

HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON
SCIENCE AND TECHNOLOGY

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House of Representatives Standing Committee
on Industry and Resources

Submission No: 94

Date Received: 17 OCTOBER 2002

Secretary:  cs energy

The Committee Secretary
House of Representatives
Standing Committee on Industry and Resources
Parliament House
CANBERRA ACT 2600

generations ahead

Attention: Beverley Forbes

Dear Madam

INQUIRY INTO RESOURCES EXPLORATION IMPEDIMENTS

I refer to your letter of 4 September 2002 requesting that CSE make a submission to the inquiry, and am pleased to enclose a document for consideration.

CS Energy owns and operates the largest and most remote off-grid power generating facility in Australia, located in the centre of Queensland's premier metalliferous mining precinct. In addition to the reserves associated with the ten operating mines, the region contains considerable and well-defined but as yet undeveloped resources in the form of gold, lead, silver, copper, zinc, phosphate, and cobalt.

Our submission discusses some features of the Mt Isa region, and some of the shortcomings in the infrastructure of that region. Access to a reticulated electricity supply is identified as the single major impediment to resource development. Furthermore, inequities in the taxation treatment of generating assets are shown to be driving new projects to using energy sources that actively impede regional development.

Should the Committee require clarification or further information, please do not hesitate to contact the writer. Nothing in this submission is confidential, and it may be published as you see fit.

Reliably Yours



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Submission to House of Representatives October 2002.doc

IMPEDIMENTS TO RESOURCES EXPLORATION IN THE MT ISA REGION

Summary

Resources Exploration is a necessary precursor to Resources Development; resources must first be identified and then developed. If the opportunities do not exist to develop known resources, then there will be little effort expended to identify additional resources. The factors that directly impede Resources Development therefore indirectly impede Resources Exploration. This paper discusses some issues that have prevented the expansion of existing mines, and the creation of new mines, on known resources, in the Mt Isa region.

Five separate but closely interconnected "Key Issues" are presented, together with recommendations for action.

Background

Acclaimed as one of the world's great mining centres, the Mt Isa Mining District remains Australia's largest producer of base metals. Over the last 130 years, minerals products valued at \$50 billion, in current dollar terms, have been extracted from this region¹.

Ten mines currently operate in the area, and in the 2000/1 financial year produced a total of 3.7 million tonnes of mineral products with a value of \$3.7 billion. The products included 376,000 tonnes of metal, 2.21 million tonnes of concentrates, 570,000 tonnes of sulphuric acid and 709,000 tonnes of fertiliser. Contained metal in the mine products included 424,000 tonnes of copper, 384,000 tonnes of lead, 668,000 tonnes of zinc, 1,390 tonnes of silver and 6 tonnes of gold. In the 2001/2 financial year mine output is expected to increase to 4.4 million tonnes of mine products, with a slight reduction in value to \$3.66 billion due to lower metal and product prices².

- Mount Isa Mines including Hilton, George Fisher and Enterprise
- Cannington
- Century
- Ernest Henry
- Osborne
- Eloise
- Selwyn
- Mount Gordon
- Mt Cuthbert
- Phosphate Hill

The direct work force required to operate these mines is currently 5,061 (not including service and support industries in Mount Isa and Cloncurry).

¹ National Resource Management Pty Ltd, 2002, "Mining Operations and Projects – North West Queensland 2002", p.1-1.

² Ibid. p.1-4

Key Issue No.1: Indigenous Land Use Agreement Process

Whilst there are ten operating mines in the Mt Isa region, more than 450 granted Mining Leases (MLs) and 200 Exploration Permits – Minerals (EPMs)³, few new tenements have been issued in the past few years, and it is possible that mineral production will begin to decline unless new resources are developed. Uncertainty and indecision around the Native Title issue has meant that a number of known resources cannot be developed.

