

SCIENCE & TECHNOLOGY AUSTRALIA

POLICY SUBMISSION

27 JANUARY 2023

2023–24 PRE-BUDGET SUBMISSION

This Budget is a legacy-defining opportunity.

It is a chance for the new Government to unveil a bold new direct investment in Australian science to advance **the Prime Minister’s ambition of an economic future “powered by science”** and the **Deputy Prime Minister’s pledge that this will be “the Science Government”**.

The proposals we put forward in this Pre-Budget Submission are visionary.

A Science Future Fund for Australia – building a stronger economy, powered by science

By creating an ambitious new Science Future Fund, the Government can forge an enduring legacy to put science investments beyond short-term funding cycles.

Such a fund would be a gamechanger for Australian economic growth. Supercharging Australian discovery science would unleash a new golden era of breakthrough discoveries to power our nation’s economic development in the decade ahead.

It would match the ambitions of our global technological allies and rivals; safeguard our national security and sovereign capability in an era of escalating global economic uncertainty; future-proof local jobs; and deliver a more prosperous future for all Australians.

New analysis by Science & Technology Australia shows that if a Science Future Fund is created at the scale and proven model of the Medical Research Future Fund, it could inject \$650 million every year from investment income into science breakthroughs. This would generate a massive \$2.3 billion in new economic returns every year for Australia, based on conservative estimates drawing on CSIRO models, without any extra public investment after the fund’s initial capitalisation.

What’s at stake

Right now, the world is locked in a fierce science and technology race. Our economic competitors are rapidly scaling up their strategic investments in science, technology, research and development to secure their own economic futures through bold breakthroughs and innovation.

In the US, the **CHIPS and Science Act** will supercharge outlays on science and semiconductor manufacturing by a massive \$52 billion. US President Joe Biden calls it a “once in a generation investment in America itself”. The UK is **dramatically ramping up public investment in R&D**. Our major allies are seeking to keep pace with the R&D ambitions of other rising global superpowers.

Australia must be every bit as bold in our ambitions.

If we aren’t, Australia faces grave risks. We would erode our sovereign capability in an era of escalating geostrategic competition. And we would consign our country to be a consumer, not a creator, of future technologies – without the ability to trade technological advances with our allies.

We would deepen our economic reliance on other nations. And we would be forced to buy – or to beg – the scientific and technological breakthroughs we will need to develop our future economy.

Delivering the Government’s election promises

In its **pledges to the Australian people at the 2022 Election**, the Australian Labor Party vowed:

“Labor believes Australia can be a global STEM superpower. Our national platform notes that Labor will work with business, industry, universities and research institutes to boost Australia’s investment in research and development as a percentage of GDP, getting it closer to 3 per cent of GDP achieved in other countries.”

In November 2022, **Industry and Science Minister Ed Husic** vowed:

“We have said for a long time, including from opposition, that we need to lift Australia’s overall R&D investment closer to the 3 per cent of GDP achieved by other countries. An effective R&D tax incentive will be key to that goal. However, with our total R&D spend currently sitting at 1.79 per cent of GDP, we will need to do a lot more.”

To deliver this promise, the new Government must invest more deeply in discovery science and R&D, boosting investment in real terms, with fresh direct investment in research and science from this first full Budget. Such an investment will be a strong signal of the Government’s priorities.

How a Science Future Fund can allay Australia’s Budget challenges

As this Budget is being crafted, **Australia faces an array of major economic challenges**. The outlook for our economic growth is sluggish, we face an acute national productivity crisis (with productivity growth tipped to fall to a 20-year average of just 1.2%).

Real wages are going backwards for everyday Australians, and we face a major structural Budget challenge – with the deficit expected to grow from -1.5% of GDP (-\$36.9 billion) in 2022–23 rising to -1.9% of GDP in coming years.

A Science Future Fund would powerfully help to tackle each of these structural economic challenges. It would deliver breakthroughs that will turbo-charge labour productivity, generate new higher-wage jobs in new industries, and return income to the economy to fix the structural Budget deficit to offset projected mounting spending pressures in health, aged care and disability services.

How a Science Future Fund would work

As with the Medical Research Future Fund (MRFF), a Science Future Fund would be a ‘locked box’ of capital, invested strategically under an investment mandate to generate solid annual returns. These investment earnings would then be used to transform Australia's discovery science research.

