

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2020 Schedule

Approved Organisation, Leader of Approved Research Program (Columns 1 and 2)	Approved Research Program (Column 3)	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$) (Column 10)	Industrial Transformation Priorities (Column 11)	International Collaboration (Column 12)	Partner Organisation(s) (Column 13)
		2019-20 (Column 4)	2020-21 (Column 5)	2021-22 (Column 6)	2022-23 (Column 7)	2023-24* (Column 8)	2024-25* (Column 9)				

New South Wales

University of Wollongong

IH200100005 Zulli, Dr Paul	The Hub's overarching goal is to support the transition of Australia's steel manufacturing industry to a more sustainable, competitive and resilient position based on the creation of new, higher value-added products and more advanced manufacturing processes. It anticipates delivering original, innovative research designed to enable a necessary technological shift in the supply chain through integrating advanced enabling technologies in large and small businesses, developing step-change performance in anti-corrosion treatments and coating lines, generating more functional and durable products, and increasing resource intensities. It expects to train a more skillful and diverse workforce that will be critical in achieving this transformation.	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00	Advanced Manufacturing	France, Canada, Sweden, United States of America, Germany	BLUESCOPE STEEL LIMITED, INFRABUILD WIRE PTY LIMITED, LIBERTY PRIMARY STEEL, ARCELORMITTAL MAIZIÈRES RESEARCH SA, BISALLOY STEELS PTY. LTD., AUSTRALIAN STEEL INSTITUTE LTD, THE AUSTRALIAN INDUSTRY GROUP, WELD AUSTRALIA
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National Interest Test Statement

A globally competitive domestic steel manufacturing industry is a strategic asset for Australia's nation-building, economic growth and employment. The domestic industry must continue to provide a secure, flexible and high-quality local source of steel and products for infrastructure and construction, manufacturing, mining and agriculture. The Hub's research programs focus on transforming the level of innovation and resilience across the entire Australian steel supply chain. The programs are designed to realize a strategic technological shift in Australian steel manufacturing, based on research leading to the creation of new, higher value-added products and more technologically advanced processes. The delivered research outcomes will directly impact on the competitiveness and future growth of large and small steel-related businesses. In turn, these will positively affect key societal challenges such as sovereignty risk mitigation, providing affordable housing and quality infrastructure, developing longer-lasting materials, recycling of resources, and training a more skillful, capable and diverse workforce.

University of Wollongong	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00
New South Wales	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00

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Victoria

Deakin University

IH200100035 Chen, Prof Ying I	This Research Hub addresses safety and reliability issues, and environmental impact of current energy storage and conversion technologies. The research will deliver a new generation of technologies for storage from small scale portable devices to large scale industrial applications, using recycled and natural materials, and eliminating the serious fire risk in current technologies. Outcomes include innovative integrated energy conversion and storage technologies and new energy materials and devices designed for different scale applications, leading to creation of start up companies and commercialisation opportunities for existing partners, benefiting both the Australian economy and potentially transforming the energy industry landscape.	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00	Oil, Gas and Energy Resources	United States of America, China (excludes SARs and Taiwan), France, Japan, Korea, Republic of (South)	HAZER GROUP LIMITED, CRESWICK QUARTZ LTD, TDA GOLDEN FIELD IP PTY LTD, BOLT TECHNOLOGIES CO., LTD, DLG BATTERY CO. LTD., HBIS GROUP CO., LTD., ZHUOYUE POWER NEW ENERGY LTD., OXFORD CROWN DEVELOPMENTS PTY LTD, SICONA BATTERY TECHNOLOGIES PTY LTD, SUSTAINABLE ENERGY EQUITIES PTY LTD
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National Interest Test Statement

This Research Hub brings together Australian and international research organisations with a broad range of industry partners to develop together innovative solutions to challenges facing current energy storage and conversion technologies. By addressing current known issues using innovative and diverse approaches, this Hub will strategically position Australia as a leader in the emerging energy storage and conversion space, ensuring Australian industry can maintain a competitive advantage and leverage a unique mineral wealth position in this critically important sector. The development of all solid-state batteries will make Australia the world's battery leader in terms of renewable energy storage. The project success will deliver high-energy density and high safety energy storage for electrical vehicles, enable efficient utilisation of renewable energies, address global environmental concerns, and accelerate the development and commercialisation of renewable energy technologies in Australia, which is of great significance to Australia's energy and environmental security, as well as its economic growth.

