, access a greater level of debt funding than at present. However, the extent to which further funding will occur, the time over which it will happen and the final pricing for the debt is uncertain and cannot be accurately forecast.

As the debt markets will not be able to provide funding at the LTBR as required by the RSPT theory, NPV returns to companies in relation to new projects in the short and the medium term (and even in the long run) will be less than expected by the macroeconomic modelling<sup>8</sup>.

For mining companies that are currently assessing whether to develop mining projects in the short term and into the medium term, the lack of certainty in the debt markets means that they will not be able to price in a meaningful reduction in the cost of debt, and access to debt will remain challenging.

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<sup>8</sup> This assumes that the Government does not become the purchaser of the debt at the LTBR.

## 2.5 Evaluating investment decisions in the mining sector

The mining industry is constantly evaluating investment opportunities. The expected returns on these investment opportunities form an important part of the investment decision making process as rational investors will only invest in opportunities that add shareholder value.

Companies will generally set a “hurdle rate” and apply this rate to the expected future cash flows in order to determine the NPV of the project. Hurdle rates will generally be at a premium to a mining company’s overall cost of capital, which is a function of their cost of equity and cost of debt. Hurdle rates enable an assessment of a “risk adjusted return” because they allow for the incremental start-up risk associated with development, and taking into account sovereign risk. Sovereign risk is a critical factor for mining companies in assessing whether to proceed with a mining project.

Companies may also use an Internal Rate of Return (IRR) analysis and compare with the ‘hurdle rate’ and/or IRRs available from other projects. However, based on our recent discussions with Australian based multinational mining companies, we understand that IRRs are currently used only as a secondary metric to support investment decision making.

Where the NPV of a project exceeds the hurdle rate and other key metrics are satisfied (such as capital efficiency, payback period, free cash flows, personnel requirements etc), the project can be considered “viable”. However, that does not mean that the project will necessarily proceed.

Large, multinational mining companies (a large proportion of total industry output), have a number of viable investment opportunities subject to evaluation at any one time. In determining how many of the projects to proceed with the specific nuances of the mining industry come into play, including:

- the capital intensity of mining projects;
- the long-life nature of mining projects;
- the current “ownership” of potential projects and the options for owners to defer projects; and
- the concentration of intellectual property and expertise relevant to the efficient exploitation of certain types of resources in a limited number of companies.

Rationally, the limited resources or “institutional constraints” of these multinational mining companies mean that those projects with the highest risk adjusted return will be undertaken ahead of projects with lower risk adjusted returns, recognising that all viable projects will likely be developed at some stage.

The reduction in the risk adjusted returns of Australian mining projects as a result of the introduction of the RSPT, including because of increased perceptions of sovereign risk and because the capital markets cannot price capital and debt at the LTBR as required by the RSPT theory, is likely to result in Australian mining projects moving ‘down the list’ for large multinational mining companies. This is likely to result in mining companies deferring or cancelling mining projects in the short to medium term and, for those large, multinational mining companies, investing capital offshore.

The long run macroeconomic modelling of the RSPT implicitly assumes that any capital outflows from the Australian mining sector as a result of the introduction of the RSPT will be matched by new foreign or local capital inflows into the mining sector. It is unlikely in the short to medium

term that new entrants will fill all of the void left by large project deferrals or reallocations to projects offshore because:

- demand will have been met by mining companies that have brought forward investment in more financially attractive projects outside Australia; and
- smaller or new entrants are unlikely to be in a position to develop multi-billion dollar projects.

The impact on the mining sector from the introduction of the RSPT at 40% means that it will take a long time for the sector to recover.

## 3 KPMG mine models

### 3.1 Introduction

KPMG has worked with the MCA to develop whole-of-life financial models for Australian mines across six commodities. The mine models were developed between September 2009 and January 2010, with subsequent refinement in the period February 2010 to May 2010. The key features of the mine models are:

- The models are for greenfield mines, with project development assumed to commence on 1 July 2012;
- The capital and operating costs of the mines would result in them being in the second quartile in the world cash cost curve (i.e. tier two);
- External forecasts for capital and operating costs and revenues, including commodity pricing, exchange rates etc, have been incorporated;
- All assumptions applied in the models were current at the time the models were originally developed and it is our assessment that any changes in assumptions since the time of development do not materially impact the integrity of the findings; and
- The modelling has been completed across the following six commodities.

**Iron ore**

**Coal**

**Copper**

**Nickel**

**Bauxite**

**Gold**

KPMG has modelled two scenarios at the request of the MCA. These scenarios are described in section 4.1.

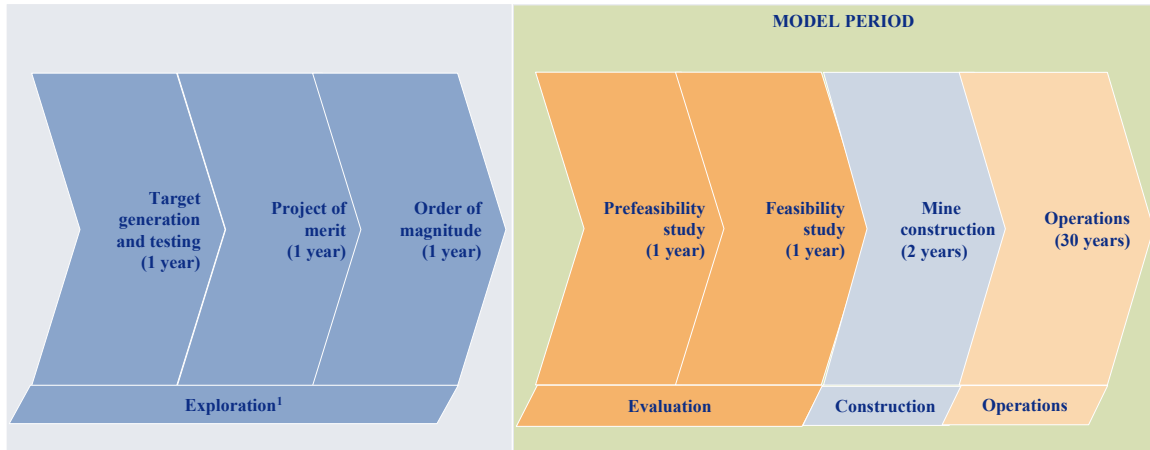
### 3.2 Approach and methodology

The following provides an overview of the approach adopted in developing the mine models and how the RSPT has been applied to the mine models.

#### 3.2.1 Definition of a 'second quartile' greenfield project

The models are for greenfield 'typical mines' in Australia, being mines that are in the second quartile on the industry cash cost curve and hence do not qualify as a marginal project. Second quartile mines were chosen for modelling purposes as the introduction of a new tax regime is more likely to affect the viability of this category of mines.

It has been assumed that the exploration phase is completed and that the development of the mine is imminent. The diagram below illustrates the methodology undertaken for iron ore. The modelling period commences after the exploration has been completed.



**Notes**

**1:** Treated as sunk costs for modelling purposes.

Existing mines have been used as reference points for each of the models. For example, when developing the iron ore model an existing second quartile mine in Western Australia was used as a reference point. All capital cost and operating cost assumptions have been referenced to their sources.

### 3.2.2 Logic and structure of the mine models

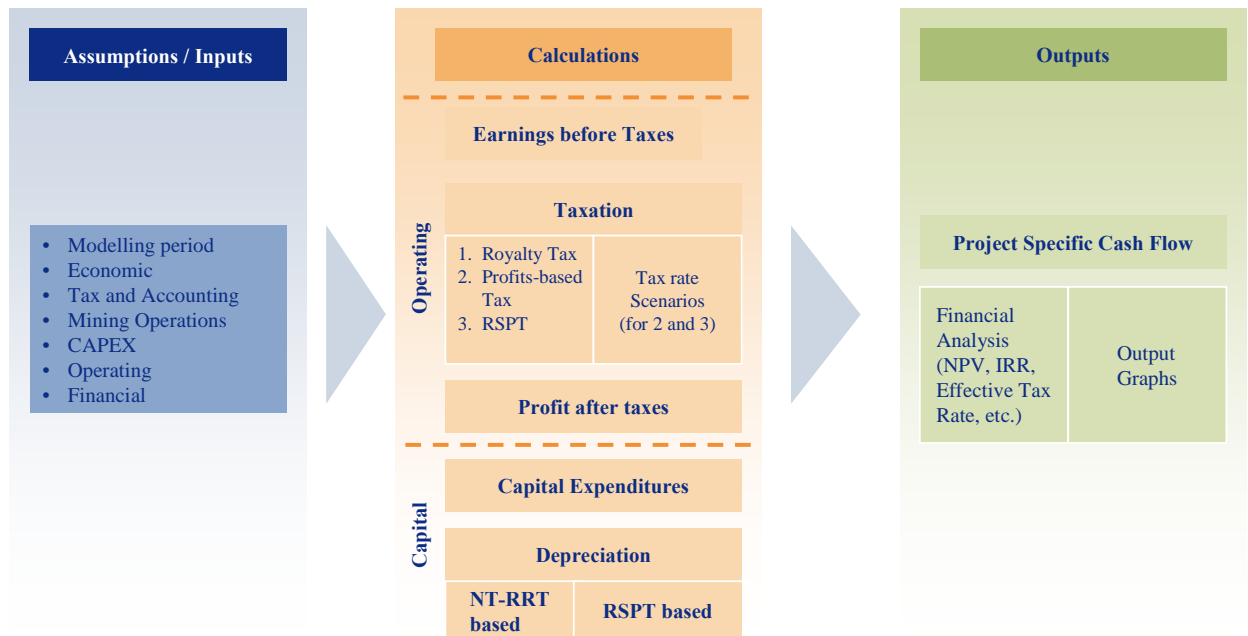
The logic and structure of the mine models have been developed so they could be applied consistently across the six commodities. MCA members confirmed the concept and the logic and structure of the mine models, advising that the mine models are consistent with current industry practice.

The principal inputs, calculations and outputs of the financial model relate to the following four classes of revenues and expenditures:

- Revenue;
- Capital costs (which are analysed by asset class);
- Operational costs, including fixed and variable operating costs; and
- Royalties and taxes.

