Minister's Approval for Mid-Career Industry Fellowships for Funding Commencing in 2024 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Indicative Funding ($)				Total ($)	Industry Partner(s)
		2024-25*	2025-26*	2026-27*	2027-28*		
(Columns 1 and 2)	(Column 3)	(Column 4)	(Column 5)	(Column 6)	(Column 7)	(Column 8)	(Column 9)
Australian Capital Territory							
The Australian National University							
IM240100006 Byrt, A/Prof Caitlin S	**Bioengineering technologies for harvesting rare earth elements from waste** This project aims to optimise the function of components that enable rare earth elements (REEs) to be harvested from waste. REEs are needed for building clean energy technologies and electronics. Demand for REEs exceeds supply and REEs are lost in industrial wastes. This project is expected to provide avenues for recycling the REEs that are currently lost in mining and electronic wastes. The approach involves identifying, testing and engineering selective components derived from REE-accumulating plants and microorganisms. The components will be used to advance separation technologies, enabling differential harvesting of target REEs from complex mixtures. Reuse of REEs from waste is key to energy sustainability in the future.	282,910.00	282,910.00	282,910.00	282,910.00	1,131,640.00	RIO TINTO LIMITED, MEMBRANE TRANSPORTER ENGINEERS PTY LTD
	National Interest Test Statement The uncommon magnetic, luminescent, and electrical properties of rare earth elements make them valuable for manufactured products and industrial applications, specifically in renewable energy generation and storage. Globally the availability of the rare earth elements (REEs) used in manufacturing electronic technologies is insufficient to meet the demand for these critical resources. To meet REE demand new technologies are needed that enable recycling and recovery options for these elements. This project aims to create a separation system for harvesting the REEs that are currently lost in mining and electronic wastes. Working with mining industry and biotechnology companies, we will develop selective proteins for REE recycling systems inspired by nature. This will grow Australian based REE recycling and reuse industries, creating jobs in multiple sectors across the economy, improving the affordability of technologies required for transitioning to net zero carbon emissions, and benefiting the environment by reusing REEs from wastes. The technology could then be further expanded to enable recycling of other valuable elements, further reducing waste and increasing efficiency in many industries. Research outcomes will be translated into commercial element recycling systems and outcomes will be shared through media and magazine articles and industry expos.						
IM240100216 Karuturi, A/Prof Siva	**Revolutionising Electrolysers for Low-Cost Green Hydrogen Production** This project aims to develop an efficient and cost-effective membrane-free microelectrode (ME) electrolyser for hydrogen production to accelerate the adoption of green hydrogen in global decarbonisation. It expects to pioneer innovative designs to produce compact ME cells that overcome the limitations of traditional electrolysers. Expected outcomes include a commercial-ready electrolyser technology with ultra-high efficiency, rapid manufacturability, and reduced use of crucial metals. The anticipated benefits include affordable green hydrogen at scale, contributing to achieving net-zero emission targets, promoting advanced manufacturing techniques, and establishing Australia as a leader in the global green hydrogen industry.	277,421.00	282,121.00	277,352.00	277,352.00	1,114,246.00	FORTESCUE FUTURE INDUSTRIES PTY LTD
	National Interest Test Statement The project is focused on developing an innovative electrolyser technology for green hydrogen production in Australia. It addresses challenges associated with existing energy-intensive and costly electrolysers, proposing a disruptive approach to enhance efficiency, reduce costs and improve manufacturability, thereby accelerating the adoption of green hydrogen in global decarbonisation. Successful implementation of this technology could make green hydrogen cost-competitive with fossil fuels, advancing Australia's hydrogen manufacturing capability at a Gigawatt scale. It aligns with the National Hydrogen Strategy, leveraging Australia's abundant solar and wind resources. This research could benefit Australia economically by making green hydrogen affordable, environmentally through decarbonisation, and commercially by fostering a sovereign hydrogen manufacturing capacity. It may capture a substantial share of the global green hydrogen market, estimated to be a multi-trillion dollar market by 2050. Collaborating with Fortescue Future Industries, a key industry player, the project ensures alignment with real-world needs, swift commercialisation, and market penetration, allowing for effective translation into tangible outcomes.						
	The Australian National University	560,331.00	565,031.00	560,262.00	560,262.00	2,245,886.00	
	Australian Capital Territory	560,331.00	565,031.00	560,262.00	560,262.00	2,245,886.00	

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New South Wales							
The University of New South Wales							
IM240100052 Koshy, A/Prof Pramod	**Optically Tunable Functional Nano-Coatings on Fly Ash-Based Ceramics** This waste reutilisation project develops a novel nanotechnology of coated fly ash particles to simulate titania as paint pigment/filler. The strategy uses a novel high-temperature injector fluidised bed reactor to make tunable coatings of graded SiO2/ZnO/TiO2 layers of increasing refractive index to enhance total internal reflection and scattering to increase whiteness and opacity; doping of the TiO2 neutralises colour and reduces paint chalking. These advanced nanoscale coated materials are a new direction for a long-term partnership between the CI and KIP in materials development. The laboratory- to pilot-scale manufacturing extension will enable high-volume use in paints generating significant economic and environmental outcomes.	274,410.00	277,410.00	275,410.00	250,410.00	1,077,640.00	VECOR TECHNOLOGIES PTY LTD
	National Interest Test Statement There is increasing focus on environmental remediation and waste resource utilisation to combat issues of pollution and resource availability. Even with decreasing reliance on coal-fired power, there remains the need to remediate >18 megatonnes (MT) of the coal combustion by-product fly ash, which are stockpiled in landfill/tailings ponds/silos in Australia, leading to issues for land use and environmental contamination. There also are issues for titania, of which Australia has the major global reserves, which are costs (>A$2,800/tonne), strategic importance (national security), and environmental risks (acid processing). The project aims to address these problems by converting a low-value product (fly ash) into one of high-value (titania simulant). The initial target is as a pigment/filler in paints, the global industry of which is valued at A$251 billion p.a., although many other major markets are possible such as polymers. This nanotechnology involves the design of a new system for the engineering of fly ash scaffolds into advanced ceramics by sequential coating, heating, and reaction in a single integrated unit. These tunable nanoscale coatings are designed to mimic the shape and optical properties of titania while enhancing the whiteness and opacity, reducing paint chalking, and reducing costs. This work is projected to utilise up to 1 MT p.a. of fly ash while reducing reliance on titania by up to 1.25 MT p.a., resulting in both economic and environmental imperatives.						