For example,

“Matrix Metals Limited owns and operates the Mt Cuthbert Mine north-west of Cloncurry. The on-site workforce, including contractors and employees, has fallen from 50 down to 8 in the past twelve months and the mining and processing operation placed in a temporary care and maintenance status, predominately due to Matrix Metals being unable to access additional known exploration targets, resources and ore-bodies. Three indigenous employees were part of that workforce reduction program. Matrix has reached full agreement with the local indigenous group (the “Kalkadoons”) with an Indigenous Land Use Agreement (ILUA) agreed and signed. The execution of this ILUA is a clear demonstration that the Kalkadoon People are strongly supportive of ongoing mining in the region. Registration of the Indigenous Land Use Agreement (“ILUA”) with the National Native Title Tribunal (“NNTT”) has stalled for administrative reasons and overall progress on native title, particularly in regard to the granting of exploration licences, has also become stalled due to a successful challenge to the Qld Government legislation and a general lack of co-operation and co-ordination between the Federal and State Governments”⁴.

“At an administrative level, the recent Ward Decision has also been proposed as a potential further delay to any progress on native title matters on the basis of nothing being progressed within the various Government bodies, including the NNTT, until the decision is fully understood and tested”⁵.

Recommendation

There appears to be a willingness on the part of some indigenous groups in the Mt Isa region to support ongoing exploration and development of mineral resources. However a number of exploration and mining projects are stalled awaiting the outcome of negotiations between State and Federal jurisdictions in relation to registration of ILUAs. It is recommended that the Committee investigate the reasons for those delays and immediately implement procedures to remove the impediments, especially in relation to those projects where the relevant indigenous group has already formally approved the project.

³ *ibid.* p.1-4

⁴ pers. comm. Glen Cox, Mining Manager - Mt Cuthbert Copper Project, Matrix Metals Limited

⁵ *ibid.*

Key Issue No.2: Absence of Infrastructure

There is a lack of all-weather roads in the Mt Isa Region. For example, Century Mine is the second largest zinc producer in the world, with a potential mine-life of more than 20 years, but as it has no sealed road access, it is totally isolated during the wet season when unsealed roads become completely impassable.

Robust electricity transmission systems are connected to four of the six largest mines in the region, and are discussed in detail in Key Issue No.4 "**Economies of scale in Generation and Distribution of Electricity**". Six other operating mines in the area rely on small, relatively inefficient and comparatively expensive on-site generation for electrical services.

The main railway line from Townsville to Phosphate Hill and Mt Isa requires upgrade and ongoing repair, due to damage caused by inundation during the wet season. Track can be washed away from creek crossings by wet season flooding. The thermal stresses arising from the extremely hot climate affect track alignment, which in turn means that train speeds must be limited and rail freight costs consequently increase.

Mt Isa is closer to Darwin than to Brisbane. The tyranny of distance means that the area suffers extra delays in the provision of the types of services that city dwellers take for granted, such as delivery of health services, banking and educational opportunities.

A pattern has emerged, wherein the absence of services and social infrastructure means that mines adopt fly-in/fly-out style operations. Employees base their families in Cairns, Townsville or other coastal centres, because Mt Isa and Cloncurry have limited services, and investors establish the support industries in the same dormitory towns.

The transportation of semi-refined ore and mineral concentrates to overseas markets for final processing represents more than 40% of the total production cost for a number of the mining operations (names withheld) in the Mt Isa region. A number of mining operations are known to be actively considering the installation of onsite refining plants in an attempt to achieve control of this significant cost item. The installation of good all-weather roads to Mt Isa could allow the transportation of ores and concentrates to a central point for possible refining or other value adding activities.

Recommendation

The Mt Isa region creates a significant share of Australia's wealth, but receives little funding from the Federal Government. An injection of funds from the Federal Government for the upgrading of regional roads and rail tracks to allow all weather operation would by itself provide a considerable stimulus to existing and new mining operations, by allowing easier and cheaper access to export products and import raw materials and services. Good all-weather roads to Mt Isa could allow the transportation of ores and concentrates to a central point for possible refining or other value adding activities.

