



MINERALS COUNCIL OF AUSTRALIA

SUBMISSION TO THE NATIONAL PRIORITIES AND INDUSTRY LINKAGE FUND CONSULTATION

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TABLE OF CONTENTS

1.	Introduction.....	3
2.	The MTEC Journey	4
3.	Priorities and aspirations of the NPILF.....	6
4.	Conclusion.....	8

1. INTRODUCTION

The Australian minerals industry

The Minerals Council of Australia (MCA) appreciates the opportunity to provide comments on the Department of Education, Skills and Employment Consultation Paper on the National Priorities and Industry Linkage Fund.

The Australian resources sector employs about 240,000 people in predominantly high skilled jobs with a significant proportion of these jobs being in regional and remote Australia. These jobs are also high-wage jobs, with average weekly earnings in the sector standing at \$2,697.50, more than double the national average for all industries of \$1,713.90.¹

The MCA acknowledges and recognises the nexus between high skill jobs and educational attainment. Nearly 66 per cent of Australia's mining workforce (aged between 15 and 74 years of age) holds a Certificate III level qualification or higher, which is above the national average for all industries of just over 63 per cent. Importantly nearly one in every four people employed in Australia's mining industry holds a Bachelor degree qualification or higher.² In this context, the MCA has a strong interest in maximising alignment between the higher education system and industry need.

The MCA advocates for a higher education system which produces job-ready graduates, who have well rounded capabilities allowing them to confidently step into employment and be resilient in managing their future careers through continued technological, economic and social change.

To enable this, the MCA has established strong linkages with Australia's tertiary education sector. Through the Minerals Tertiary Education Council (MTEC) robust relationships have been fostered with Australian universities to deliver a stream of graduates equipped with skills necessary to sustain a career in the minerals industry now and into the future. Relationships with Australia's vocational education and training (VET) system are being cemented through the [Mining Skills Organisation Pilot \(MSOP\)](#). Through MSOP the MCA is developing strategic partnerships and pathways to facilitate access to, and inspire VET students and graduates to pursue opportunities in Australia's minerals industry.

¹ Australian Bureau of Statistics, [Labour Force, Australia, Detailed, Quarterly, September 2020](#), ABS cat. No. 6291.0.55.003, Table EQ09, released on 26 March 2020. [Average Weekly Earnings, Australia, May 2020](#), ABS cat. No. 6302.0, released on 13 August 2020.

² Australian Bureau of Statistics, [Education and Work, Australia, May 2019](#), ABS cat. No. 62270DO001_201905, released on 13 November 2019.

2. THE MTEC JOURNEY

Through the MTEC the MCA has built a unique, innovative and powerful model for strategic and purposeful investment in minerals related tertiary education across a number of universities. This is consistent with the NPILFs intent of achieving enhanced engagement with universities and industry to support job-ready graduates.

The MCA's *Back from the Brink* report in 1998 identified delivery of education in Australia's universities needed to change if the minerals industry was to maintain and build upon its international competitiveness. The report explored Australia becoming a world leader in minerals education at a time when university education was becoming more market oriented. The opportunity existed to develop a true partnership between industry, government, and academia to reshape minerals education in Australia, thereby securing the supply of future specialist professionals.³

In the late 1990's, from a minerals industry perspective, Australia's higher education system was characterised by unsustainable low student numbers across minerals-related programs which threatened a future pipeline of professionals for the industry.⁴

MTEC was established by the MCA in 1999 to address the supply of graduates into the minerals industry and in partnership with universities, create world class minerals education in Australia. This was driven by:

- The MCA acting as an intermediary to drive closer and deeper engagement between universities and industry
- Building collaboration between universities in program development and provision.

Since MTEC's establishment, MCA funding of more than \$65 million has supported specialist minerals related programs in mining engineering, extractive metallurgy and minerals geoscience across 17 Australian universities benefitting over 5,000 graduates.

This support and investment, however, has not translated into universities defining a sustainable way of maintaining these programs without the need for recurrent industry investment.

This has necessitated a recalibration of the university/industry relationship to focus on modernising course content and delivery necessary to ensure graduates are well equipped to meet requirements of modern re-designed workplaces of the future.

Lessons from MTEC

Through MTEC, the MCA has built a unique, innovative and powerful model for strategic and purposeful industry investment in minerals related tertiary education across a number of Australian universities. MTEC was established with the goal of building capacity in Australia's higher education sector and to increase the supply and quality of suitably-qualified professionals for the minerals industry. This translated into MTEC building nationally collaborative minerals-related programs in minerals-related between Australian universities, developing industry relevant curriculum, improving graduate outcomes and ultimately sustaining these programs. A number of internal reviews examining performance of the MTEC model have been conducted, the latest of these being in 2017.⁵ This review commentary stated:

Many of the issues identified in 1998 have re-emerged. A significant drop in student enrolments has occurred since 2013, that is so pronounced (at some universities) that if continued will make mining departments unviable. Some universities and academics are disconnected from industry. This plays out each year with students finding it difficult to get vacation work or access sites and data for project work. This

³MCA, [Back from the brink: reshaping minerals tertiary education](#), discussion paper, Canberra, February 1998.

