



Society of Mining Professors 20th Annual General Meeting

University of New South Wales
28 June, 2008

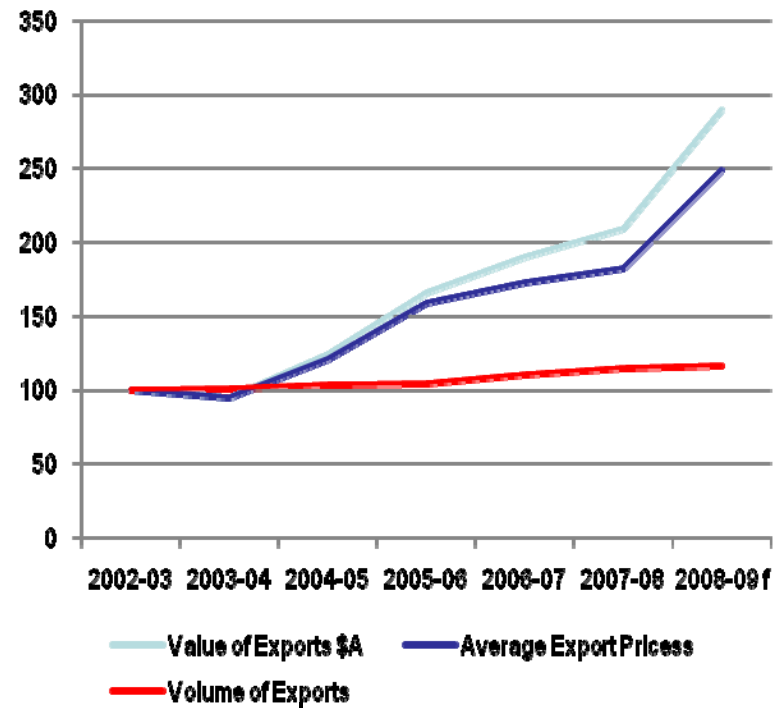
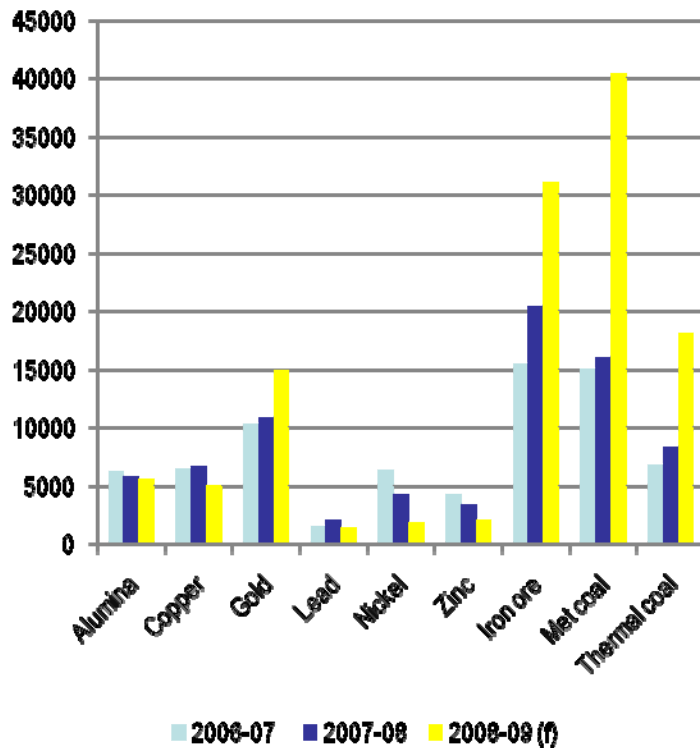
“Industry-educator partnerships within the
Australian minerals and education sectors”

Kevin Tuckwell
Executive Director
MTEC - Minerals Tertiary Education Council

Industry Snapshot

- 8% of GDP
- 163,500 direct employees; > 200,000 indirect
- Capital investment A\$31B
- Exports (2007-2008)
 - Coal + U A\$25B
 - Other Minerals A\$72B
 - Mining services A\$2.5B

Australian Mineral Exports



Partnerships and Programs (1)

