

A wide-angle photograph of a large concrete dam with a reservoir. The dam is in the foreground, curving across the frame. The water is a vibrant blue. In the background, there are forested mountains under a blue sky with scattered white clouds. A semi-transparent blue box is overlaid on the right side of the image, containing the title and speaker information.

# The role of ARENA in Australia's Energy Industry

Matt Walden  
Australian Renewable Energy Agency



# ARENA is on a mission to



support the **global transition** to net zero emissions



by accelerating the pace of **pre-commercial innovation**



to the **benefit of Australia.**



INVESTED

**\$1.70B**



PROJECTS

**586**



VALUE

**\$6.92B**



INVESTMENT LEVERAGE

**\$1:\$3.06**



PROJECTS BY TECHNOLOGY

BIOENERGY



**\$131M**

GEOTHERMAL



**\$42M**

GRID INTEGRATION

**\$270M**

HYBRID

**\$110M**



HYDROGEN

**\$60M**



OCEAN

**\$44M**



SOLAR PV

**\$725M**



SOLAR THERMAL

**\$178M**



STORAGE - BATTERIES/PHEVS

**\$143M**

RECENT ACTIVITY



**\$71.9M** Future Fuels Fund launched to help businesses and regional communities take advantage of opportunities offered by hydrogen, electric, and bio-fueled vehicles

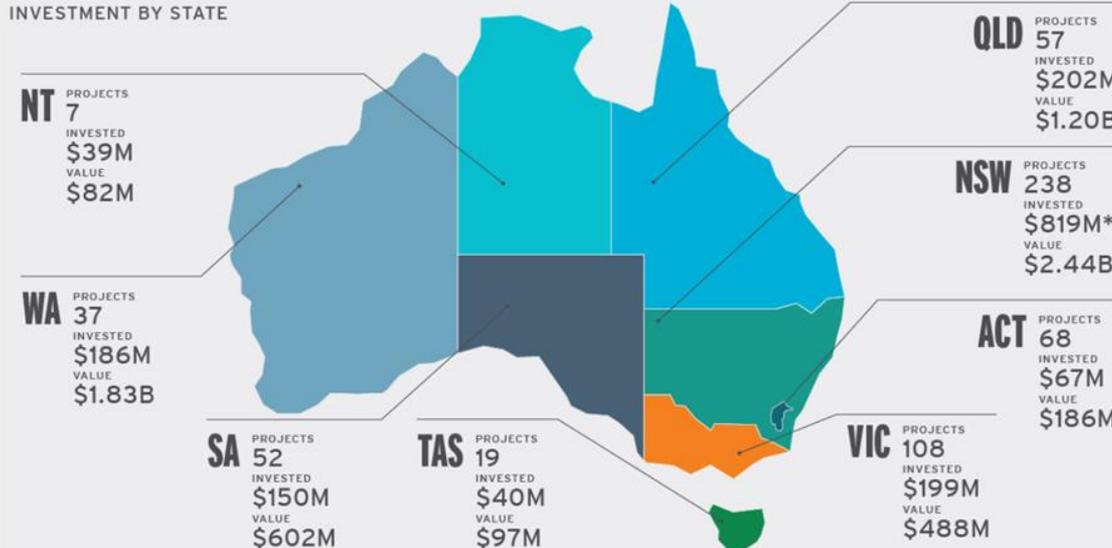
**\$1.98M** to demonstrate aggregated hot water heater load control

**\$1.6M** for a residential electric vehicle charging orchestration trial

**\$1.49M** to commercialise repurposed EV battery and inverter systems

**RELEASED** State of DER Technology Integration Report, which identifies what is required to integrate DER into Australian electricity markets

INVESTMENT BY STATE



\* Includes \$567 million contributed to projects inherited by ARENA in 2012.

INVESTMENT LEVERAGE ALONG THE INNOVATION CHAIN

STUDY	R&D
<b>\$1:\$1.68</b>	<b>\$1:\$1.63</b>
DEMONSTRATION	DEPLOYMENT
<b>\$1:\$1.83</b>	<b>\$1:\$5.73</b>

ENGAGEMENT

**INDUSTRIAL ENERGY PROGRAM**

Consulted more than 80 people on the Industrial Energy Program, which helps users identify and reduce energy costs.

