MINERALS COUNCIL OF AUSTRALIA

SUBMISSION TO THE SENATE ECONOMICS COMMITTEE ON THE TAX LAWS AMENDMENT (RESEARCH AND DEVELOPMENT) BILL 2010 AND INCOME TAX AMENDMENT (RESEARCH AND DEVELOPMENT) BILL 2010

MAY 2010

The Minerals Council of Australia is the peak industry organisation representing Australia's exploration, mining and minerals processing industry, nationally and internationally, in its contribution to sustainable development and society. The MCA's strategic objective is to advocate public policy and operational practice for a world-class industry that is safe, profitable, innovative, and environmentally and socially responsible attuned to its communities' needs and expectations.

MCA member companies produce more than 85 per cent of Australia's annual minerals output, and will account for about 60 per cent of Australia's merchandise exports in the year to June 2009.

The minerals industry recognises that its past success and future prosperity is dependent on a sound and expanding national economy, an educated and cohesive society and a sustainable natural environment.

For this reason, the minerals sector supports public policy settings aimed at the following objectives:

- sustainable economic growth characterised by low inflation, low interest rates, fiscal prudence, and a skilled and productive workforce;
- a sound, fair and stable society, where effort is encouraged and rewarded and a helping hand extended to those in need; and
- a sustainable natural environment, reflecting national consistency and balance in policy settings.

The MCA recognises that the future of the Australian minerals industry is inseparable from the global pursuit of sustainable development. Through the integration of economic progress, responsible social development and effective environmental management, the industry is committed to contributing to the sustained growth and prosperity of current and future generations.

The Australian minerals industry is an industry of considerable size and economic and social significance, benefiting all Australians both directly and indirectly.

The mining and minerals processing sector:

- underpins vitally important supply and demand relationships with the Australian manufacturing, construction, banking and financial, process engineering, property and transport sectors;
- has contributed over $600 billion directly to Australia's wealth over the past 20 years;
- is in the top five producers of most of the world's key minerals commodities, including
  - the world's leading producer of bauxite, alumina, rutile, ilmenite, zircon and tantalum;
  - the second largest producer of, uranium, lead, zinc and lithium;
  - the third largest producer of gold, diamonds, iron ore, manganese, nickel and niobium;
  - the fourth largest producer of black coal and silver; and
  - the fifth largest producer of aluminium, brown coal and copper.
- directly and indirectly employs some 320,000 Australians, many of whom are in sparsely populated, remote and regional Australia; and
- is responsible for significant infrastructure development – since 1967, the industry has built 26 towns, 12 ports and additional port bulk handling infrastructure at many existing ports, 25 airfields and over 2,000 kilometres of railway line.

A SHIFT IN THE WRONG DIRECTION

Overview

The *Tax Laws Amendment (Research and Development) Bill 2010* (and its accompanying *Income Tax Laws Amendment (Research and Development) Bill 2010)* is a major shift in innovation policy and its administration and therefore is likely to have extensive adverse effects on the minerals industry.

The stated purpose of the broad legislative change is to transform the existing R&D Tax Concession – 125 per cent in most cases and 175 per cent for "premium" R&D – into a new Tax Credit of 40 per cent for most business and 45 per cent for small and medium sized firms. This change to an estimated $1.4 billion a year program is supported.

Yet behind this headline change, the Bill fundamentally alters the nature of the R&D tax benefit by the replacement of long standing and well understood concepts with new and, prior to this draft, completely unheralded concepts. Eligible R&D is now to be severely limited to an exercise of pursuing new knowledge disengaged from the production environment. Claims will become more complex as taxpayers are forced to distinguish between core and supporting expenditure and whether that supporting expenditure is for the dominant purpose of R&D. There will also be increased uncertainty as federal administrators are given enhanced administrative discretion to review or overrule a taxpayers' assessment.

The net impact of Bill is:

(i) the removal of access to the 175% premium rate;

(ii) the provision of a lower tax credit (40%) compared to small & medium business (45%)[1]; and

(iii) the reduction of eligible R&D claims by excluding R&D production trials.

For the mining industry this last change is the most important as it will curtail taxpayers developing innovative and energy efficient technologies and processes. There are no substantial reasons given for this change other than the general goal of supporting "genuine" R&D and ensuring the fiscal responsibility of the scheme. The means which this is to be achieved is likely to produce a disturbing unintended effect – a material reduction in R&D activity by business.

High level recommendation

As a result, the Minerals Council of Australia contends that changes to the rules and administration of the scheme should be delayed, and other policy instruments be examined in consultation with the industry to target any concerns about the cost of the program.

The Minerals Council of Australia recommends:

- That the Bill be delayed for at least another year to allow more detailed consideration.
- That this consideration identify the issues of concern about activities in a production setting and what policy instruments may best target those concerns.

If this is not accepted, the following changes should be seen as a minimum:

[1] The MCA acknowledges that such 40% credit (133% equivalent tax deduction) is an improvement on the existing 125% deduction.

(i) essentially retain the existing R&D law, and in particular the current widely understood R&D definition (with its application to R&D activities performed in a production environment);
(ii) remove the premium incentive, replaced by the 40 per cent and 45 per cent tax credits;
(iii) meet Government revenue concerns by capping annual R&D claims across all industries; &
(iv) include the proposed 4 year amendment rule.

1. Policy shift

The Bill is a major shift in innovation policy and administration. The policy shift has two, interrelated effects.

First, under the Bill – and indeed the earlier second exposure draft, released on March 31 – R&D is now tightly defined as essentially a "research" activity. Development and demonstration, long an integral part of Government innovation policy, are rendered irrelevant.

The Bill now defines R&D experimental activities, conducted in a scientific way, for the purpose of generating new knowledge or information in either a general or applied form.

This represents a severe limiting of the existing definition, which not only includes obtaining new knowledge, but also creating new or improved materials, products, devices, processes, techniques or services to be based on a technology or continue development or complete activities that produced a technology.

