RACE for 2030

RELIABLE
AFFORDABLE
CLEAN
ENERGY

ANNUAL REPORT

Starting the RACE

2020/21

CONTENTS

CHAIR'S REPORT

RACE for 2030's first year has been established amidst the vast uncertainties brought about by COVID-19. Our researchers, businesses, staff and the board rose to these challenges, getting us firmly established and making strong progress on research.

In our first annual report, we outline some of that research, its applicability in Australia, and the impacts that are already underway. that meets the interest of the partners.

Two key goals drive the work of RACE for 2030. The first is a low-carbon Australia and much of the applied research is directed to this end. This decarbonisation of energy, transport, production and other systems in Australia is the 'first' transition.

The second transition is the consumer and industry-led decentralisation in both generation, storage and energy management. A flexible energy system requires changes in behaviours by most participants, much higher engagement than has been typical of this market, and a re-thinking of how to value the customer relationships that are emerging. Customers, whether residential or small businesses and even large businesses, want respect for their asset investments, as well as enablement and effective products and services to navigate the transformation. In Australia we are at the cutting edge, doing both major transitions simultaneously.

Given that RACE for 2030 was established during a pandemic, the Board has been careful to ensure safe workplaces at home and that a supporting online environment is available.

We commissioned an independent assessment to evaluate our practices which offered the Board and management a great deal of comfort in how it is approaching the challenge and we continue to monitor these issues.

I would like to thank all our partners and stakeholders for their contributions to our collective work. I also thank the RACE Board members for their efforts and commitment to our program of work and to the good governance of the organisation. Lastly, I want to thank CEO Jon Jutsen and all of the RACE staff for meeting not only the challenges of establishing a new organisation but doing it so effectively in the face of an extraordinarily difficult global event. Their hard work and efforts have enabled us to get a firm start.

RACE's impact is critical for outcomes in Australia, both in the shape of our future energy system and for our decarbonisation. It is an honour to be part of a group committed to contributing to these goals.

Louise Sylvan

Chair

RACE for 2030

CEO'S REPORT

I am delighted to introduce RACE for 2030's inaugural annual report, after the Cooperative Research Centre (CRC) was announced by Minister Karen Andrews in March 2020 and we were officially funded in July. We are excited and honoured to have the unique opportunity to deploy up to $350 million, working with 90 innovative partners to support the rapid energy and carbon transition towards reliable, affordable, clean energy (RACE).

The initial year of a CRC is usually challenging, balancing the signing of partners, establishing board and operating teams, systems and policies, and partner relationships. RACE for 2030 has been launched against the backdrop of the pandemic and has for the most part operated virtually since its inception. It was over three months until I met our initial staff, and there have been months between some team meetings due to lockdowns. It has been disappointing not to meet partners in person around the country, I look forward to this changing in the coming year.

Despite this, within the first six months we have managed to establish governance and operations, and initiate research activities. We have now completed nine opportunity assessments and kicked off the remaining assessments as a basis for planning the next years' of the 10-year RACE research program. In addition, we initiated nine 'fast track' partner projects, and approved a similar number of industry PhD projects. We are now stepping up a gear to co-design with our partners larger, multi-year projects.

We have one of the largest and most complex CRCs in the history of the program, and the challenges and opportunities associated with the energy and carbon transition are highly dynamic, as well as being critical to Australia's economic and environmental prospects.

To address these issues, we have a very competent, experienced, and passionate team and an excellent supportive board and I acknowledge their wonderful work.

Together we are committed to the mission of reliable, affordable clean energy (RACE) services for all Australians, and our sense of determination and urgency presented by the challenges of climate change is also reflected in our name. We are looking forward to working with our partners and key stakeholders on this critical transformation in the coming year.

Jonathan Jutsen

CEO

RACE for 2030

OUR BOARD

Chair

Louise Sylvan AM FACID

Louise Sylvan is an Adjunct Professor at the University of Sydney, Chair of Energy Consumers Australia, a non-executive director of The Australian Centre for Social Innovation (TACSI) and the Australian Risk Policy Institute, and a Member of the Advisory Group of the Net Zero Australia project.

She was previously CEO of the Australian National Preventative Health Agency, a Commissioner of the Productivity Commission, Deputy Chair of the Australian Competition and Consumer Commission as well as President of Bush Heritage Australia and a non-executive director of Social Enterprise Finance Australia and Impact Investing Australia.

Deputy Chair

Dr Katherine Woodthorpe AO FAICD

Dr Katherine Woodthorpe AO FAICD is an experienced Chair and Non-Executive Director serving for more than 20 years on the boards of a variety of organisations including listed entities, government boards and for-purpose organisations. She has a strong track record in a broad range of innovation-dependent industries including healthcare, renewable energy and environmental and climate science. She has been cited in various media as one of Australia's most influential people in innovation.