Schools education (commenced in 1996)

- In-service training for primary school science teachers
- Education about the minerals industry
- Science projects and material for teachers and students (minerals industry flavour)
- **Findings**
 - Poor preparation of teachers in matters scientific compounded by different State practices
 - Primary school teachers often have entrenched views
 - Any attitudinal change in students evaporated quickly
 - The biggest issue was the quality of Science/Technology/Engineering/Mathematics (STEM) education in secondary schools
- **Outcomes**
 - The program was reviewed by educationalists in 2006 and abandoned as having limited success in 2008
 - MCA advocating improved STEM literacy

Partnerships and Programs (2)

Vocational education

- Complex issues
- Funded by the Commonwealth Government, facilities and delivery structure quite parochially provided by the States
- **Findings**
 - Content strongly influenced by the deliverers and in certain cases the unions
 - Employers have very little say in learning outcomes
 - Little/no national consistency
 - Too many vested interests
 - Minerals industry trains its own
- **Outcomes**
 - Almost all too hard
 - Tried setting up programs and courses and training institutes
 - Tried for transportable qualifications

Partnerships and Programs (3)

Higher education

- University teaching of earth science, mining engineering and extractive metallurgy
- Building relationships between undergraduate students and the minerals industry
- Assisting with the provision of professional development
- **Findings**
 - Not enough four year-trained mining engineers
 - Earth scientists not taught relevant exploration and mining skills
 - Low student and graduate numbers in metallurgy - financially non-viable departments
- **Outcomes**
 - Industry had some appetite for funding collaborative programs
 - Mining Education Australia
 - Minerals Geoscience Honours
 - Minerals Geoscience Masters
 - Metallurgical Education Partnership

Other programs....

MTEC Lecturers' Program

- Financial support for early career academics

mi-Pathways - www.mi-pathways.com

- mi-pathways is a one-stop-shop to gain information on industry relevant short courses and programs and enrol in PD courses on-line

Vacation work

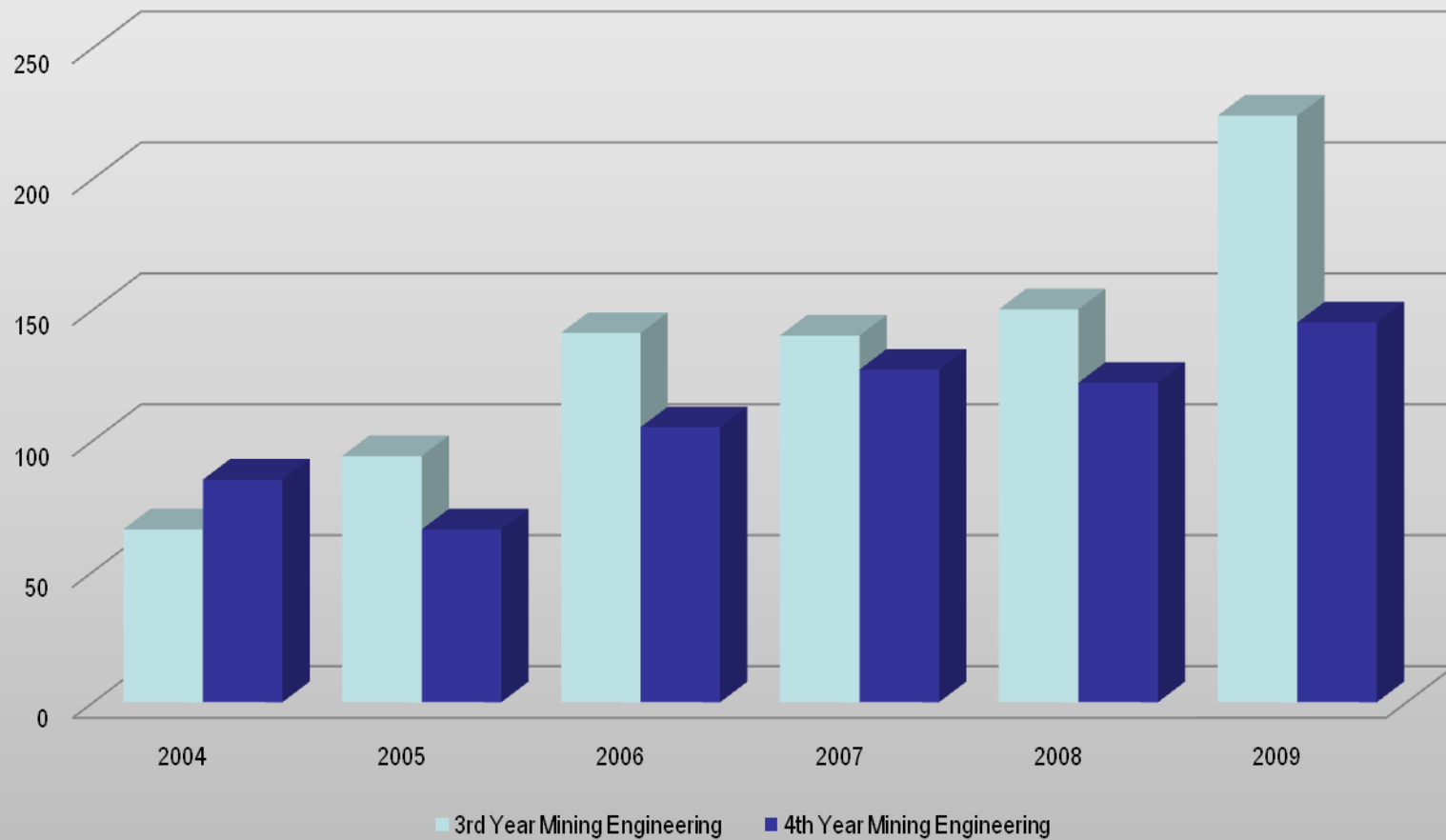
- Facilitate undergraduate students gaining industrial experience in the minerals industry

