The University of Sydney submission to the Department of Industry, Science and Resources, *National Reconstruction Fund* Consultation Paper, February 2023

Thank you for the opportunity to make a brief submission in response to the National Reconstruction Fund (NRF) Consultation Paper, released by the Department on 30 November 2022.

The University of Sydney wishes to place on the record its strong support for the NRF's objective of providing a substantial dedicated source of long-term capital that will - subject to the passage of the enabling legislation through Parliament - become available for strategic investments to strengthen Australia's sovereign manufacturing capability in areas of identified national priority.

We are excited about working with all relevant Commonwealth government agencies, industry partners and other stakeholders to maximise outcomes from the NRF, which we hope will become a highly successful and important part of Australia's innovation ecosystem.

We have significant research, research training and educational strengths in fields relevant to the seven NRF priority investment areas (renewable and low emission technologies; medical science; transport; value-add in the agriculture, forestry and fisheries sectors; value-add in resources; defence capability, and enabling capabilities [engineering, data science, AI, robotics, quantum, fintech and edtech]).

Our disciplinary capability in these areas is leveraged by our strengths in other relevant fields including IT, the social sciences, law and the humanities, as well as our local and global networks and partnerships. This allows us to apply multidisciplinary collaborative approaches to complex problems and the opportunities provided by global advances in knowledge and technology.

We provide the following high-level points for consideration as the Department thinks through issues including: the content of the NRF Investment Mandate legislative instrument; the membership of the Corporation's Board; potential focus areas for the Board's advisory committees; and the types of projects that the NRF should focus on to build stronger pathways for Australian R&D and to encourage greater levels of private investment in priority areas.

1. NRF independence

We strongly support the Government's decision to ensure, via legislation, that the NRF Corporation and Board will operate at arms-length from Government, within a clear policy framework that will be set and updated periodically through the Ministers' joint Investment Mandate covering the fund.

We welcome the Government's commitment to transparency and agree wholeheartedly that better long-term outcomes are likely if NRF investments are made according to clear directions and transparent processes, which are set and overseen by an expert independent Board operating within the policy priorities and parameters set by the government of the day.

2. Academic involvement in the NRF's design and governance

We support Universities Australia's recommendation that there is appropriate academic representation on the NRF Reference Group, which will guide the fund's development and the preparation of its Investment Mandate.

We also recognise that the NRF Board will be small (four to six members maximum) and skills-based. In our experience, however, targeted support for technology development and research risks creating and entrenching silos, which do not communicate or work together effectively. Communication and information sharing across the public/private R&D commercialisation continuum is highly beneficial to the process of innovation.

Universities generate IP for start-up companies, spinouts and licensing by established firms, but they are often absent from the downstream design and manufacturing processes that would accelerate local commercialisation. As one of the objectives of the NRF is to help boost the commercialisation of technology

developed by Australia's public universities, the Board of the NRF Corporation would be strengthened by the inclusion of academic expertise.

This would be achieved through the appointment of a highly regarded, innovation-focused academic researcher or leader with demonstrated significant success in commercialising Australian university R&D, and with an in-depth understanding of our higher education system and relevant government programs covering research, infrastructure, research training, commercialisation and industry collaboration.

If there is not room on the NRF Board for such representation, the Investment Mandate should encourage the NRF Board to establish a committee to provide expert cross-cutting advice about how NRF investments can be applied most effectively to improve commercial outcomes from Australian university research.

3. Investment risk tolerance

We understand that the NRF has been established recognising that the private sector's appetite for investment in riskier projects in national priority areas is lower than what is required if Australia is to grow new industries with high-value jobs, and reduce our susceptibility to supply chain shocks like those laid bare by the pandemic.

To address this *market failure*, we would expect the NRF's investment risk tolerance to be significantly higher than the private sector's and superannuation funds, while also taking a much longer-term perspective of the timeframe by which the NRF should be producing returns that are sufficient to cover its borrowing and operating costs.

We note that the Clean Energy Finance Corporation Investment Mandate Direction requires its Board to target an average return of at least the five-year Australian Government bond rate, plus three to four per cent annually over the medium- to long-term. This seems reasonable although the additional long-term average annual rate of return target could be lowered if the cost of administering the NRF can be kept to below three per cent of funds invested.

4. Alignment with other Commonwealth research commercialisation programs

We welcome and agree with the statements in the Consultation Paper that the NRF will complement (and not duplicate) existing Government initiatives that support innovation, early-stage R&D, and commercialisation. In this regard, we note and commend Minister Clare's advice, when reintroducing the enabling legislation for the *Australia's Economic Accelerator* (AEA) in December 2022, that the AEA program has been designed to align with the NRF's seven investment priority areas.