Amongst her current appointments she is a Director of Anteotech Ltd. Vast Solar Pty Ltd and Chairs both the Antarctic Science Foundation and Natural Hazards Research Australia Ltd.

Board Member

Simon Smith

Simon has over twenty years experience in government decision-making, policy development, regulatory reform and organisational leadership. He has served as CEO/Secretary of large NSW public sector entities across industry policy, vocational education, environment, finance and first minister's portfolios.

Simon is currently employed as Chief Operating Officer of the ASX listed PEXA Group, which provides the digital services used by lawyers, conveyancers and banks to settle over 80% of Australian property transactions.

Board Member

Ivor Frischknecht

Ivor is an experienced Chief Executive Officer and Non-Executive Director working at the intersection of energy and climate, innovation and investment. He was the inaugural CEO of the Australian Renewable Energy Agency and oversaw its $2.1 billion portfolio for 6 years, during which it invested in 350+ ground-breaking clean energy projects. He is also a non-executive Director of CleanCo Queensland and advises the Victorian Government's $1.3B Solar Homes Program, Elliott Green Power and Kilara Capital.

Board Member

Catherine Cooper

Catherine is an experienced non-executive director having served on a significant number of boards for over 20 years. Career highlights include the establishment of a national joint venture Rural Bank, being a Telstra Business Woman of the Year finalist twice, inclusion in an international management program, and winning a position in the ASX Top 200 Chairman's Mentoring program run by the AICD.

Catherine's current and past board roles include Energy Consumers Australia, Beston Global Foods (ASX), Deputy Chair of Australian Eggs RDC, Wine Australia RDC, Animal Health Australia, Energy Advocacy Panel member, Chair of SA EPA, Director of the newly formed Grains Australia and as a Commissioner of the Australian Fisheries Management Authority.

Catherine is very experienced in research development, strategy, evaluation and achieving commercial adaptation outcomes. A significant part of her board portfolio is with national RDC and CRC organisations. In addition, her strategic governance and risk management skills are well established.

ABOUT RACE FOR 2030

Reliable, Affordable Clean Energy for 2030 (RACE for 2030) is an innovative collaborative research centre for energy and carbon transition. We were formally established by agreement with the Commonwealth in July 2020.

We were funded with $68.5 million of Commonwealth funds and commitments of $280 million of cash and in-kind contributions from our partners, bringing the expected resources base to about $350 million to invest in research, commercialisation, capacity building market transformation and CRC operations.

Our aim is to deliver $3.8 billion of cumulative energy productivity benefits and 20 megatons of cumulative carbon emission savings by 2030.

The RACE team will ultimately have about 20 full-time employees in four teams that include research, partners, market transformation and operations. We have 68 partners to date and expect to have between 90 and 100 partners in total when the CRC reaches full capacity in the next year. RACE is committed to creating value for our partners and is investing significant resources to understand our partners' research priorities.

Please visit our website www.racefor2030.com.au for detailed information about our team, board, and research agenda.

OUR CORE VALUES

- We listen to the people's voice (seek diversity in perspectives and listen to energy users) .
- We speak from the heart (be authentic, with the best of intentions)
- We translate passion into action (highly driven to deliver great outcomes)
- We build together (inclusive and collaborative)
- We seek impact through innovation (to achieve our ambitious shared vision)