In essence, R&D assistance will only pertain to generating new knowledge (including new knowledge about processes etc).

Second, the explicit separation of core and supporting expenditure combined with the introduction of a new "dominant purpose" test on supporting expenditure disengages research from its practical environment. Rather than R&D being integrated into a company's operations as part of a culture of continuous innovation, it is likely to only receive future support if it is separate to a company's core operations.

This shift towards "research" and away from "development" – the reasons for which are largely unexplained – is profound for the minerals sector and the means by which this policy shift is achieved places the sector at a distinct disadvantage. This shift is contrary to Australian R&D spend across all industries, which ABS data indicates only 6 per cent of such spend is on basic research, with 94 per cent spent on applied research.

The changes appear intended to limit the size and scope of R&D claims. The Government has chosen to do this by targeting those components that relate to research and development projects that take place in a commercial or production setting.

This approach will greatly harm the mining sector because its research and development projects are necessarily and unavoidably conducted within a production environment. (See Appendix A.) This applies also to the collaborative work undertaken by the industry with Co-operative Research Centres. (Indeed, mining is the leading collaborative industry, with some 60 per cent of firms engaged with higher education and other research institutions, according to the 2010 Australian Innovation System Report released on April 19). Some innovations are revolutionary; others are marked shifts in what has gone before – and have been fundamental in Australia being recognised as being at the forefront of numerous mining practices and processes. These innovations (amongst numerous Australian mining examples) include:

- The development of revolutionary and world leading block caving and other underground mining techniques for deep, competent rock mass by several companies which have been important in accessing remote ore and in improving safety after incidents in similar mines around the world;
- Innovations in design of components of large smelting operations that have boosted production through increased energy efficiency;
- "mine to mill' management systems using real time video monitoring and simulation to best match extraction techniques (drilling and blasting) with processing requirement; and
- The use of high pressure water jets for novel directional drilling systems to enable the extraction of coal seam gas from underlying coal deposits, both boosting the productivity of operations and dramatically reducing greenhouse gas emissions while contributing to enhanced operational safety.

Mining R&D claims often appear large because of the scale of the operations and the fact that pre-production or trial runs are often not possible to separate from the operation of the mine. Mining companies do not have "spare disused or trial mines" to conduct laboratory type research.

In fact, there is often real innovation required in the incorporation of R&D developments into the production cycle. Other mining R&D claims encompass activities with high levels of technical risk. However, the R&D claim generally represents only a fraction of the total cost of operations over the mine life, and before considering the economic add on benefits flowing from the mine. In many situations, solutions cannot be developed in a test laboratory, due the scale and size of the test matter or work environment.

The Explanatory Memorandum (EM) accompanying the new draft contains 6 mining examples (covering 6 pages), and seems to unfairly and disproportionately target the mining industry. (These are analysed at Appendix B). These ambiguous and, in part, incorrect examples also highlight concerns raised later in this submission about the proposed widening of the discretionary powers of AusIndustry including through the creation of sectoral guidelines on R&D claims. A balanced R&D program that can be accessed by all industries and seeks to treat different sectors equally should be a central plank of Government policy.

2. Shift in R&D Definitions

The Bill does not just amend the current definition of R&D – it fundamentally alters the nature of the R&D tax benefit available by the replacement of long standing and understood concepts with new and, prior to its inclusion in the second exposure draft May, unheralded concepts. As such, 25 years of business understanding and legislative precedent as to what is 'eligible R&D' is removed – with taxpayers expected to understand the new concepts in a matter of days (based on the Federal Government's plan to have the draft law legislated by 11 June 2010, and applied 19 days later).

The Bill significantly restricts what constitutes eligible R&D, alters the practical conduct of eligible R&D by the dominant purpose test and radically alters the compliance regime. The calculation of the expenditure adjustments is complicated and open-ended.

The new concepts replace existing tests of technical risk, innovation and novelty across five areas. It replaces with a single and more restricted definition – the generation of "new knowledge".

In replacing these concepts, the Federal Government contends that the Bill will now more closely apply to the guidelines set out by the Organisation for Economic Co-operation and Development definition of R&D (the so-

called Frascati guidelines). However, the Government has only taken some of the Frascati guidelines and the omissions are a critical flaw.

The Frascati guidelines define R&D as:

1. "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and

2. the use of this stock of knowledge to devise new applications."

Part 1 is broken down further into Basic Research and Applied Research.

a. Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view.

b. Applied research is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective.

Part 2, the Development phase, is defined in the Frascati as, in part:

a. Experimental development is systematic work, drawing on existing knowledge gained from research and/or practical experience, which is directed to producing new materials, products or devices, to installing new processes, systems and services, or to improving substantially those already produced or installed. R&D covers both formal R&D in R&D units and informal or occasional R&D in other units.

The new Object provision (s 355-5) and definition of Core R&D Activities (s 355-25) relate only to the "Basic Research" and "Applied Research" in Part 1 of the OECD's Frascati definition. The Object provision s 355-5(2) states this as follows:

> "*This object is to be achieved by providing a tax incentive for industry to conduct, in a scientific way, experimental activities for the purpose of generating new knowledge or information in either a general or applied form*".

This objective of generating new knowledge is consistent with Part 1 of the Frascati definition. Yet research accounts for no more than 30 per cent of R&D spending by business (5 per cent Basic and 25 per cent Applied).

The definition of Core R&D activities in s 355-25(b) continues this research-only focus:

> "*Core R&D activities are experimental activities that are conducted for the purpose of generating new knowledge (including knowledge about the creation of new or improved materials, products, devices, processes or services)".*

Again, this definition, consistent with Part 1 of the Frascati guidelines, ignores the 70 per cent of R&D, the Development phase, in Part 2 of the Frascati guidelines. All these development aspects of R&D, which form an integral part to the Frascati guidelines, are completely excluded from the Bill.

