Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2023 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure ($)			Indicative Funding ($)			Total ($)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
		2022-23 (Column 4)	2023-24 (Column 5)	2024-25* (Column 6)	2025-26* (Column 7)	2026-27* (Column 8)	2027-28* (Column 9)				
(Columns 1 and 2)	(Column 3)							(Column 10)	(Column 11)	(Column 12)	(Column 13)

Queensland

Queensland University of Technology

| IH230100005 Chen, Prof Zhi-Gang | **ARC Research Hub in Zero-emission Power Generation for Carbon Neutrality** This Hub aims to develop sustainable zero-emission power generation technologies to transform gaseous waste (mainly CO2) from our energy and manufacturing sectors into valuable products and create scalable pathways to market for driving industry transformation. This Hub expects to harvest renewable energy from the environment by using zero-emission power generators and then store it in green and safer batteries for converting gaseous waste from sectors that cannot easily avoid emission into useful chemicals, which in turn realize carbon neutrality and negativity. The outcomes of this Hub are likely to be transformative for industry, the economy, and society in new-type renewable energy resources through decreasing environmental pollutants. | 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, Recycling and Clean Energy, Oil, Gas and Energy Resources | United States of America, Japan | SANDOS PTY LTD, PURE POWER TECH PTY LTD, GREATCELL ENERGY LIMITED, TIANJIN NAIBO TECHNOLOGY CO., LTD, HBIS GROUP CO., LTD., IMPRESARIO INVESTMENTS LIMITED, GLOBAL POWER GENERATION AUSTRALIA PTY LTD, GLOBIRD ENERGY PTY. LTD., WOOLTECH GROUP PTY LTD, JINKO SOLAR CO., LTD |

National Interest Test Statement

ARC Research Hub in Zero-emission Power Generation for Carbon Neutrality (ZeroPC) will develop game-changing zero-emission power generation and energy storage technologies and businesses for converting carbon dioxide into value-added products. The Hub, ZeroPC, will strengthen existing Australian research and manufacturing capability through the development of advanced technologies and innovative knowledge, which places Australia in a world-leading position. The hub's research, training, and engagement activities will bring new economic growth for the existing industries and lay the foundation for Australia to meet the net zero emissions targets by 2050. The benefits to Australia aim to stimulate new industries, a skilled workforce for those emerging industries, a clean environment, and a sustainable future.

Queensland University of Technology		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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(Columns 1 and 2)	(Column 3)	(Column 4)	(Column 5)	(Column 6)	(Column 7)	(Column 8)	(Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)

The University of Queensland

| IH230100006 Henry, Prof Robert J | **ARC Research Hub for Engineering Plants to Replace Fossil Carbon** This Hub aims to develop new plant varieties that enable sustainable production of sugars from crop 'waste' (plant biomass) as a base for renewable carbon products. Only now possible through emerging technologies, the Hub expects to translate extensive foundational research and world-leading expertise into cost-effective sustainable aviation fuel. Anticipated outcomes include diversified cropping opportunities for agricultural producers and new industries to convert the biomass to high-volume renewable products. The expected benefits include a decarbonised pathway for Australia's critical flight, freight and defence connections to world and the substantial economic returns and job creation from new manufacturing capacity in Australia. | 493,333.00 | 986,666.00 | 986,666.00 | 986,666.00 | 986,666.00 | 493,333.00 | 4,933,330.00 | Advanced Manufacturing, Food, Beverage and Agribusiness, Recycling and Clean Energy | United States of America, Denmark, India | JOINT BIOENERGY INSTITUTE , UNIVERSITY OF COPENHAGEN, DENMARK, QANTAS AIRWAYS LIMITED, PRAJ INDUSTRIES, SUGAR RESEARCH AUSTRALIA LIMITED, CARLSBERG RESEARCH LABORATORY, GENTECH SEEDS PTY LTD, FAR NORTHERN MILLING PTY LTD, COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, MILLENNIUM SCIENCE PTY LTD, PACIFIC BIOSCIENCES |

National Interest Test Statement

Replacing fossil carbon with renewable sources is an essential step in achieving net zero by 2050. Plant-based fuel to decarbonise the aviation industry is a well-established, verified technology; however, no one has been able to produce it at a cost that can compete with traditional fuels, preventing broadscale roll-out. This Hub aims to develop new crop varieties that provide an optimised starting point for cost-efficient, renewable carbon products, including sustainable aviation fuel (SAF), from plant 'waste', with no compromise to food production. Hub outcomes are expected to diversify market options to sustain and grow Australia's $2 billion sugarcane industry and enable the aviation sector, which contributes $69 billion gross value to the Australian economy, to operate within net zero targets. New Australian industries for the production of SAF are projected to create up to 15,600 jobs by 2050, most in regional areas. For rapid translation, the Hub integrates partners that span the production chain, from plant engineering to chemical manufacturing, and Qantas, the world's leading long-distance airline.