KPMG agreed with the MCA that it was not necessary to undertake a detailed analysis of each of the items within these classes, and in particular capital and operating costs, as it was expected by the MCA that the approach used would result in an accurate reflection of a typical second quartile mine.

The diagram below illustrates a high-level schematic of the models<sup>9</sup>:



MCA members have:

- confirmed the reasonableness of the assumptions;
- ‘stress tested’ and audited the logic, structure and calculations in each of the models; and
- confirmed that the models are reflective of the outcomes of second quartile mines across the six commodities.

### 3.2.3 Data sources

The mine models include revenue and expense data which has been sourced from independent services and parties that are consistent with a typical second quartile mine. KPMG also confirmed with MCA members that the data provided by independent services was appropriate for the respective mine models and that it accurately reflects industry norms.

<sup>9</sup> The model included a profits based tax based on the Northern Territory regime. The results of the profits based modelling outcomes are not included in this report.

The table below identifies the key information sources for each commodity:

Commodity	Key information sources
<b>Iron Ore</b>	<ul style="list-style-type: none"> <li>• Consensus Economics</li> <li>• CRU</li> <li>• AME</li> <li>• Broker reports</li> <li>• Publicly available company data</li> </ul>
<b>Coal</b>	<ul style="list-style-type: none"> <li>• Consensus Economics</li> <li>• AME</li> <li>• ACIL Tasman</li> <li>• Publicly available company data</li> </ul>
<b>Copper</b>	<ul style="list-style-type: none"> <li>• BrookHunt</li> <li>• CRU</li> <li>• Consensus Economics</li> <li>• LME</li> <li>• Bloomberg</li> <li>• Broker reports</li> <li>• Publicly available company data</li> </ul>
<b>Nickel</b>	<ul style="list-style-type: none"> <li>• BrookHunt</li> <li>• CRU</li> <li>• Consensus Economics</li> <li>• LME</li> <li>• Bloomberg</li> <li>• Broker reports</li> <li>• Publicly available company data</li> </ul>
<b>Bauxite</b>	<ul style="list-style-type: none"> <li>• BrookHunt</li> <li>• Consensus Economics</li> </ul>
<b>Gold</b>	<ul style="list-style-type: none"> <li>• LME</li> <li>• Bloomberg</li> <li>• Broker reports</li> <li>• Publicly available company data</li> </ul>

KPMG has not verified any of the information sourced from the reference materials referred to above. Modelling assumptions were sourced from publicly available information to the extent possible. Where information gaps were identified, relevant inputs were provided by MCA members on behalf of the MCA.

The data sources were current at the time the mine models were developed, between September 2009 and January 2010. We have not updated the models to take into account changes in forecasts following the mine development phase. As the purpose of the mine models is to assess the impact of the RSPT at a point in time, we consider that the reliance on data sources current during the model development process is appropriate.

The data sources and assumptions used in the mine models are discussed in the mine model “assumptions book”, which has been separately provided to the MCA and is not included in this report.

### 3.2.4 Cost of equity

We calculated the cost of equity for the mining projects during the mine model development phase. The cost of equity applied for each of the commodities is set out in the table below:

	Iron Ore	Coal	Nickel	Copper	Bauxite	Gold
Cost of equity	15.0%	14.5%	15.5%	15.0%	13.5%	11.5%

We have modelled net cash flows to equity and used the cost of equity above to derive the project valuation.

### 3.2.5 Calculation of the RSPT

We have relied on the RSPT calculation formula in the RSPT Guide to calculate the RSPT liabilities within the mine models<sup>10</sup>. As the calculations have been completed on a project basis, we have assumed that any RSPT losses during the mine life cannot be transferred, but will instead be carried forward in the “closing RSPT capital account” and therefore indexed at the RSPT allowance rate, being the LTBR. We have also assumed that any closing RSPT capital account at mine closure will be refunded to the project operator.

### 3.2.6 Model limitations

There are limitations with the models and therefore potentially the modelled outcomes. As discussed above, we have relied on independent data sources for information, including forecast commodity prices, the comparative value of the Australian dollar and operating expenditure information. Differences between actual data and forecast data would impact the accuracy of the models.

The models are at a project level with start dates in the short to medium term. Financial modelling approaches at the project level may vary between companies and, importantly, may vary significantly from approaches adopted for broader macroeconomic modelling.

There are also limitations arising because the RSPT rules are still under development. For example, we have assumed that the taxing point for the RSPT will be at the “mine gate”. This means that the RSPT calculations include both revenues and expenses (including the depreciation of capital assets) relating to activities carried on at the mine site. As the taxing point has not been defined in the RSPT Guide and is an issue that is subject to consultation, it is possible that the taxing point could be earlier (i.e. at the mine mouth) or later (post secondary processing).

### 3.2.7 Outputs

The outputs of the model are discussed in the following section. The full mine models have been provided to the MCA independent of this report.

<sup>10</sup> The RSPT calculation formula is included on page 25 of the RSPT Guide. We note that the formula includes a typographical error, referring to the “RSPT rate” instead of the “RSPT allowance rate” in the formula for calculating the RSPT allowance.

## 4 Model findings

### 4.1 Introduction

As noted earlier, KPMG has modelled two scenarios at the request of the MCA:

- “Status quo” – This scenario assumes that the corporate tax rate and the royalty rates remain unchanged, and that the current equity funding and gearing levels remain unchanged (i.e. pre introduction of the proposed Government tax changes). All mines are assumed to be 100% equity financed with the exception of iron ore which assumes 10% debt, and all mines’ debt finance working capital. The status quo is the dark blue columns in the charts; and
- “RSPT today” – This scenario assumes a 40% RSPT, 28% corporate tax rate and no change in capital structure. This assumes that the guarantee does not affect the cost of equity, the cost of debt or the gearing, so they are all the same as under the status quo scenario, but operate under the new tax arrangements. The status quo is the orange columns in the charts.

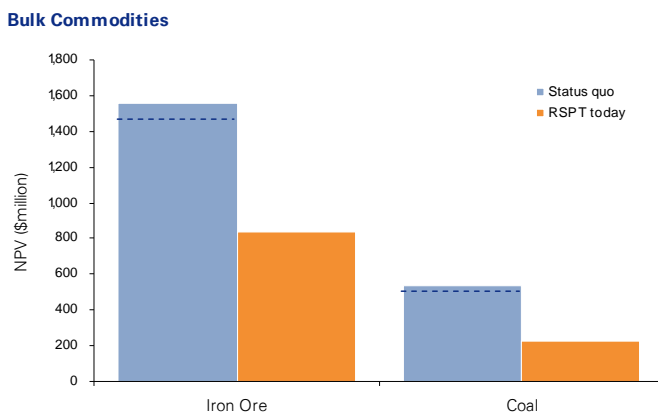
The modelling outcomes are illustrated in the charts and tables below.

For completeness, we have also illustrated the NPV outcomes if the RSPT was implemented precisely in accordance with economic theory (i.e. a theoretical RSPT). These outcomes are illustrated as a dotted line in the status quo column. The difference between the dotted line and the RSPT today scenario shows the difference in value of the mining project as a consequence of the practical inability to implement the RSPT in accordance with theory.

## 4.2 Findings

### 4.2.1 Bulk commodities

The hypothetical typical greenfield iron ore and coal mines are capital intensive, long-life mines with 30 years of production. The application of the RSPT to the iron ore and coal mines using funding parameters that are certain today results in a decline in NPVs of 46% and 57% respectively.

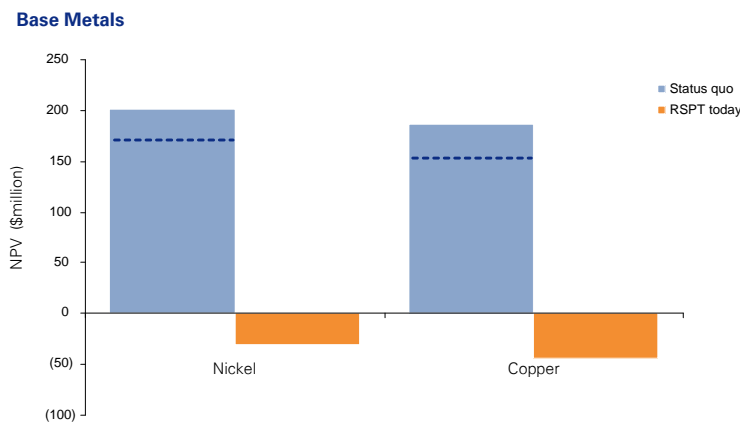


The difference in NPVs between the “status quo” and “RSPT today” scenarios arises because the present value of the RSPT payments are larger than the combined present value of the royalties and the reduction in corporate tax paid.

#### 4.2.2 Base metals

The hypothetical typical greenfield nickel and copper mines are less capital intensive than bulk commodities, with long mine lives of 30 and 20 years respectively.

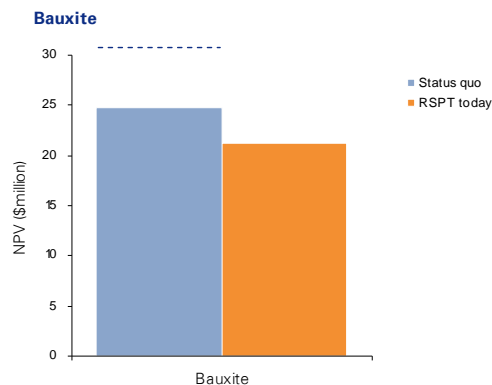
The application of the RSPT to nickel and copper in the “RSPT today” scenario results in the nickel and copper mines becoming economically unviable (i.e. negative NPVs).



The “RSPT today” scenario for these commodities (and gold – refer to section 4.2.4) returns a negative NPV because the actual net cash flows received during operation are lower when compared with the “status quo” scenario and, in present value terms are not sufficient to offset the initial capital expenditure of the project. In addition, the impact of any undeducted project losses at project close in the last year of the mine life is nominal in NPV terms, because of the time value of the cash flow.

#### 4.2.3 Bauxite

The hypothetical typical greenfield bauxite mine is also less capital intensive than bulk commodities, with a mine life of 30 years. The NPV to investors in the bauxite mine reduces by 15% as a result of the application of the RSPT to bauxite in the “RSPT today” scenario.