	The University of New South Wales	274,410.00	277,410.00	275,410.00	250,410.00	1,077,640.00	
The University of Newcastle							
IM240100061 Maguire, A/Prof Amy M	**How can Australia deliver its commitments to human rights reform?** This project seeks to address core challenges for human rights reform identified by the Australian Human Rights Commission (AHRC). It aims to deliver new knowledge about law reform in Australian and international systems and a first ever study of human rights indices, forming the evidence base for Australian policy- and law-making. Expected outcomes include a world-class national human rights index to measure Australia's human rights performance, best-practice human rights education programs, and an AHRC Research Alliance to promote continuing cross-sector collaboration. Benefits include enhanced protections, especially for the most vulnerable, and a more preventive approach to rights, making Australian society fairer and more cohesive.	280,410.00	302,410.00	288,410.00	276,410.00	1,147,640.00	AUSTRALIAN HUMAN RIGHTS COMMISSION
	National Interest Test Statement The Australian Government has committed to human rights reform. This project aims to ensure that the new Australian human rights system reflects international best practice and delivers maximum benefit for Australians, especially for our most vulnerable. Through new comparative research into human rights reform in Australian and international legal systems, the project will provide the evidence base for Australian law-makers to pass a world-standard Human Rights Act. The project also offers a first-ever study of human rights indices – tools to measure how well a country meets its human rights obligations – that will inform the design of a national human rights index to help Australian governments constantly improve human rights protections. Project outcomes will underpin a stronger, pro-active human rights system that delivers social and cultural benefits for Australians, including better housing security, equitable access to education, fairer health and aged care systems, more focus on the best interests of children, plus economic benefits that flow from social cohesion. Research outcomes will be promoted to the Australian community and public sector workers via new human rights education programs delivered by the Australian Human Rights Commission (AHRC). This will help make human rights part of Australia's DNA and						

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	promote a strong human rights culture. AHRC-led governmental and civil society engagement will promote take-up of research outcomes by law- and policy-makers.						
IM240100197 Wheeler, Prof Craig A	**Developing a Step Change in Bulk Material Handling and Transportation** Every ton of bulk material (Iron Ore, Coal, Copper and Gold Ore, etc) exported from Australia, at some stage, is transported by belt conveyors. This project will deliver a step change improvement to conveying technology and halve the energy used to handle and transport our most valuable export commodities. The new technology merges the benefits of both belt conveying technology and rail to produce a continuous low rolling resistance bulk material transportation system. Advanced models and novel experimental equipment will be developed to model this new innovative system to ensure safe, efficient and reliable design. **National Interest Test Statement** The economic wealth of Australia is heavily dependent on resource-based industries, notably those associated with mining, mineral production and energy. To assist these industries to decarbonise and meet net-zero emission targets, while delivering increased productivity, step change improvements in the handling and transport chains must be made. Every ton of bulk material (Iron Ore, Coal, Copper and Gold Ore, etc) mined, at some stage is transported by belt conveyors which, due to the interaction of idler rolls and the rubber belt, are 10 times less efficient than rail transport. This project addresses this limitation by developing a hybrid rail and belt conveying technology that provides a step change improvement to the underlying principle of conveying technology. The Rail-Running Conveyor uses less than 50% of the power of existing belt conveyors, and in many cases consumes less power operating fully loaded, than a conventional belt conveyor running empty. This project will develop methods to model this new technology and in collaboration with FLSmidth translate the research outcomes into a range of new highly efficient bulk material transportation systems. Considering more than 50% of mines have 25 to 100 km in length of belt conveyors, the potential economic and environmental benefits are significant.	285,703.00	285,703.00	285,703.00	269,703.00	1,126,812.00	FLSMIDTH PTY LTD
	The University of Newcastle	566,113.00	588,113.00	574,113.00	546,113.00	2,274,452.00	
The University of Sydney							
IM240100177 Chen, Prof Yuan	**The utilisation of carbon materials from methane pyrolysis** Methane pyrolysis is a promising low-emission hydrogen production method that directly splits natural gas or biogas into hydrogen and solid carbon. However, a technological gap exists in dealing with solid carbon. This project aims to economically utilize carbon coproducts from catalytic methane pyrolysis using low-cost Australian iron ore catalysts. Carbon structures will be optimised during synthesis, and a new electrochemical purification method will be scaled up to obtain high-purity carbon materials. Value-added applications of unpurified and purified carbon coproducts will be demonstrated for wastewater treatment and different types of batteries, reducing solid waste and enabling significant cost offsets for hydrogen production. **National Interest Test Statement** Hydrogen is used in many industrial processes that underpin our economic prosperity. The current industry releases ten tonnes of carbon dioxide for each tonne of hydrogen produced – unsustainable. Methane pyrolysis can split natural gas or biogas into hydrogen and solid carbon without generating carbon dioxide. Through the long-term collaboration of the Industry Fellow and Key Industry Partner, advances have been made in using low-cost Australian iron ores as catalysts for catalytic methane pyrolysis. However, for each tonne of hydrogen produced, three tonnes of solid carbon materials are produced. They currently have to go to landfill as solid wastes. This Mid-Career Industry Fellowship will enable the development of new technologies to make onion-like carbon structures with graphitic carbon shells. This carbon product will be used as recyclable adsorbents and catalysts to degrade harmful organic contaminants in wastewater. They will also be purified into high-purity graphite materials using a new low-cost electrochemical purification method. The purified carbon products will make fast-charging lithium-ion batteries and new sodium-ion batteries. Selling these carbon products will reduce waste generation and offset hydrogen production costs. Much work is underway on this problem around the world; cracking it will enable Australia to take the lead on this path to tomorrow's economic and environmental security.	289,708.00	299,608.00	311,282.00	251,016.00	1,151,614.00	HAZER GROUP LIMITED, NANJING YUANCHANG ADV. MATER. CO. LTD.