FIRST YEAR ACHIEVEMENTS

68

Partners engaged

$3.2m

Invested in 9 Opportunity Assessments

$1m

Invested in 5 Fast Track opportunities

9

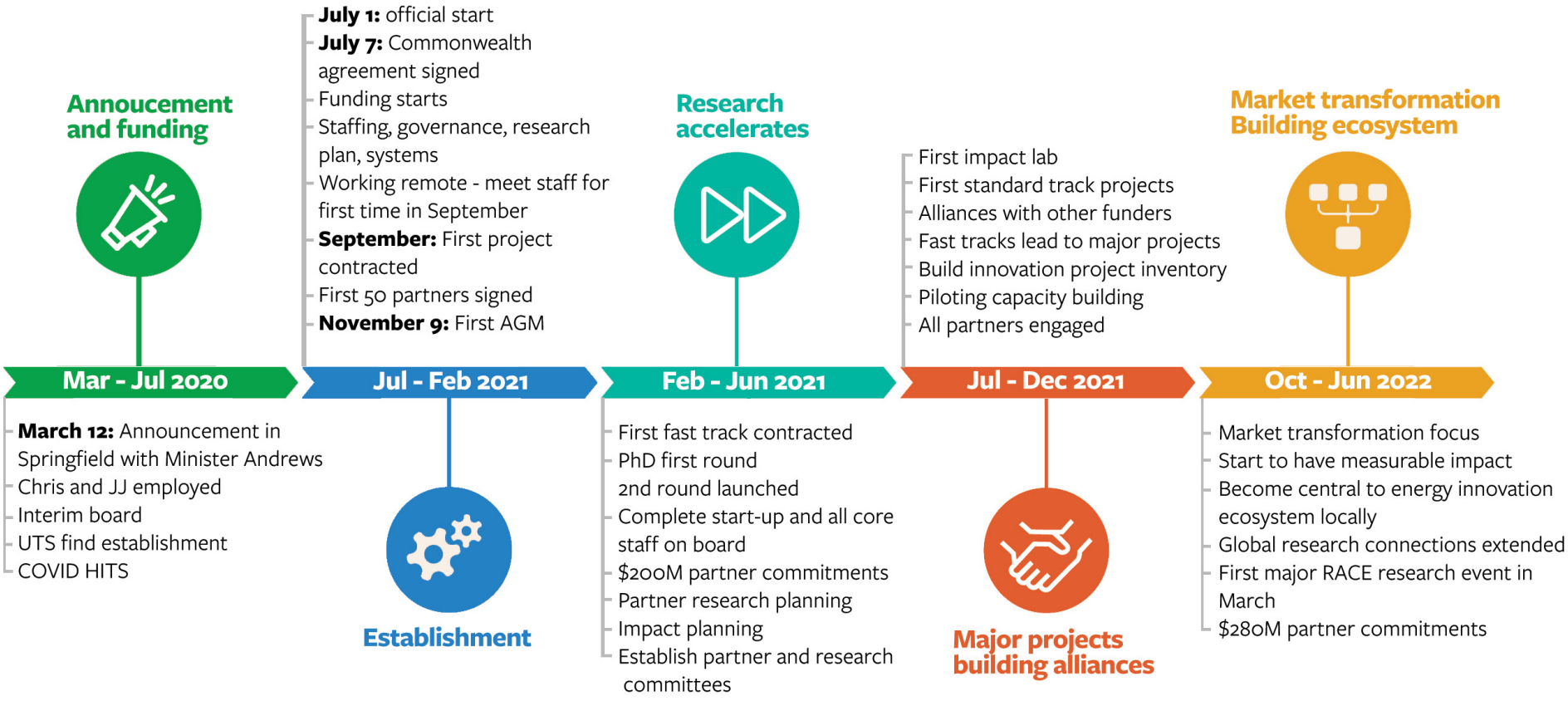
Industry PhD's approved for funding

RACE for 2030 Team established
4 Program Leaders seconded

Board and 4 Committees established

In 2020/21 we successfully established the organisation and implemented start-up tasks set for completion by the end of 2021. We initiated our research project within the first six months of operation, and our focus in the coming year will be initiating major high impact research projects. We also made significant efforts to define the 'partner journey' with our partner team meeting all core partners to map out their research priorities for the year, and ensuring all partners are engaged in the RACE program.

The diagram below is a summary of our progress and overview of the coming year's trajectory

