

NERA

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NATIONAL
ENERGY RESOURCES
AUSTRALIA
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Annual Business Plan

2021 / 2022

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Board members

The following people are listed as members of the Australian Energy Resources Growth Centre as of 30 September 2021.

CHAIR

Australian Energy Resources Growth Centre Ltd

Ken Fitzpatrick

Chair

NON-EXECUTIVE DIRECTORS

Australian Energy Resources Growth Centre Ltd

Bruce Denney

Non-executive
Director

Pia Turcinov

Non-executive
Director

Leisa Elder

Non-executive
Director

Dr Liz Dallimore

Non-executive
Director

Introduction

As the Industry Growth Centre for Australia's energy resources sector, we know that our sector plays a critical role in supporting the nation's economy and future prosperity. We deliver transformational initiatives across the sector to support the provision of reliable, affordable and clean energy, unlock productivity improvements, commercialise local technology, support future workforce skills and create jobs. By leveraging Australia's competitive advantages in energy resources to accelerate the transition to a low carbon economy, the nation can maintain its position as a global energy powerhouse and play a lead role in the clean energy transition.

NERA has established credibility and strong relationships with industry as an independent facilitator of high-value partnerships and trusted source of information. We have delivered significant impact and value for Australia's energy resources sector over our nearly six years of existence through our strategic programs, collaborative projects and online technology and knowledge portals. We work very closely with Australia's energy resources sector to strengthen their collaboration with research organisations, innovators, and local supply chains to ensure the nation is:

- globally competitive and leading in the uptake of automation, AI and robotics
- diversifying to new energy solutions and decarbonising
- achieving improved commercialisation of technology solutions
- growing SMES and local manufacturing

We are supporting Australia to leverage competitive strengths from decades of oil and gas production and mining to accelerate the growth of new industries such as offshore wind and hydrogen, enhance research commercialisation, and scale local manufacturing of technologies needed to achieve low emissions targets.

NERA Work Program

NERA's activity aligns with the Modern Manufacturing Strategy and supports growth opportunities in each of the six National Manufacturing Priorities.

The overarching objective of the Industry Growth Centres (IGC) Initiative is to drive innovation, productivity and competitiveness in sectors of competitive strength and strategic importance for Australia. The programme achieves these objectives through:

1. Improving engagement between research and industry, and within industry, to achieve stronger coordination and collaboration of research and improve commercialisation outcomes;
2. Enhancing management and workforce skills;
3. Improving the capability of the key sectors to engage with international markets and access global supply chains; and
4. Identifying regulations that are unnecessary, over-burdensome and impede sector growth and suggesting possible reforms.

Objective 1. Increasing collaboration and commercialisation

Hydrogen Technology Cluster Australia (H2TCA)

Australia must leverage its existing strengths to develop a globally competitive hydrogen industry that exports more than just the molecule. H2TCA provides national coordination across the hydrogen value chain for domestic and international companies seeking to grow their Australian hydrogen network.



NERA established the H2TCA network in February 2021 in partnership with industry and governments, following an action outlined in Australia's National Hydrogen Strategy. H2TCA is a network of 15 regional hydrogen technology clusters centred around major demonstration projects, hubs and technology supply chains across all states and territories. It currently connects over 440 organisations spanning the hydrogen value chain and beyond, creating vital linkages between SMEs, large corporations, NGOs, state and local governments and more than 20 research and training institutions.

Regional clusters provide a focal point for organisations to connect, collaborate, and drive hydrogen industry development. By linking the entire value chain together, clusters leverage regional strengths, capability and infrastructure to support the decarbonisation of existing industries and new industry growth. The H2TCA network converges to form a national cluster that enables countrywide alignment, shared knowledge and learnings, and provides a globally recognised brand for what we refer to as Australia's emerging HETS (Hydrogen Equipment, Technology and Services) sector.

H2TCA's regional clusters can accelerate and complement hub development by providing access to a highly skilled and coordinated local technology and service sector and facilitate knowledge exchange. We are establishing H2TCA as a standalone entity to form an Australian hydrogen supercluster and grow a globally recognised brand to export hydrogen-related technology and expertise.

In 2021/22, NERA is establishing H2TCA as an independent not-for-profit entity to build on its strong momentum and partnerships to grow a National Hydrogen Supercluster to provide a globally recognised brand to export hydrogen-related technology and expertise.