The Australian Government created the MRFF in 2015, investing Budget savings over five years to build a \$20 billion dollar pool of capital by 2020. The **Future Fund Board** oversees the fund’s investments, with a mandate to generate an **average return of at least 1.5–2 per cent a year, over a rolling 10-year period**.

Even while the capital pool was being built, the MRFF started disbursing funding from 2017 onwards. When it reached its \$20 billion investment goal in 2020, the MRFF was disbursing nearly \$600 million in funding for critical medical research initiatives. It now disburses \$650 million in funding a year – nearly doubling the Government’s total funding for medical research in Australia.

Establishing a similar scheme to back fundamental science breakthroughs would be a game-changer. This is a prudent and proven model to deliver long-term sustainability and an immediate uplift.



How science delivers strong economic returns

Strategic investment in science and technology is Australia's path to future economic growth.

Recent conservative modelling by **CSIRO** finds that every \$1 Australia invests in R&D generates \$3.50 for the economy, with a 10 per cent annual return on investment.

The global **Economic Complexity Index**, the **Harvard Atlas of Economic Complexity** and the **Global Innovation Index** show clear links between R&D funding, and economic complexity and innovation.

Advancements in science and technology research will secure our nation's health, wellbeing and economic security.

Other key ideas in this submission

Also in this submission, we outline other priority policy suggestions for this Budget:

- an immediate boost to the budgets of Australia's major research granting agencies – the Australian Research Council and the National Health and Medical Research Council;
- urgently securing the future of Australia's large-scale research infrastructure with a bolder commitment to the National Collaborative Research Infrastructure Strategy;
- deeper investment in climate science research and clean tech development;
- training Australia's first generation of scientist-entrepreneurs through a transformative 'bench-to-boardroom' program proposed by Science & Technology Australia.

Combined, these measures would set Australia on a strategic path to build a stronger economy, powered by science.

Professor Mark Hutchinson
President
Science & Technology Australia

Misha Schubert
Chief Executive Officer
Science & Technology Australia



LIST OF RECOMMENDATIONS

Science and Technology Australia Recommendation 1:

To deliver its election promise, the Government should make a bold new direct investment in Australia's R&D of significant scale in this Budget to start to push our nation's investment in R&D closer to 3 per cent of GDP.

Science and Technology Australia Recommendation 2:

The Government should establish an Australian Science Future Fund – a long-term strategic investment pool that would 'level up' Australia's capacity for science breakthroughs, and secure Australia's economy and ability to address future challenges.

Science & Technology Australia Recommendation 3:

Ensure Australia's ability to keep pace with our global competitors, enhance new knowledge production and secure the pipeline for research translation and commercialisation through a funding boost for the ARC and NHMRC annual research grant budgets.

Science & Technology Australia Recommendation 4:

Supercharge the Government's investment in research commercialisation through investing in Science & Technology Australia's Bench to Boardroom program. This bespoke commercialisation training would help create the next generation of scientist-entrepreneurs.

Science & Technology Australia Recommendation 5:

Provide the security our research workforce needs through:

- a. Shifting more grants issued by Australia's major research funding agencies to longer term cycles – aiming for five, seven or ten years.
- b. Requiring employing institutions to issue employment contracts for the duration of a government-funded research grant or a minimum of three years as a condition of Australian Government research grant funding.

Science & Technology Australia recommendation 6:

The research workforce should be supported through:

- a. Providing ongoing funding for the National Indigenous STEM Professionals Network to support Aboriginal and Torres Strait Islander people's participation in STEM
- b. The Australian Government's Pathway to Diversity in STEM review should explore the challenges skilled migrants face in entering Australia's STEM workforce and recommend actions to fix them.

Science & Technology Australia Recommendation 7:

Ensure long-term certainty for Australia's crucial research infrastructure through:

- a. Pushing Australia's overall investment in R&D closer towards 3 per cent of GDP with a significant long-term funding boost to Australia's National Collaborative Research Infrastructure Strategy.
- b. Adopt streamlined and efficient administrative procedures to better support NCRIS projects and facilities with the certainty they need to effectively plan and support their operations.
- c. Supporting NRI facilities to develop a workforce plan that will ensure Australia can train and retain the highly skilled workforce needed to run our critical NRI facilities.



Science & Technology Recommendation 8:

Formalise a long-term commitment to forge invaluable connections between Parliamentarians, policymakers and Australia’s leading STEM professionals through a \$2.3 million endowment for Science meets Parliament.