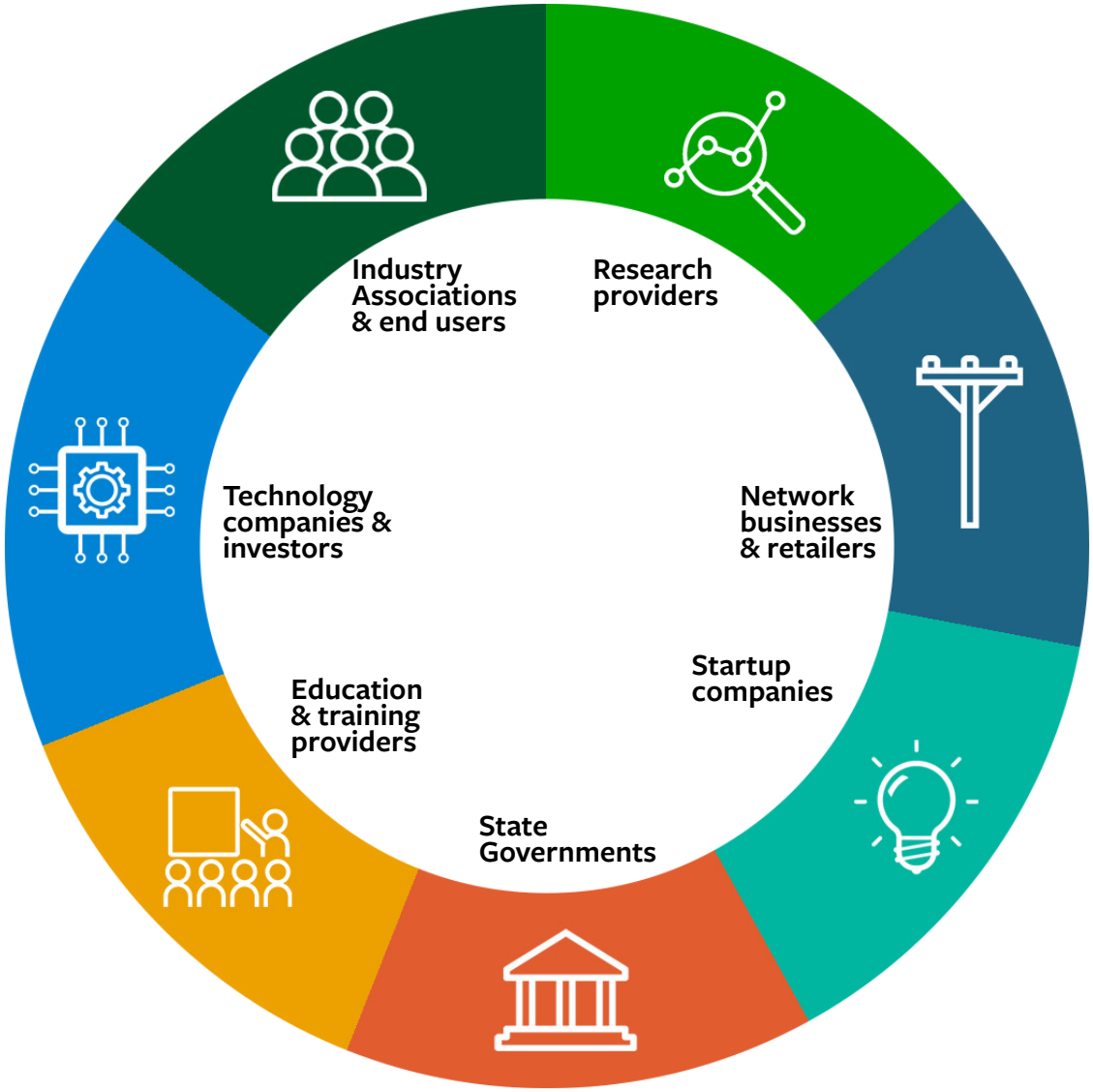


OUR PARTNERS

The unique power of a CRC is bringing together partners from the whole energy services supply chain including all the other key stakeholders involved in co-designing and implementing research that addresses key industry and societal challenges and opportunities.

RACE has been fortunate to attract 68 wonderful partners who have been very supportive and engaged in our first year. All but a small handful have participated in our first-year research activities.

RACE for 2030 will continue to bring on new partners during 21/22 which strengthen the cohort, and add value to our research program, and we expect ultimately to have 90-100 partners spread across the following segments.



"The Energy Efficiency Council is thrilled to be partnering with RACE for 2030 and its many industry and research partners as we work towards putting supply and demand on an equal footing to deliver least cost solutions to Australian households and businesses."

– Holly Taylor, The Energy Efficiency Council


AUSTRALIAN ALLIANCE FOR ENERGY PRODUCTIVITY
agl
AgriFutures Australia
AIRAH
ALDOM TRANSPORT ENGINEERING
AMPC AUSTRALIAN MEAT PROCESSOR CORPORATION
API The Australian Power Institute
Ausgrid
brighte
BuildingsAlive
CLIMATE KIC AUSTRALIA
CSIRO
Curtin University
VICTORIA State Government Environment, Land, Water and Planning
Government of South Australia Department for Energy and Mining
NSW GOVERNMENT Planning, Industry & Environment
Energy Networks Australia
Endeavour Energy
energy efficiency COUNCIL
energyOS
(Energy)Lab
enosi
enzen
EPECentre ELECTRIC POWER ENGINEERING CENTRE
EPRI
essential energy empowering
exergenics
FIAL Food Innovation Australia
FOHAT energy for a better life
GLACIEM COOLING TECHNOLOGIES
Griffith UNIVERSITY Queensland, Australia
HORIZON POWER
INSTITUT TEKNOLOGI BANDUNG 1920
IoTA IoT Alliance Australia
INSTITUT PERTANIAN BOGOR
LINKE & LINKE SURVEYS
MONASH University
NREL NATIONAL RENEWABLE ENERGY LABORATORY
OPTURION
PLANET ARK Power Cleaner energy. Lower cost.
Powerlink QUEENSLAND
powerpal
PROVIDENCE ASSET GROUP
QFF
Queensland Government
QUT Queensland University of Technology
REDGRID
RMIT UNIVERSITY
ROCKY MOUNTAIN INSTITUTE
SA Power Networks
SEELEY INTERNATIONAL
SELECTRONIC
Simble
Singh Farming
solar analytics
Starling ENERGY GROUP
Startupbootcamp
Sunovate innovating solar
switchDin
Sydney WATER
UCLA
ULTIMA CAPITAL PARTNERS
University of South Australia
UNSW AUSTRALIA
UTS
VISY FOR A BETTER WORLD
we power
westernpower
Wuppertal Institut
zepben