Promote research

- National Rock mechanics centre
- National Ventilation Centre
- Provide industry input to major collaborative research endeavours

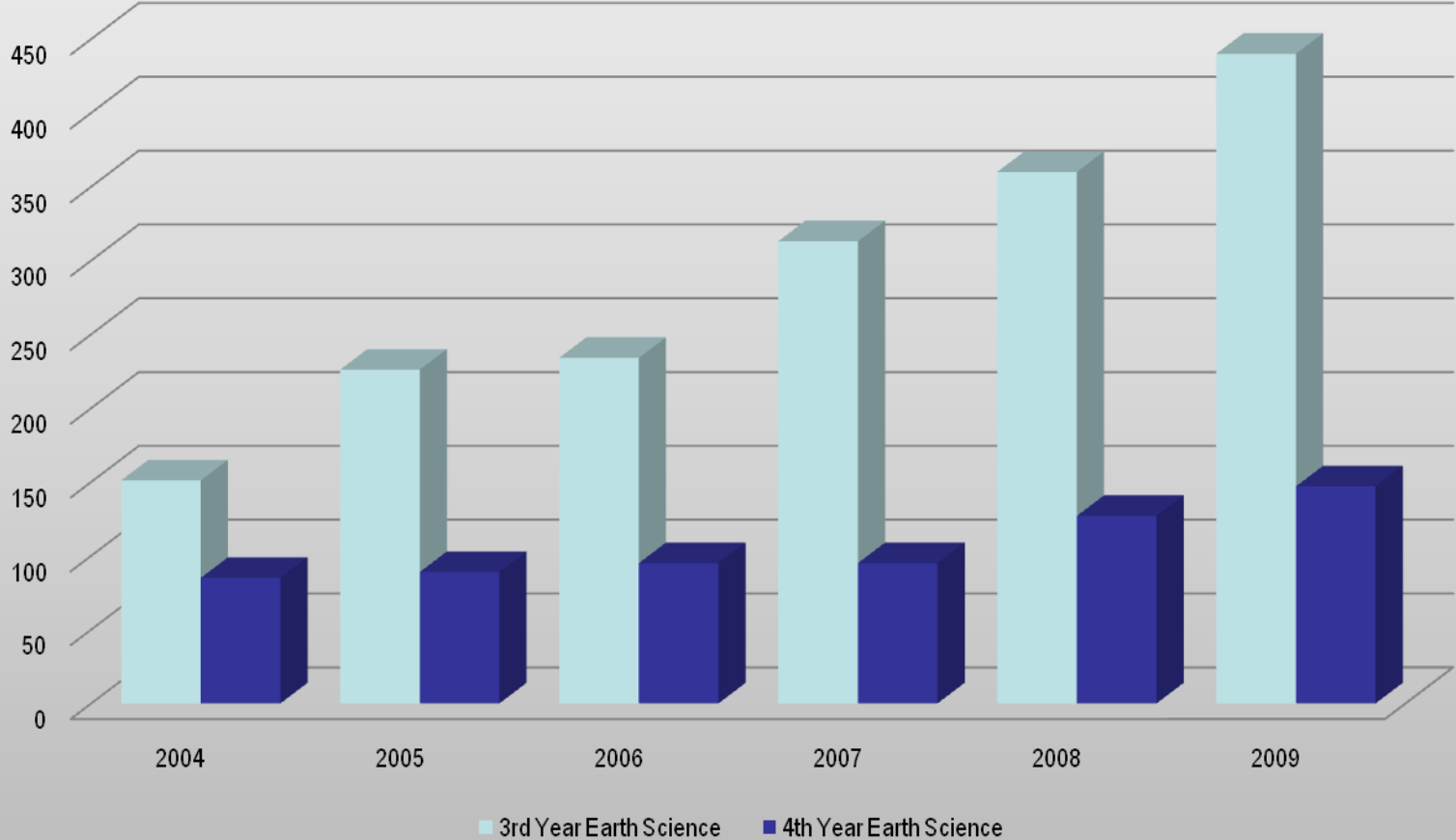
What are the results?