Science & Technology Australia Recommendation 9:

Urgently address under-resourcing of science and technology disciplines in university funding models and reverse STEM funding cuts under the Job Ready Graduates package.

Science & Technology Australia recommendation 10:

Push Australia’s investment in R&D closer to 3 per cent through a targeted boost to climate science research and clean energy technologies. This would not only contribute to the ambition of boosting R&D investment, but also help safeguard Australia’s future in the face of escalating climate change hazards.



2023–24 SCIENCE AND TECHNOLOGY BUDGET PRIORITIES

Science & Technology Australia thanks the Treasury for the opportunity to offer input on priorities for the 2022–23 Federal Budget.

Science & Technology Australia is the peak body for the nation's science and technology sectors, representing 139 member organisations and more than 110,000 scientists and technologists. We connect science and technology with governments, business and the community to advance science's role in solving some of humanity's greatest challenges.

PUSH AUSTRALIA'S R&D INVESTMENT CLOSER TO 3 PER CENT OF GDP

The Government has clearly acknowledged the power of science and technology research to supercharge a nation's economy, and set an ambitious goal to work towards lifting our research and development (R&D) investment to 3% of GDP. The most recent data indicates Australia's investment is 1.8 per cent of GDP – below the OECD average and woefully/significantly below that of nations leading the charge in research and innovation – Israel, at 5.4 per cent (2020), South Korea, at 4.8 (2020) and the United States, at 3.5 per cent (2020)¹.

Labor's goal to boost Australia's R&D research investment closer to 3 per cent of GDP is warmly welcomed/celebrated/embraced by the sector. To be truly transformative, Australia's R&D investment must be strategic, responsible and targeted. With the right approach, Australia can move towards becoming a science superpower – building an economy powered by science.

Science and Technology Australia Recommendation 1:

To deliver its election promise, the Government should make a bold new direct investment in Australia's R&D of significant scale in this Budget to start to push our nation's investment in R&D closer to 3 per cent of GDP.

A SCIENCE FUTURE FUND - TO BUILD AN ECONOMY POWERED BY SCIENCE

The **Medical Research Future Fund** (MRFF) changed the game for applied medical research in Australia. This targeted and long-term investment has yielded a pool of funding to enable critical breakthroughs in medical research and its application to benefit our nation.

It's time for a new Science Future Fund that will shore up our nation's capability in discovery research. Such a fund would deliver long-term, patient investment in our talented scientists and technologists and science entrepreneurs to lead Australia into the future that will rely on scientific and technological expertise.

With a seismic investment, such a fund would be a gamechanger for Australian economic growth. It would build our discovery science capability, generating a new era of science breakthroughs that would feed into Government commercialisation schemes – Australia's Economic Accelerator, the National Reconstruction Fund and the Clean Energy Finance Corporation – to boost our nation's economic development.

As with the MRFF, a Science Future Fund would be a 'locked box' of capital, invested strategically under an investment mandate to generate solid annual returns. These investment earnings would then be used to transform Australia's scientific research capacity.

The Australian Government created the MRFF in 2015, and through Budget savings over five years, built a \$20 billion dollar pool of capital by 2020. The **Future Fund Board** oversees the fund's

¹ OECD Gross domestic spending on R&D, <https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm>



investments, with a mandate to produce an **average return of at least 1.5–2 per cent a year, over a rolling 10-year period.**

Even while the capital pool was being built, the MRFF started disbursing funding from 2017 onwards. When it reached its \$20 billion investment goal in 2020, the MRFF was disbursing nearly \$600 million in funding for critical medical research initiatives. It now disburses \$650 million in funding a year – nearly doubling the Government’s total funding for medical research in Australia.

Establishing a similar scheme to support fundamental science research would be a game-changer. It’s a prudent and proven model that strengthens long-term sustainability while also boosting science funding immediately.

A Science Future Fund would focus on Australia’s areas of strength and competitive advantage, supporting projects that will generate solutions and technologies for opportunities and challenges of the future. This fund, led by government, but also attractive to corporate and philanthropic donors, will enable stable and high-impact research that will secure Australia for 2050 and beyond.

Science and Technology Australia Recommendation 2:

The Government should establish an Australian Science Future Fund – a long-term strategic investment pool that would level up Australia’s capacity for science breakthroughs, and secure Australia’s economy and ability to address future challenges.

