



ENGINEERS
AUSTRALIA

Budget Digest 2022

An Australian Recovery

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Federal Budget 2022

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1.0 Executive summary

'Australians have been tested [through] droughts, fires, floods, and a global pandemic'

- Treasurer Frydenberg

The 2022-23 budget puts engineers at the forefront in delivering Australia's economic recovery, building resilient communities and responding to global instability. The challenges outlined by the Treasurer require significant action by the engineering profession to problem-solve some of the toughest issues facing communities across Australia.

It has been encouraging to see action on a number of Engineers Australia's key recommendations such as:

1. The use of infrastructure investment to power economic recovery. This budget includes \$17.9 billion in additional funding, bringing the total infrastructure pipeline to \$120 billion over ten years.
2. Build sovereign capability by investing in advanced manufacturing and reform procurement processes to involve more small to medium sized Australian businesses. A defence capability plan has been announced worth more than \$270 billion over a decade supporting a growing workforce and procurement reform has been delivered.
3. Support the commercialisation of engineering innovation by empowering engineers to innovate and keep Australians at the cutting edge of technology. The government has announced \$2.2 billion to support commercialisation and reformed employee shareholder schemes in line with other world-leading start-up ecosystems.

Despite encouraging levels of investment and select reforms to encourage innovation, there remains a serious lack of focus on several critical areas both for the engineering profession and Australia:

- Engaging with the skills gap at the tertiary level. Government initiatives in this space such as the \$12 billion for a National Skills Agreement to support vocational education and training misses the fact that many projects requiring apprentices and 'tradies' require engineers for projects to be greenlighted. (Section 2.0)
- Defence and infrastructure spending must continue to put Australian businesses at the centre of delivering on these projects to enhance our sovereign capability and allow for local industry and skills to develop. (Section 3.0)
- Action on climate change remained negligible with no structural reform or investment to support Australia meeting our 2050 net-zero commitment. (Section 4.0)

The last three years have illustrated to the government how central the engineering profession is in delivering on headline government projects, building community resilience and responding to disasters, supply chain vulnerability and the pandemic. The 2022-23 budget recognises this significant contribution and will continue to rely on engineers to deliver real solutions for the benefit of the community.

2.0 Invest in people

'Skilling Australians is part of our plan for a stronger future'

- Treasurer Josh Frydenberg

COVID-19 put engineers on the frontline as the profession was called on to rapidly solve the challenges facing Australia. It was ultimately engineers who had to engage with vulnerable supply chains, the manufacture of critical goods, empowering businesses to pivot online, and delivering on a range of government initiatives. Even before the pandemic, there were an insufficient number of engineers to deliver on existing projects or meet private sector demand. As we seek to rebuild lost lives and communities in the wake of floods and fires alongside COVID-19, that demand has only grown. Whilst the government has acted on several recommendations made by Engineers Australia, significant action by government is required if we as a nation can continue to build resilient communities and have an agile response to growing instability.

Headline investments include:

- \$12 billion over five years for a National Skills Agreement to support vocational education and training.
- \$2.4 billion over five years for a new Apprenticeships Incentive System.
- \$365.3 million over five years to extend the Boosting Apprenticeship Commencements wage subsidy.
- \$22.5 million to expand eligibility for the Australian Apprenticeship Support Loans.

2.1 Implemented recommendations

It was encouraging to see Engineers Australia's recommendations implemented concerning increasing investment in training as a way to combat the skills deficit. Whilst this is a partial solution to the skills shortage more attention needs to be given to tertiary level skills. Engineers work closely with a variety of professions, those with vocation training foremost amongst them. There is a professional symbiosis between engineers and tradies with a skills deficiency in one affecting the other. Given that, Engineers Australia looks forward to continuing our collaboration with the Skills Commissioner to drive outcomes for the profession.

