



Science Strategy and Priorities Taskforce
Department of Industry, Science and Resources
Via email: priorities@industry.gov.au

6 April 2023

Dear Dr Foley,

Re: Developing Australia's Science and Research Priorities and National Science Statement – a National Conversation Starter

Engineers Australia is pleased to provide a summary response to the *Developing Australia's Science and Research Priorities and National Science Statement – a National Conversation Starter*.

Engineers Australia is the peak body for the engineering profession in Australia. We are a professional association with over 115,000 individual members, constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community. Our members represent every discipline of engineering and work across all sectors of the economy impacting the lives of Australians every day.

Over the next two decades, Engineers Australia notes that some of Australia's greatest challenges are vast and potentially daunting. With the realisation that we must undertake transformational change in several economic, manufacturing, and commercial industries to avoid our most dire challenges, comes a sense of purpose. Our approach is grounded in science and is concerned with the management of risk. Where risks are unacceptable, what can be done should be done.

We are able to provide in-depth views on a range of scientific and engineering issues and disciplines, however, the below is a brief summary of our most important challenges as a basis for further engagement and discussion:

- Fast tracking research and development into low emission and carbon abatement technologies.
- Developing a National and standardised means of calculating and reporting CO₂-e emissions across our facilities and infrastructure.
- Ensuring resilience from climate change and natural disasters is built throughout the urban and rural environments.
- Re-thinking design processes in the support of circular economy principles.
- Developing and commercialising advanced recycling facilities that enable the reuse of materials and resources throughout the economy.
- Developing a substantial and economically sound secondary materials market.
- Developing data and information systems that underpin consumer behaviour particularly regarding material lifecycles and energy use, but also that enable efficiencies across supply chains and procurement processes.
- Undertaking environmental and human health risk assessments, lifecycle analysis and data collection on plastics in Australia as a means of reducing the volume of plastics in our environment and water ways.

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- Protecting and enhancing our natural biodiversity and ecosystems with a view to improving Land Use, Land Use Change and Forestry (LULUCF) to maximise natural carbon capture and storage opportunities.
- Ensuring our transport systems and energy grids are robust enough for the transition away from fossil fuels.
- Ensuring we have the skills across our demographics to support the scientific and engineering challenges ahead with a view to establishing greater representation of both women and Indigenous peoples in science and engineering roles.

In Australia, we have low sovereign risk, good economic prosperity and exceptional scientific standards and practice. There is no reason why Australia does not have the capability to address our challenges. There is a substantial role however for the Government to act as both enabler and financier as a means of leading by example.

As enabler, Government can foster connections, collaborations and partnerships between academic research, pilot projects, and industry commercialisation. Harnessing Australia's high quality research capability through targeted funding that attracts public/private investment is crucial to addressing our challenges.

As financier, the Government can ensure the world-standard research and development currently underway traverses the path to commercialisation – where it is needed most. This can be achieved within funding models where collaborations between academia and industry are not just encouraged but mandated. For example, critical carbon abatement research is only funded if the project has an industry partner who can develop the research to an industry pilot, pending positive research results. Ensuring a connection between research and a commercial platform fast-tracks real world solutions.

Engineers Australia stands at the ready to participate in future opportunities to discuss any of the issues raised in this summary paper. Please do not hesitate to reach out if you would like clarification or to discuss anything further. You can contact Simon Koger, Senior Policy Adviser, Climate Change at skoger@engineersaustralia.org.au.

Sincerely yours

Damian Ogden
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