AN IMMEDIATE BOOST FOR DISCOVERY RESEARCH

To ensure we maintain the pipeline of brilliant breakthroughs and innovative ideas, Australia should ‘double-down’ on investment in discovery research with a boost to our major funding agencies’ – the Australian Research Council (ARC) and the National Health and Medical Research Council (NHMRC).

Without discovery research, there are no new discoveries to build on to take to the next stages of translation and commercialisation. Without basic comprehensive research into understanding our planet and climate and how they work, there is no hope of adequate or effective climate change adaptation. Without research into the fundamental components of our bodies and cells – DNA, RNA, there can be no new lifesaving drugs, vaccines, cures or treatments for debilitating health conditions and diseases. Without fundamental chemistry, physics and engineering research, there can be no new breakthroughs in quantum technology or clean energy technologies.

We need essential knowledge of plant physiology and biochemistry, coupled with a deep understanding of Australia’s unique climate and geography to secure our agriculture industry into the future. Without this essential knowledge, there will be no new developments to enhance crop growth or protect them from pests and diseases to support our agriculture industry, and there will be no understanding of how to deal with the escalating hazards of climate change. We can not afford to rely on other countries’ work to understand the challenges and solutions in an Australian context.

These are just a few examples. Our nation depends on discovery research to keep building our stock of knowledge – knowledge that will safeguard us into the future and the challenges it will bring.

An increase to the ARC and NHMRC funding budgets would be a simple way to boost overall R&D investment – pushing it closer to 3 per cent of GDP – and set us on the path to realising the bold ambition to become a global STEM superpower.

Science & Technology Australia Recommendation 3:

Ensure Australia’s ability to keep pace with our global competitors, enhance new knowledge production and secure the pipeline for research translation and commercialisation through a funding boost for the ARC and NHMRC annual research grant budgets.



SUPERCHARGE SUPPORT FOR RESEARCH COMMERCIALISATION

Science & Technology Australia welcomes the support for research commercialisation included in the previous budget through Australia's Economic Accelerator and other University Research Commercialisation measures – these are sorely needed and will boost our capacity to turn our world-leading research into products, jobs and services for Australia. The legislation to establish Australia's Economic Accelerator governance structure should be passed by Parliament as a priority.

To truly make the maximum return from this investment in research commercialisation, Australia needs to train a new generation of scientist-entrepreneurs, equipped to navigate the complexities of both research and industry, with the skills to take their ideas from the laboratory bench and into the boardroom. Science & Technology Australia's "Bench-to-Boardroom" program would do just that. Leveraging the expertise of STA's leaders and members, the program would train a cohort of researchers to engage with industry and navigate the research commercialisation journey.

Science & Technology Australia Recommendation 4:

Supercharge the Government's investment in research commercialisation through investing in Science & Technology Australia's Bench to Boardroom program. This bespoke commercialisation training would help create the next generation of scientist-entrepreneurs.

A DIVERSE AND SECURE WORKFORCE

WORKFORCE SECURITY

Our people are our greatest asset.

While adequate funding and access to state-of-the-art facilities are essential, to do great science scientists also need job security. Repeated cycles of short-term funding contracts – especially during the early years of a science research career – undermine the conditions for Australia's scientists to make truly ground-breaking discoveries and seize new economic opportunities for Australia.

Right now, too many of Australia's scientists are stuck in morale-sapping ongoing cycles of short-term research contracts. Chronic job insecurity in science is driving great Australian scientists and technologists overseas – or out of research altogether. This is also a major factor driving women from the STEM research workforce in the early- and mid-career stages.

This broken system is also stopping Australian science and technology stars now living overseas from coming home. With granting agencies in other countries offering long-term funding options, the prospect of returning home to cycles of short-term contracts is not competitive. The Minister for Industry and Science, the Hon Ed Husic MP, has consistently decried the 'brain drain' and promised: **'We're going to stop the brain drain... we are bloody going to fix it.'**

One way to start fixing this, and stem the loss of great talent from Australia's science and technology research sector, is for Australia's major research granting agencies to shift research funding grants to longer-cycles of five, seven or 10 years. Employers of researchers should be required to issue employment contracts that span the full grant length, or a minimum of three years, as a condition of Australian Government research grant funding.

Secure conditions and support for scientists working in research – and research commercialisation – will help attract more great Australian science and technology talent home and entice the world's best and brightest minds here. This will strengthen our STEM workforce, boost Australian science and technology and secure our economy.