A critical deficiency identified by Engineers Australia were poor rates of commercialising domestic engineering innovation when compared with the rest of the OECD. Part of the solution to this challenge is a skills and training gap where technically proficient engineers are given commercial opportunities. The Treasurer's announced 'funding to drive collaboration between universities, CSIRO and industry' to 'rapidly commercialise technology' is encouraging. As outlined in section 3.1 (Build Sovereign Capability) procurement reforms and increasing the opportunities for domestic SMEs provides more scope for local for engineers and graduates to upskill and innovate. That being said, Engineers Australia continues to recommend that STEM start-ups be kept at the forefront of one's mind to drive innovation, new businesses and job creation.

2.2 Outstanding recommendations

Whilst the government is highlighting the lowest unemployment in 50 years at below 4% as a testament to their economic management, this simultaneously indicates a deepening skills deficit for the engineering profession. To deliver on the infrastructure and defence projects the government has announced requires a sufficiently large pool of trained and experienced engineers without which they risk stagnating, going over budget, or being left undelivered altogether.

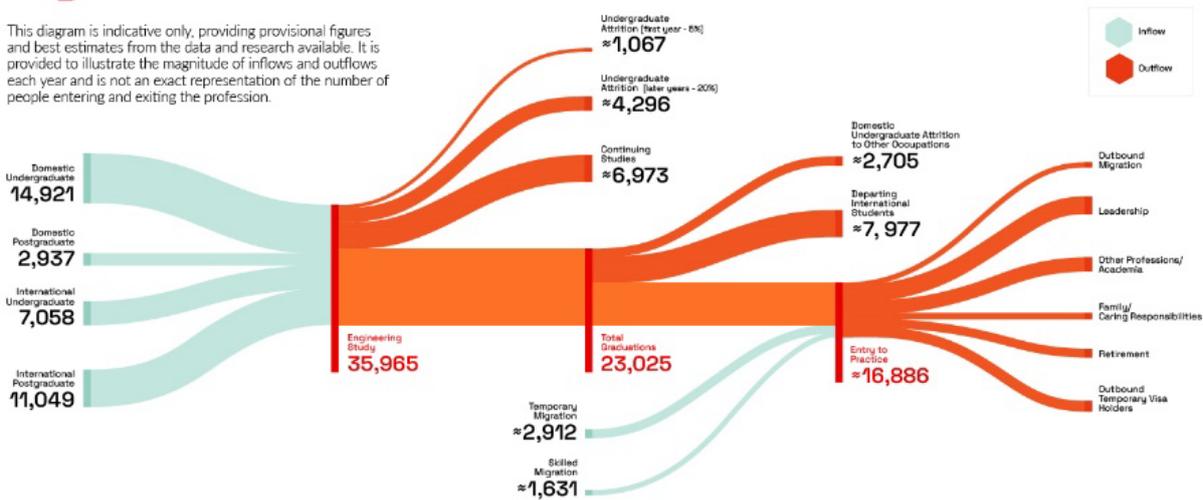
A partial solution to filling the demand for experienced engineers in Australia can be a built-in to the procurement process by requiring firms who have successfully bid for government contracts to create places for new engineering graduates. Reducing the outflow (as per the diagram below) of qualified engineering and STEM graduates out of the profession is a key opportunity to drive the competency and skills base domestically in Australia. Coupling this with reform in Australia's skilled migration to attract and retain engineering migrants must remain a goal of our immigration system to supplement our domestic skills base.

Government subsidies for 15,000 training places for the aged care profession and to upskill those already in the sector is a model which could be readily applied to the engineering profession in high-demand fields. Whilst this could be used as an interim solution to meet short-term demand and to pivot the skills of existing engineers, it will not solve the structural skills shortage facing Australia. Developing a pipeline of STEM capable students begins at school and requires end-to-end engagement by the federal government in collaboration with industry, State and Territory governments, and the profession to refine our education system to meet demand.