Key Issue No.3: Inequitable Taxation Issues

The concept that different categories of assets can have different "Effective Lives" has led to perverse outcomes in the supply of electricity to some mines in the area. Table A of the "Taxation Ruling TR 2000/18C3"⁶ sets out the recommended depreciation period for a variety of assets. While power stations and transmission lines must be depreciated over 30 and 45 years respectively, small semi-portable plant on mine-sites, such as generator sets, can be fully depreciated over 10 years. It becomes very difficult for the owner of a centralised power plant to justify the purchase of a new gas turbo-generator, if the client mine has a life of only ten years but the generating asset has a life of 30 years. If it is not commercially feasible to relocate the incremental generating equipment, the owner is left with a significant non-realizable asset on its books.

CS Energy is continuously facing this issue as it attempts to work with project proponents to supply electricity to potential mines. The issue is worse for the owners of high voltage transmission systems, such as Ergon Energy, since they must depreciate that type of asset over 45 years.

This "Unofficial Ruling" has had the practical effect of encouraging the developers of small mining operations to install small, relatively inefficient diesel engine power plants. This type of unit consumes considerable quantities of expensive imported fuels, and by supplying only the mine load, provides no support for local infrastructure. A typical 3MW plant will consume in excess of 6 million litres of fuel each year, requiring a weekly 110,000 litre road train delivery. This traffic inflicts considerable damage on the local road system, which can be impassable for one or two months in every wet season.

Recommendation

The systems for the creation and delivery of electricity in populated areas of Australia is generally considered to be social infrastructure, to which every citizen should have reasonable access. TR2000/18C3 prevents the application of that philosophy in the Mt Isa Region.

It is recommended that the Committee seeks urgent discussion with the Commissioner of Taxation to explain the unique features of energy delivery for the Mt Isa region and to ask that TR2000/18C3 be amended to treat all electricity generating equipment on the same basis. This will remove the inequitable distinction between large grid connected generators, and small portable on-site sets. The former cannot be readily relocated, but does form the cornerstone for modern transmission infrastructures, whereas small on-site generators used by some mines add nothing to the social infrastructure of a mining region, and add to fuel transportation traffic.

⁶ Australian Taxation Office, 1 July 2002, "Taxation Ruling TR 2000/18C3 – Income tax: effective life of depreciating assets."

Key Issue No.4: Economies of Scale in Generation and Distribution of Electricity

Electricity represents 15-30% of the cost of producing mineral concentrates in the Mt Isa region. Six small mines (names withheld) use on site diesel fuelled generator sets to produce electricity. These small operations, which process relatively high-grade ores, produce their own electricity for costs of \$150-220/MWh. The high cost of these fuels outweighs any capital cost savings over the life of a small mining project.

The existing large mines, such as Ernest Henry, Century and Mount Isa, which recover lower grade ores, could not operate profitably with electricity prices of this magnitude. Efficient gas fuelled generation, such as is available from CS Energy's Mica Creek Power Station, can be delivered to most of the region for under \$100/MWh. Meeting the electrical demand of a new large mine requires the installation of additional generating units at the power station, and the construction of new transmission lines. These items have longer delivery lead times compared to a small portable diesel powered generator set, and much higher capital costs (which require longer operating periods for capital amortisation).

In general, an increase in the size or capacity of generating units or transmission lines results in an increase in efficiency and a reduction in greenhouse gas intensity. Small isolated mines can only access electricity at economical prices if they are connected to a transmitted supply, either from a large, centralised and efficient power station such as Mica Creek, or from the National Electricity Grid. If such a supply is absent, the mines remain small, and focus their efforts on "picking the eyes" out of small rich ore-bodies, while bypassing large reserves of lower grade ore, ore which would be considered very attractive to any of the larger operations in the region.

A number of these small mines are too distant from existing transmission lines to justify the installation of a new interconnection. In some cases, electrical consumption would have to double or treble before a new interconnection could be commercially justified.

In contrast, some larger mines can support transmission projects, and provide regional benefits as well. As part of the project to transmit supply to Ernest Henry Mine, for example, a more reliable supply was able to be connected to Cloncurry township, since the new 220,000 volt transmission line passed close to the town, allowing the cost effective replacement of an old over-loaded 66,000 volt line from the same source. Four of the six largest mines in the Mt Isa area are supplied by transmission line from Mica Creek, using low cost power that is generated with natural gas and supplied under long term contracts.