OUR RESEARCH

RACE for 2030 is built around its industry led, high quality and impact research program to decarbonise energy services, while reducing costs and improving their reliability. As the transition to distributed energy, higher energy productivity and decarbonisation of the economy is gathering pace globally and in Australia, RACE collaborative innovation is directed to accelerate the transformation in a way which maximises benefits for Australian business and Australian consumers.

In the period leading up to the establishment of RACE for 2030 the CRC. leadership and research partners engaged extensively with our industry partners to identify and develop 17 research themes across the four research programs. Our research scope is energy innovation for Homes (and communities), Businesses (and precincts), energy distribution Networks, and cross sectoral systems innovation and capacity building ('Race for Everyone').

By October 2020 (just 3 months into formal operation), we had begun this research. We initiated, and recently completed, nine 'opportunity assessments' of the 17 themes, and initiated the remaining eight opportunity assessments, which will be completed by early 2022.

We established our 'standard track' project development process for larger and longer-term projects. This included appointing, our Research Advisory Committee (ReAC) which has responsibility for final review and recommending standard track project applications to the Board for funding approval. The first of these standard track projects are expected to be considered in early 21/22.

In 2021/22 we will focus on initiating larger, more ambitious standard track research projects with high impact. Most of these will focus on four priority 'strategic challenges':

1. **Minimum Demand:** Addressing the network challenge of 'minimum demand', focusing largely on customer solutions which optimise the value of rooftop solar
2. **EV Grid Integration:** Accelerating smart and two-way charging of electric vehicles focusing on the interaction of EVs and the grid (and end users);
3. **Millions of homes:** Researching how to scale-up home retrofits to drive decarbonisation, reduced costs, and improved comfort;
4. **Net zero business:** Paths to net zero carbon emissions for business.

We will address major projects using a design thinking approach we call "Impact Lab", so we can co-design projects to ask the right research questions with our partners – focused on the needs of the customer.

These opportunity assessments have provided 'research roadmaps' for our work in each theme over the years ahead. They include insights about the state of research and the market and the potential impact of our research. The opportunity assessments have forged the foundations of relationships between industry and researchers on which research projects will be built with a view to 2030.

RACE FOR BUSINESS

B1	B2	B3	B4	B5
Transforming energy productivity through value chains	Industry 4.0 for energy productivity	Decarbonising industrial process heating	Flexible demand and demand control	Anaerobic digestion for electricity, transport and gas

RACE FOR HOMES

H1	H2	H3	H4	H5
Residential solar pre-cooling	Enhancing home thermal inertia	Using home energy technologies for grid support	Rewarding flexible demand: Customer-friendly cost reflective tariffs and incentives	Smart algorithms for optimising home energy supply and use

RACE FOR NETWORKS

N1	N2a: Low-cost visibility of network conditions N2b: Assessing and mapping the hosting capacity of energy networks N2c: Integrating solar, energy storage and flexible loads with DER networks	N3a: Algorithms and analysis for cost effective micro-grids N3b: Storage as a service – distributed community batteries	N4
Electric vehicles and the grid			Distribution system operator and beyond: Optimising planning and regulation for DM & DER

RACE FOR EVERYONE

E1	E2	E3
Trust building for collaborative win-win customer solutions	Innovative foresighting and planning	Developing the future energy workforce