**DEIP CEO F**  
Distributed Energy Incentive Program (DEIP) CEOs meet to discuss priorities.



# Strategy and Investment Priorities

TO SUPPORT THE GLOBAL TRANSITION TO NET ZERO EMISSIONS  
BY ACCELERATING THE PACE OF PRE-COMMERCIAL INNOVATION,  
TO THE BENEFIT OF AUSTRALIAN CONSUMERS, BUSINESSES AND WORKERS

## DRIVE IMPACT WITHIN OUR STRATEGIC PRIORITIES

### OPTIMISE THE TRANSITION TO RENEWABLE ELECTRICITY



- › Enable ultra low-cost renewable generation
- › Improve the economics of energy storage
- › Optimise large-scale integration
- › Support flexible demand

### COMMERCIALISE CLEAN HYDROGEN



- › Support a viable clean hydrogen industry across the full value chain

### SUPPORT THE TRANSITION TO LOW EMISSIONS METALS



- › Accelerate the transition to low emissions steel value chain
- › Accelerate the transition to a low emissions aluminium value chain

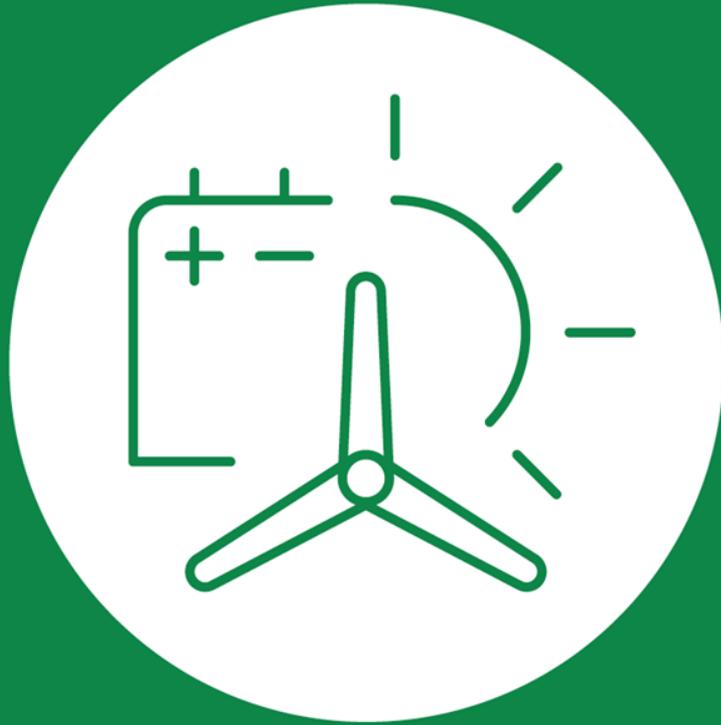
- › Scale up carbon capture and storage (CCS)
- › Reduce the cost of soil carbon measurement

## DELIVER THE BUDGET PROGRAMS

Future Fuels Fund | Industry Energy Transformation Studies Program | Regional Australia Microgrid Pilots Program  
Freight Efficiency Assistance Grants | Freight Energy Productivity Trial Program

Maximise the value of ongoing projects through effective project delivery and knowledge sharing