This definition contraction is brand new and unheralded, and Australia is likely to have one of the most restricted definitions of R&D globally. Such a restrictive definition will mean Australia pursues fewer R&D opportunities

overall compared with other nations. It follows, too, that R&D investment capital is likely to move where the returns are most attractive and the location of R&D experiments/activities may be prioritised according to the level of prevailing governments' support. Again, a restrictive definition by global comparison, would place Australia at a disadvantage globally.

The contraction of eligibility to exclude all systematic experimental development work drawing on the knowledge acquired that is currently allowed is a serious blow to the integrity of the system. The changes withdraw encouragement and support for largest and most critical aspect of BERD, the systematic work, drawing on the knowledge gained from the research that is directed at producing new materials, products or devices, to installing new processes, systems and services, or to improving substantially those already produced or installed.

3. Increased Complexity

Companies are not currently required to distinguish between "core" and "supporting" activities when submitting their R&D claims. In practice, the distinction between these two broad categories of activities is often difficult to make – and subjective & artificial evaluations would be required under the proposed regime. Such classifications will materially increase compliance obligations, and will almost certainly lead to disputes with Government.

The application of a dominant purpose test on top of this distinction (see below) will further increase the scope of uncertainty and prospect for disputes.

The Bill requires R&D activities and costs to be split between:

- core R&D activities. These maybe different depending on the sectoral guidelines yet to be created;
- supporting R&D Activities directly related to Core unless subject to the dominant purpose test;
- supporting activities that are subject to the dominant purpose test, being:
    - the exclusions list,
    - production, and
    - directly related to production.

The current legislation only requires that R&D activities be identified as a single group and they are all ineligible if the core activity is on the exclusion list. They do not need to be separately costed and are never treated differently depending on the business sector of the taxpayer. This change will be poor legislation because it will generate high deadweight losses and horizontal inequity through discriminating against taxpayers purely on their industry. Business has no certainty because this proposed discriminatory practice will have unknown impacts for an extended period of time after the legislation commences.

The inclusion of this additional compliance requirement will act as a large disincentive to businesses to participate in the new program. This will especially apply to small businesses. The increase in effort and costs to define and then split expenditure, or pay advisors to do this, may eliminate any remaining benefit under the Credit after all the above contractions. As it serves no purpose other than the ill-conceived exclusion of supporting activities that are also production, it is easily removed. This would be consistent with the Government's goal of reducing compliance costs and complexity under the new Credit.

The MCA contends that the overall grouping of R&D activities that contain 'core' and/or 'supporting' elements under the existing law is justified because of their equal importance to the proper definition of R&D activities. As such, they merit equal support. To remove or restrict the incentive attached to 'supporting' activities - through the dominant purpose test outlined in the next section - would be to severely impact the ability of the Credit to influence R&D investment decision making at its critical juncture – the time at which decisions are made to incur the potential expenditures. As noted above, this would mean less total R&D spending, because no credit would

apply, typically at a rate of 10 cents in the dollar, and global R&D investment capital would shift to the jurisdictions that offered the best returns.

The long standing pluralistic definition of R&D has accommodated the large emphasis that the mining industry has on experimental development that occurs within the production environment. The restrictions proposed around supporting activities would run counter to the high value-add R&D that the industry undertakes in the field as a matter of technical necessity.

4. Specific issue - Dominant Purpose Test

The MCA is particularly concerns with the so-called dominant purpose test. It is a blunt policy instrument, which removes the incentive for production-based research and development.

The concept of a dominant purpose test was first raised in the Federal Government's Consultation Paper issued in September 2009 and then made explicit and wide-ranging in the first exposure draft for this Bill released in December 2009. In the second exposure draft and now the final Bill, the test has been limited to applying to supporting expenditure. Its application will eliminate production based R&D and actively discourages process and environmental R&D projects.

Many R&D projects involve R&D on existing processes, for example, energy efficiency. These projects may aim to substantially increase efficiency or reverse adverse impacts on the environment by reducing greenhouse gases or energy consumption etc. The *research-only* focus and the discrimination against R&D activities that are also production activities will create a distortion in the economy that favours R&D in other areas. Business decision-making processes and capital budgeting processes will be influenced by Government policy to invest less in process efficiency and environmental R&D projects because the after tax cost hurdle for other projects will have been lowered by a greater extent than process and environmental R&D projects.

The restriction on genuine R&D activities just because they are also production activities introduces many complexities and the possibility for horizontal inequities. The determination of when an activity has a material purpose is frequently a matter of subtle degree and arbitrary interpretation. Under the current legislation, the test for the inclusion of a supporting activity is purely on the basis of whether it is 'directly related' to the core R&D activities. That is, production that is necessarily required to do the R&D is able to be included as if it were R&D. A similar position should be included in the proposed legislation. This can be better managed with easier and more consistent compliance by the inclusion of better guidance as to what is considered a directly related activity. This could include whether the taxpayer is able to prove that the R&D activity that involved production included heightened monitoring, smaller production runs, adverse impact on production planning, monitoring activity that provided feedback or otherwise contributed to the operation, success or otherwise of the R&D activities.

Under the current definition, production runs that are R&D are frequently core R&D activities. However, with the contraction of the definition to research only, these activities may be considered supporting activities. This is exacerbated by the increased powers of AusIndustry to reclassify activities and to provide sectoral based differing guidelines. This could easily see industries discriminated against by having its core R&D activities reclassified as supporting and then eliminated by the dominant purpose test whilst another, favoured industry is able to treat similar activities as allowable core R&D activities. This exclusion is absolute. Even if the business makes a loss on the R&D activity because it is an R&D activity, it will still be required to eliminate the entire activity from its claim.

This test is a major reason for the necessity to split costs and activities between core and supporting activities. If the test for inclusion of an R&D activity that is also a production activity was that the R&D purpose should be

verifiable as systematic or experimental work as per the Frascati definition then this would greatly simplify the process.

The dominant purpose test will adversely impact on R&D by any taxpayer seeking to improve productive efficiency or environmental gains. The test should be removed and replaced by recognition that R&D, especially development, requires activities that are also production activities as either core or supporting activities.