IM240100224 Kim, Prof Jinman	**Enhancing Multidisciplinary Team Meetings via AI-Enabled Data Assimilation** Multidisciplinary team meetings (MDTs) involve multiple members discussing their relevant data for collaborative decision-making. MDTs improve outcomes, but they are	254,873.00	261,803.00	269,976.00	0.00	786,652.00	ROYAL PRINCE ALFRED HOSPITAL

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	time and resource intensive with complex data preparation, integration, presentation and then summarisation. The project aims to innovate in artificial intelligence algorithms to automatically prepare, integrate, visualise, and summarise MDT data. A Hospital is an excellent microcosm for MDTs where image data are usually the centrepiece for discussion. This project expects to produce a software framework to enhance collaborative decision-making and efficiency. This should benefit healthcare industry and have wide applicability for MDTs across other industries.						
	National Interest Test Statement						
	Multidisciplinary team meetings (MDTs) bring multiple team members (experts, juniors, staff) together to review the data for collaborative decision-making in a range of setting including hospitals, city planning, finances, astrophysics and structural biology. A key limitation is that current MDTs' format is constrained due to the time and resource intensive needs in complex data preparation, data integration, presentation, and then summarisation. While MDTs are a preferred option in these co-working settings for decision-making, there use is selective and restricted due to this limitation. This project leverages artificial intelligence technology to provide simplified, robust, and efficient data preparation solution, enabling new collaborative tools, and automated summarisation for MDTs. A Hospital is an excellent microcosm for MDTs where image data are usually the centrepiece for discussion and it will be the setting for the research. The research will be conducted in a secure and privacy preserving manner. The research outcomes will lead to improved decision-making and efficiency in MDTs. This new capability will give Australian healthcare industry a competitive advantage and ultimately improve the wellbeing of all Australians. The project deliverables include a software framework and a repository with modules / tools / applications that will be tested in the key industry partner's research environment and made available to the public for further adoption into practice.						
	The University of Sydney	544,581.00	561,411.00	581,258.00	251,016.00	1,938,266.00	
University of Wollongong							
IM240100126	**Building Tools to Create Molecular Complexity for Next Generation Drugs**	300,273.00	274,208.00	274,208.00	242,341.00	1,091,030.00	PHARMAXIS LTD
Hyland, A/Prof Christopher J	This Fellowship aims to solve manufacturing challenges in the pharmaceutical industry by enabling the development and production of hard-to-make complex molecules, which display better safety profiles and are often more potent pharmaceuticals. This Fellowship will close the academia-industry innovation gap to solve this problem through the deployment of advanced catalytic reaction technology. The benefits will be increased competitiveness of the Australian pharmaceutical industry, access to better medicines and industrial training of an Industry Fellow to ensure long-term academia-industry collaboration.						
	National Interest Test Statement						
	The proposed research will link the University of Wollongong, and the Australian pharmaceutical company Pharmaxis to deliver new chemical tools for the Australian Pharmaceutical industry. These new tools will make previously inaccessible or difficult to make molecules available for exploitation in commercial settings and do so in an environmentally sustainable fashion. Critically, this will expand the industry product pipeline and upgrade chemical manufacturing ability in Australia. The Fellowship will provide industry-relevant training to the Fellowship holder and the joint PhD student and direct academic research to industry-relevant problems in chemical and pharmaceutical manufacturing. The research is designed to lead to ongoing collaboration with the partners, and the approach will be expanded to other companies in the future.						
	University of Wollongong	300,273.00	274,208.00	274,208.00	242,341.00	1,091,030.00	
Western Sydney University							
IM240100048	**A platform for multifaceted climate-adaptive building envelopes**	269,324.00	283,962.00	283,962.00	283,962.00	1,121,210.00	INFRATECH INDUSTRIES PTY LTD, MODERN GLAZING GROUP PTY LTD
Sharafi, A/Prof Pejman	This project aims to develop an innovative, modular product platform for offsite manufacturing of climate-adaptive building façades. Using interdisciplinary approaches and industry know-how, it will generate a core family of plug-and-play components and interfaces, complemented by integrated energy-efficient and -harvesting technologies to enhance heating, cooling, lighting, energy use, and comfort. Outcomes will include new						

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	knowledge about eco-conscious façade product design and manufacturing, and a range of adaptive façade products for different climates and markets. Benefits will be commercial opportunities for Australian companies, reduced energy consumption and carbon emissions in construction, and more climate-friendly buildings.						
	National Interest Test Statement						
	This project will develop new technologies to reduce the environmental impacts of buildings, in their construction and ongoing performance. The envelope (e.g., walls, windows) contributes the majority of the total carbon emissions and energy performance of a building. Despite advances in energy-efficient materials, there is a lack of integrated envelope systems adaptable to different climates and markets. To address this shortcoming, the project will create a modular platform for producing the next generation of climate-adaptive envelopes that effectively harnesses multifaceted eco-friendly technologies and seamlessly integrates them into new or renovated buildings. The project will help make this resource-intensive sector more environmentally sustainable, contributing to our emission targets for 2030/2050 by promoting more circular construction processes and climate-responsive technologies. It will also position Australian companies as key players in the growing market for climate-friendly building envelopes, enabling them to design and manufacture innovative façade products for diverse climatic conditions. Project outcomes will be immediately adopted and ultimately commercialised by industry partners. The product platform and associated design/manufacturing processes will be the subject of joint IP arrangements. Industry partners will receive training to expedite knowledge transfer, nurturing their capacity to scale up and to initiate an innovation ecosystem in the sector.						