MTEC - Mining Engineering



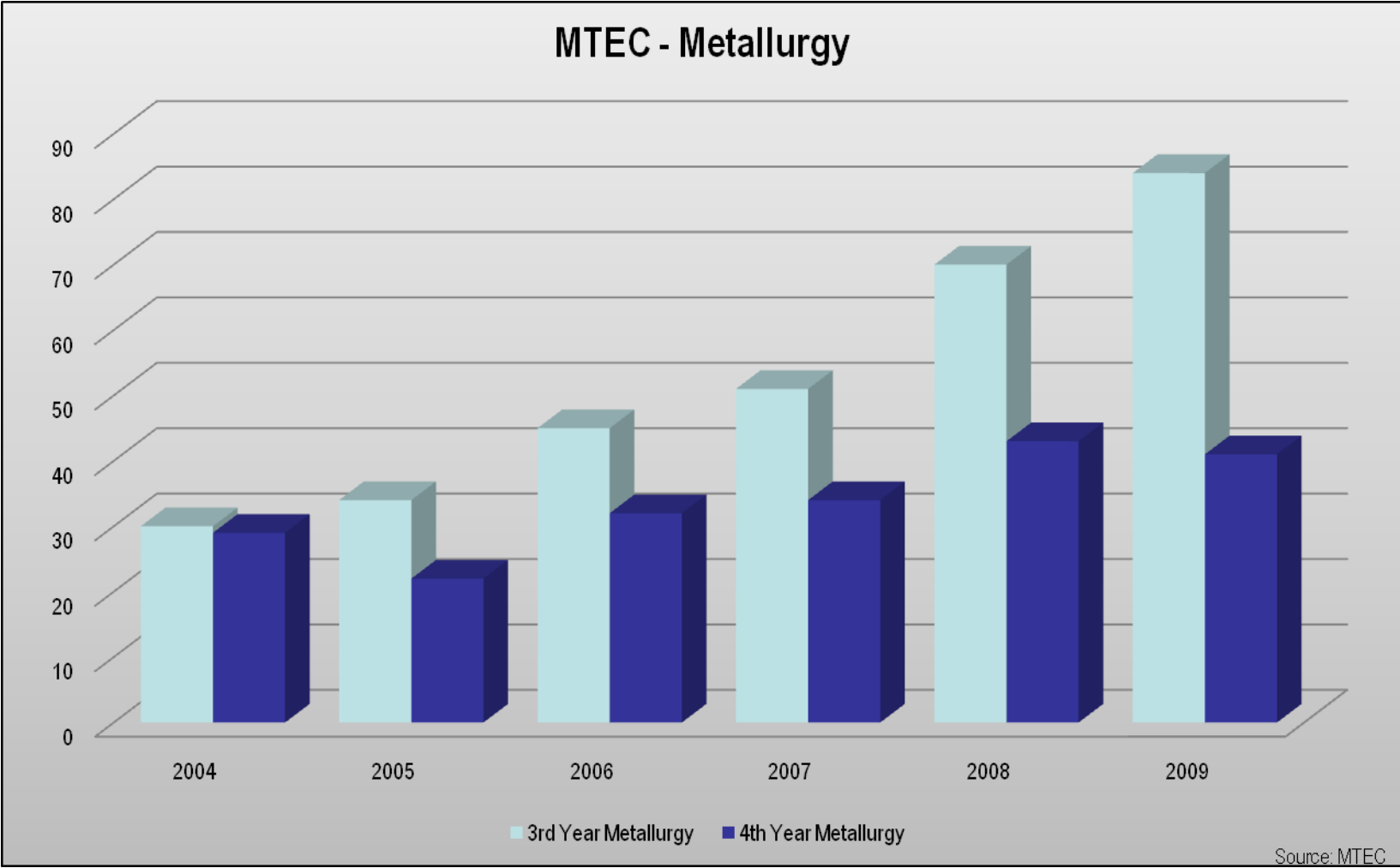
Source: MTEC

MTEC - Earth Science