Deakin University	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00
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RMIT University		500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00	Advanced Manufacturing	Sweden, United States of America, China (excludes SARs and Taiwan), England, Japan	AUSTRALIAN ROAD RESEARCH BOARD, BRIMBANK CITY COUNCIL, KINGSTON CITY COUNCIL, HOBSONS BAY CITY COUNCIL, INCONMAT AUSTRALIA, COMPOSITE REINFORCEMENT SOLUTIONS (CRS) PTY LTD, MACDONALD LUCAS PTY LTD, ARUP PTY LIMITED, ROCKET C PTY LTD, AUSTRALASIAN CIRCULAR TEXTILE ASSOCIATION, BIOELEKTRA AUSTRALIA PTY LTD, SEBASTIAN PROPERTY SERVICES PTY LTD, UNIVERSAL VORTEX INDUSTRIES PTY LTD, FUTURE INNOVATIVE TECHNOLOGY PTY. LTD., LICHENERGY PTY LTD, WUHAN GEOYUAN GEOTECHNICAL ENGINEERING CO LTD., SHENZHEN YUEZHONG GREEN BUILDING SC-TECH DEVELOPMENT CO LTD., AGL ENERGY LIMITED, MUNICIPAL ASSOCIATION OF VICTORIA, DEPARTMENT OF TREASURY AND	
IH200100010 Setunge, Prof Sujeeva	This project aims to create new knowledge to reduce waste going to landfills and transform reclaimed waste into new materials for use in construction and other manufacturing sectors. It integrates multisector input and multidisciplinary academic research to address ten challenging waste streams. Expected outcomes are smart materials, socio-technical change, accelerated testing methods, predictive modeling, circular life cycle costing and a trusted evidence base. Outcomes will lead to commercial benefits as well as jobs and a significant contribution to addressing the pressing environmental impacts of waste production, management, and re-use.											

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											FINANCE, DOWNER EDI WORKS PTY LTD, GEELONG MANUFACTURING COUNCIL, CEMENT CONCRETE & AGGREGATES AUSTRALIA, DEPARTMENT OF ENVIRONMENT AND SCIENCE, TYRE STEWARDSHIP AUSTRALIA LIMITED, SUSTAINABILITY VICTORIA, TWEED SHIRE COUNCIL, HALOK PTY LTD, ENVIRONMENT PROTECTION AUTHORITY VICTORIA, INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALASIA QUEENSLAND DIVISION INC, ASH DEVELOPMENT ASSOCIATION OF AUSTRALIA, OUROBORUS PTY LTD

National Interest Test Statement

Through a comprehensive government-industry-academic collaboration, this research hub will deliver novel solutions for reclaiming Australia's waste resources. It will achieve this by (1) developing a trusted evidence base to drive procurement decisions for sustainable products, materials, processes and behavioural practices (2) remove barriers for the uptake of solutions and (3) drive a transition in industry technologies, operations and practices. With Australian landfills expected to be at capacity by 2025 and governments urgently seeking solutions to the waste management crisis, the outcomes from this hub will enable Australia to progress towards a circular economy and contribute to the UN's sustainable development goals. This project will help legislators develop implementable, evidence-driven guidelines for the safe use of recycled materials in civil infrastructure. It will also demonstrate the integration of these materials, manufacturing, and construction technologies to deliver solutions to reduce the severe shortage of materials in Australia's construction industry.