5. Changes in administrative arrangements - AusIndustry powers

The administrative changes provide much greater scope for the Department of Industry or its subsidiaries to unilaterally review or modify taxpayers' own assessments or "elections" after the event.

The changes to the administration of the Credit compared to the Concession include a significant increase in powers for AusIndustry to review, reclassify and reject registrations. These include the technical possibility of rejection of R&D projects without AusIndustry having to have consulted with the taxpayer. This will result in more disputes that are not of the taxpayer's making. This runs contrary to the intent of providing greater certainty, and is contrary to the concept of self assessment.

The effectiveness of the current system and its dependence on self-assessment as administered by the ATO and AusIndustry is ably demonstrated by a lack of large-scale non-compliance and reassessments on review or through the courts. Many reviews take a significant period of time and decisions by the Board have been made contrary to advice from AusIndustry and by independent experts etc.

Under these circumstances, the mooted expansion of AusIndustry's powers on registration is counter-intuitive to the goal of providing more certainty to taxpayers. The ability of AusIndustry to create potentially differing sectoral guidelines has the potential to create horizontal inequities. A taxpayer in one industry may be disadvantaged compared to a comparable taxpayer in a more favoured industry.

The administrative powers need to properly reflect the principles of self-assessment. The right of a taxpayer to self assess eligibility of R&D projects that is reviewed equitably and consistently against guidance that is gives the same protection as a binding public ruling is critical. Where the guidance is merely the opinion of AusIndustry, it must be recognised as such with an appropriate independent dispute settling procedure that recognises the rights of the taxpayer.

The value and efficacy of a tax credit is that it provides a quantifiable assistance at the time the investment decision is made.

The expansion of the administrative discretion removes the certainty and thus renders the incentive moot because an investor has no way of knowing with any confidence that the support will be approved.

6. Not at risk provisions

The provision preventing a taxpayer from receiving a benefit for investing in another person's R&D when the taxpayer has a "guaranteed return from that investment" is proposed to be replaced by s 355-405 "Expenditure not at risk provision". The proposed provision is far broader than the current provision. Expenditure on otherwise eligible R&D activities will be excluded if a person could reasonably be expected to be able to receive consideration sometime in future as a result of that R&D expenditure. This expectation is after having regard to anything that has, or is likely to happen sometime in the future, so long as the receipt of the consideration is not dependent on the results of the R&D expenditure and the reasonable expectation existed when the expenditure was incurred. The consideration need only be received as an indirect result of the R&D and need only be

receivable by an associate. Such a definition is very broad and could be used to exclude a wide range of R&D activities that are not excluded by the current s 73CA.

The EM on this new provision (s 355-405) mistakenly considers that the Commissioner will be constrained to apply the new provision in line with how the old provision is currently being applied. The Commissioner is never constrained in this way without specific legislation to tie the new provision's application to the old provision's wording and this is not present. The example in the paragraph 3.132 is a clear indication that the Commissioner will not be constrained in this way because it envisages a situation that would not trigger the current exclusion. There are many situations where a business has, or is likely to enter, a fixed price contract to acquire a good or service that is related, at least indirectly, to R&D activities being performed by the supplier. Receipt of consideration under these contracts will frequently be irrespective of the outcome of the R&D activities – the R&D activity may be a process improvement, an environmental project or not critical to the determining the consideration under the contract. Such a contract is not currently considered to be providing a "guaranteed return to an investor" under s 73CA by the Commissioner but could be captured by this proposed provision.

This rule is not necessary as s 355-205 requires that the taxpayer receiving the tax credit must be the one that owns the IP controls the R&D and bears the financial burden of the R&D and subdivision 355-G prevents a taxpayer from getting both an R&D recoupment and a tax credit.

7. Feedstock

The Bill expands the existing treatment of feedstock, despite claims by Government, when the provisions were not included in the draft released in March, that they would be largely the same as the existing provisions. It was also indicated that changes would not be the draconian "augmented" feedstock rules mooted in December.

As a critical part of the legislation, it is unacceptable that these provisions were not in the exposure draft released in May and now have been introduced in the final version at short notice and with little time to determine the consequences.

Currently the law only reduces or eliminates expenditure on feedstock that is processed or transformed by the R&D activities into marketable outputs – "the subject of" test. If the new legislation is based on paragraph 2.45, then the reduction will apply to any goods, materials or energy used in the R&D activity regardless of whether it is feedstock.

The proposed change introduces the concept of "market value" which will introduce more complexity and uncertainty in trying to determine this "value" as opposed to the amounts actually obtained by the company.

The Australian Taxation Office is taking an increasingly wide view of the current law to include materials and goods that MCA members contend are clearly not feedstock. These have been documented in the Inspector General of Taxation report "*Review into delayed or changed ATO views on significant issues, March 2010*".

The proposed provisions can exclude many more types of costs than the current provisions. They can exclude goods and materials that are not currently considered to be feedstock inputs. These include consumables, process chemicals, maintenance materials, fixtures and fittings and capital assets.

The proposed provisions are ambiguous and unclear. "The expenditure" in S 355-465(1)(b)(i) can be interpreted as all the expenditure to obtain the R&D offset or just the expenditure on feedstock inputs. To be in line with the current legislation "the expenditure" must be interpreted as only the expenditure on feedstock inputs. Paragraph 3.138 of the EM indicates that this is the intent but it would be clearer if S 355-465(1)(b)(i) said "for the expenditure on feedstock inputs.

In summary, the problems with the proposed legislation are that:

- it is impractical, such that it will be impossible for a large proportion of businesses to apply;
- those that are able to apply this legislation will incur significantly higher compliance costs with product valuation and tracking systems way in excess of normal tax and accounting requirements or reasonable integrity measures for added benefit;
- it will fail to properly meet its intent as in paragraph 3.142 "to 'claw back' the incentive component of the R&D tax offset that is enjoyed on the recouped feedstock expenditure" (for most taxpayers as soon as it is introduced (SMEs) and for all taxpayers in two years once the every company will not have a 30% tax rate); and
- it can create multiple deductions for the one economic cost that can only be clawed back once where there is a sequence of R&D activities to complete marketable product.