OPPORTUNITY ASSESSMENT PROJECTS

PROJECT	LEAD PARTNER	RACE FOR 2030 PARTNERS	OTHER PARTICIPANTS	PROJECT VALUE
VALUE CHAIN OPTIMISATION TO TRANSFORM ENERGY PRODUCTIVITY				
This project investigated the potential opportunities to transform energy productivity (EP) through innovative technology and business models in priority value chains. The project addressed the urgent need to transform how energy is used in production and ultimately the supply of the services to customers.	RMIT University of South Australia	Climate-KIC Australia Rocky Mountain Institute Australian Meat Processor Corporation Ltd Glaciem Cooling Technologies Pty Ltd Sydney Water Corporation Australian Alliance for Energy Productivity Limited Food Innovation Australia LTD Queensland Farmers' Federation Ltd QUT UTS Simble Solutions Limited Curtin University	Industry Reference Group	$417,645
ELECTRIFICATION AND RENEWABLES TO DISPLACE FOSSIL FUEL PROCESS HEATING				
This project identified key opportunities for, and existing barriers against, decarbonising the production of low-temperature heat in Australian industry. It produced two discussion papers and a roadmap for decarbonisation and scope for aligned CRC RACE projects through to 2030.	University of South Australia	Australian Alliance for Energy Productivity Limited Climate-KIC Australia Glaciem Cooling Technologies Pty Ltd Alfa Laval Australia Pty Ltd Australian Meat Processor Corporation Ltd UTS RMIT QUT	Industry Reference Group	$292,441

PROJECT	LEAD PARTNER	RACE FOR 2030 PARTNERS	OTHER PARTICIPANTS	PROJECT VALUE
FLEXIBLE DEMAND AND DEMAND CONTROL TECHNOLOGY AND DEVELOPMENT				
This project identified sources of flexible demand in Australia and evaluated the opportunity to unlock demand side participation benefits in wholesale, retail and network components of the electricity system. It has identified barriers to adoption and research opportunities that could deliver solutions for encouraging greater participation from energy-users.	CSIRO	GreenSync Pty Ltd Australian Alliance for Energy Productivity Limited Energy Efficiency Council Inc UTS Enzen Australia Pty Ltd AGL Energy Services Pty Limited QUT Monash University NSW Department of Planning and Environment Department of Environment, Land, Water and Planning (Victoria) Powerlink RMIT Flow Power (Progressive Green Pty Ltd) Sydney Water Corporation Ausgrid (Trustee for Blue Op Partner & Others) FOHAT Corporation Australia Pty Ltd	Industry Reference Group	$341,399
TRUST BUILDING FOR COLLABORATIVE WIN-WIN CUSTOMER SOLUTIONS				
This project has established a framework that outlines the opportunities for customer-centric trust building in the energy sector and potential metrics for trust measurement. This framework includes identification of key market segments, drivers of customer trust and mistrust, tools and strategies to build trust, value of trust for businesses, consumers and industry. The project has also identified reliable metrics to quantify trust in the energy sector.	Queensland University of Technology	Essential Energy UTS Curtin University CSIRO UNSW AGL Energy Services Pty Limited	Industry Reference Group ECA ACOSS	$372,377

PROJECT	LEAD PARTNER	RACE FOR 2030 PARTNERS	OTHER PARTICIPANTS	PROJECT VALUE
DEVELOPING THE FUTURE ENERGY WORKFORCE				
This project describes a pathway to understanding the present and future energy workforce in Australia. Developing the workforce is crucial to enabling the clean energy transition and realising the RACE for 2030 vision of a customer-centred clean energy system, and to the successful translation of RACE for 2030 research outcomes to industry impact.	University of Technology Sydney	Monash University Department of Energy and Mining (South Australia) RMIT Department of Environment, Land, Water and Planning (Victoria) Australian Power Institute (API) Griffith University Potsdam-Institut fur Klimafolgenforschung Qld Dept. Natural Resources, Mines & Energy (DNRME) Climate-KIC Australia Energy Efficiency Council Inc Department of Planning and Environment (NSW) Startup Bootcamp (ACH Australia Pty Ltd) EnergyLab Australia Pty Ltd Australian Alliance for Energy Productivity Limited AIRAH Ultima Capital Partners Pty Ltd	Clean Energy Council International Renewable Energy Agency (IRENA) International Energy Agency AiGroup DISER (Commonwealth) Industry Reference Group	$346,498
RESIDENTIAL SOLAR PRE-COOLING				
This project is a scoping study to determine what is currently understood about residential solar pre-cooling and pre-heating (SPC/H) and therefore guide where RACE for 2030 should focus its efforts. This report reviews the state of technology and the market for SPC/H in homes for consumers and the electricity supply system. It estimates the scale of potential benefits and costs, identifies specific targeted impacts and proposes research priorities to achieve these impact.	Queensland University of Technology	UNSW Sunovate Pty Ltd Powerlink AIRAH CSIRO AREMA QUT UniSA Zeppelin Bend Pty Ltd Energy Efficiency Council Inc	ANU ASBEC Industry Reference Group	$251,804