	Western Sydney University	269,324.00	283,962.00	283,962.00	283,962.00	1,121,210.00	
	New South Wales	1,954,701.00	1,985,104.00	1,988,951.00	1,573,842.00	7,502,598.00	

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Queensland							
Queensland University of Technology							
IM240100165 Couperthwaite, Prof Sara J	**Mineral processing in a fossil fuel free world** This project aims to address the challenge of securing critical minerals for the energy transition amidst declining fossil fuel supplies. The urgency stems from the Paris Agreement's mandate to limit global warming to 1.5°C and IEA's net-zero emissions by 2050. The research seeks to overcome barriers associated with the current dependency of fossil fuels in mineral processing through the development of adoption pathways for hydrochloric acid processing for critical mineral recovery, battery-grade mineral production and demonstration of renewable energy integration. The project's outcomes hold significance in expediting mineral processing, decoupled from fossil fuels, to secure a supply of critical minerals for the energy transition.	275,000.00	270,000.00	260,000.00	260,000.00	1,065,000.00	LAVA BLUE LTD
	National Interest Test Statement The proposed research will develop sovereign capabilities to secure critical minerals from mine tailings for the energy transition. It will advance knowledge and technologies in hydrochloric acid mineral processing to overcome the challenges of traditional sulfuric acid processing at risk of supply line disruptions with global decarbonisation. Sustainable critical mineral processes are on the “List of Critical Technologies in the National Interest” as a supply of these minerals are essential for a successful energy transition. Reuse of mine tailings will significantly reduce the environmental impact of already effected areas and minimise further land and community disruptions in the search of new critical mineral resources. The translation of the research will be in the form of intellectual property licenses to resource companies who need to evolve into battery and advanced materials processing, but don’t have the time or technical capabilities to de-risk processes and scale up to industrial production. Adoption by multiple primary producers will enhance Australia's economic resilience, reduce dependence on imports, and stimulate local industries, contributing to overall economic prosperity. In particular, it will promote jobs and economic growth in regional communities of Australia, legacy sites, and build a skilled workforce in both mineral processing and battery manufacturing industries. Success will position Australia as a responsible global supplier of critical minerals.						
IM240100202 Sun, Prof Ziqi	**Generating green hydrogen from mining wastes** This project aims to convert waste from the mining industry into direct energy materials as effective catalysts for green hydrogen production from water splitting. The goal will be achieved by tailing activation, catalytic activity evaluation, tailing-based catalysts mass-production, real water performance assessment, and bench-top hydrogen electrolyzer fabrication. The outcomes of this project will provide a sustainable solution to the significant problem of the disposal of waste from the Australian mining industry, supply affordable hydrogen to Australian energy industry, and offer a tangible approach towards Australia's National Hydrogen Strategy and the zero-carbon emission goal of Australia’s Long-Term Emissions Reduction Plan by 2050.	278,557.00	283,028.00	287,508.00	287,508.00	1,136,601.00	PURE POWER TECH PTY LTD, SCHNELL ENERGY PTY LTD
	National Interest Test Statement Research on sustainable fuel generation is urgently needed to meet the target of net zero emissions of Australia by 2050. This proposal seeks to generate clean hydrogen from mining tailing-converted catalysts. The sustainable generation of green hydrogen, however, can only happen with the help of catalysts, which unfortunately suffer from the issues of high-cost and low-efficiency. This project will produce high-performance but low-cost catalysts from mining industry wastes for the production of hydrogen without emissions. The breakthroughs in catalysts achieved in this project will be translated into building hydrogen industries as a part of National Hydrogen Strategy and positioning Australian as a leader in clean energy technologies. This project hence will advance cutting-edge sustainable technologies and contribute to the reduction of CO2 emissions and preservation of the environment both nationally and internationally.						
	Queensland University of Technology	553,557.00	553,028.00	547,508.00	547,508.00	2,201,601.00	
The University of Queensland							
	Measuring the prevalence of vaping and illicit tobacco in Australia						

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IM240100018 Thai, A/Prof Phong K	There is significant public concern about increased nicotine vaping among young Australia's and a growing illegal tobacco market in Australia. This project aims to use a wastewater-based epidemiology approach to establish a world leading program to monitor the prevalence of illicit vaping and illicit tobacco use in the Australian population. The project expects to demonstrate the effectiveness of integrated wastewater-based epidemiology approach in improving our understanding of the impact of tobacco control and tax policies on vaping and illegal tobacco markets. The expected outcomes include building government capacity to objectively measure the prevalence of the illicit consumption of controlled substances beyond nicotine.	290,000.00	290,000.00	264,910.00	266,910.00	1,111,820.00	QUEENSLAND HEALTH, AUSTRALIAN TAXATION OFFICE, AUSTRALIAN CRIMINAL INTELLIGENCE COMMISSION
	National Interest Test Statement Australia has been leading the world in tobacco control but progress in reducing tobacco smoking has been threaten by illegal vaping and illicit tobacco. However, relevant agencies, including the Departments of Health and the Australian Taxation Office, lack the reliable estimates of the illicit vaping and tobacco market to develop appropriate control policies. Using advanced research in wastewater-based epidemiology in combination with complementary data sources from the Industry Partners, this project expects to deliver a new estimation method that provide reliable estimates of vaping and illicit tobacco markets. This will benefit Australia economically and socially, as it will allow cost-effective monitoring of the level of illegal vaping and tobacco in Australia that have cost tens of billions of dollars to society and human health. This information is vital for public health and law enforcement agencies to develop timely interventions to interrupt the illegal trades for a fairer and healthier Australia. This research will be translated into practice through engaging and sharing the findings with the Industry Partners. The outcomes of this project contribute directly to the effort of Queensland Health to understand the extent of vaping in young population and of the Australian Taxation Office to establish a valid approach to estimate the tax gap due to illicit tobacco, as indicated in the response of the Government to the Parliamentary Inquiry into Illicit Tobacco.						
IM240100053 Li, Dr Li	**Sustainable Transformation of Agricultural Waste into High-Value Substrates** This project aims to transform agricultural waste into low-cost, high-quality substrates and soil amendment products for the agricultural industry using advanced sustainable release technology. This will be achieved by developing controlled-release cellulose-nanoclays with precision-tuned nutrient release and water retention, offering a sustainable and eco-friendly solution for mushroom cultivation and crop growth. The project is expected to create new commercial opportunities and advance local production of value-added agricultural products, foster a circular economy, and promote environmental sustainability. By advancing agricultural waste management, it will also help position Australia as a global leader in sustainable agriculture.	290,410.00	295,410.00	295,410.00	0.00	881,230.00	KENON CORPORATION PTY LTD
	National Interest Test Statement Australia's sustainable agriculture industry faces three key challenges: inefficient utilisation of nutrients from the substrates, a high-cost local supply chain, and ineffective waste management. This project aims to find innovative solutions to these issues for the mushroom industry and the broader agricultural sector and create a circular system in which value can be derived from waste. The project will develop low-cost, high-quality growth substrates and soil amendment products from agricultural waste through advanced sustainable release technology. This will be achieved by creating low-cost, controlled-release cellulose-nanoclay composites with the precision-tuned nutrient release, advanced water retention and pH maintenance capabilities. The controlled-release substrate technology will help to reclaim value from waste, supporting Australia's goal to achieve 80% recovery from waste streams by 2030. This project is expected to deliver breakthrough knowledge and capacity for efficient nutrient utilisation and sustainable agriculture development and develop Australian-produced substrates and soil amendment products from agricultural waste. This innovative technology will facilitate the growth of a circular economy and environmental sustainability within the agricultural sector while minimising waste landfill. Through these advancements, Australia can position itself at the forefront of sustainable agriculture and waste reduction initiatives, both nationally and globally.						