The introduction of these new provisions gives weight to arguments for a delay to the rule and administrative changes within the Bill.

8. Government Budgetary considerations

Fiscal responsibility is an important goal for the Federal Government. A scheme such as the R&D Tax Concession or the proposed Tax Credit, which are demand driven, must be carefully constructed.

All the more concerning, then, is the budgetary and broader economic vacuum in which the development of this draft bill has taken place.

The MCA has repeatedly requested information about where Government is concerned about the size of production based claims. No evidence has been given. Indeed the Minister for Innovation, the Hon. Senator Kim Carr, has acknowledged in correspondence with the MCA in February 2009 that "*the minerals sector is not overrepresented in R&D concession claims*".

The open-ended financial nature of the scheme may lead to a theoretical concern about the size of claims, and the Minerals Council suggests that this might be addressed through some policy instrument - such as an annual fixed dollar cap applied across all industries to gross R&D claim spend by taxpayers (or consolidated group taxpayers).

Any such discussion on this approach, however, must be based upon facts.

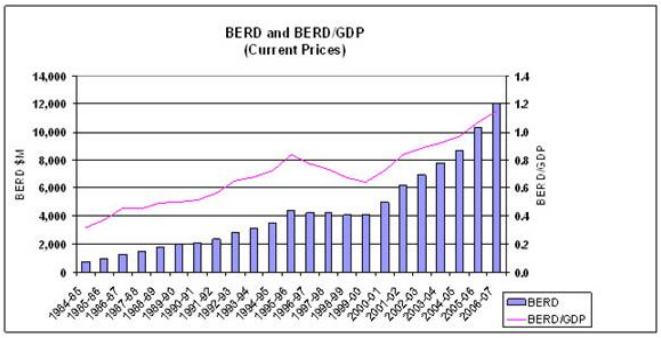
The mining industry makes up 22.8 per cent of business expenditure on R&D ("BERD") development, despite accounting for 8 per cent of gross domestic product.

The share of R&D tax concessions under the present scheme represents only 4 per cent of the $3.28 billion in spending on research and development.

As already noted, mining R&D claims often do appear large because of the scale of the operations and the fact that pre-production or trial runs are often not possible to separate from the operation of the mine, yet claims generally represent only a fraction of the total cost of operations over the mine life.

The ED runs the risk of discouraging rather than encouraging Australian BERD, and will do little to assist businesses to be more competitive or to meet the challenges of climate change and globalisation.

The effects of ill-considered change can be profound. The deliberate restriction of the scheme in 1996 saw BERD spending fall for five years, recovering only with changes to the scheme. This experience should not be repeated.



Source: http://www.innovation.gov.au/Section/AboutDIISR/FactSheets/Pages/BusinessExpenditureonResearchandDevelopmentFactSheet.aspx

The 2009 May Budget announced that the program would be designed on the basis that it will be revenue neutral for the next four years ($1.4 billion per annum), yet there is still no publicly released modelling of the effects of the raft of restrictive changes associated with the proposed Credit, nor was the EM accompanied by the customary Revenue Impact Statement. Noting that approximately $500m of this $1.4 billion program, in the form of the premium 175 per cent incentive, is to be removed[2], the MCA is adamant that less drastic changes can be adopted to meet the Government's 2009 Budget objectives for innovation.

In the absence of Treasury modelling, R&D consultants Michael Johnson and Associates have undertaken an analysis of the announced changes by modelling the revenue impacts of the first two considerations above using publicly available material. While a number of assumptions have been made, we believe these calculations below provide conservative estimates of both the cost savings of the removal of the Incremental Concession and the impact of the Global Financial Crisis (GFC) on BERD.

The analysis shows that the removal of the Incremental Concession coupled with the anticipated drop in BERD (as a direct result of the GFC), will alone ensure that the new Credit achieves a revenue neutral outcome.

Specifically, the modelling shows that:

- the likely saving from removing the Incremental Concession would be $467 million per annum over the four year period commencing 2010/11 if the level of BERD remains the same (i.e. the estimated average cost of 175% for 2007/08 and 2008/09 income years);
- since the introduction of the Incremental Concession, BERD has increased at similar rates to company tax payments;
- BERD is likely to drop in a similar way to the Treasury 2009/10 Budget Papers forecasts on company tax payments due to the impact of the GFC with some lag as a result of pre-committed expenditure;
- a conservative estimate of BERD and, therefore, the cost of the 125% Concession (if it remained unchanged over the four year period commencing 2010/11), would be $3.852 billion (i.e. the sum of estimated 125% costs for income years 2010/11 to 2013/14); and
- therefore, there is already a $1.75 billion saving without any changes to the definition or restrictions on expenditure eligibility as a result of the removal of the Incremental Concession and the drop in BERD. (Note this modelling assumes a conservative estimate of the cost of the current Concession of $5.6

[2] Treasury FY09/10 estimate of R&D program.

billion for the four year period commencing 2010/11 (The conservative estimate of $5.6 billion does not take into account any year-on-year increases to the scheme at present budget at $1.4 billion.)

Given that this modelling has been provided to Treasury and has not be challenged nor countered by Treasury modelling, there appears to be no case for any reform to the definition of R&D or concepts of eligible expenditure based on the need for maintenance of budget neutrality.

Simply put, everything else being equal, the higher base rates of the Credit along with the introduction of claims associated with foreign-owned IP will add cost when compared with the current R&D Tax Concession. Offsetting this, the closing of the Premium Concession will remove a significant cost element of the current incentive. Yet on top of this, the mooted wholesale changes to the R&D definition will dramatically reduce claims by restricting the expenditure subject to the incentive.