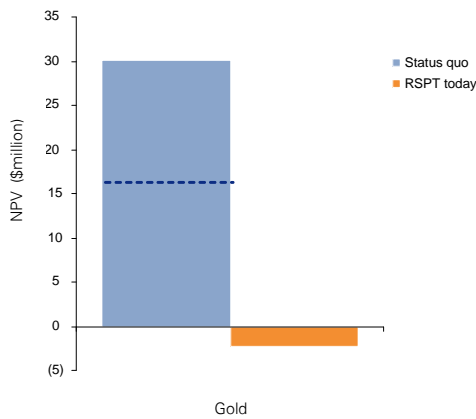


#### 4.2.4 Precious metals

The hypothetical typical greenfield gold mine is less capital intensive and has a shorter mine life than the bulk commodity, base metals and bauxite mines.

As with nickel and copper, the application of the RSPT to gold in the “RSPT today” scenario results in the gold mine becoming economically unviable (i.e. a negative NPV).

**Precious Metal**



#### 4.2.5 Effective tax rates

KPMG has used the financial models to calculate indicative effective tax rates for greenfield tier two mines on a project basis under the RSPT today scenario. The effective tax rates over the lives of the projects are summarised below:

Effective Tax Rate	Iron Ore	Coal	Nickel	Copper	Bauxite	Gold
Status quo	43.6%	41.1%	34.3%	34.4%	50.1%	34.6%
RSPT Today	54.7%	55.0%	55.1%	55.0%	54.0%	54.1%

#### 4.2.6 Internal rate of return

The analysis presented in this section has shown the NPV effect on project cash flows under different tax implementation scenarios. As noted previously, NPV is the preferred measure used by Australian mining companies to assess project viability. Due to the perceived shortcomings in the IRR as a project assessment metric, the IRR is a lower order consideration. However, for completeness, the following table shows the IRR calculation for each of the commodities analysed above<sup>11</sup>.

<sup>11</sup> The IRR has been modelled on a project basis, which does not take into account the different quantum and risks associated with different cashflow streams assumed under the theoretical RSPT model.

Equity IRRs	Status quo	RSPT today	Theoretical RSPT
Iron ore	22.5%	19.3%	25.0%
Coal	20.5%	17.3%	24.0%
Nickel	19.1%	14.9%	20.6%
Copper	18.3%	14.2%	19.5%
Bauxite	15.7%	15.4%	26.5%
Gold	15.1%	11.2%	14.5%

The above analysis shows that the project IRR will, in all cases, be lower under the RSPT today scenario, which assumes the continuation of current financing constraints. The theoretical RSPT, if it was able to be implemented as proposed, would generally provide higher IRRs for second quartile mines. The increase in IRR under the theoretical RSPT model is a function of the reduction in cash flows resulting from the RSPT being more than offset by the lower corporate tax rate, removal of state royalties and reduction in funding costs.

### 4.3 Conclusion

The mine modelling outcomes demonstrate that the application of the RSPT to second quartile mining projects being evaluated in Australia in the short to medium term will reduce the expected returns from new projects on an NPV basis. The extent of the reduction will differ depending on the commodity involved and between projects.

The reduction in the risk adjusted returns of Australian mining projects as a result of the introduction of the RSPT, including because of increased perceptions of sovereign risk and because the capital markets cannot price capital at the LTBR as required by the RSPT theory, is likely to result in Australian mining projects moving ‘down the list’ for large multinational mining companies. This is likely to result in mining companies deferring or cancelling mining projects in the short to medium term.

As discussed at section 2.4, the debt markets will eventually innovate and develop over time so that mining companies can, by virtue of the tax credit, access a greater level of debt funding than at present. This would result in an increase in the NPV outcomes from the RSPT today scenarios. However, the time over which these developments will happen is uncertain and so the timing and the extent of the improved NPV outcomes cannot be accurately forecast.

Furthermore, as the debt markets will be unable to price funding at the LTBR due to risk and pricing issues, the RSPT work will not work as precisely as proposed, and the outcomes illustrated in the charts and tables above for a “theoretical RSPT” cannot be achieved.

The modelling undertaken in this report is for second quartile mines, and the effect of these proposed tax changes on first, third and fourth quartile mines is likely to be different again.

## 5 Effective tax rates under the RSPT

### 5.1 Introduction

As discussed in section 2.5, companies undertake detailed project modelling and analysis to ensure that the returns to shareholders from the projects are sufficient to justify the significant, long-term investment in a mining project.

The location specific metrics that can influence whether a project will meet a company’s “investment hurdle” include taxation costs over the life of the project, quality of ore, access to infrastructure and to markets, availability of skilled labour, regulatory restrictions and sovereign risk concerns. A change in one location specific metric, such as tax rates and perceptions of sovereign risk, can therefore influence investment decisions.

### 5.2 Project effective tax rate calculations

The AFTS report recommended an effective tax rate for RSPT taxable profits for mining projects of 55%<sup>12</sup>. This assumes a reduction in the corporate tax rate to 25%. The effective tax rate on RSPT taxable profits assuming a corporate tax rate of 25% is calculated as:

$$25\% \text{ corporate tax} + [40\% \text{ RSPT} - (40\% \times 25\% \text{ corporate tax deduction})]$$

The effective tax rates for RPST taxable profits will be higher than 55% because the company tax rate is only reducing to 28% in the medium term compared to a recommendation in the AFTS Report of 25%. As a result, the effective tax rate for RSPT taxable profits will be higher as summarised in the table below.

Effective tax rate on RSPT taxable profits
FY2013 – 58.0% (company tax rate of 30%)
FY2014 – 57.4% (company tax rate of 29%)
FY2015 – 56.8% (company tax rate of 28%)

As the Government is only reducing the corporate tax rate to 28%, the actual effective tax rates applying to RSPT taxable profits will exceed the AFTS Report recommended maximum tax rate.

The effective tax rate of a project (**the Project ETR**) will generally be lower than the effective tax rate on RSPT taxable profits. This is because RSPT taxable profits only include project profits that exceed the RSPT allowance, i.e. undeducted capital costs multiplied by the LTBR, whereas company tax will be payable on all project profits. Project ETRs will differ from project to project, reflecting the different funding, capital and operational requirements of projects and therefore the level of RSPT taxable profits accruing to each project.

<sup>12</sup> Australia’s Future Tax System, Report to the Treasurer, December 2009, p. 233.

We have provided examples of project effective tax rates in section 5.3. We have calculated the effective tax rate that will apply to a mining project using the following formula:

$$\frac{\text{Total taxes paid in relation to a project}}{\text{Total project profit before any taxes}}$$

Total taxes paid in relation to a project only includes company tax, RSPT and royalties not subject to Government rebate. Total project profits before any taxes is calculated before deductions for unrebated royalties.

### 5.3 Distinguishing effective tax rates

To properly assess the Project ETRs discussed below, it is important to understand and distinguish Project ETRs from other types of effective tax rates. Other types of effective tax rates include:

- The effective tax rate for company tax purposes (**the company tax ETR**) – The company tax ETR recognises actual company tax payments during a defined period as a percentage of the total profit before company tax. The company tax ETR will differ from the headline company tax rate where income and expenses are treated differently when calculating accounting profit and calculating taxable income.

For example, access to tax concessions such as R&D concessions and accelerated depreciation at the start of the life of a project can reduce the company ETR to below the headline company tax rate. Conversely, the reversal of the accelerated depreciation tax concessions towards the end of the life of a project can increase the company ETR to above the headline company tax rate.

- The effective tax rate for accounting purposes (**the accounting ETR**) – Companies generally disclose their accounting ETR in the income tax note in their accounts. The accounting ETR will differ from the headline corporate tax rate where income and expenses are treated differently for accounting and tax purposes at all times. For example, R&D tax concessions are generally not recognised in the calculation of profit before tax, and therefore access to R&D tax concessions will apply to reduce the accounting ETR. Access to tax concessions that reverse over the life of a project, such as accelerated depreciation benefits, do not affect the accounting ETR.

These potential differences between the company tax ETR and accounting ETR are not unique to the mining industry and occur across most industries.

More specifically for mining projects that are subject to mining royalties, as the company tax ETR and accounting profit ETR do not treat non-company taxes such as mining royalties as taxes, the company tax ETR and accounting profit ETR will be lower than the Project ETR.

Where royalties are properly recognised as taxes, the effective tax rate for the mining industry is much higher than calculations of company tax ETRs and the accounting ETRs would indicate.

## 5.4 Comparative Project ETR calculations

We have benchmarked Project ETRs across a number of countries. We have undertaken the Project ETR benchmarking based on the following instructions:

- Calculate indicative Project ETRs for an income year, applying the tax rules from foreign countries (as selected by the MCA) to the data and outputs from the KPMG mine models, including production volume and revenues, financing expenses, sustaining capital investment, depreciation deductions and operating costs.

Our Project ETR calculations are included below. The Project ETR is contrasted with the corporate tax rate (CTR).