The University of Queensland		493,333.00	986,666.00	986,666.00	986,666.00	986,666.00	493,333.00	4,933,330.00			
Queensland		993,333.00	1,986,666.00	1,986,666.00	1,986,666.00	1,986,666.00	993,333.00	9,933,330.00			

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		2022-23 (Column 4)	2023-24 (Column 5)	2024-25* (Column 6)	2025-26* (Column 7)	2026-27* (Column 8)	2027-28* (Column 9)				
(Columns 1 and 2)	(Column 3)							(Column 10)	(Column 11)	(Column 12)	(Column 13)

Victoria

Monash University

| IH230100010
Yu, Prof Aibing B | **ARC Research Hub for Smart Process Design and Control**
ARC Research Hub for Smart Process Design and Control aims to develop and apply advanced computational technologies to model and optimise complex multiphase processes by integrating the novel multiscale and AI modelling approaches. The outcomes include theories, computer models and simulation techniques, advanced knowledge about process modelling and optimisation, innovative technologies and processes for low carbon operations, and tens of postdoc and PhD students through academic, industrial and international collaboration. Their application will significantly improve energy/process efficiency and reduce CO2 emission. The Hub will generate a significant impact on the mineral and metallurgical industries which are important to 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 | Mining Equipment, Resources Technology and Services, Critical Minerals Processing, Oil, Gas and Energy Resources, Advanced Manufacturing, Recycling and Clean Energy | Netherlands, Japan, France, China (excludes SARs and Taiwan) | HAMERSLEY IRON PTY. LIMITED, BAOSTEEL COMPANY, BRADKEN RESOURCES PTY LIMITED, FUJIAN LONGKING CO LTD, JIANGSU INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE , JIANGXI UNIVERSITY OF SCIENCE AND TECHNOLOGY |

National Interest Test Statement

Mineral and metallurgical industries are critical to Australia's economy - one of the world's largest exporters of iron ore, bauxite, alumina, coal and many other resources. These industries suffer from low efficiency and reliability and increasing pressure to reduce harmful environmental impacts. The hub will develop novel, smart, low-carbon technologies that will help transform Australia's mineral and metallurgical industries by improving efficiency and increasing profitability. These technologies will benefit industry partners through commercialisation opportunities, as well as enable increased exports and revenue from raw materials and products. The research and collaborations of the Hub will greatly increase the knowledge base critical to these industries, and enhance Australia's position in the forefront of particulate and multiphase research. The Hub will train over 40 of the next generation of research scientists and qualified engineers needed to meet the continuous challenges in cost reduction and efficiency improvement in these core industries.

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| Approved Organisation, Leader of Approved Research Program (Columns 1 and 2) | Approved Research Program (Column 3) | Estimated and Approved Expenditure ($) | | | Indicative Funding ($) | | | Total ($) | Industrial Transformation Priorities | International Collaboration | Partner Organisation(s) |
		2022-23 (Column 4)	2023-24 (Column 5)	2024-25* (Column 6)	2025-26* (Column 7)	2026-27* (Column 8)	2027-28* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
IH230100011 Zhang, Prof Lian	**ARC Research Hub for Value-Added Processing of Underutilised Carbon Waste** This Hub aims to advance upcycling technologies and associated regulatory and social engagement for processing underutilised carbon waste within Australia. Its anticipated goal is to deliver value-added products, and improved technology readiness levels for full exploitation of carbon wastes from agriculture, tyres and plastics. It will also train a large talent pool providing interdisciplinary knowledge and entrepreneurial skills for post-hub commercialisation. The Hub will benefit rural Australia by transforming local job markets and manufacturing capability. Ultimately, this Hub will make a significant contribution towards achieving Australia's National Waste Action Plan goal by 2030, and a circular economy for a sustainable future.	492,459.50	992,121.00	999,661.50	1,000,000.00	985,806.00	485,806.00	4,955,854.00	Recycling and Clean Energy	United States of America	ADVANCED FUEL INNOVATION PTY LTD, GRAPHENEX PTY LTD, HYDROGEN 2.0 PTY LTD, HBIS GROUP CO., LTD., ADVANCED CARBON ENGINEERING PTY LTD, SOUTHERN OIL REFINING PTY LTD, PLASTIC OCEANS AUSTRALASIA LTD., TULLY SUGAR LIMITED, CHEMISTRY AUSTRALIA, SUSTECH ENGINEERING PTY. LTD., EASTERN METROPOLITAN REGIONAL COUNCIL, WATER CORPORATION