No data is put forward to support the proposition that some form of change to the definition of R&D in addition to the other reforms is necessary to achieve the desired Budget outcome. Treasury asks that the need for changing the definition be taken essentially on faith. The MCA submits that such a major change to the fundamental fabric of the R&D tax incentive cannot be accepted on such an unsubstantiated basis.

9. Commencement date

The radical nature of the shift in innovation policy cannot be easily assessed and applied in practice by taxpayers. Therefore the Minerals Council of Australia recommends the Bill be delayed for at least one year (to 1 July 2011) until more detailed consideration can be undertaken. A Senate inquiry into the Bill would assist in this process.

RECOMMENDATIONS

The Minerals Council of Australia recommends:

- That the Bill be delayed for at least another year to allow more detailed consideration.
- That this consideration identify the issues of concern about activities in a production setting and what policy instruments may best target those concerns.

If this is not accepted, the following changes should be seen as a minimum:

(i) essentially retain the existing R&D law, and in particular the current widely understood R&D definition (with its application to R&D activities performed in a production environment);
(ii) remove the premium incentive, replaced by the 40 per cent and 45 per cent tax credits;
(iii) meet Government revenue concerns by capping annual R&D claims across all industries; &
(iv) include the proposed 4 year amendment rule.

This "short form" proposal would maintain incentives for Australian entities to carry out commercial R&D to retain Australia's status as a leading innovator on the global mining stage, retain 25 years of established and understood precedent, and avoid the disruption and expected material reductions to BERD.

APPENDIX A – THE MINERALS INDUSTRY AND INNOVATION

The minerals industry is a major force in innovation in Australia. Today's modern minerals industry considers its future inseparable from the global pursuit of sustainable development. This approach is founded on five key platforms:

1. that the safety and health of its workforce and the surrounding community is its number one value and priority commitment; not subordinate to productivity, and not a factor of competitive differentiation;
2. that corporate social responsibility is not an adjunct to the business – it is the business. The core function of the minerals industry is to convert natural endowment to societal capital, and that can only be achieved sustainably when there are real mutually beneficial considerations of the environment, host communities, the rights and interests of Indigenous peoples and shareholders;
3. that the intergenerational benefits to communities and the nation as a whole of natural resource development should endure across generations and extend beyond the life of mine;
4. that the industry should aspire to continuous improvement and not merely regulatory compliance; and
5. that comparative advantage does not automatically equate to competitive strength – there is no guarantee that Australia's natural endowment of resources is alone sufficient to attract the necessary investment of global companies supplying converging global markets.

This commitment in practice places the industry at the vanguard of industry application of sustainable development.

Australia has long enjoyed a "comparative advantage" in the development of its endowment of geological wealth. Our ability to undertake mining and minerals processing activities and sell product to overseas markets is reflected in the large trade surplus (value of exports minus value of imports) we run in mineral commodities. However, we cannot take that for granted.

To fully realise its growth prospects, the minerals industry needs to be safe, globally competitive, socially responsible and trusted, innovative in technology, processes and systems, and environmentally responsible.

As in other economic activities, the outcomes of R&D are vital to maintaining the international competitiveness of mining and minerals processing activities in this country. Minerals companies must therefore continually find ways of doing things better and more cheaply and develop means to process lower grade ores, often in less accessible / deeper underground areas where cost structures and risk factors are both higher. This requires continual advancement in exploration, mining and processing technologies.

Australia's minerals sector is acknowledged as being at the forefront of harnessing new technology (including biotechnology, information and communications technologies, e-commerce, "high tech" equipment, remote sensing, satellite imagery, airborne magnetic surveying, open pit and underground mining methods etc). In addition, Australia's annual exports of high technology mining goods and services already exceed $2.5 billion. More than 60 per cent of the world's mines use software developed in Australia.

Furthermore, to retain its competitiveness, the minerals sector also relies on the economic efficiency of the sectors providing it with key inputs to production.

Australian mining is a world leader in innovation. It provides substantial investment into research and development, far in excess of its share of the economy. Australian Bureau of Statistics figures for 2007/8 showed mining (which accounts for 8 per cent of the economy) made up 22.8 per cent of research and development spending. The mining industry's share of the R&D concessions in 2007/8 was measured by the Productivity Commission as $154 million out of a total spend recorded by the ABS of $3.28 billion – or 4 per cent of the mining sector's total spending on R&D.

The industry also makes a sizeable contribution to pure research and basic strategic research, with $172 million in spending in 2007/8. Pure and basic research makes up about 6 per cent of the sector's BERD, with the rest going to applied and experimental R&D. This is in line with the national average.

Mining is the leading collaborative industry in innovation, with some 60 per cent of firms engaged with higher education and other research institutions, such as the Co-operative Research Centres, according to the 2010 Australian Innovation System Report released on April 19.

While the size of the scheme has grown the minerals *proportion* of the concession (125 per cent and the premium 175 per cent) has declined over the past three years and is lower than the proportion five years ago, based on the Productivity Commission's annual trade and assistance review. The mining sector is not over represented in the scheme.

In addition, the minerals industry has long argued that ABS statistics do not capture the contribution of minerals related R&D to commercialisation in existing industries like mining and minerals particularly the contribution to exports, the value of using and generating R&D for commodity products, the linkages to small service providers and universities and the understanding that in a knowledge based industry like mining hi-tech also resides in the highly skilled workforce.

A significant proportion of R&D in the minerals sector and elsewhere in the economy is subject to the industrial context. While new products are invented from time to time, the emphasis is more on process innovations aimed at reducing costs to remain competitive, or now being able to extract minerals previously considered uneconomic due to new and innovative processes. Typically, R&D is linked with the need to improve cost structures. These aim to achieve either:

- A reduction in plant design/project capital costs and/or
- A reduction in operating or "campaign life" costs.

In addition to R&D transferred within the sector itself or from other sectors, there are also significant areas where mining and minerals processing R&D benefits the nation through spillovers to other industries. These include:

- Environmental and rehabilitation applications
- Waste management
- Manufacturing
- Building and construction
- Basic research into process technology & geological theories (eg ground penetration and geological and/or geochemical survey techniques).