In Treasurer Frydenberg’s budget address he indicated the importance of ‘delivering on our record infrastructure pipeline is a vital plan for a stronger future’. Critical for that delivery to occur and to meet the expectations of government, further action needs to be taken to address the skills shortage including measures to attract and retain skilled migrants. Addressing barriers to employment for highly skilled engineers coming to Australia remains an important part of the solution to dealing with this skills shortage.

Inflows and Outflows of Professional Engineers 2019

This diagram is indicative only, providing provisional figures and best estimates from the data and research available. It is provided to illustrate the magnitude of inflows and outflows each year and is not an exact representation of the number of people entering and exiting the profession.



Australian Engineering Higher Education Statistics 2009-2019, Australian Council of Engineering Deans, December 2020 & King, R. Working Paper: Pipelines into Professional Engineering Occupations, Australian Council of Engineering Deans, December 2021

3.0 Build sovereign capability

'A modern resilient manufacturing sector is part of our plan for a stronger future'

- Treasurer Josh Frydenberg

The government has clearly heeded calls for increasing Australia's sovereign capability in light of supply chain vulnerability and global instability. Infrastructure investment is commendable but must be matched with a focus on improving productivity in the sector. Engineers Australia's forthcoming Infrastructure Productivity Directions Paper (2022) will outline this in detail and remains an area of improvement.

Developing an advanced defence manufacturing sector clearly remains a national priority. Regardless of the outcome at the next election, it is likely that this national focus will remain. Engineers Australia remains a strong advocate for the development of advanced manufacturing in defence and in other sectors. The \$270 billion defence package over 10 years is impressive and indicates a long-term recognition of a world that is 'less stable' and requires us to 'invest more in the defence of our nation'. However, ensuring the funds are responsibly spent to maximise the benefit to local industry, in the development of a local workforce and to deliver projects on time and on budget will be the real challenge.

Headline investments include:

- \$1 billion for advanced manufacturing and developing supply chain resilience.
- \$17.9 billion for transport infrastructure with a focus on: road, rail and community infrastructure.
- \$9.9 billion over a decade to grow Australia's cyber and intelligence capabilities.

3.1 Implemented recommendations

Engineers Australia made a concerted effort to engage government for procurement reform that is more inclusive of small to medium sized enterprises (SMEs). This is an integral part of creating supply chain resilience, driving our defence manufacturing industry, and enhancing innovation ecosystems. By increasing the threshold at which SME's can participate in the procurement process from \$200,000 to \$500,000 it provides more opportunities for Australian engineers and the industry at large.

Whilst this change is encouraging, Engineers Australia calls on the Government to continue this reform agenda by applying this principle to non-defence contracts. We similarly recommend government continue to examine the efficiency of local content requirements to support the domestic defence and aerospace industry.

In addition to procurement reform the government continues to execute on it's commitment in developing a defence manufacturing sector broadly in-line with recommendations made by Engineers Australia. Building in-house defence manufacturing capability forms an important part of Australia's response to global instability and enhancing our crisis management capabilities.

Engineers Australia has called for a long-term vision and investment in the defence and advanced manufacturing space. It was encouraging to see this articulated with more detail than before in building Australia's sovereign capability. Ensuring the significant funding is effectively spent will be a challenge, however, the government has taken a number of encouraging steps in this regard.

3.2 Outstanding recommendations

Skills shortages as per section 2.0 will continue to hamper efforts by the government and private sector to build sovereign capability through advanced manufacturing. Similarly, Engineers Australia recommends the government support efforts to streamline and centralise government grants for research and development including reducing the time between a grant being allocated to a business or start-up and funds being transferred to a 30-day maximum.

A core engine of economic growth for the Australian economy is innovation. Given that, there is room for further investment by the Federal Government to create additional innovation hubs centred around STEM start-ups which can build on current reforms centred around the commercialisation of Australian innovation.

4.0 Beat climate change

'Our government is safeguarding Australia's unique environment for future generations'

- Treasurer Josh Frydenberg

Climate change and increasing environmental sustainability were clearly not a focus area for the government in the 2022-23 budget. Engineers Australia continues to call for stronger climate action on emissions reduction, adaptation and resilience to provide industry certainty and participate in the decarbonisation of the global economy. Though an elevated focus on water security and management was encouraging, the scale of this investment is insufficient to adequately address concerns related to a more volatile climate.