Science & Technology Australia Recommendation 5:

Provide the security our research workforce needs through:

- a. **Shifting more grants issued by Australia’s major research funding agencies to longer term cycles – aiming for five, seven or ten years.**
- b. **Requiring employing institutions to issue employment contracts for the duration of a government-funded research grant or a minimum of three years as a condition of Australian Government research grant funding.**

WORKFORCE DIVERSITY

A strong STEM talent pipeline that draws on Australia’s full talent pool is key to scientific excellence. The best science and engineering happens when teams draw on a diverse range of ideas, perspectives and knowledge.

Science & Technology Australia has long been a supporter of improving gender equity and diversity more broadly in the STEM sector, including through our highly acclaimed **Superstars of STEM program**.

Advancing equity and inclusion will not only nurture our existing STEM workforce, but help meet skills shortages and recruitment gaps, and grow the talent pipeline.

Diversity in the Australian STEM workforce extends beyond gender equity. There is deep STEM expertise in the Aboriginal and Torres Strait Islander knowledge systems of this continent. Australia hasn’t yet drawn on this expertise deeply, particularly in our policy approaches and methodologies in fire, land, water, and ecology.

Despite this expertise, Aboriginal and Torres Strait Islander people remain seriously under-represented in formal STEM study and STEM professional careers. As a nation, we would benefit strongly from deepening Indigenous participation in STEM and drawing more deeply on Indigenous knowledge.

The past two years has seen concerted efforts across the sector to establish the **National Indigenous STEM Professionals Network**. This Indigenous-led and Indigenous-run network will provide invaluable support and peer mentorship to Indigenous STEM researchers and should be supported to reach its ambitions. To do this, the network requires secure funding.

Additionally, Australia is lucky to have a vast migrant workforce, drawn from countries all over the world. However, there are currently barriers that make entering the research workforce challenging – Australia’s skilled migrant population need to have the opportunity to fully use their expertise and skills as a valued part of Australia’s workforce. Science & Technology Australia welcomes the Government’s **Pathway to diversity in STEM** review as an opportunity to explore and identify solutions to the challenges migrant workers face.

Science & Technology Australia recommendation 6:

The research workforce should be supported through:

- a. **Providing ongoing funding for the National Indigenous STEM Professionals Network to support Aboriginal and Torres Strait Islander people’s participation in STEM**
- b. **The Australian Government’s Pathway to Diversity in STEM review should explore the challenges skilled migrants face in entering Australia’s STEM workforce and recommend actions to fix them.**



LONG-TERM CERTAINTY FOR AUSTRALIA'S RESEARCH INFRASTRUCTURE

Australia hosts a wide array of crucial science and research infrastructure, including the mission-critical facilities funded through the National Collaborative Research Infrastructure Strategy (NCRIS). This infrastructure underpins our national research capability, and is essential for both discovery research breakthroughs and advancing science commercialisation.

NCRIS is a success story – there are countless examples of how its extremely wide array of facilities and projects have enabled research breakthroughs across all areas of STEM. They include:

- The National Computational Infrastructure works with the Bureau of Meteorology to improve Australia's long-term weather forecasting capability – a capability that will only become more important in the coming years.
- The Australian National Fabrication Facility brings more than 500 pieces of equipment together to provide researchers access to essential capabilities to develop prototypes of groundbreaking new micro- and nano-technology devices and techniques.
- Phenomics Australia supports genetic research, enabling breakthrough discoveries such as determining the genetic cause of the disease lupus, developing new drugs and enabling precision medicine.
- In partnership with Quantum Brilliance, Pawsey Supercomputing Centre is home to the world's first room-temperature diamond-based quantum computer, a huge step forward in the realms of computational abilities.
- The Australian Data Research Commons is supporting our management of bushfires, biosecurity threats and other challenges through the improved accessibility, usability, storage and research practices of data.
- Biopatforms Australia is creating an ambitious bioinformatic infrastructure through accessible genomic databases such as the National Biodiversity DNA Library.
- Auscope provides Australia's geoscience expertise through locating critical mineral deposits necessary for climate adaptation and protecting our groundwater sources.
- Therapeutic Innovation Australia specialises in research translation, accelerating findings in gene therapy, vaccines and small molecule therapeutics to the clinic trial stage.

These are just a few of the 24 facilities and projects supported through NCRIS. All NCRIS projects operate with the goal to be a sustained resource that will underpin our long-term research capability. But to ensure long-term success, research infrastructure facilities and projects need long-term certainty. Infrastructure is long-term. Investment must match this scale of commitment.