	The University of Queensland	580,410.00	585,410.00	560,320.00	266,910.00	1,993,050.00	
	Queensland	1,133,967.00	1,138,438.00	1,107,828.00	814,418.00	4,194,651.00	

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South Australia							
Flinders University							
IM240100160 Banks, Dr Eddie W	**Future-proofing Australia's groundwater supplies using hydrogeophysics** The aim of this Fellowship is to drive advancements in hydrogeophysics – which quantifies and bolsters understanding of shallow subsurface processes and properties – to help future-proof Australia's groundwater supplies. The project will develop improved and novel hydrogeophysical techniques for solving groundwater supply and contamination challenges that are relevant to Australian industry. It will harness the expertise of geophysics partners to increase industry knowledge as well as optimise and commercialise innovative methodologies to manage groundwater more robustly. Translating research into practice will increase uptake of these new techniques and technologies, replacing existing inefficient and invasive industry practices.	259,273.00	283,231.00	291,304.00	235,341.00	1,069,149.00	LOUPE GEOPHYSICS PTY LTD, VISTA CLARA INC, COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION
	National Interest Test Statement In Australia, groundwater is increasingly being used as a reliable and secure water supply. However, reductions in rainfall due to climate change and growing demands have led to a depletion of aquifer storage. This project addresses a critical knowledge and innovation gap in how Australians manage our finite groundwater resources. Novel hydrogeophysical technologies such as nuclear magnetic resonance, electromagnetic induction and seismic refraction will bring together hydrology, geophysics, geology and engineering to provide permeability measurements and porosity estimates that will be used as novel inputs to improved groundwater models for end-users, transforming current industry practices. A new joint Flinders University-Industry partner collaborative node, the Flinders Hydrogeophysics Node, will be established to drive research and development. Australians will benefit because this research will be translated through direct engagement with industry into industry up-skilling, leading to adoption of non-invasive methods to solve groundwater issues at spatial (and time) scales that are relevant for Australia. The opportunities for the water industry to capitalise on the integrated technologies will increase our shared understanding of our groundwater resources, improve economically and socially responsible groundwater development and optimize the contribution of groundwater to development and use of Australia's resources and management of our national energy transition.						
	Flinders University	259,273.00	283,231.00	291,304.00	235,341.00	1,069,149.00	
The University of Adelaide							
IM240100133 Wilkinson, Prof Kerry L	**Unlocking the potential for winemaking applications of membrane filtration** The methods currently used to achieve clarification and stabilisation of wine are slow, energy intensive, and waste wine. New methods that 'finish' wine rapidly, with higher recovery rates, and reduced waste and input costs are therefore needed. This project aims to drive profitability in the Australian wine sector by accelerating the uptake and adoption of membrane filtration as an innovative alternative to unsustainable winemaking practices. A key driver of the success achieved by our wine industry has been the application of modern technology to an otherwise traditional product category. To remain successful, industry requires new knowledge, new technical solutions, and a well-educated workforce – these are key outcomes of this project.	281,720.00	276,600.00	289,160.00	294,160.00	1,141,640.00	VAF MEMSTAR, AUSTRALIAN WINE RESEARCH INSTITUTE, HILL-SMITH FAMILY ESTATES
	National Interest Test Statement In winemaking, clarification and stabilisation processes are routinely performed post-fermentation to 'finish' wines, ensuring adverse changes do not occur between bottling and consumption. However, conventional methods are not sustainable. They are slow, energy-intensive, and often involve the use of additives ('fining agents') that create waste, and result in significant wine volume losses and/or the partial loss of desirable sensory attributes. By accelerating the uptake and adoption of innovative 'membrane technologies', this fellowship aims to develop efficient, low-cost, waste-free technical solutions to replace conventional clarification and stabilisation processes. Expected outcomes include new knowledge and innovative practices that will 'finish' wines rapidly, with higher recovery rates, and reduced waste and input costs, thereby enhancing wine quality and profitability. This fellowship will unlock the full potential of membrane filtration technology to deliver significant economic and environmental benefits to our wine industry. Roadshows, held nationally with support from regional wine associations, will ensure key findings are disseminated broadly across the sector, and will afford winemakers the opportunity to evaluate research outcomes first-hand, via technical wine tastings. This will facilitate the translation of research outcomes						

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(Columns 1 and 2)	(Column 3)	2024-25* (Column 4)	2025-26* (Column 5)	2026-27* (Column 6)	2027-28* (Column 7)	(Column 8)	(Column 9)
	into commercial practice, positioning Australia at the forefront of modern winemaking.						
	The University of Adelaide	281,720.00	276,600.00	289,160.00	294,160.00	1,141,640.00	
University of South Australia							
IM240100086 Cooper, Dr Bethany L	**Building public trust in technologies to secure Australia's water future** This project aims to identify the most workable solutions to the challenge of explaining why new water-related technologies are needed to guarantee the prosperity and health of the Australian community. We expect to understand the key features that drive public trust and acceptance of wastewater monitoring, as well as the purification of recycled water. Both offer important public benefits but carry with them the risk of community backlash. Using leading-edge, economic techniques the project's outcome will be the development of the first tool for predicting public trust in water technologies. Expected benefits from the project include more affordable and sustainable urban water supplies and protection of community health and wellbeing.	274,250.00	279,478.00	273,522.00	0.00	827,250.00	MELBOURNE WATER CORPORATION, WATER RESEARCH AUSTRALIA LIMITED, SYDNEY WATER CORPORATION, ESSENTIAL SERVICES COMMISSION
	National Interest Test Statement This project will enable Australia to secure the water it needs for growing cities and regions in the face of climate change and increased concerns about water quality and health. Australia needs a range of solutions to its future water challenges, but some – such as the reuse of reclaimed water – are difficult to implement because of public reluctance around its use. The on-going monitoring of wastewater for a range of risks, including infectious disease and illicit substances, is also threatened by rising public concerns about surveillance. This project provides the water sector with the essential knowledge it needs to overcome these hurdles and thereby build public trust that enables surety in the quality and quantity of water. It provides an essential enabler, protecting the health of our communities while reducing the risk of economic and social disruption. This collaborative project will develop a customised tool for measuring and predicting public trust in water-related technologies. It will assist the sector make choices that preserve trust while meeting often-competing health, environmental and economic demands. Working closely with major water utilities, peak industry bodies and regulators, the tool will be translated nationally and drive efficiency gains, while building public support for actions that need to be taken. It will deliver improved economic, environmental and health outcomes while maintaining Australia's credentials as a leading water innovator.						