⁴ Ibid, p. 3.

⁵ Gavin Yeates Consulting, *At the Brink Again! – educational pathways for a future mining industry*, A report for the Minerals Council of Australia, 2017, p. 3.

is happening at a time when the industry is beginning to emerge from the bottom of the cycle and companies are looking to expand their intake of graduates.⁶

MCA's experiences in establishing and supporting MTEC and Australia's universities delivering minerals education have direct relevance to what government is aiming to achieve through the NPILF.

The MCA strongly recommends that a focus in the NPILF framework must be directed towards a sustainable model.

In the absence of such measures, university/industry partnerships will be hostage to a continued funding stream from government and/or industry rather than being viewed as core business of universities.

⁶ Ibid., p. 1.

3. PRIORITIES AND ASPIRATIONS OF THE NPILF

The MCA notes that government intends the NPILF to support three key priorities to:

- Increase the number of internships, practicums and other innovative approaches to work integrated learning (WIL)
- Increase the number of science, technology, engineering and mathematics(STEM)-skilled graduates and improve their employment outcomes
- Support universities for the development of partnerships and collaborations with industry.

Work integrated learning and partnerships with industry

MCA acknowledges the primacy of WIL to achieving job-ready graduates. From an industry perspective, university student exposure to workplaces during study requires effort and commitment from both an industry and university perspective. In essence, it requires universities to be industry-ready and industry to be university-ready. Engineering programs (including mining engineering) in Australia already have a requirement for industrial training as part of the undergraduate program structure.

Through MTEC, the MCA plays an important intermediary role between industry and universities. The MCA considers that MTEC provides a model for industry/university engagement that has proven the value of industry/university collaboration and collaboration between universities.

In June 2015, a report examining work integrated learning in STEM in Australian universities was identified key aspects of 'good WIL' and impediments to the expansion of WIL in STEM.⁷

Good WIL was identified to have:

- Strong engagement with industry
- Well-articulated expectations of both students and industry partners
- Clear induction processes at the beginning and facilitated opportunities for reflection on experiences at the end – for both students and industry
- Well established processes for logistics and support of students and industry
- Support from leadership and dedication from academic staff.⁸

Impediments identified reflect MCA's MTEC experience and can be summarised as follows:

- Difficulty in attracting enough employers to participate in WIL activities
- Under-resourcing of WIL, particularly the funding of support staff
- Difficulty in managing on-site supervision that is complementary to operations
- A general lack of value placed on WIL by educational institutions –manifesting in reliance on the commitment of a small number of academics.

An expansion of WIL activities proposed in the NPILF can be expected to further stress capacity of employers to provide a meaningful WIL experience. Previous evaluations of the MTEC model addressed mining company interactions with academia and found interactions between mining companies and universities remained patchy and reliant on individual relationships. Furthermore, it was identified turnover in mining companies had diluted the corporate memory of engagement with universities. Conversely, many of the academics involved in establishing MTEC programs remained engaged and carried with them knowledge of why those programs were established in the first place.

⁷ Edwards, Perkins, Pearce and Hong, [Work Integrated Learning in STEM in Australian Universities, Final Report submitted to the Office of the Chief Scientist](#), June 2015. Produced by the Australian Council for Educational Research.

⁸ Ibid, p. vii.

This highlights and reinforces the importance of strong and constant engagement between industry and universities to deliver sustainability.

To achieve sustainability in NPILF, WIL and industry engagement practices must be embedded into standard business within universities. Establishment of MTEC in the late 1990s to drive deeper engagement between universities and industry is a positive example of where an intermediary based model has achieved better quality graduates with attributes industry desires.

The MCA commends a similar approach in supporting universities for the development of partnerships and collaborations with industry noting evaluation metrics also address longer-term sustainability issues. In the absence of these, it is likely positive practices will not be suitably embedded and remain contingent upon continued external funding.

4. CONCLUSION

The MTEC experience has demonstrated the value delivered by an intermediary whose specific role is to manage engagement between universities and industry.

For SME's it would be easy to foreshadow resourcing constraints presenting a significant barrier to engagement with universities. Time is required to establish relationships and alignment between parties on objectives and resource commitments required to achieve these. Smaller businesses will have a greater and more immediate need to realise dividends from university engagement, a view that may not be necessarily shared by university partners who may operate on longer time horizons.

Delivering job-ready graduates able to participate in high-wage jobs in Australia's minerals sector now and into the future can contribute towards sustainability for the sector and enhanced national economic well-being.

The MTEC model provides an example where university and industry partnerships have been forged to the benefit of industry, government and universities. Embedding sustainability into such a model provides a potential pathway for government to consider in progressing objectives and aspirations outlined in the NPILF discussion paper.