Maintenance and procurement for research infrastructure require long-term planning and budget security to ensure world-class capabilities can be sustained and keep Australia globally competitive. The forward Budget allocations must ensure NCRIS funding supports the breadth of research infrastructure critical to our national research success.

This planning extends to workforce capability – Australia's research infrastructure facilities and capabilities are highly specialised and require skilled staff with targeted technical training. Without long-term job security, Australia runs the risk of losing the highly-trained and specialised personnel critical to running our national infrastructure facilities. Australia needs a dedicated research infrastructure workforce plan to ensure we can maintain and advance our overall research capacity and make the most of our NCRIS investment.



Investment security is also key to secure industry co-investment. Industry partners and co-investors work on long-term investment cycles. They need assurance and security to make their own long-term investments in research infrastructure.

Currently, national research infrastructure investment occurs through a cycle of Roadmaps, that set out a 5-year research infrastructure strategy and priorities. These are complemented by Investment Plans, which are released every two–three years. These delineate NCRIS funding, consistent with Roadmap priorities. The Investment Plans are then enacted by the NCRIS Guidelines, in which NCRIS entities apply for and receive funding. Funding contracts – i.e. the actual distribution of funding – are then developed according to the Guidelines.

This means that while there may be a high-level funding commitment to secure facilities' and projects' operation for several years, in practice, workforce planning and scheduled maintenance or procurement can be extremely challenging, as actual funding agreements can not be finalised (and projects receive their funding) until the guidelines are approved and published, then contracts negotiated and signed.

The most recent iteration of this process saw the Government release the 2021 Roadmap in April 2022 – a delayed release that led to a consequent delay in the next Investment Plan, which is yet to be published. While the Roadmap release in April 2022 was accompanied by an announcement of a \$900 million investment that ensured current facilities had certainty of base funding for an additional five years, the actual funding allocations were not secure until the release of the **2022 NCRIS Guidelines**, in November 2022.

Further, while the \$900 million investment ensured that current facilities had certainty of base funding it does not allow for new or extra investment, or even for current facilities to appropriately cover increasing running costs or fund necessary upgrades. None of these challenges can be met until the next set of NCRIS Guidelines are released some time in 2023.

While the basic framework of setting long-term strategy through the 5-year Roadmaps, then setting investment through more responsive 2-year cycles is sound, the process must be streamlined to ensure NCRIS facilities and projects can plan and budget for their long-term operation. Long-term certainty is needed for ongoing operational funding, upgrades and procurement as well as to secure staffing contracts for the highly specialised staff research infrastructure requires.

Science & Technology Australia Recommendation 7:

Ensure long-term certainty for Australia's crucial research infrastructure through:

- a. Pushing Australia's overall investment in R&D closer towards 3 per cent of GDP with a significant long-term funding boost to Australia's National Collaborative Research Infrastructure Strategy.**
- b. Adopt streamlined and efficient administrative procedures to better support NCRIS projects and facilities with the certainty they need to effectively plan and support their operations.**
- c. Supporting NRI facilities to develop a workforce plan that will ensure Australia can train and retain the highly skilled workforce needed to run our critical NRI facilities.**

DRIVEN BY SCIENCE; INFORMED BY SCIENCE

LONG-TERM SUPPORT FOR SCIENCE CONNECTIONS TO PARLIAMENT

A economy powered by science must be informed by science. Strong links and relationships between the science and research sector and our nation's decision-makers will be more important than ever in the coming decades. Decision makers must be sure they're accessing appropriate advice, following



up on the best new ideas, addressing the most pressing and urgent challenges in the most innovative and smart ways possible.

Science Meets Parliament is a world-leading Australian initiative that has run for more than two decades. This annual event is the biggest single vehicle for deep engagement between our science community and the nation's policymakers, bringing our best STEM talent to Parliamentarians to share the latest knowledge and expertise in science and technology. It is a crucial tool to help Australian decision-makers to draw on science expertise and shape policy and legislation informed by the best evidence.

This knowledge exchange is not just one way. Science Meets Parliament also equips our STEM professionals with skills and a deeper understanding of policy that help them engage more effectively with the nation's decision-makers.

Since its inception, the Australian Government has been a strong backer of this outstanding event, with the Department of Industry as foundation sponsor.