PROJECT	LEAD PARTNER	RACE FOR 2030 PARTNERS	OTHER PARTICIPANTS	PROJECT VALUE
ELECTRIC VEHICLES AND THE GRID				
This project has aimed to: • synthesise current research and practice relating to Electric Vehicles (EVs) in Australia and internationally • identify barriers for EV uptake and assess potential solutions, • provide summary of the opportunities in research and commercialisation for EVs and their integration into the grid and urban systems, • provide recommendations on the research priorities and impact metrics for EV and the grid research in Australia (10-year horizon)..	University of Technology Sydney	CSIRO Curtin University Ultima Capital Partners Pty Ltd RMIT UNSW Starling Energy Group Pty Ltd Western Power Electricity Networks Corporation Startup Bootcamp (ACH Australia Pty Ltd) Electric Power Research Institute, Inc (USA) Horizon Power (Regional Power Corporation) Monash University	EA Technology Industry Reference Group	$496,841
LOW VOLTAGE NETWORK VISIBILITY AND OPTIMISING DER HOSTING CAPACITY				
This project has developed a research roadmap and a framework for tracking research activities focused on improving network visibility and optimising DER hosting capacity. The project involves engaging stakeholders, identifying priorities, reviewing current capability, estimating potential impact, and proposing a path to achieve it.	CSIRO	Monash University UTS AGL Energy Services Pty Limited Ausgrid (Trustee for Blue Op Partner & Others) Zeppelin Bend Pty Ltd Horizon Power (Regional Power Corporation) UNSW Electric Power Research Institute, Inc (USA) SwitchDin Pty Ltd Department of Planning and Environment (NSW)	Energy Security Board ENA AEMO Victoria DELWP C4Net Industry Reference Group	$406,665
REWARDING FLEXIBLE DEMAND				
This project has quantified the achievable value benefits of this theme by 2030 and 2035, and mapped out a research agenda to achieve that impact. This research theme has demonstrated innovative, flexible and dynamic pricing and incentives for customers to encourage load management and to reduce costs to energy customers and has acknowledged the largely untapped potential of flexible pricing to cuts.	University of New South Wales	QUT Monash University AGL Energy Services Pty Limited Electric Power Research Institute, Inc (USA) Horizon Power (Regional Power Corporation) Ausgrid (Trustee for Blue Op Partner & Others)	Industry Reference Group NGOs St Vincent de Paul Renew Energy Energetic Community Association PIAC	$287,250

FAST TRACK PROJECTS

In 2020/21, RACE for 2030 industry partners initiated five fast track projects which are now under way or nearing completion

PROJECT	LEAD PARTNER	RACE FOR 2030 PARTNERS	OTHER PARTICIPANTS	PROJECT VALUE
BUSINESS FLEETS AND BEVS: TAXATION CHANGES TO SUPPORT HOME CHARGING FROM THE GRID, AND AFFORDABILITY				
Business fleets are an effective pathway for early adoption of BEVs (DISER, 2021) but their site re-charging infrastructure facility numbers are low. Taxation changes can provide an immediate solution by using fleet employee's home charging, which can include smart charging stations (SmartCh.Stns) to gain off-peak rates and avoid grid congestion. Around 47 percent of fleet vehicles are home garaged (AfMA and AGL, 2020).	Griffith University	Monash University Department of Environment, Land, Water and Planning (Victoria) Energy Efficiency Council Inc Department of Planning and Environment (NSW) Department of Energy and Mining (South Australia) AGL Energy Services Pty Limited	Australian Fleet Management Association Industry Reference Group	$219,999
IMPROVING THE PERFORMANCE AND POTENTIAL APPLICATIONS OF PCM STORAGE FOR FLEXIBLE DEMAND IN THE HVAC-R INDUSTRY				
The project has investigated the use of CO_2 as a heat transfer fluid to improve the performance of Phase Change Material Thermal Energy Storage (PCM TES) and has increased the range of potentially suitable applications for the technology across a range of industries.	University of South Australia	Australian Alliance for Energy Productivity Limited Glaciem Cooling Technologies Pty Ltd RMIT	ANU ASBEC Industry Reference Group	$262,837
THE GREENWAVE: ANCHORING ECONOMIC RECOVERY THROUGH NET ZERO ENERGY STRATEGY				
This project has identified how net zero energy and decarbonisation strategies can more deeply engage community and business partnerships to deliver greater trust, legitimacy and social value. While focussing on university-based precincts with strong links to energy innovation, outputs have been broadly applicable to scalable solutions for achieving net zero carbon emissions.	University of Technology Sydney, Curtin University	EnergyLab Australia Pty Ltd Ultima Capital Partners Pty Ltd RedGrid (Tilty Labs Pty Ltd) Buildings Alive Pty Limited Sunovate Pty Ltd Monash University Climate-KIC Australia Enwave Australia Pty Ltd Department of Planning and Environment (NSW)	Altogether Group (formerly Flow Systems) Industry Reference Group	$190,582