Source: MTEC

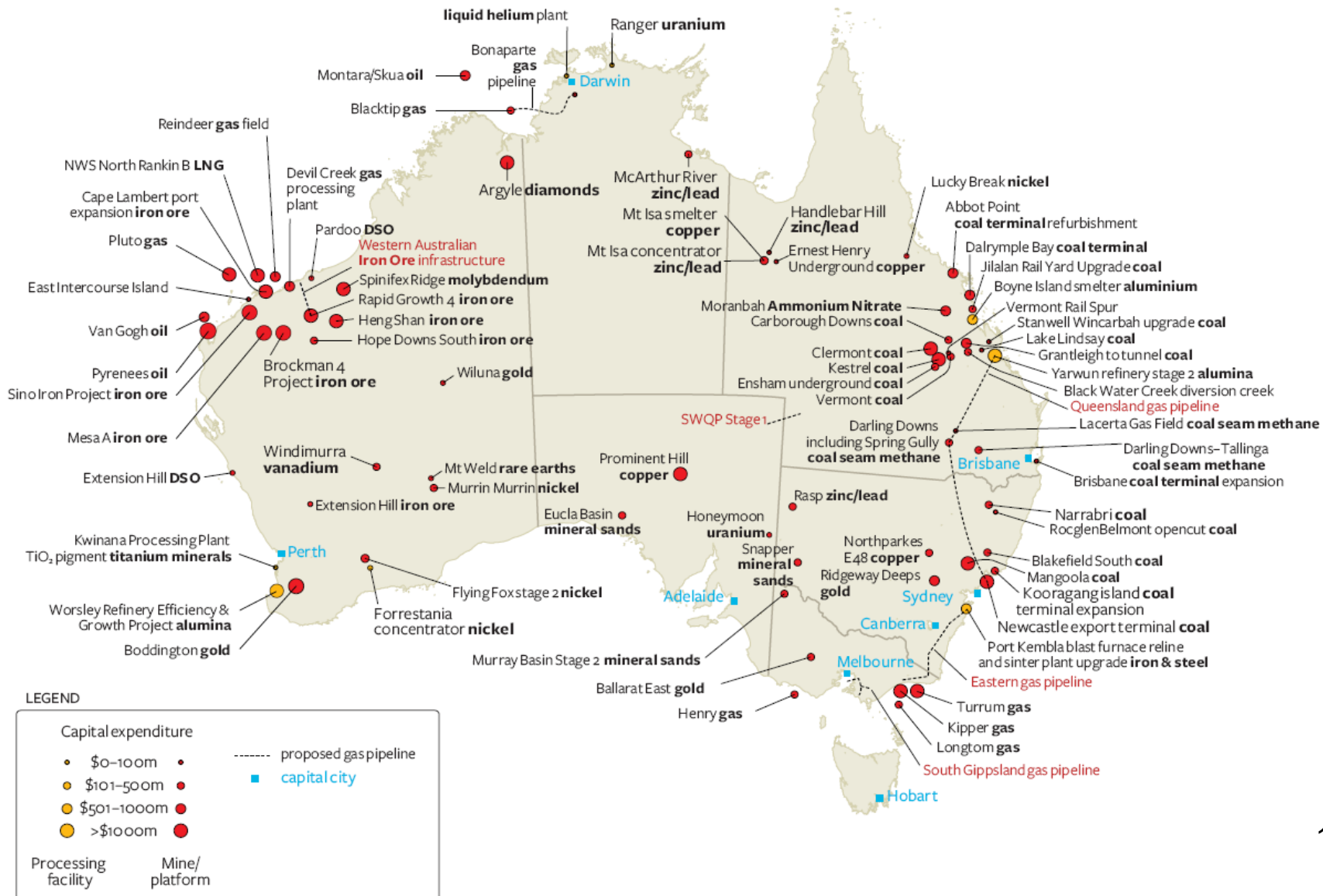
MTEC - Metallurgy



Source: MTEC