Science Meets Parliament has delivered major benefits during the past two decades. It has led to enduring relationships between politicians and science and technology leaders; sparked valuable policy change to the benefit of STEM business; catalysed vital skills for a range of Australia's STEM leadership; and **helped to jump start** funding and support for important fields of research.

An event this valuable should not depend on year-to-year grants and sponsorships. STA urges the Government to provide long-term support to Science meets Parliament in the form of sustained funding for the next decade.

Science & Technology Recommendation 8:

Formalise a long-term commitment to forge invaluable connections between Parliamentarians, policymakers and Australia's leading STEM professionals through a \$2.3 million endowment for Science meets Parliament.

SCIENCE TO SAFEGUARD OUR FUTURE

SECURE THE PIPELINE OF STEM TALENT

The Job Ready Graduates legislation **cut the total funding to universities per student in STEM degrees** – by 17 per cent for mathematics, 16 per cent for science, and 9 per cent for agriculture. Per place funding for other important degrees was also cut – by 8 per cent for nursing and 6 per cent for education. At the same time, the student contribution amounts for several humanities and social science degrees (HASS) degrees were raised, creating a boost to total funding per place for HASS degrees.

Combined, these changes have created a perverse disincentive for universities to produce more STEM graduates in areas pivotal to Australia's future productivity. The scheme included a three-year transitional buffer arrangement, which is set to expire in 2024, when universities will feel the full impact of the funding changes.

Given the importance STEM-qualified graduates to support the workforce, Science & Technology Australia advocates restoring the previous funding levels for each student enrolled in a STEM degree.

The **Universities Accord** process, currently underway, must address this issue as a matter of urgency.

Science & Technology Australia Recommendation 9:

Urgently address under-resourcing of science and technology disciplines in university funding models and reverse STEM funding cuts under the Job Ready Graduates package.



SUPPORT THE TRANSITION TO A ZERO-EMISSIONS FUTURE AND A RESILIENT AUSTRALIA

Science & Technology Australia applauds the Government's recently passed legislation that enshrined in law a commitment to reduce greenhouse gas emissions by 43 per cent by 2030 and to 'net zero' emissions by 2050. The transition to a net-zero economy presents significant challenges, but also huge opportunities for Australia. Australia can and must be a leader in the transition to renewable technologies. The nation requires strong policy support for Australia's transition to electric vehicles, renewable energy, and cleaner technologies throughout industry, drawing on the capabilities and expertise in our science and technology research sector.

There is also a compelling opportunity for Australia to scale up our manufacturing capacity. This can be achieved by producing the critical minerals needed for renewable technologies, and also converting the raw materials into products – adding value to our exports with vast benefits to the nation's economy.

Existing policy measures such as the Patent Box scheme for clean technologies and funding agencies supporting renewable energy development – **ARENA**, the **Clean Energy Finance Corporation** – should be retained and augmented in coming years. The **Powering Australia** policy implementation will be critical to ensure the Australian Government, industry and community work together to support Australia's transition to net zero. This is where the National Reconstruction Fund, including its **support for critical technologies**, could be a game-changer.

Parallel to the urgent need to transition to clean energy technologies is the need to inform our predictive capabilities and adaptation and mitigation strategies. The 2022 Intergovernmental Panel on **Climate Change Working Group II report** outlined the stark and urgent challenges amid the accelerating pace of climate change. Even with strong action, global warming is set to continue until at least mid-century. Preparedness, enabled by an ever-deepening understanding of Australia's unique ecosystems and environment, will be key to our ability to deal with this challenge.

Australia will need to deepen climate research capabilities to ensure national preparedness for more frequent and dangerous extreme weather and environmental hazards. We need to enhance our ability to predict and build resilience to escalating storms, heat waves, floods and bushfires. Our unique biodiversity, our agricultural industries – and the wellbeing of all Australians – depend on it.

To this end, we need to invest more deeply in our climate scientists – those researching our land, water, oceans and atmosphere. We need to constantly improve our understanding of how climate has changed in the past, as well as our ability to model the future changes. Science & Technology Australia advocates for a boost to Commonwealth support for climate science research and the research infrastructure essential to climate science capabilities. This will augment the Government's commitment to climate action, particularly given our important role as a research leader in our region, and southern hemisphere climate science.

Science & Technology Australia recommendation 10:

Push Australia's investment in R&D closer to 3 per cent through a targeted boost to climate science research and clean energy technologies. This would not only contribute to the ambition of boosting R&D investment, but also help safeguard Australia's future in the face of escalating climate change hazards.

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