### 5.4.1 Iron ore

Iron Ore	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	56.9%
Canada (Quebec)	profits-based	14.0%	net income	29.9%	40.2%
Brazil	ad valorem	2.0%	Sales	34.0%	37.8%
China	unit-based	\$4.20	per tonne, 25 CNY ~ A\$4.20	25.0%	31.1%

### 5.4.2 Coal

Coal	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	52.2%
Indonesia	ad valorem	13.5%	f.o.b. value or sales revenue	28.0%	47.4%
India	per unit & ad valorem	\$9.40	180 Rs / tonne + 5% price ~ A\$9.40 / tonne	34.0%	47.0%
South Africa	ad valorem	7.0%	unrefined, sales (5% refined)	34.6%	43.7%
Canada (Saskatchewan)	ad valorem	15.0%	Mine mouth value	28.0%	38.8%
Canada (Alberta)	profits-based	13.0%	Two tier; 1% on op. income, 12% on cuml net profit	28.0%	37.4%
Canada (Ontario)	profits-based	10.0%	profit > C\$500,000	27.0%	34.3%
China	unit-based	\$0.60	per tonne, 2.4 CNY ~ A\$0.60	25.0%	25.9%

### 5.4.3 Nickel

Nickel	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	52.8%
Brazil	ad valorem	2.0%	Sales	34.0%	36.9%
Canada (Ontario)	profits-based	10.0%	profit > C\$500,000	27.0%	34.3%

### 5.4.4 Copper

Copper	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	52.7%
USA (Arizona)	ad valorem	2.0%	market price (2% minimum)	42.0%	44.8%
Canada (Quebec)	profits-based	14.0%	net income	29.9%	39.7%
USA (Nevada)	profits-based	5.0%	net proceeds	35.0%	38.3%
Canada (B.C.)	profits-based	13.0%	Two tier; 2% on op. income, 13% on cumulative net profit	28.5%	37.8%
Chile	ad valorem	5.0%	Sales	17.0%	27.0%

#### 5.4.5 Bauxite

Bauxite	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	53.4%
Brazil	ad valorem	2.0%	Sales	34.0%	38.7%

#### 5.4.6 Gold

Gold	Calculation	Rate	Tax base	CTR	ETR
Australia RSPT	profits-based	40.0%	Profits	28.0%	53.5%
South Africa	ad valorem	7.0%	unrefined, sales (5% refined)	34.6%	45.4%
Argentina	ad valorem	3.0%	Sales	35.0%	39.6%
Brazil	ad valorem	1.0%	Sales	34.0%	35.6%

#### 5.4.7 Key parameters and limitations

The following parameters and limitations should be noted when reviewing the indicative Project ETRs:

- We have completed the Project ETR calculations using data and outputs from the fifth year of production in the mine models and have assumed that taxes are paid in the same year as the project profits on which the taxes are paid arise. We have used tax rates applicable in 2010 in all cases other than Australia, where we have applied the 2015 rate of 28%.
- We have assumed that the “taxing point” is consistent in each jurisdiction for profits based taxes.
- Property and lease charges and taxes and sales taxes payable on the acquisition of mining equipment are excluded from the Project ETR calculations.
- Mining royalties and financing costs are deductible from company income tax in all jurisdictions. Only the iron ore calculations have financing costs.
- We have completed Project ETR calculations for Canada by Province and the United States by State in accordance with the MCA’s instructions.
- The Canadian tax rates disclosed in the tables include the Federal company tax rate (which is 18% in 2010, reducing to 16.5% in 2011 and 15% in 2012). British Columbia’s Provincial tax rate is 10.5%. Ontario’s Provincial tax rate is 9%, which is the headline rate of 12% less a Resource Allowance Reduction of 3% (in 2013, Ontario’s tax rate will be 7.5%, the 10% headline rate less a Resource Allowance Reduction of 2.5%). Saskatchewan’s Provincial tax rate is 10%, which is the headline rate of 12% less a rebate of 2%. Quebec’s corporate tax of 29.9% is based a Federal tax rate of 18% plus a Provincial tax rate of 11.9%. The tax rate on mining profits is 14% in 2010, increasing to 16% in 2012.
- We have assumed processing allowances are not available.
- The United States tax rates disclosed in the tables are a combination of the Federal company tax rate of 35% plus a State tax rate of 6.98%. Arizona’s mining royalties are based on an assessment of the profitability of the project, but with a minimum rate of 2%. We have assumed a 4% royalty payment. Nevada’s corporate tax rate of 35% is equal to the Federal tax rate of 35% as Nevada does not impose a State income tax. Nevada applies a maximum 5% royalty.

The effective tax rate calculations in this report are indicative only, as they do not identify all potential tax concessions or benefits available to the project throughout the life of the project, such as tax holidays, percentage depletion allowances, processing allowances and R&D concessions (which may act to lower the ETR in foreign jurisdictions, particularly the US and Canada), and do not include property and lease charges and taxes, sales taxes or differences in payroll and employee taxes between those included in operating expenses in the mine model.

## 5.5 International trends in the taxation of mining

The international trend in mining taxation has broadly been towards an ad valorem approach, with the exception of certain non-precious based minerals (such as coal and iron ore), for which unit-based royalties are often common. The trend in developed economies with robust tax administrations has been towards profits-based or income-based tax systems. Australia would be within the category of countries with a diverse economic base, a competent tax administration and a mature income tax system that would be capable of implementing an efficient profits-based resources tax.<sup>13</sup>

There has been a trend internationally to address the taxation of the mining sector. For example, Kazakhstan introduced a Mineral Production Tax in 2009, which acts with the Excess Profits Tax, to increase its share of profits. The combined effect of these taxes is to tax both the value of the output and profits.

The Province of Quebec in Canada has also recently amended its mining taxation rules with a view to increasing tax collections from the mining sector, bringing it more in line with other Canadian provinces. However, it should be noted that tax rates in Canada, including as to the taxation of mining, will be reducing over the same timeframe that Australia is introducing the RSPT.

International experience indicates the impact that a tax with too high a rate or too broad a base can adversely impact mining activity in a country. For example, Mongolia introduced a Windfall Profits Tax in 2006, which applied a 68% tax rate on proceeds of gold and copper sales above benchmark prices. The Windfall Profits Tax was introduced to increase revenues, and to encourage processing of concentrate in Mongolia. The Windfall Profits Tax was repealed in 2009, with effect from 1 January 2011, after the tax led to uncertainty for investors and a reduction of investment in the Mongolian mining sector during the commodities boom, particularly in relation to exploration activity.

Internationally, the tax treatment of oil and gas typically differs from the tax treatment of mineral resources. International practice is that petroleum is almost invariably taxed at higher rates than mineral resources.

Further information on international trends and comparative taxation arrangements are included in Appendix B.

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<sup>13</sup> Otto J [et al]: 'Mining royalties: a global study of their impact on investors, Government, and civil society'; World Bank (2006); p. 38.

## 5.6 Conclusion

The introduction of the RSPT will result in Australian mining projects having a higher effective tax rate than at present. Australia will have the highest effective tax rate of the countries the MCA has requested that we benchmark against.

The theory of the RSPT is that it will not affect investment decisions in the long run, irrespective of international tax comparisons. However, as the debt markets will be unable to price funding at the LTBR due to risk and pricing issues, the RSPT work will not work as precisely as proposed. Accordingly, international tax comparisons are relevant, particularly in the short and medium term.

It is important that Australia ensures that its tax regime, considered both in respect of its tax rate and the base on which tax is charged, is competitive with other natural resource endowed countries. Higher tax charges as compared with other countries can influence the time at which mining projects are developed in Australia.

## 6 Comparisons of long run and short to medium term considerations

### 6.1 KPMG Econtech modelling

The Australian Treasury commissioned KPMG Econtech to model the macroeconomic outcomes of the RSPT and other policy measures, including the reduction in the corporate tax rate, the removal of the Federal crude oil excise and the effective removal of State based royalties. KPMG Econtech was not involved in the policy development, while the modelling was undertaken independent of Treasury. KPMG Econtech's findings were published in its report, *CGE Analysis of Part of the Government's AFTS Response* dated 4 May 2010 (**the CGE report**).

The CGE Report reported the economic effects of part of the Government's initial response to the AFTS Review Report. The Australian Treasury provided the Government's policy parameters for tax reform to KPMG Econtech, who then independently modelled their economic effects. In advising KPMG Econtech on the policy parameters of the tax reform, Treasury highlighted the differences between the proposed RSPT and the existing PRRT, being

- the guarantee of full eventual realisation of the tax value of losses;
- the use of the 'risk-free' rate (allowance rate) for carrying forward tax losses; and
- the wider ability to offset losses from loss-making projects against profits from profit-making projects.

Based on these and other parameters, the RSPT met the design criteria to be a neutral business tax as determined by taxation economics literature and therefore would have no economic inefficiency costs. However, it was also concluded by KPMG Econtech that this was before implementation issues, administration costs and compliance costs are considered.

KPMG Econtech used its MM900 model for the long run modelling. As noted in the CGE report,

*The default MM900 modelling results makes the common assumption that capital is perfectly mobile. That is, in MM900, an industry can access as much capital as it needs so long it can achieve the after tax rate real rate of return required by international investors.<sup>14</sup>*

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<sup>14</sup> KPMG Econtech, *CGE Analysis of Part of the Government's AFTS Response*, 4 May 2010, p9.

The discussions in this report result in the following conclusions:

- the implementation issues identified by KPMG Econtech, combined with other risk factors, will mean that the “no economic inefficiency” assumption supported by economic theory, will not hold up in practice, particularly in the short to medium term; and
- given the characteristics of the mining sector (i.e. large scale and long life investments), the introduction of the RSPT at 40% means that it will take a long time for the sector to recover.

## 6.2 Summary of differences in engagement parameters

The following table summarises the key parameters, and the differences of focus, of the KPMG Econtech engagement for the Australian Treasury and this engagement for the MCA.

Parameter	Australian Treasury Engagement	MCA Engagement
<b>Scope</b>	Macroeconomic modelling	Financial modelling
<b>Concept</b>	Capital availability	Capital scarcity, competition
<b>Dimension</b>	Overall economy, industry	Project level
<b>Key inputs</b>	Commodity prices, mineral supply and demand, industry cost of capital	Commodity prices, FX, capital expenditures, operating expenditures, project specific discount rates
<b>Key outputs</b>	GDP, production, FX, tax receipts	NPV, IRR, tax changes
<b>Timeframe</b>	Long run, after the new tax regime is phased in and the economy has fully adjusted	Mine life for financial modelling, short to medium term for assessment of RSPT

## A Funding of new projects

As discussed in section 2.4, for the theory of the proposed RSPT to hold true in practice, the following must occur:

- mining companies must be able to borrow 40% of the project costs at a cost equivalent to the LTBR to fund the Government's de facto 40% interest in the mining project; and
- the borrowing must be designed to allow increases and decreases in project borrowing equal to 40% of accumulated project losses and undeducted capital expenditure.

On this basis, should mining companies not be able to fund 40% of their costs at an equivalent rate to the LTBR, mining companies will be required to meet funding costs that exceed the LTBR.