	University of South Australia	274,250.00	279,478.00	273,522.00	0.00	827,250.00	
	South Australia	815,243.00	839,309.00	853,986.00	529,501.00	3,038,039.00	

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Victoria							
Monash University							
IM240100062 Willoughby, A/Prof Louisa J	**Transforming Auslan education in Australia** This project aims to develop innovative and enduring resources for Auslan teaching. Australia has a acute skills shortage in sign language teaching. This project is a novel interdisciplinary collaboration with Deaf Auslan teachers that aims to build their capacity to apply linguistic insights in their own teaching. Expected outcomes include new knowledge of how to effectively teach sign languages, evidence-based teaching resources, training materials about Auslan in Auslan and a National Network delivering preservice Auslan teacher training, ongoing professional learning and a resource hub. Anticipated benefits include professionalising Auslan teaching, improving student learning and creating a more inclusive Australia for Deaf people.	315,267.00	309,137.00	294,623.00	0.00	919,027.00	MELBOURNE POLYTECHNIC, DEPARTMENT OF EDUCATION
	National Interest Test Statement Australia has an Auslan education crisis. Not enough teachers are available to meet demand for classes and no training pipeline exists for new or current teachers to improve their skills. This project aims to address this crisis by partnering with Deaf Auslan teachers and organisations to develop innovative and enduring resources for Auslan teachers. It will generate new knowledge in the globally under-researched area of sign language teaching and create enduring partnerships and mobility between universities and Auslan teachers. The project will uncover skills and practices needed to effectively teach sign languages along with evidence-based teaching resources and training materials about Auslan in Auslan. It will also create a national network delivering preservice training to Auslan teachers, ongoing professional learning activities and a resource hub. The benefits of the research include professionalising Auslan teaching, improving student learning and retention and creating a more inclusive Australia for Deaf people						
	Monash University	315,267.00	309,137.00	294,623.00	0.00	919,027.00	
RMIT University							
IM240100042 Jalili, Prof Mahdi	**Integration of electric vehicles into the grid: A net-zero carbon future** The project aims to develop machine learning technologies to improve integration of electric vehicles into the grid. The energy and transport sectors contribute to more than 75% of the emissions and energy distributors have a critical role in supporting the uptake of electric vehicles and all-electric buildings. Expected outcomes include digital and data-driven technologies to identify EV charging profiles and use vehicle-to-grid technology to support the grid. The outcomes will enable electricity distributors to accommodate massive demand required by the electrification movement, whilst maintaining reliability and affordability of the electricity supply. This will provide significant benefits in the transition to a net-zero future.	287,410.00	287,410.00	287,410.00	287,410.00	1,149,640.00	POWERCOR AUSTRALIA LTD, CENTRE FOR NEW ENERGY TECHNOLOGIES LTD
	National Interest Test Statement Large-scale electrification of the energy and transport sectors can have significant load consequences to the electricity grid. It is estimated that Australia needs to double electricity generation by 2050 – all from renewables – to meet the zero-emission targets. No system of coordinated charging exists at present and presents as a significant obstacle in getting grid infrastructure ready for wide-spread uptake of electric vehicles. In collaboration with industry partners, this project will develop novel digital tools and machine learning technologies to future-proof the distribution grids in accommodating massive electrification loads. The project outcome will be a suit of data-driven engineering and decision-making technologies to enable energy distributors to identify electric vehicle loads, coordinate their charging, and use their battery as energy storage to support the grid. These technologies will enable the network planners to minimise the network investments required to accommodate mass electric vehicle uptake, thus keeping affordability of network tariffs under control for everyday energy consumers. The project will also provide data-informed policy inputs to support smooth uptake of electric vehicles in Australia. The CI's relationships with industry through previous and existing projects as well as the co-design of the project with the industry partners will support industry adoption and ensure that the technologies will be put into industry practice quickly.						

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	RMIT University	287,410.00	287,410.00	287,410.00	287,410.00	1,149,640.00	
The University of Melbourne							
IM240100016 Volkova, Dr Liubov	**Smoldering coarse woody debris and air quality** This project aims to develop and translate the first continental-scale tool to address the dynamics of coarse woody debris (CWD: logs, branches and stumps), which are a major source of smoke and fine particle emissions from smouldering combustion during fires. This will be achieved by establishing a spatially explicit, nation-wide dataset of CWD loads and then combining it with process-based biogeochemical modelling, and information on CWD combustion efficiency in relation to size, species and decay classes. The new tool will be used in the Australian Air Quality Forecasting System to deliver an early warning of smoke emissions risk during bushfires and prescribed burns for improved human health, economic and environmental benefits	318,537.00	271,458.00	249,910.00	0.00	839,905.00	COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, AFAC, DEPARTMENT OF CLIMATE CHANGE, ENERGY, THE ENVIRONMENT AND WATER
	National Interest Test Statement Ever-more frequent and extensive bushfires in Australia are leading to serious smoke emissions with unprecedented consequences in terms of public health and economic losses. Accurate air quality predictions are essential to help protect Australia's people and its economy. Coarse woody debris (CWD, i.e., logs, branches on the forest floor) are the major source of fine particle and smoke emissions from smouldering combustion; yet there is a lack of understanding about how much CWD is in our forests and how much is combusted and emitted to the atmosphere during fires. This project will provide policymakers, regional and state governments with new knowledge and a robust tool tackling the dynamics of CWD for inclusion in the Australian Air Quality Forecasting System, as well as supporting emergency services and local economies about potential impacts of smoke. Application of the tool will lead to high prediction accuracy of fire impacts on both air quality and carbon emissions. Close and effective collaboration with our industry partners (CSIRO, the Australasian Fire and Emergency Service Authorities Council, and a key Commonwealth Department) will enable national testing and roll-out – hence supporting decision-making at all levels of governance in agencies dealing with fire emissions, health and safety. Data and algorithms developed in this project will be available via repositories to maximise understanding, translation, use and extension of the research in the future.						