Centre of Decommissioning Australia (CODA)

CODA aims to grow domestic decommissioning capacity, capability and expertise to expand services into the region, supporting international decommissioning activities and growing Australian exports.



Australia has a USD 42 billion offshore oil and gas decommissioning challenge, which presents an enormous economic, environmental and social opportunity, including recycling and repurposing infrastructure, plant, steel and high-tech equipment. Recognising this challenge and opportunity for Australia, NERA established CODA in March 2021 as an independent centre for decommissioning in Australia - in partnership with seven operators to:

- Pursue a 35 per cent reduction in decommissioning costs in Australia
- Identify or establish optimal recycling and reuse of offshore infrastructure for emerging low-emissions technologies to help meet industry's net-zero targets
- Maximise opportunities for the local workforce, service and technology companies; and

- Support the building of a globally competitive domestic decommissioning industry that can service needs locally and throughout the Asia Pacific region.

NERA is establishing CODA as a standalone not-for-profit company in 2021/22. We are engaging with Federal, State and Territory Governments and industry around strategic partnerships to accelerate CODA's early development and support the growth of a vibrant and world-leading offshore decommissioning industry. CODA is also delivering three landmark studies in 2021/22, examining global best practices for planning and execution, recycling and disposal pathways in Australia, and developing a technology roadmap for decommissioning.

GeneratER Open Innovation Challenge Program

NERA developed GeneratER to **address supply chain disruption and build sovereign capability** across the energy resources sector. NERA is piloting GeneratER in Western Australia by sourcing and demonstrating local technology solutions to address industry challenges. GeneratER launched in June 2021 with a call for expressions of interest to address three challenges provided by Chevron Australia. GeneratER is building momentum with additional operators joining the program in 2021/22.



Subsea Innovation Cluster Australia (SICA)

The NERA-backed SICA is helping to **establish WA as the Asia Pacific hub for subsea inspection, maintenance and repair (IMR)**. SICA is progressing a key initiative to develop a Regional Deepwater Testing Facility in Western Australia. When established, this testing facility will provide oil and gas operators and Original Equipment Manufacturers (OEMs) with local access to a hyperbaric chamber for pressure testing and deliver a new revenue stream for SICA. In addition, the facility will increase WA's inspection and repair capability, support local content, and create new jobs.

Integrated Ocean Energy Market Showcase

NERA is supporting the Australian Ocean Energy Group (AOEG) to develop an Integrated Ocean Energy Market Showcase in the Great Southern Region of Western Australia to **address the most significant barrier for ocean energy in Australia – lack of market demand**. The Showcase will become a knowledge resource for industry and customers, acting as a **catalyst to stimulate market demand by simulating and visualising the value of wave and tidal energy as a complementary baseload contributor to an integrated renewable energy system**. Once established, energy customers will access the site (virtually or in person) to model, cost, design, and procure bespoke ocean energy systems to meet their future clean energy demands.

Carbon Capture, Utilisation and Storage

NERA has partnered with industry, research institutions and governments to progress multiple CCUS opportunities across Australia.

- Through the WA LNG Jobs Taskforce's Technology and Decarbonisation Working Group, NERA works with industry and the WA State Government to **identify the role that CCUS must play in the state for future jobs, industry growth, and decarbonisation**. The Working Group is framing a joint industry feasibility study to identify potential emission sources and storage hub development(s) in Western Australia. As an independent member of the Taskforce, NERA is playing

a lead role in coordinating members to refine the project scope and manage the delivery of the study.

- NERA joined CO2CRC as its first Associate Member in 2020/21. Both organisations are collaborating on a pivotal study for industry and government to **identify potential opportunities for CO2-Enhanced Oil Recovery (CO2-EOR) and associated CO2 storage capacity in key Australian onshore basins.**

Driving industry-research partnerships

NERA builds **collaborative industry-research partnerships** by working closely with the nation's universities and research institutions to support world-leading science, drive technology and skills development, and translate research outputs into commercial outcomes more effectively:

- Support of Australian Government research programs - NERA provides valuable input and support to major R&D programs, including Cooperative Research Centres (CRCs), CRC-Projects (CRC-Ps) and the Industrial Transformation Research Program (ITRP). In addition to reviewing CRC and CRC-P applications, NERA provides vital guidance to enhance ITRP applications and the likelihood of success. NERA works closely with existing CRCs on collaborative projects and initiatives, including Future Fuels CRC, CO2CRC, Future Energy Exports CRC and Blue Economy CRC.
- Collaborative lighthouse projects - Forty-eight of NERA's collaborative projects drive industry-research collaboration, connecting more than 200 industry partners and 22 research institutions to address major sector challenges.
- Technology clusters - Eighteen NERA-supported clusters are forging connections between more than 450 member organisations and 20 research institutions to accelerate the development of Australian technology and expertise in hydrogen, ocean energy, subsea IMR and remote operations.
- Knowledge sharing platforms - NERA launched [HyResource](#) and the [Australian Energy Research Capability Finder](#) in 2020/21. NERA continues to support the development of these online platforms to help grow the knowledge economy and enable industry to identify potential research and collaboration partners.

Objective 2. Enhancing management and workforce skills

Lighthouse energy resources projects

NERA's [collaborative lighthouse projects](#) are breaking new ground across the energy resources sector and building capability through delivering world-leading scientific research, applying advanced digital solutions, and facilitating knowledge exchange through the publication of shared learnings for the whole sector. Some examples include:

- Lab61 Robotics Academy – Supporting the development of a robotics skills and training centre to grow advanced capability in key future industries [↗](#)
- EX-rated robotic crawler technology – Supporting Nexxis to commercialise CSIRO technology to produce the world's first certified EX-rated robotic crawler for inspection in hazardous areas [↗](#)
- GeneratER Open Innovation Challenge Program – Growing local SME capability in the

development of advanced solutions to address industry challenges ↗

- AI software solution to revolutionise offshore asset inspections – Supporting the development and commercialisation of a real-time inspection solution capable of autonomously detecting and categorising equipment anomalies ↗
- 3D Printed Stainless Steel – Supporting the development of the world's fastest high-speed 3D printing technology to produce steel components on-demand in remote environments ↗
- Using data to unlock Australia's resource base – commercialising cutting-edge research that will improve the accuracy of the resource prediction models, contributing to more cost-effective resource planning and enhancing productivity ↗

Australian Energy Transition Research Plan

NERA, CSIRO and the Australian Renewable Energy Agency (ARENA) supported the Australian Council of Learned Academics (ACOLA) to develop the first Australian Energy Transition Research Plan, launched in June. ACOLA's Research Plan identifies urgent energy transition research priorities to address for Australia to achieve net-zero emissions by 2050 (or earlier). The Plan complements and encourages further outcomes from activities already underway by Australian governments, including the Low Emissions Technology Roadmap. With the support of NERA and partners, ACOLA reviews the Plan and revises priorities annually.

Objective 3. Improving international opportunities and market access

Showcasing Australian Hydrogen capability to the world

NERA is connecting Australia's emerging hydrogen industry with global opportunities through our programs and initiatives:

- **H2TCA** – The H2TCA network builds international partnerships with organisations worldwide, including Germany, Norway, France and Canada.
- **HyResource** – CSIRO, the Future Fuels CRC, NERA and the Australian Hydrogen Council work collaboratively to support knowledge sharing across the hydrogen community. [HyResource](#) platform is enhancing local and global connectivity around major hydrogen projects and research programs.
- **HyCapability** – [HyCapability](#) is Australia's first hydrogen capability finder — a free, online, searchable platform that connects Australian hydrogen businesses with a domestic and global market. Developed by NERA and the Hydrogen Technology Cluster Australia (H2TCA) network, the platform maps regional hydrogen ecosystems and supply chain capacity, making it easier to identify businesses along the hydrogen value chain with innovative technology, service and equipment offerings for the hydrogen industry.

Establishing an Oceania Chapter of the TCI Global Network

NERA partnered with fellow Growth Centres FIAL and METS Ignited to establish a Secretariat to support, facilitate and coordinate the development, networking and activities of the Oceania Chapter of the TCI Global Network. TCI is the leading global network of people and organisations working in clusters and

innovation ecosystems worldwide, and the Oceania Chapter comprises Australia, New Zealand and Pacific Island nations. It facilitates global connections, inspires clusters, and improves policy learning.

Australian Energy Technology Platform

NERA's [Australia's Energy Technology Platform](#) connects technology suppliers and end-users to solve energy sector challenges and rapidly deploy technologies. This platform is all about connecting operators and technology end-users with the solutions they need and creating domestic and international deployment pathways for home-grown technology. More than 1,900 buyers access the platform across +50 nations, with 66 Australian technologies currently showcased.