CS Energy has identified six significant mineral prospects that might be developed as world scale operating mines if a cost effective transmitted supply was to become available in the vicinity.

The mines at Kuridala, White Range, Mt Elliott, Mount Dore, and Mount Cobalt are by themselves too small to justify the expense of a direct transmission line from Cloncurry, but if a line can be constructed to supply Selwyn Mine, short spur lines can easily be built to supply economical electricity to those projects, which together would employ more than 200 people. These spur lines have already been designed and costed, but cannot be justified without a backbone or major transmission line through the region (see attached maps). If 200 new mining jobs were created, more than \$30million in personal income tax could potentially be collected by the Australian Taxation Office over a ten year period, in addition to company tax payments.

Recommendation

It is recommended that the Committee seek to have the Federal Government underwrite the construction of a new extension of the 220,000 volt transmission system from Chumvale down to Selwyn, in order to expedite the expansion of existing mines and the construction of new mines along the route. By forgoing personal income tax receipts for ten years, the Government can pay for a major new item of infrastructure without affecting current or future budgets.

Key Issue No.5: Methodologies for Quantifying Resources, and Reserves.

Mine life is calculated by taking estimated recoverable ore identified within a deposit and dividing it by the projected annual extraction rate.

Mining companies traditionally consider only the 'Proved' and 'Probable' Reserves in this equation, and do not count the Identified Mineral Resources ('Measured', 'Indicated' and 'Inferred') that have been identified by drilling the ore-bodies. But some of these Resources will convert to Reserves status with further drilling as the mine develops over time.

“Ore” is only the amount of material that a miner estimates it can extract with a positive margin between the cost of production and the selling price of the final product. This margin must of course cover the cost of capital and provide an adequate dividend to investors. Increases in the cost of the major inputs to the mining process, such as labour, fuel, electricity, refining costs or transport of finished product to market, or decreases in the market price for metals, can quickly relegate Reserves back to Resources status, and significantly reduce the “official” life of mine. The reverse applies; when metals prices are rising, Reserves increase, as the mine can now profitably extract lower grade materials. All mines continuously review and adjust their Reserves levels as international commodity prices and currency exchange rates fluctuate.

For example, Cannington Mine had Reserves of 12.9 million tonnes and Resources of 40.7 million tonnes at 30 June 2001. With an extraction rate of 1.8 million tonnes a year, BHP would have stated that the life of Cannington Mine at that time was between 7 and 8 years. However, Cannington's quoted mine life gives no consideration to its identified Resources of 40.7 million tonnes, some of which has a probability of eventually becoming future Reserves.

A mine such as Mount Isa Mine has never had a maximum quoted life of more than 20 years and yet the mine has been operating continuously for 71 years.

The imbalance between the published mine life, and the life of infrastructure such as large power generation or reticulation assets, means that a traditional business case can often show a negative value for an infrastructure investment such as a transmission line or railway siding, since the “official” mine life does not allow the investor to reclaim all its capital.

The known reserves in the Mt Isa region include:

- 11% of the world's known lead and zinc resources
- 5% of the world's known silver resources
- 1% of the world's known copper resources
- plus significant deposits of other minerals such as magnetite, phosphate rock, limestone vanadium, shale-oil and cobalt⁷.

Recommendation

A solution to this issue is hard to find.

⁷ Queensland Government, Department of State Development Report 2002

Should the Federal Government should allow a change to the rules for valuing the assets of a mining company to include Resources as well as Reserves?

Should the Taxation rules be amended so that in the event of a client mine ceasing to operate, the infrastructure provider is allowed to immediately depreciate the assets to zero value?

It is recommended that the Committee investigate this issue in more depth, being cognisant of the particular deficiencies of infrastructure in remote areas such as the Mt Isa region.