IM240100046 Clarke, Dr Hamish	**Decision support for climate-adapted bushfire risk mitigation** As climate change intensifies bushfire risks, there is an urgent need for fire management tools that remain effective in a warming world. This project aims to optimise the delivery of current risk mitigation tools and identify pathways to develop new tools across fuel management, suppression and community engagement. This research is expected to generate new knowledge to support climate-adapted bushfire risk mitigation across multiple, sometimes competing values. The project goal is to transform the capacity of the country's leading fire agencies to embed climate change into their decision-making, setting a global standard for climate-adapted fire management and leading to improved outcomes for human health, the economy and the environment.	242,370.00	313,085.00	310,267.00	285,328.00	1,151,050.00	DEPARTMENT OF ENERGY, ENVIRONMENT AND CLIMATE ACTION, VICTORIAN COUNTRY FIRE AUTHORITY, NATURAL HAZARDS RESEARCH AUSTRALIA
	National Interest Test Statement Bushfires pose significant threats to Australian communities, industries and the natural environment. Climate change is widely recognised as a bushfire risk multipler, but a large gap remains between the scientific research and its implementation in fire management. There is a poor understanding of whether current fire management approaches will be effective in a warming world. This project aims to develop pathways to a sustainable fire future, providing fire management agencies with concrete tools to integrate climate change information into their policies, practices and investment decisions. This project will be jointly designed and delivered with fire managers, ensuring the project aligns with industry goals and standards and maximising the uptake of project findings throughout the agencies. Partners in this project are key industry leaders and our collaboration will generate practical fire management strategies for a warming climate, influencing fire agencies throughout Australia and worldwide, reducing bushfire risks to people and delivering significant benefits to communities, the economy, and the environment.						
IM240100073 Simpson, A/Prof David A	**Next generation diamond quantum sensors for future industries** This project aims to commericialise a diamond-based quantum magnetic sensor, pioneered in Australia with applications in a range of industry sectors including healthcare, mining, space, defence, automation, and manufacturing. The project outcomes will be Australia's most sensitive vector magnetic field sensor operating under ambient conditions	330,000.00	320,000.00	250,000.00	230,000.00	1,130,000.00	PHASOR INNOVATION PTY. LTD., COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

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	with unprecedented stability and accuracy. The sensor will be applied for magnetic navigation in GPS-denied environments, underground/undersea object detection and classification and earth/space-based geomagnetic surveys. The Fellowship will drive economic benefits through training of quantum engineers and the creation of start-up companies that can design and manufacture quantum devices in Australia. **National Interest Test Statement** Quantum magnetic sensors are an advanced sensor technology that can sense changes in magnetic fields very accurately and are used in many applications including navigation, minerals exploration, space and biomedical applications. This project capitalises on a recent scientific breakthrough in diamond based magnetic sensing technology that will enable autonomous navigation platforms to be augmented with accurate and stable quantum systems. This is particularly critical for operational environments where traditional GPS is jammed, denied or unavailable. The Fellowship aims to address the scientific and engineering challenges to progress the quantum sensing technology into a minimum viable product. This will seed new application areas and open new commercial markets. The sovereign quantum technology has been pioneered in Australia and leverages significant government investment which allows the technology to be fast-tracked and commercialised with industry partners Phasor Innovation and CSIRO. The project team and sensing technology were highlighted in Australia's National Quantum Strategy and the work outlined here is strongly aligned with the future strategic capability requirements of Defence and Pillar Two of the trilateral AUKUS agreement. The project will ensure Australia can maintain its global competitive advantage in diamond-based quantum technologies and will drive economic benefits through the training of new quantum engineers and the creation of start-up companies.						
IM240100129 Goodger, Dr Jason Q	**Beneficial flavonoids from eucalypt plantations** This project aims to develop the systems and tools required to establish eucalypt plantations for commercial production of flavonoid natural products. It is expected to generate new knowledge on valuable antimicrobial flavonoids found in eucalypts. Outcomes will include selection of species with high levels of particular flavonoids, production of seed orchards and improved plantations for sustainable leaf harvesting, and characterisation of the molecular mechanisms of flavonoid biosynthesis in plants. This should help expand an industry based on a largely untapped property of Australian trees, provide significant benefits to regional communities growing and harvesting plantations, and ultimately help us address microbial pathogen resistance **National Interest Test Statement** Microbes causing severe disease in humans and agricultural animals are increasingly resistant to antibiotics. It is critical to find alternative therapies to help manage this significant worldwide problem. Plants contain natural antibiotics and Australia's native flora is a large and underutilised resource of such potential therapeutics. The global market for plant natural products is expanding rapidly and Australia can capitalise on this by commercialising novel therapeutics found in our unique plants. This project will help a regional industry expand to use eucalypt flavonoids as antibiotic alternatives. This will be achieved through close collaboration with industry to optimise selection of species with commercially viable quantities of flavonoids, plantation establishment and harvesting practices. Importantly, eucalypts can be grown on marginal agricultural land in short-rotation coppice cultivation in which plants resprout after harvesting. This system provides the added advantages of maintaining carbon in roots and helping control soil erosion. In addition, flavonoids can be extracted from harvested leaves in an environmentally benign way, avoiding the use of toxic chemicals. This project will benefit Australia economically and environmentally, providing growth and job opportunities in regional communities. Research outcomes will be promoted by further collaboration with industry and funding bodies, and intellectual property protected to enable commercial translation	274,543.00	261,014.00	269,509.00	0.00	805,066.00	GRETALS AUSTRALIA PTY LTD, SPECIALITY TREES PTY LTD
	The University of Melbourne	1,165,450.00	1,165,557.00	1,079,686.00	515,328.00	3,926,021.00	
	Victoria	1,768,127.00	1,762,104.00	1,661,719.00	802,738.00	5,994,688.00	

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		2024-25*	2025-26*	2026-27*	2027-28*		