Headline investments include:

- \$86 million to establish new forestry plantations.
- \$1 billion over eight years to protect and restore the Great Barrier Reef.
- \$44 million investment in water infrastructure, security, and management.

4.1 Implemented recommendations

It was encouraging to see more detail around government support for hydrogen hubs and the use of LNG as a transitional fuel. The continued emphasis on solar indicates a strong government focus in this area – the Treasurer repeating the much-used statistic that Australia has 'the highest uptake of rooftop solar in the world'.

One of Engineers Australia's budget recommendations was an increased focus on electric vehicle uptake and the use of stationary batteries. While this was not a feature for the budget, passing attention was given to it with Treasurer Frydenberg indicating further investment in 'battery', the 'use of microgrids' and 'small-scale renewable energy'. Such projects have the capacity to support sustainability local industry – a shift supported by Engineers Australia. Given continual and strong growth in demand for renewable energy domestically there is ample opportunity for government to support local jobs in this area with minimal investment.

Ongoing support for the growth of the domestic recycling industry, in light of export bans by Australia's traditional waste destinations, is encouraging. Though the government touted this as an achievement in budget 2022-23, it is not a new development. Such innovative initiatives combining climate action, jobs creation and engineering solutions are too few. Engineers Australia encourages the government to examine additional projects that can support action on climate change and drive local industry in this space.

4.2 Outstanding recommendations

Australia's road fleet is one of the least efficient in the OECD, with the overwhelming majority of Australia's transport emissions coming from cars. Engineers Australia recommends the gradual implementation of new car emissions standards to support carmakers bringing electric and hybrid vehicles to Australia. These standards can be implemented on a 'fleet average' basis to accommodate higher-emitting models such as utes, with standards tightening as technologies improve. This simple, direct fix is already benefitting customers and the climate in most major vehicle markets. For Australia to stay internationally competitive and benefit from an increasingly decarbonised global economy, continued investment in climate change solutions are critical.

Engineers Australia further recommends the government build on its 2050 net zero emissions commitment by publishing a national emissions reduction strategy, including a more ambitious 2030 abatement target. This will create certainty for business and industry, and for planning around additional infrastructure and any skills gaps needed to deliver on these commitments.

Tax reform in relation to climate change is another outstanding area that Engineers Australia recommends the government examine. Given the raft of direct payments, fuel excise subsidies and tax breaks announced, there is an opportunity to provide further support for proactive businesses and communities looking to be more sustainable.

Finally, whilst technology remains a critical part of the government's plan to reach our 2050 net zero commitment, detail is often lacking as to the specific technologies the government intends to rely on and – particularly - how this will be rolled out en masse. As a starting point, Engineers Australia recommends the government continue to look at investment in electric vehicle infrastructure.

5.0 Concluding remarks

Whilst the 2022-23 budget has been chalked up as an election budget, it remains significant for the engineering profession and Australian communities. The recommendations made by Engineers Australia that have been implemented is encouraging and we look forward to collaborating with government to build on this success.

There are several issues that were not engaged with which will only become more pressing. The engineering skills shortage will reduce the government's capacity to deliver on their promises around infrastructure and defence. Productivity in both industries requires a concentration on addressing the engineering skills shortage.

In the area of climate change, this was the other vital area which was not engaged to a sufficient degree. Engineers Australia calls for a long-term vision and investment in this space to meet our 2050 targets. Committing to a 2030 abatement target should be part of this vision which would benefit both businesses and the wider community.

Increased focus on vocational training is highly commendable. However, without a pipeline of engineering professionals to meet even existing demand, projects are at risk as too are the jobs for those with vocational training. Engineers Australia welcomes the opportunity to continue our dialogue with our partners in government to help resolve this skills gap.



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