Conclusion

The use of traditional business evaluation models to assess the feasibility of infrastructure investments in the Mt Isa region is actively preventing the installation of badly needed generation plant, transmission lines and road & rail upgrades. A considerable amount of new investment could occur if a large capacity transmission line was to be constructed from Chumvale down to the Selwyn Line. The ore found around the Selwyn Line is no poorer than that found at the Ernest Henry Mine, and could be profitably extracted, thereby creating a strong impetus for increased employment, both directly at Selwyn, and indirectly at the other smaller prospects along the route. This area was mined before Mt Isa was ever discovered, and has the potential to again become a significant metals producer, provided that adequate infrastructure can be installed.

The Cloncurry Mineral Province (see attached map)

The Cloncurry Mineral Province is the name for a zone of heavily mineralised and metamorphosed country that runs for more than 150 kilometres north and south of Cloncurry. Up until the early 1920s this was the main mining region in northern west Queensland. Mining activity collapsed with the end of the Great War and the consequent decline in demand for copper for munitions manufacture. It should be noted that the ore body that is today known as Mount Isa Mine was not discovered until 1923 and then not commissioned until 1931.

It is important to note that past mining activity concentrated on rich near-surface ore bodies. The old timers left in situ a great deal of ore that has a higher grade than that found at many of the mines operating in the area. Advances in mining and processing technologies now mean that many of these old areas, such as Mt Elliott and the Selwyn Line, can support significant mining and/or processing operations provided that adequate infrastructure can be provided, and new areas such as Mount Dore can support mining operations on copper concentrations that would have been previously unthinkable.

By way of illustration, the ore-bodies at the operating Ernest Henry Mine are compared with other reserves and resources in the vicinity:

Ernest Henry Mine

This mine, operated and 51% owned by MIM, is located 38 kilometres northeast of Cloncurry. Current operations involve the extraction of 10 million tonnes of ore and 43 million tonnes of waste material every year for at least another 13 years.

In 2000/1 the average copper concentration of mined ore was 1.18%, which compares with the ore in the Selwyn Line.

The site uses 404 employees and contractors to produce 300-350,000 tonnes of concentrate (containing 95,000 tonnes of copper and 120,000 ounces of gold) each year. Concentrates are road hauled 160 km to Mt Isa for smelting and the result anode railed to Townsville for refining before export.

Electricity is supplied at 220,000 volts via a transmission line from Mica Creek Power Station at Mt Isa. The line was constructed in 1991 and electricity is supplied under a long-term contract.

Mt Elliott Mine Historical Workings

From 1909-1919 the smelter processed 302,802 tonnes of ore including 264,027 tonnes of ore from the Mt Elliott Mine. The ore contained 3-13% Copper (typically 10-12%) and 27,345 tonnes of copper metal was produced.

Using modern technology, and a cut-off grade of >1.5% CuEq (copper equivalent) the remaining Total Proved & Probable Reserves at Mt Elliot are still 5.01 million tonnes of ore @ 1.68 % Copper & 0.86 g/t of gold⁸.

⁸ Selwyn Mines Ltd 2002, "Southern Line Development: The need for an Innovative Energy Solution to service Queensland's Mining Community"

Selwyn Line (see attached map)

Total historical production from the mines in the Selwyn Line exceeded:

Open Pits: 2.31 Mt @ 0.54% Cu & 4.27 g/t Au

Underground: 4.54 Mt @ 2.88% Cu & 4.71 g/t Au

With a 1.5% CuEq cut-off, the Measured & Indicated Resources are 14.5 million tonnes of ore @ 1.08% Cu and 2.09 g/t Au with Proved and Probable reserves of 11.59 million tonnes of ore @ 1.09% Cu and 1.66 g/t Au⁹.

Mount Dore Copper Project

This planned mine is reported to contain Total Indicated & Inferred Resources of 74.8 million tonnes of ore @ 0.52% copper (containing 389,000 tonnes of in-situ copper metal) at a cut-off grade of >0.2% Copper¹⁰.