It is well recognised from a technical point of view, that minerals process solutions developed in the test laboratory and in small-scale (pilot plant) trials, often do not work as expected in scaled-up versions of processes. Indeed, the majority of research and development activity cannot be modelled in laboratory and pilot plant environments due to often unique mine site rock and mineral characteristics. This activity needs to

continue in scaled-up plants and in operational mining trials to enable fully developed process solutions to be achieved.

Another set of circumstances is where a research and development program is dedicated to creating a major step enhancement in the existing state of a particular technology. In this situation, a plant or some part of the plant may provide integral and dedicated support to the particular research and development program.

Constant innovation has provided the Australian industry with the ability to grow new markets and respond quickly to changing markets. This fleet footedness has allowed it to grow by increasing its share of the global minerals market.

The huge scale of this growth has been driven by global demand, and Australia's ability to respond has been achieved by remarkable innovations in technology, process improvements, organisation and education and training. These innovations have been augmented by equally impressive changes in the industry's management and workplace cultures and practices, with respect to health, safety, environment and community relations – especially with indigenous communities – and the broader issues of sustainability. In these areas the Australian minerals industry is a global leader.

In less than forty years the minerals industry has changed almost beyond recognition in scale, technology and culture. These changes have all been directly dependent on constant innovation.

Innovation Minister Senator Kim Carr in 2008 summed up the sector's contribution to research and development:

> *Australia's mining industry is one of the most technologically advanced in the world. It is a major exporter of mining technology and services. Mining these days is a knowledge-based activity, using advanced ICT for everything from ore body evaluation, 3-D blast and mine design, mineral sampling, seismic monitoring and geological sensing, through to managing data and monitoring the condition of equipment.*[3]

Senator Carr added that mining innovation was a key driver of industrial activity in other sectors of the economy:

> *It is surely no accident that manufacturing is booming in Queensland and Western Australia, the two states richest in minerals resources.*[4]

The stated goal of the revised R&D legislation when first announced in May 2009 was "*boosting investment in research and development, supporting jobs and strengthening Australian companies as they continue to seize new opportunities during the economic recovery.*"

R&D Project Examples

Australia is a leader in research and development. Some innovations are revolutionary; others are marked shifts in what has gone before – and have been fundamental in Australia being recognised as being at the forefront of numerous mining practices and processes. These innovations (amongst numerous Australian mining examples) include:

- The development of revolutionary and world leading block caving and other underground mining techniques for deep, competent rock mass by several companies which have been

[3] Senator the Hon. Kim Carr, Minister for Innovation, Industry Science and Research, *Address at the launch of Minerals Down Under National Research Flagship*. Canberra, 27 May 2008.
[4] Ibid

important in accessing remote ore and in improving safety after incidents in similar mines around the world;
- Innovations in design of components of large smelting operations that have boosted production through increased energy efficiency;
- "mine to mill' management systems using real time video monitoring and simulation to best match extraction techniques (drilling and blasting) with processing requirement; and
- The use of high pressure water jets for novel directional drilling systems to enable the extraction of coal seam gas from underlying coal deposits, both boosting the productivity of operations and dramatically reducing greenhouse gas emissions while contributing to enhanced operational safety.

The following examples are projects undertaken in the mining industry utilising the current R&D tax concession. The projects are all projects that have required plant/production trials to acquire/test new knowledge.

Generally processes are initially tested on a small scale to prove the concepts and are then scaled up in concentrators/smelters as operating units. It can take many years of operation for a new process to achieve stable operation.

The aim of these examples is to illustrate that plant/production trials are an essential part of the R&D process and that due to the differing ore grades and rock formation each mine site may require unique methods and processes to ensure maximum efficiency to ensure they remain competitive.

It is unlikely that, based on the proposed new R&D tax incentive legislation, these genuine R&D projects would be eligible for the new R&D tax offset.

Improvement of Milling Process Efficiency

The objective of this project was the development of an improved comminution process to enhance the process efficiency of mills.

The trials included development and testing of new mill equipment and modifications of the mill configuration design.

As a result of these trials design issues have been resolved and increased speed has occurred. However there is further scope to increase efficiency.

Development of New Flotation Strategy

The objective of this project was to develop a new flotation reagent strategy for improving mineral recovery to concentrates, while minimising the operating cost of the flotation circuit.

Decreases in recent prices has resulted in the need for increased recovery and reduced operating costs.

Trials were conducted to ascertain the impact of removing/adding certain chemicals, understanding the optimal point of certain additions, and whether usage of different types of liquids would be detrimental to the process.

The trials had mixed results and hence require ongoing analysis.

Improvement of Operational Reliability

The objective of the project was the development of an improved dragline operating process.

The viability of an open cut operation is the efficiency of its dragline, its operational reliability and performance is crucial to the intricately coordinated open cut mining process.

The plant trial had a number of initiatives, namely:

- Addressing the issue of cracking in the dragline boom
- The potential increase to the total suspended load capability of the machine and a possible increase to the size of the bucket.
- Real time monitoring to help control mechanical stress and fatigue which may result in operator induced damage

Some of these initiatives had the potential to produce higher structural loads and consequent catastrophic structural damage unless a clear understanding of the impact of the key parameters was achieved, and a cost effective structural integrity management strategy was developed.

As a result of the plant trial upgrades have been made to the plant.

Appendix B – Explanatory Memorandum examples

The EM provides a series of examples of the operation of the Credit when applied to R&D activities undertaken by various companies. This Annexure looks at the examples in some detail in terms of their reflection of R&D practice and the statements made in the EM regarding various aspects of eligibility.