Having regard to these principles, it follows that mining companies must achieve a reduction in their overall cost of capital for the RSPT to be tax neutral, as required by economic theory and the design of the RSPT. The reduction can be either through a reduction in the cost of shareholders' equity or a reduction in the cost of debt. There are a number of issues around being able to achieve this theoretical construct in practice, and these issues are considered in the following sections.

For clarity we have separated our discussion between shareholder's equity and debt. More attention is paid to the cost of debt. This is because the RSPT involves a de facto loan from the company to Government for the Government's 40% share of the project cost at the LTBR, so successful implementation of the Government's guarantee would likely involve refinancing of this loan at the LTBR rather than a fall in the cost of equity. The feasibility of such a scenario is assessed below.

### A.1 Shareholder's equity

The cost of equity is generally determined utilising the capital asset pricing model (CAPM). Under the CAPM, risk is divided into two components, being systematic risk and unsystematic risk:

- Systematic risk relates to the uncertainty of expected returns of an investment relative to the investment market as a whole. This type of risk cannot be diversified away.
- Unsystematic risk relates to risks unique to an investment due to the characteristics of the industry, the company or the type of investment interest. In theory, this is eliminated through diversification.

It is therefore the systematic risk which conceptually needs to be affected by the RSPT.

CAPM calculates the cost of equity as follows:

<b><math>Ke = Rf + \beta(EMRP)</math></b>				
<b>Where:</b>				
<b>Ke</b>	=	<b>Cost of equity</b>		
<b>Rf</b>	=	<b>Risk free rate</b>		
<b><math>\beta</math></b>	=	<b>Beta</b>		
<b>EMRP</b>	=	<b>Equity market risk premium</b>		
<b><math>\beta(EMRP)</math></b>	=	<b>Systematic risk</b>		

Under CAPM, the systematic risk of a project or investment, as calculated above, is particularly impacted by the beta adopted. Set out below is a calculation of the cost of equity using betas determined by the Australian School of Business as at 31 December 2009:

Cost of Equity Calculation				
Sector	Rf %	EMRP %	$\beta$ %	Ke %
Metals & Mining	5.3	6	1.24	12.74
Energy	5.3	6	1.14	12.14

In theory, it could be argued that the tax credit should have the effect over the longer term of reducing the equity beta in the CAPM calculation, reflecting the fact that commercial risk of a project is now partially offset, however:

- the practical effect of this tax credit is unknown and its modelling is unclear;
- companies typically seek to invest only in profitable projects and at hurdle rates in excess of their costs of capital so the extent to which they will consider the guarantee in their assessment of projects is uncertain; and
- there is no historical reference point to see how economic agents react to this type of guarantee.

Consequently, it is currently difficult to find a reasonable basis by which to adjust the cost of equity because of the tax credit. Further:

- since the CAPM only compensates investors for systematic (or market) risks, it is important that all unsystematic (or unique) risks that cannot be diversified away are reflected in the expected cash flows of the project or investment when valuing or evaluating that project or investment; and

- application of the RSPT is likely, particularly in the case of profitable projects, to reduce the level of free cash flows available to both debt and equity holders, which may result in these parties seeking an increased level of return in compensation.

Given these uncertainties, it is unclear to what extent the tax credit will result in any reduction in the cost of equity in the short and into the medium term. In any case, as noted above, the more likely response to the guarantee would be through debt markets.

## A.2 Project finance / debt

The cost of project finance is generally a function of the risks attaching to the cash flows of the project supporting the relevant funding. An important aspect of this is the extent to which a project is supported by debt as opposed to equity. This will differ depending on the financial position of each mining company.

As discussed previously, because the RSPT involves a de facto loan from the Government for the Government's 40% share of the project cost, any reduced risk associated with the 40% guarantee should be factored into an assessment of the debt cost. This RSPT Debt must be recognised by the market as carrying the same level of risks and benefits as Government bonds in order for the mining companies to raise debt at the LTBR.

Further, the RSPT theory operates on the basis that the 40% tax credit can be wholly debt funded. There are practical financing considerations that currently suggest this level of debt funding may be questionable in being achieved universally and, as equity capital is generally more expensive than debt, a lower level of gearing without a compensating reduction in the cost of equity would result in a lower return on investment for mining companies.

### A.2.1 Is RSPT Debt equivalent to Government debt?

The RSPT Debt will need to satisfy two important conditions for it to be treated by the market as equivalent to Government debt, i.e. Government bonds:

- **Identical instrument and risk** – For the debt market to develop, and price an RSPT Debt equivalent to the LTBR, the instrument issued by market participants to fund the 40% of project costs (or that proportion supported by debt) would need to be identical (or superior) in all respects to a Government bond. This requires consideration of factors such as credit risk (including credit rating), tenor, draw down and repayment profile, currency, liquidity, etc.
- **Market appetite / capacity** – There would need to be sufficient appetite and capacity for the RSPT Debt in debt markets to fulfil the funding needs of the mining sector. In addition, the effective “all-in” cost of accessing such funding would need to be equivalent to the LTBR.

### A.2.2 Identical Instrument?

In order for debt to be raised at the LTBR with the security of the tax credit, the instrument issued would need to be identical (or superior) in all respects to the securities issued directly into the market by the Federal Treasury. At a high level, Government bonds have the following characteristics:

- unconditional repayment obligation from the Government;
- standard and Poor's Issuer credit rating of 'AAA';
- defined tenor (maturity date) and repayment profile;
- A\$ denomination;
- fixed cash coupon;
- single drawdown;
- market accepted pricing methodology; and
- highly liquid and transparent secondary market.

Currently, there appear to be a number of challenges around the development of a RSPT Debt instrument that exhibits enough similarities to a Government bond.

<p><b>Sovereign Risk / Change in Law Risk</b></p>	<p><i>Debt capital providers will factor in greater sovereign / change in law risk than under the equivalent Government bond.</i></p> <ul style="list-style-type: none"> <li>• While it can be contended that Australia is a stable economy with no history of defaulting on contractual and legislated obligations, the legislated tax credit could be reduced or removed in future. The fact that the RSPT will apply to existing projects, with the Government “acquiring” its 40% interests in many cases at less than the market value of the project development assets, and the retention of the rights by the States to increase royalties above a level refundable by the Government confirms that debt capital providers cannot disregard sovereign risk.</li> <li>• To date there have been no announcements as to the form of the tax credit, or about grandfathering RSPT rules for projects that commence after 2 May 2010 and before any future changes to the law in respect of RSPT. Therefore, lenders cannot at the moment be assured of the form or the timing of receipt of the tax credit.</li> <li>• Lenders will also be subject to other risks relating to changes in legislation. The tax credit will apply to project expenditures prior to the taxing point, i.e. within the mine gate. The development of the legislation in relation to the taxing point across a range of commodities will be complex and may be subject to change in the short to medium term.</li> </ul>
<p><b>Effective “pass-through” / securitisation of tax credit cash flow</b></p>	<p><i>There may be a legal and structural limitations to being able to effectively “pass-through” or “ring-fence” the tax credit cash flow.</i></p> <ul style="list-style-type: none"> <li>• In order to issue an RPST Debt instrument, an effective pass-through or “ring-fencing” of the cash flow is necessary. For example, assume that Mining Co Limited (“MCL”) was to issue an “MCL RSPT Bond” for “RSPT Project A”. Prior to investing in those bonds a prospective bond investor is likely to raise issues such as: <ul style="list-style-type: none"> <li>○ How do I get effective security over the tax credit payment stream from MCL?</li> <li>○ What are the triggers/rights for enforcement if MCL defaults on its obligations?</li> <li>○ In circumstances of dispute between the MCL and bond investor, who is the debtor (MCL or Government?) and who do the bond investors deal with?</li> <li>○ How are cash flows from the project that pass through the wider MCL group protected from other creditors or mis-appropriation, i.e. “co-mingling risk”?</li> <li>○ What are the consequences of an insolvency event of MCL but RSPT Project A is still on foot and has not been terminated?</li> </ul> </li> </ul>

<p><b>Bona Fide Application of Funding</b></p>	<p><i>There is a risk that a borrower may not apply the proceeds of the RSPT Debt to qualifying RSPT expenditure and therefore make ineligible the guarantee payment on the full amount of RSPT Debt.</i></p> <ul style="list-style-type: none"> <li>• As the Government’s repayment obligation is based on qualifying expenditure, a debt provider is potentially exposed to the following risks relating to the borrower: <ul style="list-style-type: none"> <li>○ The assessment of qualifying expenditure at the outset and throughout the duration of the project. This is particularly the case for projects involving downstream expenditure as there may not be a clear delineation of what is inside or outside the “mine gate”.</li> <li>○ The inappropriate application of the funds to non-RSPT projects. This could occur through error, negligence or potential fraudulent activities.</li> <li>○ Inadequate record keeping of the borrower to demonstrate the validity of the claim.</li> </ul> </li> </ul>
<p><b>Repayment Profile</b></p>	<p><i>A Government bond is a traditional “interest only” bond with a bullet repayment profile. The repayment profile of RSPT Debt is uncertain.</i></p> <ul style="list-style-type: none"> <li>• Repayment of the RSPT Debt could occur under two outcomes: <ul style="list-style-type: none"> <li>○ The project is successful and the RSPT Capital Account / RSPT Debt is repaid from cash flows from the project or refinanced through “on risk” debt and equity capital.</li> <li>○ The project is unsuccessful and therefore terminated and the RSPT Debt is repaid by the Government refunding 40% of the RSPT Capital Account.</li> </ul> </li> <li>• As project outcomes are uncertain, a theoretical RSPT debt does not have a defined tenor or repayment profile and therefore could be argued that it is not akin to a Government bond.</li> </ul>
<p><b>Pricing Methodology</b></p>	<p><i>Standard bond pricing methodologies may not apply to RSPT Debt.</i></p> <ul style="list-style-type: none"> <li>• Given the timing and profile of cash flows associated with the RSPT bond are uncertain, standard bond pricing methodologies that rely upon discounting cash flows at the relevant yield to maturity cannot generally be applied.</li> </ul>
<p><b>Liquid Secondary Market</b></p>	<p><i>There is currently no readily accessible, reliable and transparent secondary market for RSPT Debt or similar products, and it will take time for the market to develop.</i></p> <ul style="list-style-type: none"> <li>• Given there is no established primary or secondary market for RSPT Debt, it is not certain (although it may be considered likely) that a secondary market for such debt would be established.</li> <li>• Given the depth of the market for Government securities, it is difficult to form a view that there would be equivalent liquidity for RSPT Debt (particularly in times of financial market disruption).</li> </ul>

### A.2.3 Market Appetite / Cost of Funds

Where mining companies need to access debt capital markets to raise the required funding, two financing issues are likely to arise in an RSPT environment:

- Will there be sufficient market appetite for investing in RSPT Debt?
- Can funding be accessed at the LTBR, either through financial intermediaries or direct from debt capital markets investors?