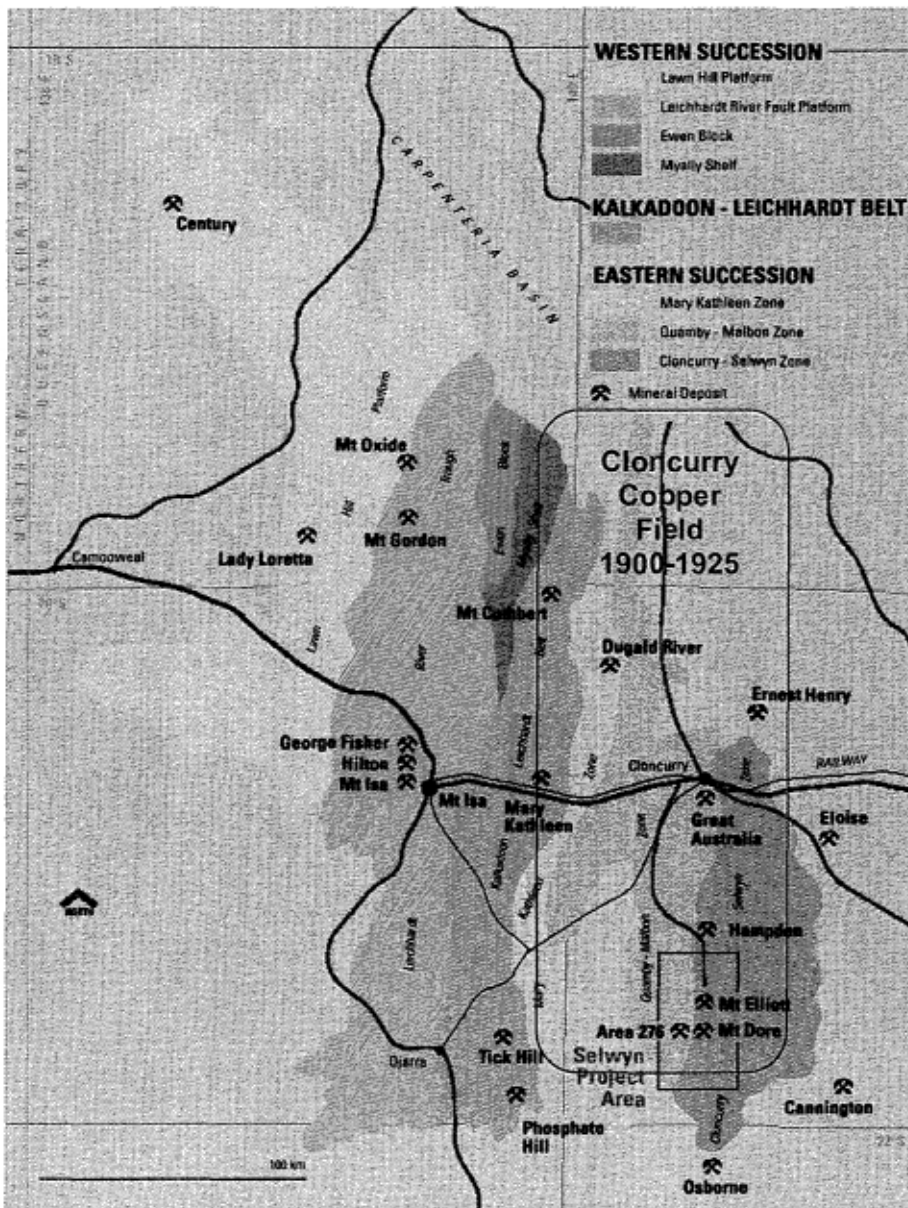
Selwyn Mines Ltd has stated publicly that the sum of the Measured & Indicated Resources, plus Proved and Probable Reserves at Mt Elliott and the Selwyn Line, combined with the Indicated & Inferred Resources of the Mt Dore Project, shows that the three areas together could contain up to 750,000 tonnes of copper metal and 53 tonnes of gold.

CS Energy has calculated, using September 2002 prices, that the combined value of this copper and gold, if extracted, could exceed A\$3.5 billion, albeit at low ore grades.

⁹ as above

¹⁰ as above

The Cloncurry Mineral Province



The Selwyn Line