# OPTIMISE THE TRANSITION TO RENEWABLE ELECTRICITY

INVESTMENT PRIORITY





## Australia is leading the world in solar PV research

Scientia Professor Martin Green at  
the Solar Industrial Research Facility

Vince Allen and David Hu of  
SunDrive





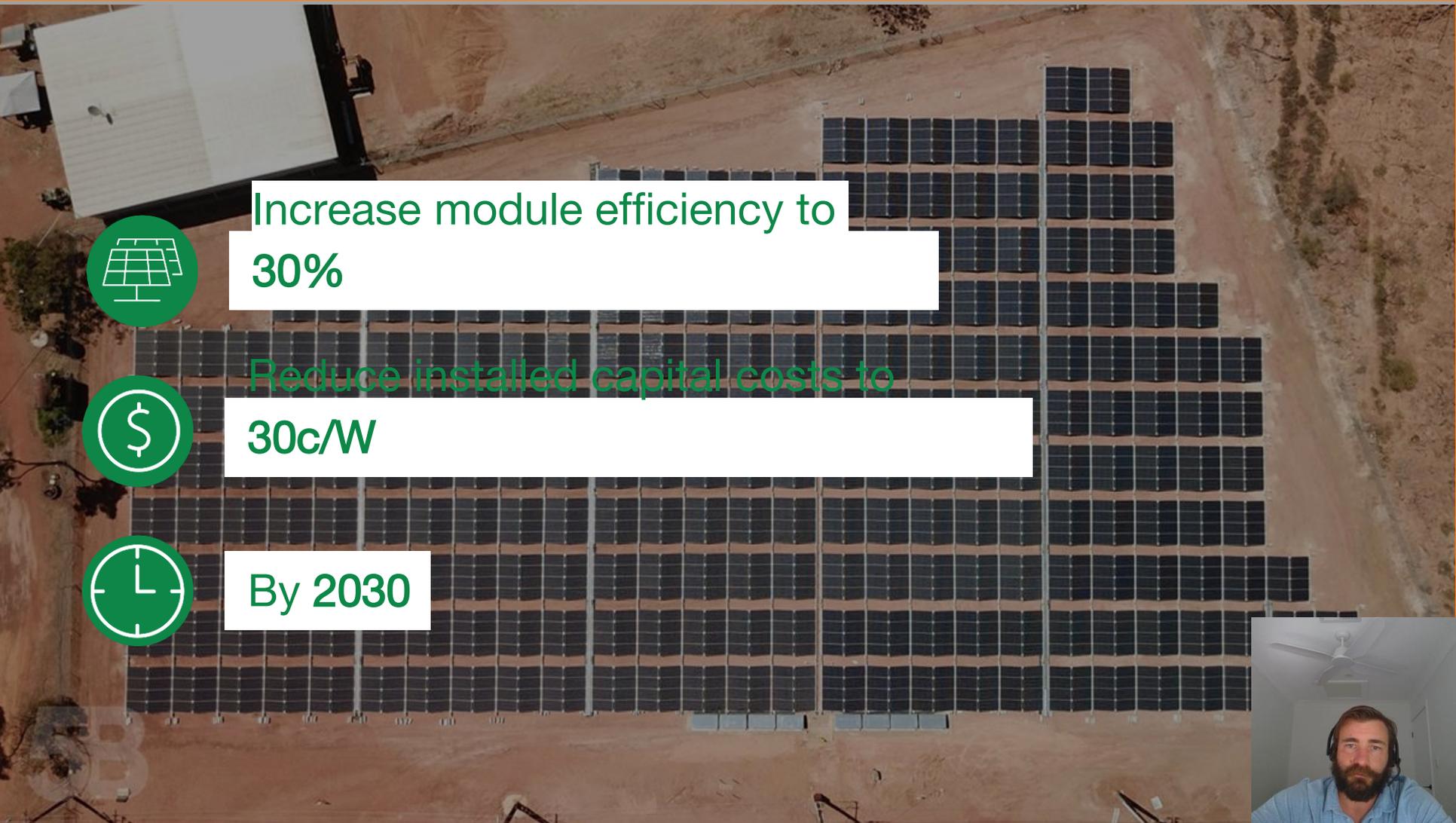
OPTIMISE THE  
TRANSITION TO  
RENEWABLE  
ELECTRICITY

# Investment Themes

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1. Integrate large-scale renewable energy
2. Cost effective energy storage
3. Demand flexibility
4. Ultra-low cost generation