RMIT University 500,000.00 1,000,000.00 1,000,000.00 1,000,000.00 1,000,000.00 500,000.00 5,000,000.00

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The University of Melbourne											
IH200100023 Chen, Prof Deli	This Hub aims to transform agriculture by delivering a new class of nitrogen (N) fertilisers and inhibitors designed to stem the 50-80% losses to the environment in current products. It is intended to generate new knowledge and valuable intellectual property in controlled released and coated N fertiliser products using a novel co-design process involving representatives of the whole value chain from product design through to validation and adoption. The project estimates possible 20% gains in efficiency of N use, delivering large costs savings, improved productivity, increased profitability and decreased environmental impacts, helping the Australian food and agribusiness sector to reach its 2030 target of \$100B value added.	495,000.00	990,000.00	990,000.00	990,000.00	990,000.00	495,000.00	4,950,000.00	Food and Agribusiness		INCITEC PIVOT LIMITED, ELDERS RURAL SERVICES AUSTRALIA LIMITED
National Interest Test Statement		Food and agribusiness is critical to Australia's economy, with annual gross value added of \$67.2B, \$41.2B in exports and employing 552,500 Australians. Primary producers are facing rising costs and declining prices. Increased efficiency and productivity are essential to international competitiveness and profitability. The current generation of nitrogen (N) fertilisers lose 50-80% of N to the environment causing economic loss and negative environmental impacts. This Hub seeks to transform the efficiency of N use in intensive agricultural production delivering possible 20% gains based on leading controlled release and coating technology. The benefits to the Australian economy and community are substantial: -Enabling primary producers to be more efficient leading to growth in the sector and jobs -Increasing farm profitability with positive flow on effects throughout the economy, particularly in rural and regional communities -Reducing the impact of N on ecosystems, biodiversity and reducing greenhouse gas emissions -Creating a competitive advantage for Australia's fertiliser industry through superior products.									
The University of Melbourne		495,000.00	990,000.00	990,000.00	990,000.00	990,000.00	495,000.00	4,950,000.00			
Victoria		1,495,000.00	2,990,000.00	2,990,000.00	2,990,000.00	2,990,000.00	1,495,000.00	14,950,000.00			

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Western Australia

The University of Western Australia

IH200100009 Watson, Prof Phillip G	This Research Hub will harness the strengths of data-based and physics-based sciences to transform the operation of Australia's offshore energy infrastructure. This essential research will create, use and embed observations of past and ongoing activity to engineer tools and approaches necessary to enhance our understanding of the offshore environment, optimise critical operations for existing facilities (including installation and maintenance), and efficiently design future infrastructure. The integrated multidisciplinary approach will not only help Operators achieve high productivity through low downtime and optimised maintenance, but also demonstrate, in research and industry, the transformative potential of digital engineering.	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00	Oil, Gas and Energy Resources	England, United States of America, Singapore	INPEX AUSTRALIA PTY LTD, SHELL AUSTRALIA PTY LTD, WOODSIDE ENERGY LTD., BUREAU VERITAS - FRANCE, LLOYD'S REGISTER GLOBAL TECHNOLOGY CENTRE PTE. LTD, FUGRO AUSTRALIA MARINE PTY LTD, WOOD GROUP KENNY AUSTRALIA PTY LTD, THE AUSTRALIAN INSTITUTE OF MARINE SCIENCE, BUREAU OF METEOROLOGY
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National Interest Test Statement

Australia's offshore energy industry adds over \$55B of gross value each year to the economy, supporting more than 98,000 direct jobs (and 10 times this number indirectly). As the industry shifts to long-term operations it is critical that it acts to lower the cost of future production. This project will fuse data science techniques with engineering, leveraging industry acquired and experimental data, in order to transform the management of critical energy infrastructure (such as pipelines, structures and vessels) - making this process cheaper and yet more reliable. In so doing, it will assist Australian companies to cost-effectively maximise LNG export volumes, safely manage assets while minimising environmental risk, and train data science enabled engineers with exportable skills - ready to lead digital transformation of the energy sector. These outcomes will benefit the national economy by generating strong tax revenue, attracting ongoing investment, and seeding long-term employment. The skills developed will also be readily transferable to other industries, such as marine renewable energy and aquaculture.

The University of Western Australia	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00
Western Australia	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00
	2,495,000.00	4,990,000.00	4,990,000.00	4,990,000.00	4,990,000.00	2,495,000.00	24,950,000.00