Creating new market opportunities through conferences and events

NERA will have a strong presence at two major conferences during the financial year:

- **SEAAOC 2021** - 27-28 October 2021 at the Darwin Convention Centre - SEAAOC is Northern Australia's largest and longest established petroleum conference and brings together major players involved within Australasia's oil, gas and petroleum industries. NERA will feature its Hydrogen Cluster Initiative showcasing the Northern Territory Hydrogen Technology Cluster and the Hydrogen Technology Cluster Australia (H2TCA) and will also showcase the Centre of Decommissioning Australia (CODA). NERA's Dr Francis Norman will be speaking at the conference on the topic of "*Creating Opportunity from Transition – Decommissioning Australia's Offshore Oil and Gas Sector*".
- **AOG Energy 2022** – Held from 2-4 March 2022 at the Perth Convention and Exhibition Centre - In 2021, the Australasian Oil & Gas (AOG) Conference & Exhibition rebranded to AOG Energy. This change reflects the evolution of oil and gas, with AOG Energy being the cornerstone of a broader offering and a renewed focus on the energy transition, including hydrogen, renewables and emissions reduction technology. NERA will be showcasing both H2TCA and CODA with sessions curated and facilitated by NERA's CEO Miranda Taylor and Dr Francis Norman.

Objective 4. Identifying opportunities for regulatory reform

NERA's regulatory reform program continues to gain momentum in 2021/22.

Collaborative Seismic Environmental Plan (CSEP)

This project seeks to generate a single overarching approval process for seismic activities in Australia's North West to ease regulatory burden, improve certainty and environmental outcomes when applying for and conducting seismic activities. The collaborative project can deliver improved outcomes for the fishing and petroleum industries, significantly reducing the consultation burden for all stakeholders and delivering a strategic assessment of impacts across Northern Australia.

National Decommissioning Research Initiative (NDRI)

NERA initiated the NDRI in partnership with eight Australian O&G operators in 2019 to improve understanding across industry, government and the community of the effect of leaving or removing offshore infrastructure from the ocean. The Initiative delivers world-class independent research tailored to the Australian marine ecosystem.

The NDRI supports an improved understanding of the potential impact of decommissioning O&G structures on life in the marine environment and potential contaminants released in the marine

environment if structures remain in situ. The Initiative is pursuing these objectives through two research programs: 1) Potential impact of decommissioning O&G infrastructure on the marine environment; 2) Potential contaminants released if infrastructure remains in the marine environment.

The NDRI is publishing several peer-reviewed articles in the coming months to share the outputs of Research Program 1. In addition, the Initiative is preparing for a second phase by developing a roadmap of future decommissioning research priorities and projects that will continue to address critical knowledge gaps related to decommissioning in the Australian O&G industry for the coming decades.

CODA works closely with the NDRI to ensure Australia's future decommissioning activity can be built on sound scientific research, providing the best possible outcomes for industry, environment and community, with results also supporting the government to optimise regulatory frameworks.

Standards development

NERA is securing Australia's seat at the table for the development of international standards across the energy resources sector. We have been instrumental in **supporting Australian businesses to contribute global standards development to improve the productivity, efficiency and competitiveness of the nation's energy resources sector**. This includes the development as Oil and Gas standards through the Harmonisation of Standards project (ME-92); Interoperability Standards for asset intensive industries (OIIE ISO 18101); Hydrogen Standards (ME-93); and Marine energy standards (TC 114).

Budget 2021/22

Totals

Income	2021/22
NERA Growth Centre Commonwealth Funding	\$ 2,500,000
Project Fund	
Industry Contributions to collaborative projects	
Other income	\$ 929,000
Total income	\$ 3,429,000
Expenses	
Employee and Board related costs	\$ 2,490,699
Administration	\$ 314,554
Communications and conferences	\$ 284,899
Travel	\$ 63,577
Professional fees	\$ 98,675
Projects	\$ 2,751,772
Industry contributions to projects	\$ 2,223,853
Programs and initiatives	\$ 357,700
Other expenses	\$ 140,608
GST	\$ 96,227
Total expenses	\$ 8,822,565
Total surplus/ (deficit)	\$ (5,393,565)

	2021/22
Total opening cash	\$ 6,774,133
Operating cash movement	\$ (417,939)
Project cash movement	\$ (2,751,772)
Industry cash movement	\$ (2,223,853)
Total closing cash	\$ 1,380,568

Key Performance Indicators

NERA developed program evaluation KPIs in conjunction with the Economic and Analytical Services Division of the Department of Innovation, Science, and Energy Resources. The KPIs form part of an overall Industry Growth Centres performance framework.