Increase module efficiency to  
30%



Reduce installed capital costs to  
30c/W



By 2030





# COMMERCIALISE CLEAN HYDROGEN

INVESTMENT PRIORITY



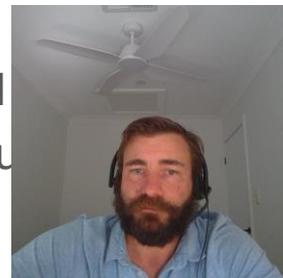


COMMERCIALISE  
CLEAN HYDROGEN

## ARENA's Focus

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1. Reduce the cost of hydrogen produced from renewable energy
2. Research and development to demonstrate technologies that address technical challenges along the rest of the hydrogen value chain
3. Prove the technical feasibility and commercial viability of hydrogen u



# HYDROGEN FEASIBILITY AND DEMONSTRATION PROJECTS

ARENA



INVESTED

**\$33.2M**



PROJECTS

**12**



VALUE

**\$77.5M**



INVESTMENT LEVERAGE

**\$1:\$1.53**



**1 YARA PILBARA RENEWABLE AMMONIA FEASIBILITY STUDY**

Yara Pilbara Fertilisers  
ARENA FUNDING / PROJECT COST  
\$1.0M / \$3.7M

**2 PROJECT GERI FEASIBILITY STUDY**

BP Australia  
ARENA FUNDING / PROJECT COST  
\$1.7M / \$4.7M

**3 THE HAZER PROCESS: COMMERCIAL DEMONSTRATION PLANT**

Hazer Group  
ARENA FUNDING / PROJECT COST  
\$9.4M / \$22.6M

**4 ATCO H2 MICROGRID**

ATCO Gas Australia  
ARENA FUNDING / PROJECT COST  
\$1.8M / \$3.7M

**5 BLENDING HYDROGEN INTO VICTORIAN AND SOUTH AUSTRALIAN GAS INFRASTRUCTURE**

Australian Gas Infrastructure Group  
ARENA FUNDING / PROJECT COST  
\$1.3M / \$4.2M

**6 TOYOTA ECOPARK HYDROGEN DEMONSTRATION**

Toyota Motor Corporation Australia  
ARENA FUNDING / PROJECT COST  
\$3.1M / \$7.4M