<p><b>Development of an Efficient Market</b></p>	<p><i>Whether an efficient market for RSPT Debt can grow is uncertain.</i></p> <p>Like any market for new types of debt, investors are likely to require a premium for such investment during the early phase of the market development. Only based on time and transaction experience will lenders / investors become comfortable with the market and more efficiently price risk associated with such products</p> <p>Investment decisions for companies in the energy and natural resource (ENR) sector will continue to be made in the near to medium term. However, it is not unreasonable to expect that the development of an efficient market could take 10 to 15 years given the very long-dated nature of the mining projects that are being developed.</p> <p>In the interim, borrowers may have no other choice than to continue to pay the risk premiums required by the market to access debt funds.</p>
<p><b>RSPT Bond Characteristics</b></p>	<p><i>As outlined above, a “theoretical” RSPT Debt would not exhibit the same characteristics of a Government bond. Without any modification or structuring by financial intermediaries there may be limited market appetite for such bonds.</i></p> <p>Debt capital markets investors / fund managers generally invest to match corresponding liabilities or to provide a particular risk / return and cash flow outcome, e.g. pension funds “matching funding” their obligations.</p> <p>A RSPT Debt has a number of very critical limitations that may affect the appetite for such bonds (particularly in comparison to a Government bond); including:</p> <ul style="list-style-type: none"> <li>• No defined maturity date;</li> <li>• May not have an Issuer credit rating;</li> <li>• May not pay cash interest coupons; and</li> <li>• May not be a liquid market for such instrument.</li> </ul>

<p><b>Currency</b></p>	<p><i>In contrast to foreign markets, Australia does not have a deep and highly liquid bond market. As a result, many Australian borrowers access foreign debt markets to satisfy their funding needs. This creates issues in the management of foreign exchange risk.</i></p> <p>Debt issued in jurisdictions outside Australia would be in the relevant local currency (i.e. USD, Euro, Yen, etc). The Government’s repayment obligation however is in A\$ and therefore investors would be exposed to foreign exchange movement on repayment.</p> <p>Typically this would be managed through the use of a cross-currency swap, however such a transaction for RSPT Debt raises a number of issues:</p> <ul style="list-style-type: none"> <li>• Hedging of cash flows requires certainty of the timing and quantum of cash flows (so the hedge provider can manage its risk position). Providers may therefore be unable to write such derivatives or require an addition risk premium to compensate for this risk.</li> <li>• The credit worthiness for derivative providers is likely to be less than the Government’s credit rating, therefore investors will need to price in the incremental risk associated with the performance of the swap provider.</li> </ul>
<p><b>Cost of Bank funds cost of funds vs LTBR</b></p>	<p><i>As there may be limitations in the suitability of such product for bond investors, banks may be better equipped to accommodate the structural features of the RSPT Debt. Banks’ cost of funds however are greater than the LTBR.</i></p> <p>If banks were to provide RSPT Debt there are a number of factors that will increase the cost of funding over the LTBR (in additional to perceived credit risk of the borrower).</p> <ul style="list-style-type: none"> <li>• Banks cannot fund at the LTBR. Banks are financial intermediaries that access capital through deposits and debt capital markets. The cost of funds for banks is above the LTBR and it is therefore necessary that this cost is passed on to borrowers.</li> <li>• Under current prudential standards, banks require regulatory capital (equity) and liquidity to support their obligations. Unless APRA provides specific capital rules for dealing with RSPT Debt the costs associated with compliance will need to be passed on to borrowers.</li> </ul>
<p><b>Funding Efficiency - Timing of Cash Flows</b></p>	<p><i>Funding of projects occurs on a staged basis and the RSPT does not take into account costs to achieve this.</i></p> <p>Bonds are generally issued in a lump sum upfront and therefore where the debt raising occurs early in the project development phase, funds will be invested at the cash rate (lower the LTBR). The company will be required to fund the after tax cost of the spread between the cost of funds and the return on investment.</p> <p>Where banks provide revolving / progressive drawdown facilities, a “line fee” is generally charged on the borrower to cover the bank for the allocation of capital required for the funding commitment. This increases the cost of funding to the borrower.</p>

<p><b>Hedging</b></p>	<p><i>Many projects are funded in currencies other than Australian Dollars</i></p> <p>As the market for many of Australia’s commodities are based in currencies other than A\$ (mainly USD), companies will seek to raise capital in the commodity currency to provide a natural hedge.</p> <p>The RSPT Debt on the other hand is an A\$ repayment obligation and therefore this creates a mismatch. This could be addressed by the borrower entering into a cross-currency swap in order to match currencies. This raises a number of issues:</p> <ul style="list-style-type: none"> <li>• What security would the hedge provider have to enter into such transaction?</li> <li>• How would a transaction be structured when the timing of the relevant cash flow being hedged is unknown?</li> <li>• The costs associated with such hedging is not factored in the LTBR.</li> </ul>
<p><b>Upfront Costs</b></p>	<p><i>Accessing debt capital is generally achieved via financial intermediaries and this involves upfront costs.</i></p> <p>In addition to the relevant coupon / interest, costs of raising debt capital will include upfront costs. For example, for a bond issue, investors are generally accessed via “Arrangers”, a role typically filled by Investment / Major Trading Banks. In return for this, an upfront fee is generally payable by the borrower.</p>

### A.3 Example of the pricing considerations for the bond market

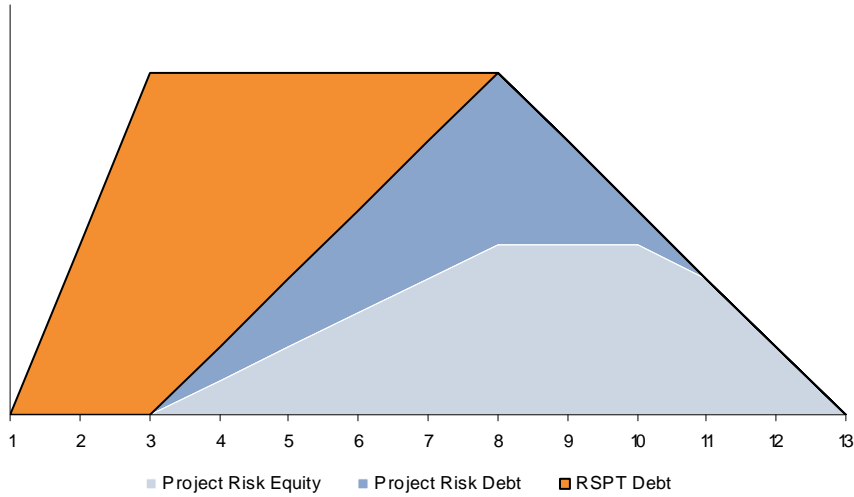
In simple terms, the practical challenges associated with raising RSPT Debt can be best illustrated in the charts below. The charts depict the potential outcomes for the 40% RSPT component of a new mine with the following parameters:

- 10 year mine life;
- development period of two years;
- projected “amortisation” of the RSPT capital account over a five year period from commencement of operations;
- assumed 50:50 debt to equity ratio for “Project Risk” debt and equity capital that refinances the RSPT debt”; and
- sequential return of Project Risk capital to debt then equity once the RSPT capital has been “repaid”.

The charts show two possible outcomes:

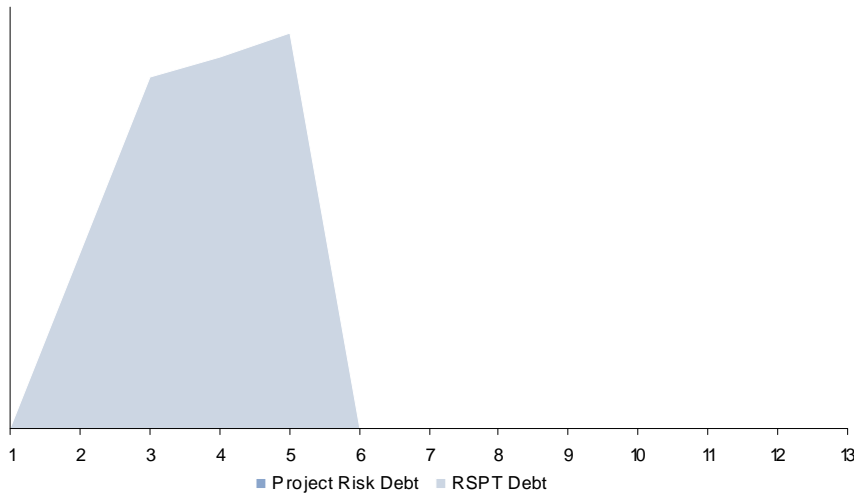
- **Successful** – the project performs exactly as forecast; and
- **Terminated** – the project is unsuccessful and is terminated in year 4 (two years into operations).