National Interest Test Statement

This Hub seeks to address the pressing accumulation of carbon wastes such as scrap tyres, plastic and crop waste that are either sent overseas, to landfill, or stockpiled, causing detrimental environmental impacts. The upcycling technologies developed by this Hub will help to reclaim value from waste, supporting Australia's goal to achieve 80% recovery from waste streams by 2030 and ultimately transition to a circular economy. The Hub's experts, industry partners and council cover the full value chain and will work together to advance the technology readiness level, promote technology uptake, advise on policy and regulations, and educate the next-generation of researchers needed for Australia to be at the forefront of waste reduction and circular economy initiatives. The Hub will benefit regional communities through a focus on establishing social acceptance, restoring manufacturing and job opportunities and providing resilience against supply chain disruption. The products produced through upcycling will be valuable both locally and internationally and the technologies also have commercial potential.

Monash University	992,459.50	1,992,121.00	1,999,661.50	2,000,000.00	1,985,806.00	985,806.00	9,955,854.00	

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act

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		2022-23 (Column 4)	2023-24 (Column 5)	2024-25* (Column 6)	2025-26* (Column 7)	2026-27* (Column 8)	2027-28* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
(Columns 1 and 2)	(Column 3)										

Swinburne University of Technology

IH230100013 Georgakopoulos, Prof Dimitrios	**ARC Research Hub for Future Digital Manufacturing** This Hub aims to grow and accelerate Australian digital manufacturing (DM) transformation by devising novel DM technology and commercialisation/adoption pathways. The Hub expects to transform industry by developing novel AI and IoT-powered DM technology that provides for dramatic improvement in manufacturing productivity, resilience and competitiveness. Expected outcomes include novel DM technology for digitally representing, predicting, and improving production and its outcomes via an open platform that supports reusing industry co-created DM solutions. Through supporting advanced manufacturing priorities and Industry 4.0, the Hub should provide significant benefits by increasing Australian manufacturing productivity and resilience by 30%.	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, Food, Beverage and Agribusiness	United States of America, England, Austria, Singapore	COREX PLASTICS (AUSTRALIA) PTY. LTD., CHOBANI AUSTRALIA PTY LTD, CABLEX PTY. LTD., SUTTON TOOLS PROPRIETARY LIMITED, IDI LASER SERVICES PTE LTD, OPTUS NETWORKS PTY LIMITED, BALLUFF PTY LTD, ERATOS GROUP PTY LTD, SYSBOX PTY LTD, AUSTRALIA INNOVATION LABORATORIES PTY LTD, LOGAN CITY COUNCIL

National Interest Test Statement

Recent world events have exposed severe limitations in Australia's manufacturing capabilities and resilience to supply chain shocks, increasing energy costs and unplanned production stoppages. In response to these issues and in accord with the vision of industry 4.0, the ARC Research Hub for Future Digital Manufacturing aims to transform Australian digital manufacturing through dramatic improvements in manufacturing productivity, resilience and competitiveness. The Hub will develop novel digital representations for use in digital manufacturing solutions; enhanced ability to predict production outcomes and use those predictions to improve manufacturing processes; and support the co-design with industry of an open platform for the use and reuse of Hub outcomes and technologies in diverse manufacturing sectors, products, machines, and processes. Through collaboration with national and international partner organisations, the Hub outcomes will facilitate the growth and acceleration of Australian sovereign manufacturing capacity and capability across all manufacturing sectors.

	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Swinburne University of Technology	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
Victoria	1,492,459.50	2,992,121.00	2,999,661.50	3,000,000.00	2,985,806.00	1,485,806.00	14,955,854.00
	2,485,792.50	**4,978,787.00**	**4,986,327.50**	**4,986,666.00**	**4,972,472.00**	**2,479,139.00**	**24,889,184.00**

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act

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