KPI 1 Percentage of NERA collaborative projects that foster industry and research collaboration

Our projects bring researchers and industry together to tackle significant challenges and opportunities for the sector. Key focus areas include low emissions technology; advanced skills and capability; robotics and automation; digital data and analytics; environmental, safety and social licence; and life extension, repurposing and decommissioning.

KPI 2 Number of CRCs and CRC-Ps engaged with NERA

NERA provides valuable input and support for Cooperative Research Centres (CRCs), CRC-Projects (CRC-Ps) and the ARC's Industrial Transformation Research Program (ITRP). NERA has been instrumental in establishing multiple CRCs, working with consortia to ensure their research plans are demand-driven, delivering faster skills feedback to the industry, and encouraging a focus toward actual and full commercialisation of research outcomes. We provide significant support to Advisory Committees throughout the application evaluation process and partner with successful entities and program participants once in operation.

We work closely with established CRCs through our leading programs and initiatives, collaborative lighthouse projects, and technology clusters, including CO2CRC, Future Energy Exports CRC, Future Fuels CRC, Blue Economy CRC, CRC Care and Future Battery Industries CRC.

KPI 3 The number of SMEs engaged in NERA activities and programs

Building the capacity and capability of SMEs helps strengthen the local supply chain across energy resources, improve global competitiveness and attract new investment into Australia. NERA's SME Strategy supports Australian businesses to build vital connections, enhance their capability, develop, commercialise and scale up technology. We support SME development through technology clusters, collaborative lighthouse projects, our GeneratER open innovation program, business capability programs, access to digital test facilities, networking and mentoring opportunities and Australia's Energy Technology Platform.

KPI 4 The number of NERA supported SMEs integrated into global supply chains

NERA works with SMEs ready to scale up and take off into global markets, providing a range of support programs to develop their capabilities to engage with and ultimately integrate into the energy resources sector's global supply chains.

Recognising the challenges many Australian operators and technology end-users have when searching for and comparing available solutions, and the challenges many Australian technology suppliers have deploying

their technology, NERA launched the Australian Energy Technology Platform in 2020. The Australian Energy Technology Platform enables innovators to connect with more than 1,900 customers using the platform worldwide. It is a vital path to market during the constrained COVID-19 environment when access to new customers and markets is limited.

KPI 5 The number of businesses integrated into NERA supported clusters

NERA established a network of 15 hydrogen technology clusters across all Australian states and territories, supporting them to grow, build capability and connect to form a National Hydrogen Cluster. NERA supported the development and ongoing operations of Subsea Innovation Cluster Australia (SICA), which began to establish WA as the Asia Pacific hub for technology and expertise in subsea inspection, maintenance and repair. NERA also backs the Australian Ocean Energy Group (AOEG), a national cluster formed to accelerate wave and tidal technology development in Australia and activate market demand in this emerging industry.

KPI 6 Percentage of NERA supported initiatives targeting workforce and management skills and capabilities

NERA enhances workforce skills and capability through all of our innovative programs and initiatives. In addition to targeted capability building programs such as GeneratER, our 58 lighthouse projects, technology clusters, and collaborative partnerships such as NDRI and CODA are facilitating the development of world-leading knowledge, skills and capability for participants and end-users.

KPI 7 Percentage of NERA initiatives that have a regulatory reform impact

As a trusted independent advisor to industry, researchers and government, NERA plays an essential role in driving independent science and research for the benefit of Australia and facilitating dialogue across the energy resources sector to enable informed regulatory decision-making. We do this through:

- 14 collaborative lighthouse projects providing knowledge, technology, data and evidence to inform policy and legislation.
- The NERA-led NDRI is Australia's first independent environmental science initiative for decommissioning and the newly formed CODA is establishing best practice approaches to decommissioning for Australia from a safety and environmental perspective.
- The National Hydrogen Cluster Network is playing an essential role in identifying major barriers across all states and territories, which will inform legislation in this emerging industry.
- NERA is a member of CO2CRC's Policy Forum and is contributing to the development of CCUS policy Framework for Australia.
- NERA has championed standards development for oil and gas, marine energy, hydrogen, and industrial interoperability in Australia.



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