**7 DYNO NOBEL EXPANSION OF MORANBAH - FEASIBILITY OF RENEWABLE HYDROGEN**

Dyno Nobel Moranbah  
ARENA FUNDING / PROJECT COST  
\$1.0M / \$3.0M

**8 STANWELL HYDROGEN DEMONSTRATION**

Stanwell Corporation  
ARENA FUNDING / PROJECT COST  
\$1.25M / \$5.0M

**9 QUEENSLAND NITRATES FEASIBILITY STUDY FOR GREEN HYDROGEN AND AMMONIA**

Queensland Nitrates (QNP)  
ARENA FUNDING / PROJECT COST  
\$1.9M / \$3.9M

**10 WALLUMBILLA RENEWABLE METHANE DEMONSTRATION**

APA Group  
ARENA FUNDING / PROJECT COST  
\$1.1M / \$2.3M

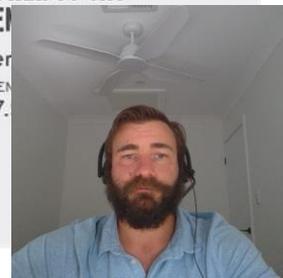
**11 BULWER ISLAND RENEWABLE HYDROGEN PRODUCTION AND REFUELLING PROJECT**

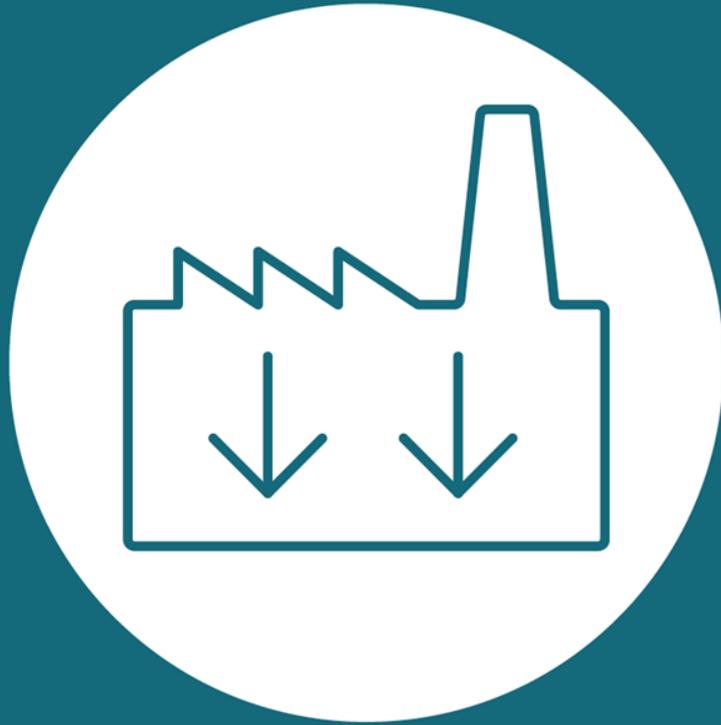
BOC  
ARENA FUNDING / PROJECT COST  
\$1.0M / \$4.2M

**12 POWER TO GAS DEMONSTRATION**

Jer...  
ARENA FUNDING / PROJECT COST  
\$7....

● FEASIBILITY STUDIES ● DEMONSTRATION PROJECTS





# SUPPORT THE TRANSITION TO LOW EMISSIONS METALS

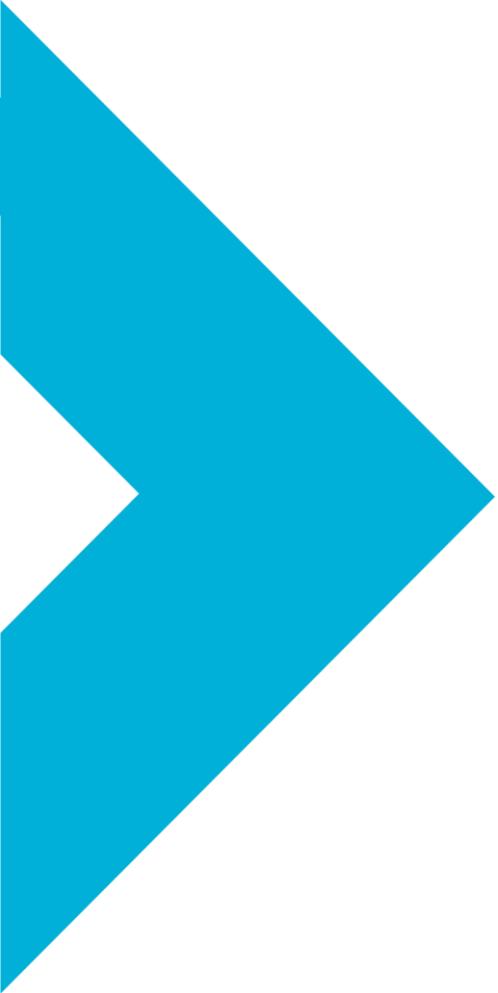
INVESTMENT PRIORITY



## Learn more about ARENA projects online

- ARENA's **Knowledge Bank** is an open-source library of reports, studies and tools. Subscribe to our industry newsletter, **Insights**, [arena.gov.au/knowledge-bank](https://arena.gov.au/knowledge-bank)
- Our **podcast** features energy experts Dr Alan Finkel, AEMO CEO Audrey Zibelman and Managing Director of German Energy Agency, Kristina Haverkamp. Subscribe wherever you get your podcasts.
- **ARENAWIRE** is home to news and analysis about ARENA funded projects. Subscribe to our E-news at [arena.gov.au/blog](https://arena.gov.au/blog).





## Next steps

**Contact ARENA:**  
[proposals@arena.gov.au](mailto:proposals@arena.gov.au)

**More information?**  
Visit [arena.gov.au/funding](https://arena.gov.au/funding)

www.arena.gov.au