### Successful Project



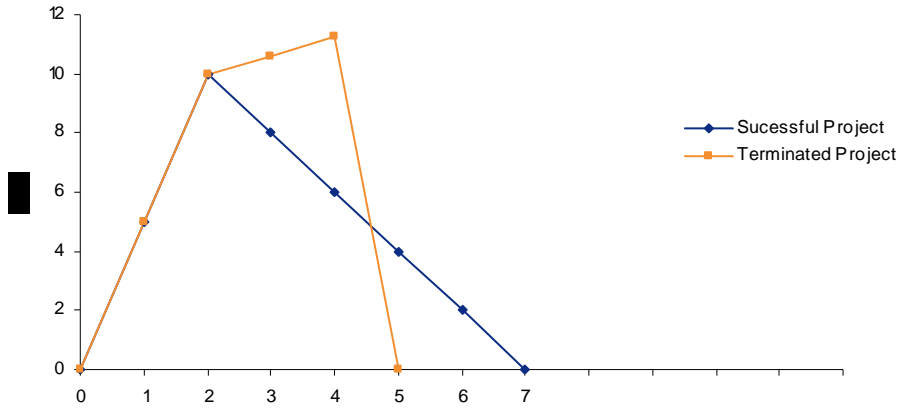
The chart above shows the RSPT Debt is drawn down progressively to fund 100% of the RSPT component of the project. Once the project is operational, the RSPT is progressively refinanced by Project Risk debt and equity until it is fully repaid at year 8 of the Project. Over the life of the project, cash flows from the project repay Project Risk debt and equity invested.

### Unsuccessful Project



The chart above shows that for an unsuccessful project, the RSPT Debt is drawn progressively to fund the project, with interest capitalised during the period where the project has no cash flows to service debt. Once the project is closed, the receipt of the tax credit payment is applied to repay the RSPT Debt.

**RSPT Debt Profile - successful vs unsuccessful projects**



The chart above contrasts the two outcomes for the RSPT Debt for the successful and terminated project. The chart demonstrates that, as project outcomes are uncertain, the repayment profile of an RSPT Debt is also uncertain.

## A.4 Conclusion

The theoretical RSPT model is predicated on unlimited capital with 40% funding being available at the LTBR because of the tax credit. Therefore, the capital markets will need to provide 40% of project funding at a cost equivalent to the LTBR for the design objectives of the RSPT to be realised.

The capital markets, and in particular debt markets, will be unable to price funding at the LTBR due to risk and pricing issues. The key issues include sovereign risk, security risk, transaction costs, repayment profile uncertainties and the uncertainty of the value of the tax credit throughout the term of the debt funding. In order to make the RSPT work as proposed, the Government will need to actively intervene and become the purchaser of the debt at the LTBR.

The debt markets will likely innovate and develop over time so that mining companies can, by virtue of the tax credit, access a greater level of debt than at present. However, the extent of the debt financing available, the price of such debt, and the time over which it will become available is uncertain. The Government could influence the rate at which the debt markets develop by intervening in the markets or refining its approach to the RSPT. In order to be effective, any change would require an advancement of policy in relation to the RSPT.

For mining companies that are currently assessing whether to develop mining projects in the short term and into the medium term, the lack of certainty in the debt markets means that they will not be able to price in a meaningful reduction in the cost of debt, and access to debt will be challenging.

## B International trends in the taxation of mining

### B.1 Overview

The global trend for the taxation of mining has broadly been towards an ad valorem approach, with the exception of certain non-precious based minerals (such as coal and iron ore), for which unit-based royalties are often common. The trend in developed economies with robust tax administrations has been towards profits-based or income-based tax systems.

Factors likely to influence the architecture of natural resources taxation regimes include:

- Economic structure – the extent to which an economy is reliant upon resources revenue or whether the economy is sufficiently diverse. A more diverse economy is less likely to impose a specific tax regime on the resources sector.
- Administration and compliance – the capability of the tax administration may be a factor in whether the taxation of natural resources is through relatively simple unit-based or value-based- royalty regimes or potentially more sophisticated profits-based or income-based tax regimes.
- Maturity and experience of the income tax system – a system that has well-defined rules and definitions is better able to manage profits-based or income-based tax regimes for natural resources. In addition, if the tax system has similar tax experience that it can draw upon (e.g. oil and gas), this is likely to make implementation easier in the case of other natural resources.
- Global competitiveness – the extent to which resource endowed countries aim to be attractive destinations for investment in their resources sector. This desire for competitiveness will influence both the structure and rate of the taxes imposed.<sup>15</sup>

Australia would unarguably be within the category of countries with a diverse economic base, a competent tax administration and a mature income tax system that would be capable of implementing an efficient profits-based resources tax.<sup>16</sup>

There has been a trend internationally to address the taxation of the mining sector. For example, Kazakhstan introduced a Mineral Production Tax in 2009, which acts with the Excess Profits Tax, to increase its share of profits. The combined effect of these taxes is to tax both the value of the output and profits.

The Province of Quebec in Canada has also recently amended its mining taxation rules with a view to increasing tax collections from the mining sector, bringing it more in line with other Canadian provinces. However, it should be noted that tax rates in Canada, including as to the

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<sup>15</sup> Refer generally, International Council on Mining & Metals, Commonwealth Secretariat, *Minerals Taxation Regimes: A review of issues and challenges in their design and application*, February 2009

<sup>16</sup> Otto J [et al]: 'Mining royalties: a global study of their impact on investors, Government, and civil society' ; World Bank (2006); p. 38

taxation of mining, will be reducing over the same timeframe that Australia is introducing the RSPT.

International experience indicates the impact that a tax with too high a rate or too broad a base can adversely impact mining activity in a country. For example, Mongolia introduced a Windfall Profits Tax in 2006, which applied a 68% tax rate on proceeds of gold and copper sales above benchmark prices. The Windfall Profits Tax was introduced to increase revenues, and to encourage processing of concentrate in Mongolia. The Windfall Profits Tax was repealed in 2009, after the tax led to uncertainty for investors and a reduction of investment in the Mongolian mining sector during the commodities boom, particularly in relation to exploration activity.

Internationally, the tax treatment of oil and gas typically differs from the tax treatment of mineral resources. International practice is that petroleum is almost invariably taxed at higher rates than mineral resources.

## **B.2 Approaches to taxation of mining internationally**

The approaches to taxation in some of the countries with which Australia competes for mining capital investment are summarised below.

### **B.2.1 Canada**

The responsibility for land issues, including mineral royalties, is at the sub-national level of the Canadian Provinces. The Canadian Provinces have retained corporate and individual income tax powers that were ceded by the Australian States to the Federal Government in 1942. This means that the Canadian Provinces theoretically have a greater capacity than the Australian States to manage the tax administration associated with profits-based mineral royalty regimes.

Mineral royalty regimes differ between the Canadian Provinces with respect to the royalty rates, the tax base and the tax structure.

One of the fundamental concepts consistent among the Provinces is that the mineral tax is intended to apply to the implied value of the mineral at the mine mouth. There are different potential taxing points for a mining entity that carries on both mining and processing activities.

The starting point for calculating the tax is ordinarily the sales value of the finished product to an entity other than the operator. This is normally a third party sale but can often be an intermediary company within the corporate group. Transfer pricing provisions are usually incorporated into the mining legislation to deal with potential concerns of “arm’s length pricing” among related parties. From the final sales price a variety of deductions are claimed for mining and processing costs to determine the implied value of the mineral at the pit mouth.

A characteristic of the Canadian Province mining tax regimes is the concept of a processing allowance, which is a deduction from the amount subject to tax based on a prescribed rate of return for fixed assets used in the secondary processing of minerals. The processing allowance essentially provides an operator with a deduction for a rate of return for amounts invested in

processing assets. The processing allowance acts to not only ensure that the sales value is adjusted appropriately to remove the added value of processing from the final sales price but it often increased beyond such value to act as an incentive for mining entities to conduct processing activities within the province.

Key aspects of the different Canadian regimes are outlined below:

	Tax base	Rate/s	Depreciation	Exploration deduction	Processing allowance	Other
<b>British Columbia</b>	two tier	2% on operating income + 13% on cumulative net profits	33.3%	100%	n/a	ad valorem & profits-based
<b>Manitoba</b>	net income	17%	20% declining balance	100%	10%	tax holiday for new mines.
<b>Saskatchewan</b>	net income	10% above thresholds	100%	150%	n/a	10 years tax holiday for new mines
<b>Ontario</b>	net income	10% general 5% remote	15% - 30%	100%	15% - 65%	3 years tax holiday or first 10M for new mines.
<b>Quebec</b>	net income	14%	30%	100%	55% maximum	Concessions in relation to Northern Quebec

### B.2.2 Chile

Chile adopted a profits-based special tax on mining activities in 2006. In calculating the special mining tax, the taxable income is equal to the net taxable base for business income tax with some adjustments, to the effect that income, costs or expenses not directly related to the sale of mining products are excluded and accelerated depreciation and losses from previous years are not deductible.

Progressive rates of tax apply from a base equivalent to 12,000 tonnes of copper, up to 50,000 tonnes of copper equivalent at which the maximum flat rate of 5% applies. The special tax on mining is deductible against corporate income tax.

### B.2.3 South Africa

South Africa introduced a new *Mineral and Petroleum Resources Royalty Act* in November 2008, with an implementation date of 1 May 2009. The legislation is uniform across South Africa, reflecting the subordinate constitutional status of the Provinces. The legislation covers the minerals and petroleum sectors and provides for resource royalties imposed on a profits basis, according to different formulae for refined and unrefined resources:

- $0.5 + [\text{earnings before interest and taxes} / (\text{gross sales in respect of refined mineral resources} \times 12.5)] \times 100$
- $0.5 + [\text{earnings before interest and taxes} / (\text{gross sales in respect of unrefined mineral resources} \times 9)] \times 100$

The taxes imposed on refined and unrefined mineral resources must not exceed 5% and 7% respectively.

The legislation contains definitions of refined and unrefined minerals and some transitional provisions to cover previous mineral royalty arrangements and it defines the earnings before interest and taxes and gross sales (at arm's length). The legislation also provides for deductions for capital expenditure, but not financial instruments such as hedging contracts.

Given the relatively recent introduction of the new South African resources royalty regime, it is difficult to assess its impact on the resources sector.

#### B.2.4 United States

In the United States mining royalties are generally imposed by the States, the exception being a federal tax imposed on coal obtained through bidding.

State imposed mineral royalties are usually ad valorem or unit-based, although some profits-based systems are also used. Profits-based taxes are imposed on mining in Alaska and Nevada. In each of these States the taxes apply uniformly to all minerals; in Arizona the minimum rate is 2% ad valorem and is set by the Government agency based on project appraisal and in Nevada the rate is 5% of net proceeds when profits exceed \$4 million.