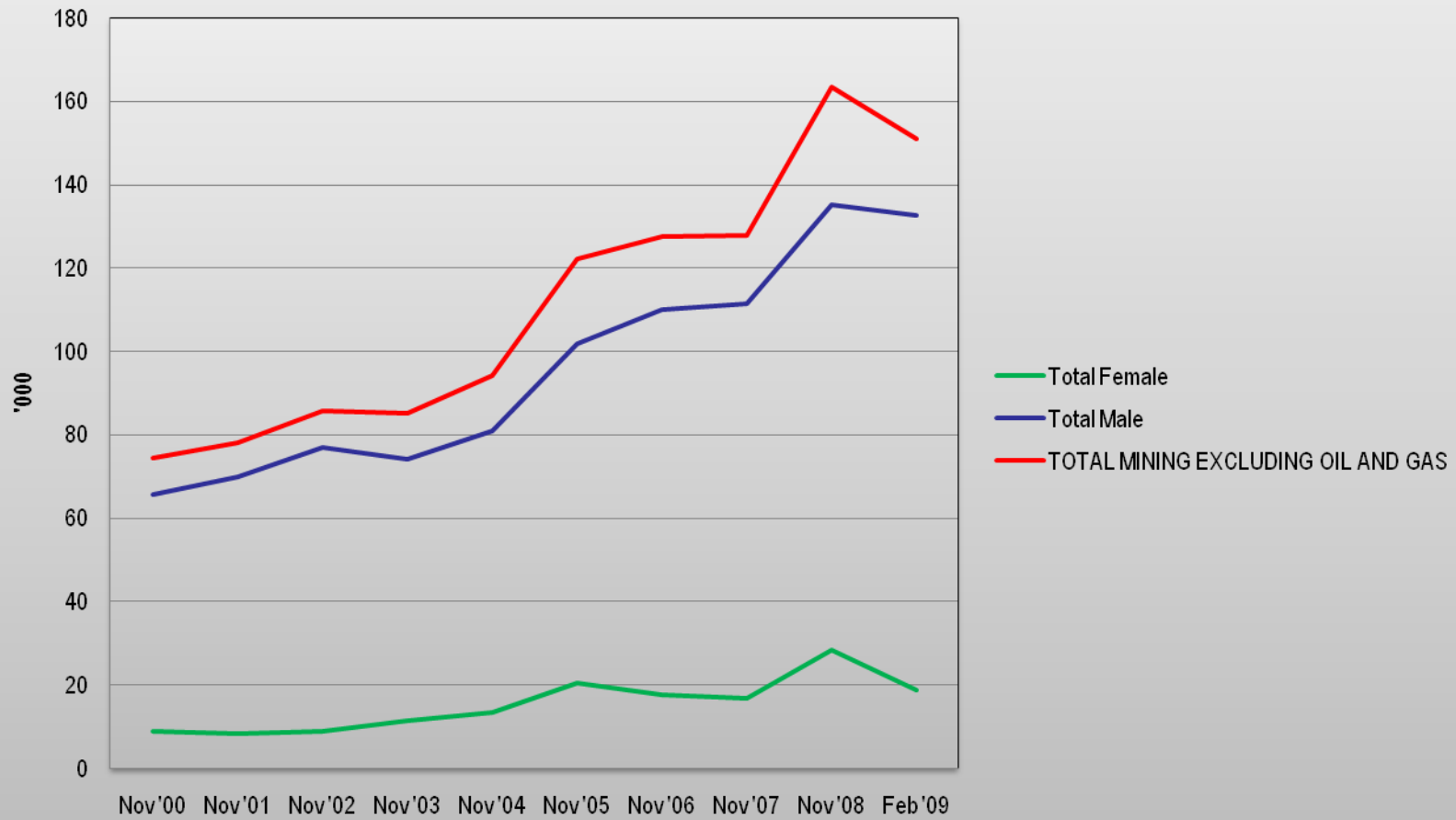
How important are these
education issues for the
minerals industry?