The AEA arises from a review of university research commercialisation commissioned by the former Government, which responded directly to recommendations from the University of Sydney and others by announcing a new funding program to help progress research projects with high commercial potential into products or services that show viability for investment and industry partnerships. The AEA is another most welcome new Commonwealth initiative, which should help bring forward more technologies developed by Australian universities to the point of readiness for assessment by the NRF for investment to support their commercialisation.

Given the heavy commitment of NRF funds for renewables and low emissions technologies ($3 billion) and medical manufacturing ($1.5 billion) the NRF must operate to complement or leverage the activities of the Clean Energy Finance Corporation (CEFC), the Biomedical Translation Fund (BTF) , and CSIRO - Main Sequence Ventures. It will also need to complement other Commonwealth programs that support research commercialisation and industry/university collaboration including those administered by the Australian Research Council (ARC), the National Health and Medical Research Council (NHMRC), the Medical Research Future Fund (MRFF), the Department of Education, the Department of Defence and other Commonwealth agencies.

5. The types of projects the NRF should support

Projects that have received other Commonwealth funding support

Investment proposals that demonstrate a track record of support from other Commonwealth programs at earlier stages, as well as strong levels of industry/university collaboration through the research and proof-of-concept stages to market readiness, should be prioritised for NRF investment. Such start-up, spinout or

licensing projects arising in national priority areas have clearly demonstrated both Government and industry support. Signalling in the NRF Investment Mandate that projects with these origins will be prioritised should incentivise government agencies to think long-term and strategically about how their programs link with others, and feed into potential downstream NRF investment. It would also send a strong signal to industry around the potential capital-raising benefits of collaborating with universities earlier in the R&D process.

Like the CEFC, the NRF should also seek to leverage co-investment and support from private equity in new manufacturing technology start-ups and spinouts, as well as proposals from firms to pursue projects that are not 'business as usual'. Co-investment projects involving equity or other support from public Australian universities, State or Territory Government agencies or funds should be permitted explicitly.

Projects that support State and Territory Government industry and regional development priorities

While we understand that the NRF investment decisions will be made primarily through an industry priority lens, we support the Consultation Paper's indication that alignment of potential investment outcomes with other Government policy priorities including net zero targets, sustainability and circularity principles, regional development and others will also be important criteria. The NRF's prospects of contributing to industry and regional transformation will be maximised if its Investment Mandate directs or encourages the NRF to coordinate its investments with the aligned priorities of State and Territory governments. Here we note, for example, the strong alignment between the NRF's industry priority areas, with those of the NSW Government as set out in its 20-Year R&D Roadmap, Accelerating R&D Action Plan the Future Economy Fund and its Priority Growth Areas and Precincts.

Projects that support building human capital and linkages between firms, universities and enablers

Finally, we encourage the Department to consider the Productivity Commission's recent findings about the diffuse ways by which research translation and innovation occurs, including the critical importance of firms' workforce skills in determining their ability to innovate through the application of new technologies.

We agree with the Commission that people - their skills and networks - are the key to innovation and productivity improvements, and about the risks inherent in policy approaches that focus narrowly on supporting the linear conception of research commercialisation.

We also agree with the Commission's recommendation that to strengthen diffusion, government support for building workforce skills needs to broad-based and focused on building transferable skills as well as the movement of people and information between firms and sectors. Here, the Government's new Industry PhD and Fellowship programs are welcome developments, which we hope will integrate with the NRF, the AEA and other programs to boost industry/university collaboration and the uptake of new technologies.

A firm in receipt of NRF support should not, for example, be prevented from using some of the NRF funding to invest in programs like the Industry PhDs and Fellowships, or other activities involving universities, for example in NSW: the Sydney Quantum Academy; innovation districts like Tech Central in the Sydney CBD; RNA and other modern manufacturing initiatives, which seek to boost the skills available in the State's workforce so that local firms can better develop or take advantage of emerging technologies.

As the Commission also notes, however, facilitating skilled migration must continue to play an important role in removing shorter-term workforce barriers to the diffusion of technology across Australia's economy.[1]

We trust this high-level feedback is helpful and look forward to working with the Department and other stakeholders to ensure the NRF's success.

Please do not hesitate to contact Tim Payne, Director, Higher Education Policy and Projects, Office of the Vice-Chancellor and President, tim.payne@sydney.edu.au 02 9351 4750 in the first instance, if the Department would like to discuss with the University of Sydney any aspect of the NRF or this submission.

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[1] Productivity Commission, Productivity Review, Interim Report 3, Innovation for the 98%, released 26 September 2022, Chapter 2 Enabling Innovation and Diffusion in Australia, p.21-52.