### B.3 Taxation of oil and gas

#### B.3.1 Petroleum Resource Rent Tax in Australia

Greenfield oil and gas projects have been subject to the profits-based PRRT imposed at the rate of 40% since 1987. The major characteristics of the PRRT regime can be summarised as follows:

- PRRT is assessed on a project basis;
- liability to pay PRRT is on a producer / company basis and payable quarterly;
- PRRT payments are deductible expenditure for corporate tax;
- PRRT liability is incurred when all allowable expenditures (including compounding) have been deducted from assessable receipts;

- assessable receipts include the amounts received from the sale of all petroleum (or a marketable petroleum commodity);
- deductions include capital or operating costs that directly relate to the petroleum project, and are deductible in the year they are incurred. Expenditures include exploration, development, operating and closing activities;
- non-deductible expenditures include financing costs, indirect administration costs, and other taxes such as fringe benefits tax; and
- undeducted expenditures are compounded forward at a variety of set rates depending on the nature of those expenditures and the time that they are incurred prior to the granting of a production licence.

The key characteristic of the PRRT regime is that the oil and gas project does not incur a resource rent tax liability until all costs have been recovered including a defined rate of return on unrecovered costs.

In the extraction of oil and gas, projects will typically give priority to the extraction of the higher value crude oil, with the extraction of gas as a follow-on product. This means that much of the capital expenditure associated with the project is repaid fairly rapidly at the initial stages of the project.

### B.3.2 PRRT and RSPT compared

RSPT will apply to all new resource projects, while those projects currently covered by PRRT will be grandfathered subject to ‘opt in’ arrangements to be developed. Based on the policy announcement it appears any new offshore petroleum projects would be subject to RSPT rather than PRRT. There are however several key differences between the PRRT and the RSPT.

RSPT	PRRT
Capital expenditure depreciated over time	Capital expenditure is immediately expensed
Transferable expenditure between projects	Transfer of expenditure limited to eligible exploration expenditure
Refundability of unutilised expenditure for unsuccessful projects	No refund of unutilised expenditure
One allowance (uplift) rate for all capital expenditure at the LTBR	Various rates including LTBR + 5% for development and LTBR + 15% for exploration
Applies to all existing resource projects not covered by PRRT	Applied to greenfield projects, with some existing projects covered later

### B.3.3 Differences between taxation of oil and gas and minerals

Internationally, the tax treatment of oil and gas typically differs from the tax treatment of mineral resources. Petroleum projects often generate large economic rents and such projects can be of a significant scale and generate sufficient profits to facilitate more sophisticated taxation arrangements. By contrast, it is often possible for some mineral resource extraction to be conducted on relatively smaller scales and the taxation arrangements in the form of ad valorem or unit-based royalties often need to be less sophisticated. The tax base and taxing points may also be more readily defined in petroleum projects, while different mineral resources projects may have a range of tax bases and taxing points.

Petroleum projects often have different life-cycles to mineral projects with high value crude oil extraction in the initial years of the project followed by the extraction of lower value natural gas and other petroleum products in subsequent years. Mineral resources project life-cycles will depend upon the profile of the ore body and the extent to which the ore can be economically recovered at varying depths, which might be either earlier or later in the project life.

International practice is that petroleum is almost invariably taxed far more heavily than mineral resources. South Africa appears to be a recent exception to this standard, however it should be noted that the ad valorem rates are relatively moderate and South Africa is not highly prospective for petroleum resources. The international differences in the taxation treatment of petroleum products and minerals is a relevant consideration for the competitiveness of the taxation regime for the Australian minerals sector including assessing whether different tax rates should apply to different commodities.

An international comparison of the taxation of the mining and petroleum sectors is contained in the table below.

Jurisdiction	Minerals taxation	Petroleum taxation
<b>Argentina</b> <b>(Provinces)</b>	Ad valorem royalties at rates from 0% to 3% on sales value.	12% Federal royalty on wellhead value.
<b>Brazil</b>	Ad valorem royalties at rates from 0.2% to 3% on sales value.	Royalty rates from 5% to 10% of production, plus a special participation levy for the largest fields which is resource rent based with progressive rates that vary from 10% to 40%.
<b>Canada</b> <b>(Provinces)</b>	Profits-based taxes with rates and bases that vary between the Provinces. Highest rate is 17% for large mines in Manitoba.	Manitoba oil and gas tax production tax is 42.76% of value for large oil wells. The tax on gas production is 1.2%.
<b>China</b>	Unit-based, plus ad valorem. The highest ad valorem rate is 4%, unit-based royalties set by mine.	Unit-based which varies according to the oil and gas project.

Jurisdiction	Minerals taxation	Petroleum taxation
<b>Ghana</b>	Ad valorem royalties at rates from 3% to 12% on sales revenue.	Unless a petroleum agreement provides otherwise, tax is imposed at the rate of 50% of chargeable income.
<b>India</b>	Ad valorem or unit-based. Ad valorem rates range from 0.4% to 20%.	Royalty at 10% for crude oil and natural gas in offshore areas. For onshore areas the royalty is 12.5% for crude oil and 10% for natural gas.
<b>Mozambique</b>	Ad valorem royalties at rates from 3% to 12% on sales revenue.	Ad valorem royalties at rates from 6% for natural gas and to 10% for 'gross petroleum.'
<b>Namibia</b>	Ad valorem royalties at rates from 5% to 10% on sales revenue.	Two tier 5% royalty and a 35% petroleum income tax.
<b>Papua New Guinea</b>	Ad valorem, 2% rate of net sales revenue. Mining is taxed on the basis of specific projects at the corporate tax rate of 30%.  An "additional profits" regime was previously imposed on mineral resources but this tax has been abolished.	Petroleum companies are subject to tax rates ranging from 30% to 50%, depending on the commencement date. Additional taxation may apply to gas and petroleum income.  A gas project participant deriving an internal rate of return (IRR) on its investment in excess of 15% is subject to additional profits tax at 20% (if the return exceeds 20% IRR, the additional tax rate is 25%). Income from tier-2 petroleum operations may be subject to additional profits tax at 25%.
<b>South Africa</b>	Unrefined minerals; 7% of profits. Refined minerals, 5% of profits.	Unrefined petroleum, 5% of profits.
<b>United States (States)</b>	Alaska; 3% of net income maximum rate.  Nevada; 5% of net proceeds maximum rate	Alaska; oil and gas royalty rates vary according to the terms of the lease agreement, from 5% to 60%, but the 12.5% rate is common.
<b>Venezuela</b>	Ad valorem royalties at 3% to 4% rate on commercial value.	A nationalised oil company (PDVSA) is taxed at a minimum 30% ad valorem royalty on oil production.

## C International mining tax rates

The following table illustrates the comparative mining taxation regimes for iron ore, coal, bauxite, copper, gold and nickel across a range of countries, and is based largely on those listed in Table 2.1 of the 'Resource Super Profits Tax: a fairer return to the nation' updated to include tax rates.

Country	Resource type	Tax Treatment	Tax Rate
Botswana	Metals	Ad valorem on gross market value	5%
	Minerals	Ad valorem on gross market value	5%
	Coal	Ad valorem on gross market value	3%
South Africa	Copper	Gross sales less transport costs	5% refined, 7% unrefined
	Gold	Gross sales less transport costs	5% refined, 7% unrefined
	Minerals and other metals	Gross sales less transport costs	5% refined, 7% unrefined
	Coal	Gross sales less transport costs	5% refined, 7% unrefined
	Petroleum	Gross sales less transport costs	5%
Nigeria	Petroleum	Royalty	7% onshore, 5% offshore
China	Iron	Per unit royalties	2 - 30 yuan per tonne
	Aluminium, copper, gold & zinc	Per unit royalties	0.4 - 30 yuan per tonne
	Limestone	Per unit royalties	0.5 - 20 yuan per tonne
	Coal	Per unit royalties	0.3 - 5 yuan per tonne
India	Metals	Ad valorem on sales	2 - 20% (schedule of rates)
	Minerals	Ad valorem on sales	2 - 20% (schedule of rates)
	Iron Ore	Ad valorem on sales	10%
	Coal	Unit and ad valorem based	180 Rs / tonne + 5% price
	Petroleum	Royalty	Natural gas 10%. Crude oil 10% (offshore), 12.5% (onshore)
Argentina	Metals	Ad valorem on sales less deductions	3%
	Most minerals	Ad valorem on sales less deductions	3%
	Petroleum	Royalties	12%
Brazil	Iron	Ad valorem on sales less taxes, transportation and insurance	2%
	Metals	Ad valorem on sales less taxes, transportation and insurance	3%
	Minerals	Ad valorem on sales less taxes, transportation and insurance	2%
	Coal		
	Petroleum	Royalty	10% (10 - 40% levy on large fields)
Chile	Copper	Ad valorem on sales	5%
Mexico*	Mining and petroleum	No charge	No charge
Canada (Ontario)	Metals	Percent of profit in excess of \$500,000	10%

Country	Resource type	Tax Treatment	Tax Rate
	Minerals	Percent of profit in excess of \$500,000	10%
	Coal	Percent of profit in excess of \$500,000	10%
Canada (Saskatchewan)	Metals	Percent of net profit above sales of metals greater than 1 million troy oz	10%
	Minerals	Percent of net profit above sales of minerals greater than 1 million tonnes	10%
	Coal	Royalty on mine mouth value	15%
US (Arizona)	Metals	Ad valorem on market price; rate set by Government agency	Based on appraisal, 2% minimum
	Minerals	Ad valorem on market price; rate set by Government agency	Based on appraisal, 2% minimum
	Coal	Ad valorem on market price; rate set by Government agency	Based on appraisal, 2% minimum
US (Nevada)	Metals	Percentage of net proceeds	2 - 5%
	Minerals	Percentage of net proceeds	2 - 5%
	Coal	Percentage of net proceeds	2 - 5%
Denmark	Petroleum	Profit based tax	52% ('kulbrinteskattesats')
Norway	Petroleum	Profit based tax Royalty	50% special petroleum tax on net profit 8 -16% royalty on oil production

Note: Highest rates have been used in some cases where there is a progressive royalty scale based on production.

\* Mexico's state-owned oil company, Pemex, has a constitutionally established monopoly in exploration and production.