Boulevard Mining

In Example 2.4, Boulevard Mining I, the EM states the application of the scientific method is required to address the knowledge gap on how the new truss design interacts with various tunnel widths and shapes on an unmined fork in a coal seam at the Evans Range mine. However in this example the tunnelling of the various shapes and widths in the coal seam has been inexplicably classified a supporting activity when it clearly meets the definition of a core R&D activity as defined in point 2.11 of the EM. In this example, tunnel shape and width are unquestionably the variables under test as per the hypothesis for which the casual relationship is being sort by way of experimentation. Therefore the tunnelling to specific shapes and widths forms a key element of the experiment itself. Point 2.11 acknowledges this test may take place in a range of settings including an otherwise normal production scenario as is the case in this example.

Boulevard Mining II (Example 2.5)is used to illustrate the distinction between what are considered experimental activities conducted for the purpose of producing knowledge versus what is considered subsequent customised applications of knowledge gained from prior experimentation. The EM argues that although "trial and error that is systematically conducted and monitored is required" the activities undertaken by Boulevard Mining II do not constitute R&D activities because they do not demand the application of the scientific method. The technical justification for this distinction is wrong and demonstrates a complete misunderstanding of what constitutes the scientific method. The scientific method is regarded as containing an element of trial and error in its formulation and testing of hypotheses. Trial and error is a universally accepted scientific problem solving technique that is particularly advantageous in scenarios where the aim is to find a single solution to a single problem. Scientists routinely adopt this techniques it does not require the experimenter to have detailed knowledge of the problem at the outset. In this example where current knowledge and/or practice are deemed inadequate, then experimental activities (e.g. the systematic trial and error of potential solutions) will be required to achieve the desired outcome. To argue this is not R&D on the basis that it does not warrant the application of the scientific method is totally misguided.

Furthermore, it is hard to see how the Boulevard Mining II example is any different from the example in Boulevard Mining III (Example 2.7). In Boulevard Mining III, the company was unsure whether the truss design could be used to significantly increase widths in 'crumbly coal' seams. In both examples, the company was unsure of the answer to the technical questions hypothesised and therefore was required to undertake experimental activities as per the scientific method to resolve the knowledge gap ie acquire new knowledge as opposed to merely applying knowledge as asserted in the example.

Boulevard Mining IV (Example 2.8) concerns the eligibility of road, access tunnel construction and construction of "a lengthy railway spur line to the mine and coal train loading facilities". Insufficient information has been provided to establish an argument as to how these activities would be eligible under the existing R&D Tax Concession program where only a direct nexus needs to be established to satisfy the definition of such supporting activities. Furthermore, it is unclear how the road and supply of light and ventilation would not need to satisfy the dominant purpose test given these activities should be classified as production activities if the logic in the earlier examples is followed. Therefore this example provides very little in the way of meaningful illustration of the application of the proposed new tax credit regime and provides a contradictory application of the definition.

Mimic Mining

The Mimic Mining (Example 2.6) example states that "in the knowledge that the technique is feasible, Mimic Mining replicates the experiments undertaken by Boulevard Mining". This example goes on to conclude that these do not constitute eligible R&D activities as they are not undertaken for the purpose of generating new knowledge. This example is of particular concern as it suggests that if certain knowledge exists, any activities to develop additional knowledge by conducting one's own experiments fail the test for eligible R&D despite the fact this "additional information" will be new. Most notably, in a commercial environment a rival company may not be willing to on-sell the knowledge gained through R&D activities in order to maintain a competitive advantage. Furthermore a claimant company may be totally unaware that any particular knowledge or process may exist at the time of the R&D as the results may not have been publicised. Notwithstanding, even if the results were commercially accessible, the experimentation related to the application of the new truss design in the Mimic Mining scenario may need to be significantly different to what was conducted at Boulevard's mine sites due to local circumstances such as prior mine history (e.g. proximity of old workings), ore body orientation, mining methodology, equipment and numerous geotechnical factors. In fact the example acknowledges unique circumstances will be faced by Mimic Mining but provides no rationale for the argument that resolving to apply a known technology in this context will not, of itself, constitute R&D activities. This is an illogical interpretation of the facts as the problem requires the implementation of the scientific method to generate further new knowledge for the potential application of the truss technology in this environment. This is comparable to Boulevard applying the technology to a crumbly coal seam in the Boulevard Mining III example, an example which is considered claimable. If these activities were not necessary to resolve technical issues then the need for costly and time-consuming experimental activities would be superfluous and not undertaken. Whether this is viewed as producing new knowledge or resolving inadequacies within the current realm of understanding is a matter of semantics and should not be a basis for eligibility.

MCA notes that an addition to this example has been included in the final version of the EM that was not in earlier drafts, noting that Mimic Mining passed up an opportunity to purchase the technique from other firms. This does not reflect commercial practice in the Australian mining industry. Indeed, the addition of this "sale" issue appears irrelevant because the project would not qualify if Boulevard had not made the technique commercially available either.

Grandheap Mining

The example provided in relation to Grandheap Mining (Example 2.9) illustrates a preoccupation with the cost of the activities as a basis for eligibility rather than the correct application of the scientific method to solve a problem in order to gain new knowledge. This example examines the application of innovative ground vibration sensor technology to assist in optimising slope angles for overburden heaps. The EM states "that the results obtained and the statistical rationale for the number of the trials would be relevant factors in considering whether the state of knowledge had reached a point where the experimentation had tested the hypothesis in relation to the new sensor technology". This approach is consistent with the application of the scientific method and is a valid test of experimental length and authenticity. However, the example then goes on to suggest that "regard for the business case (in terms of future savings) for prolonged costly experiments could also be a key consideration in determining whether the activities were primarily for other than the purpose of acquiring knowledge." This is a dramatic and troubling divergence from the scientific method which the new tax incentive has adopted as the key framework for eligibility. In drawing a valid conclusion to an alternate hypothesis, the scientific method does not in any way consider the cost of current or future experimentation. Any attempts to assess the eligibility of an experimental activity based on cost would be contrary to the scientific method. An ongoing substantial cost may lead to the discontinuation of an experimental program but will never be used to circumvent the rigour of the scientific process in drawing valid conclusions.