Australia's 'NEW' mineral resources



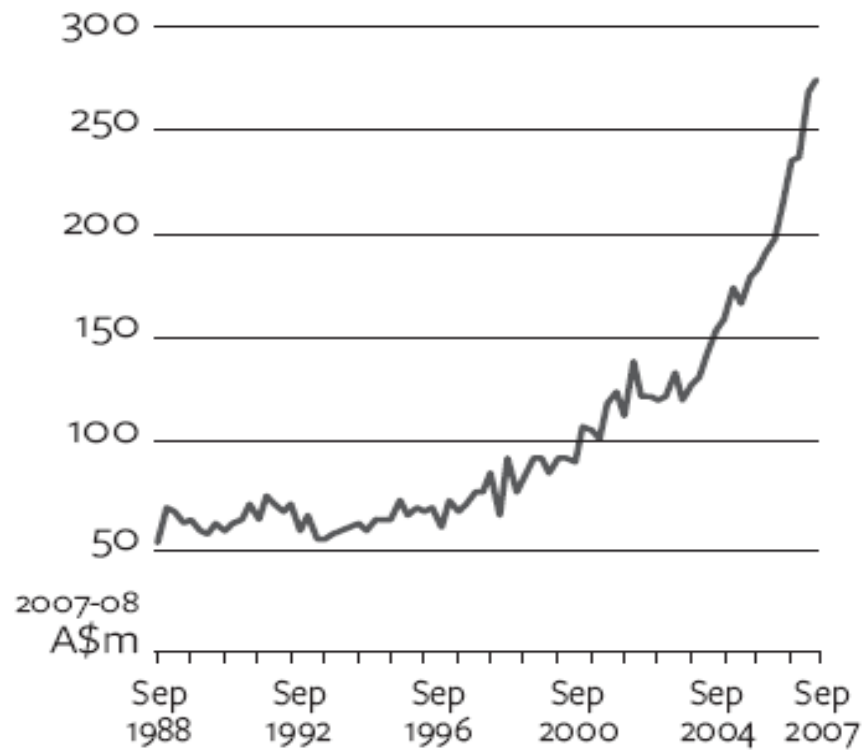
- The strength of the minerals industry is critical to Australian economic recovery
- Minerals industry recovery will be heavily dependent on addressing skills shortage
- The minerals industry is an active participant in all facets of education and training
- Industry-University AND Industry–Government partnerships are critical for success
- VET remains unresolved

Mining Employment Statistics



Source: ABS

\$ Cost per metre drilled



Source: ABS

Conclusions

- Collaborative programs essential
- Best if driven by industry
- Involve government
- Strong and effective academic leadership
- Measurable outcomes and a mechanism for them to be recognised
- Funds tied to programs that build capacity