PROJECT	LEAD PARTNER	RACE FOR 2030 PARTNERS	OTHER PARTICIPANTS	PROJECT VALUE
PATHWAYS TO SCALE – BARRIERS TO, OPPORTUNITIES FROM, AND IMPACTS OF RETROFITTING ONE MILLION+ HOMES				
This project has filled knowledge gaps and built capability for industry and government to implement home energy efficiency retrofits in over one million homes, through public-private partnership. It has answered critical scheme design questions and applied system thinking to analyse the barriers, opportunities and impacts of large-scale retrofits with public-private finance.	Climate-KIC Australia	Curtin University Planet Ark Power (Gozero Energy Pty Ltd) UTS Climate-KIC Australia Department of Planning and Environment (NSW) Department of Environment, Land, Water and Planning (Victoria) Curtin University Energy Efficiency Council Inc	Industry Reference Group	$186,154
14. CURTAILMENT AND NETWORK VOLTAGE ANALYSIS STUDY (CANVAS)				
This project aimed to develop socio-technical insights into energy-user experience of voltage related distributed energy resource (DER) curtailment. Activities included operational data analysis and user research in collaboration with Solar Analytics.	University of New South Wales	Solar Analytics Pty Ltd AGL Energy Services Pty Limited SA Power Networks	Australian PV Institute (APVI) Industry Reference Group	$191,038

INDUSTRY PHD PROGRAM

We launched our Industry PhD program in October 2020. Over the life of RACE for 2030, we aim to graduate 55 high quality doctoral candidates in industry relevant disciplines. The industry-led topics allow for detailed investigation and insights to be provided based on international best practice and local research over the three years of the project.

In the first round of call for PhD topics, 34 topic nominations were received, highlighting the strong interest of industry and research partners to engage.

By the end of June 2021, we had confirmed nine research projects across all four research programs and six universities. We are well advanced with the host universities in securing excellent candidates to take up these opportunities.

Theme	Research Partner	Industry Partner	Title	Status as of September 2021
B4	UNSW	Buildings Alive	Fast-track to Net Zero Carbon buildings	Student began September 2021
E1	UTS	Solar Analytics	Customer first start-ups and the energy transition	Student began August 2021
E1	QUT	Essential Energy	An Australian Energy Sector Trust Index	Recruitment ongoing
E1	Griffith	Western Power and Horizon Power	Off-grid Indigenous community microgrids	Student will begin February 2022
H2	Curtin	Climate-KIC	Prefabricated solutions for retrofitting homes	Student will begin February 2022
H3	Curtin	Starling Energy	Portable green hydrogen solutions for households	Recruitment ongoing
H4	Griffith	Ausgrid	Tariffs and demand response for residential and industrial customers	Student will begin February 2022
N1	Monash	Enzen	Smart Charging Strategies for EVs in Smart Grids	Recruitment ongoing
N3	Monash	Planet Ark Power	Designing Distributed Renewable Micro-grids for Reliability	Student will begin January 2022

Each Industry PhD project is supported by an Industry Reference Group which provides guidance and ensures the project addresses an industry-relevant problem. Within eight months of the commencement of the project a rapid review of the issue will be delivered for wide public dissemination and a systematic literature review for scientific publication.

Candidates are awarded a scholarship of $38,000 annually for three years, with an additional $3,000 provided annually for research expenses, with the funding drawn from the industry and research partner attributes and RACE.

RESEARCH IMPACTS

RACE for 2030 has ambitious goals to deliver demonstrable real-world impact through its research. These goals include facilitating $3.9 billion worth of energy bill reductions and economic value added and committed emission reductions of at least 20 Mt CO2e by 2030/31.

In our first year, our focus has been on establishing processes and initiating our first research projects. Accordingly, we are not able to report on measurable impacts against these metrics. However, we have been investing in developing our impact estimation and reporting systems, so that in 2021/22 we expect to report back on initial committed impacts.

AUDITED FINANCIAL ACCOUNTS

The audited annual financial statement for the financial year ending 30 June 2021 is included as an attachment.

RACE for 2030

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www.racefor2030.com.au

Australian Government
Department of Industry, Science, Energy and Resources

AusIndustry
Cooperative Research Centres Program