(Columns 1 and 2)	(Column 3)	(Column 4)	(Column 5)	(Column 6)	(Column 7)	(Column 8)	(Column 9)
Western Australia							
Curtin University							
IM240100147 Ellis, Prof Kathleen M	**Digital Disability Inclusion: design lessons from COVID-19** This project aims to understand the impact of inclusively designed digital media and communication on Australians with disability. Significant new knowledge about the innovative designs and methodologies developed during the COVID-19 pandemic is expected. Expected outcomes include codesigned digital inclusion protocols, guidelines, and communication strategies. It should benefit people with disability, disability organisations, media and government by creating a roadmap to ensure COVID-19 digital innovations are translated to improve digital inclusion and meet Australia's Disability Strategy 2021-31 priorities.	290,000.00	240,000.00	240,000.00	270,000.00	1,040,000.00	CENTRE FOR INCLUSIVE DESIGN
	National Interest Test Statement Twenty per cent of Australians identify as having a disability. For people with disability digitisation can be a key enabler but can also perpetuate the exclusions they experience within society. This is because we still do not fully understand the broad and individual needs of people with disability. In collaboration with the Centre for Inclusive Design, this project examines how people with disability managed digital access and engaged with digital messaging during the COVID-19 pandemic. It does so with a view to investigating how innovations and insights from this time can be translated more widely to improve digital inclusion. This project will provide evidence-based recommendations, in the form of protocols, guidelines and redrafted strategies, for government, industry and community groups who have been tasked with creating digital platforms to address the challenges faced by people with disability. The research, created with people with disability, will be shared with key disability groups and bodies to build a robust roadmap that will ensure Australian digital industries and policy makers have a clear understanding of the scope and potential pathways for inclusive design. These findings will ensure Australia can extend access to communication technologies in line with the Australian Disability Strategy 2021-2031 and meet our obligations under the United Nations Convention on the Rights of Persons with Disability.						
	Curtin University	290,000.00	240,000.00	240,000.00	270,000.00	1,040,000.00	
The University of Western Australia							
IM240100158 Kariman, Dr Khalil	**Novel Biofertiliser for Sustainable Agriculture: Tackling Phosphorus Crisis** Shortage and rising prices of phosphorus (P) fertilisers pose major threats to global food security. We discovered a novel symbiosis in which the native fungus Austroboletus occidentalis significantly improves P nutrition of crops by tapping into soil residual P bank. This project aims to i) characterise growth and nutritional benefits of this new biofertiliser for major food and biofuel crops, ii) explore its other potential benefits and formulations, and iii) conduct multi-year field trials to quantify grain yield benefits of the biofertiliser. Expected outcomes would pave the way for broadacre application of this biofertiliser, leading to reduced use of synthetic P fertilisers, enhanced food security and environmental sustainability.	269,967.00	262,665.00	265,640.00	269,854.00	1,068,126.00	SUMMIT RURAL (WA) PTY LIMITED, PERTH FOOD BOWL CORPORATION PTY LTD
	National Interest Test Statement This research project aims to develop a novel biofertiliser based on an Australian native fungus, addressing a critical gap in crop production: shortage of phosphorus (P) fertilisers. Annually, approximately US$61 billion worth of inorganic P fertilisers are applied worldwide, but 80-90% of it becomes inaccessible to plants due to soil reactions. This new biofertiliser acts as a bridge between crop roots and the P treasure trapped in field soils, enabling farmers to reduce application of expensive P fertilisers, increasing crop yields, and lowering food production costs. With Australia importing around 400,000 tonnes of P fertilisers annually, this proposal enhances national food supply security and aligns with the National Agricultural Innovation Agenda, driving economic growth. The global biofertiliser market was valued at US$2.6 billion in 2021 and is projected to reach US$3.8 billion by 2025 (a 46% increase). Beyond innovative science, this project promotes the adoption of this eco-friendly biofertiliser technology in Australia and worldwide. Moreover, supporting crops used in production of biofuels and sustainable aviation fuels, the research will contribute to combating climate change by reducing CO2 emissions. Overall, this research offers a promising natural solution to the poor-use efficiency and atrocious environmental impact of synthetic P fertilisers, significantly benefiting Australians in terms of food security, economic growth, and environmental protection.						

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IM240100196	**Resilient free-space optical precise positioning and time synchronisation**	303,034.00	308,406.00	0.00	0.00	611,440.00	QUANTX LABS PTY LTD
Schediwy, A/Prof Sascha W	The aim of this Industry Fellowship is to demonstrate optical precise positioning and time synchronisation across free-space links for the first time. The project will achieve this feat by bringing together cutting-edge optical technologies to enable a globally unique translation opportunity. The expected outcome of this Fellowship will be the world-first demonstration of optical precise positioning and time synchronisation between a transportable ground terminal and an aircraft. This a key validation for medium-term commercialisation opportunities for a terrestrial optical precise positioning and time synchronisation system, and a critical steppingstone to a next-generation, resilient, space-based position, navigation, and timing network.						
	National Interest Test Statement Accurate time synchronisation is of vital importance to modern society. Notably, time synchronisation is critical for the operation of the Global Positioning System (GPS), which is used daily by most of the world's population. However, GPS is susceptible to spoofing and jamming, and its performance is falling critically short for many emerging applications. This project will demonstrate a new method of time synchronisation that is more secure and more accurate than current systems. The project will achieve this by combining several cutting-edge optical technologies that have been translated from other areas of science. The demonstration will put Australian industry at the forefront of precision timing technologies and provide our Defence agencies with a blueprint for a next-generation, secure, national positioning, navigation, and timing system. The combination of unique technologies from academia and industry, provide the project with globally unique translation and commercialisation opportunity that would otherwise not be possible.						
	The University of Western Australia	573,001.00	571,071.00	265,640.00	269,854.00	1,679,566.00	
	Western Australia	863,001.00	811,071.00	505,640.00	539,854.00	2,719,566.00	
		7,095,370.00	**7,101,057.00**	**6,678,386.00**	**4,820,615.00**	**25,695,428.00**	

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