



# IMPACT REPORT

## 2018



Australian Government  
Australian Renewable  
Energy Agency

**ARENA**

# A-LAB IMPACT REPORT 2018

To the Renewable Energy Community,

ARENA's A-Lab continued to hit goals and bring innovative thinking to the energy sector in 2018. It was an enormous year, with four events held right across Australia, even reaching the remote town of Alice Springs. We had well over 200 people come through our doors, and each worked hard to generate more than 300 innovative new ideas. All great inventions started out as a new idea and we can't wait to see which ones are brought to life in the coming months. Our community is certainly doing its part to accelerate Australia's transition to renewable energy.

Some notable highlights included the launch of the Distributed Energy Integration Program (DEIP), announcing \$19 million in funding for Short-term Forecasting and Distributed Energy Resources (both ideas borne from 2017 A-Lab events), and running our first ever three-day project incubation program - Incubate 2018.

We want to take this opportunity to share with you what we've learnt, what we've achieved and how we did it in 2018. We are extremely proud of the progress we've made. Whether it was cultivating greater industry collaboration to optimise distributed energy; to exploring the integration of renewables in industrial processes; or, working through how the Northern Territory might reach its 2030 renewable energy target - one constant remained. We thought big!

Feedback from events continue to show that ARENA's unique strength is the ability to put the right people in the right room to generate the right conversations.

In the coming year A-Lab will continue to bring together a diverse network of people with the expertise and passion to create change. Or, as one A-Lab participant described, we will continue to "put people together in creative ways... [to] generate incredible ideas to solve our biggest challenges."

Keep innovating,  
The ARENA A-Lab team

# WHAT IS A-LAB?

A-Lab is ARENA's innovation lab that looks to create cross-sector partnerships and world-first projects to transition Australia to clean energy.

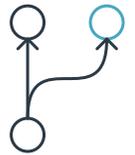
A-Lab brings together a diverse network of people with the expertise and passion to drive systemic change in the electricity sector.

Together, this network works to define solutions to the most complex challenges facing the energy sector by combining the respective strengths of participants in order to build momentum for change.



## WHY? SYSTEMIC CHANGE

A-Lab fills a critical gap in the innovation landscape, providing a forum for strategic problem solving to drive systemic change.



## WHAT? TOOLS + APPROACHES

A-Lab uses a structured innovation process that leads a diverse range of people, and their ideas, through a best practice innovation methodology.

With design thinking at its core, A-Lab draws on three approaches:

**Ideate** events are used to generate new ideas for projects that address systemic change.

**Incubate** working sessions provide a structured, focused space for teams to develop project ideas with support from industry experts.

**Accelerate** workshops are collaborative, facilitated processes intended to support the co-design of large, multi-stakeholder ARENA funding programs.



## WHO? A DIVERSE NETWORK

Broad participation ensures diverse perspectives are included in the process and improves reframing of systemic challenges.

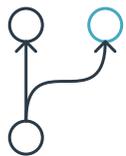
To date, more than 500 people from hundreds of organisations have participated in A-Lab.





## OBJECTIVES

A-Lab has three core objectives:



### PROJECTS DRIVING SYSTEMIC CHANGE

Through our process we will enable the design of new projects, initiatives and businesses that accelerate the transition to clean energy.



### COLLABORATIVE COMMUNITY

To deliver systemic innovation we will foster collaboration across a diverse group of participants, representing all parts of the energy system.



### BUILDING INNOVATION CAPABILITY

We will empower our participants with new skills and capabilities to creatively solve the industry's biggest challenges.

## PARTNERS

ARENA partners with ThinkPlace and Marchment Hill to create, produce and deliver events.

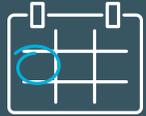


MARCHMENT HILL  
- consulting -

A number of exciting A-Lab events are being developed for 2019. To ensure you are kept in the loop, subscribe [here](#) for updates.

For any further queries email: [a\\_lab@arena.gov.au](mailto:a_lab@arena.gov.au)

# 2018 ACHIEVEMENTS



EVENTS:  
**Four**



PARTICIPANTS:  
**214** individuals  
from  
**147** companies across  
the entire energy sector



IDEAS  
GENERATED:  
**300+**



PROJECTS FUNDED BY ARENA:  
**12** (with an additional  
6 currently under review  
by ARENA)



- KEY SUCCESSES:
- > Distributed Energy Integration Program (DEIP) launch
  - > Short-term Forecasting Funding Round

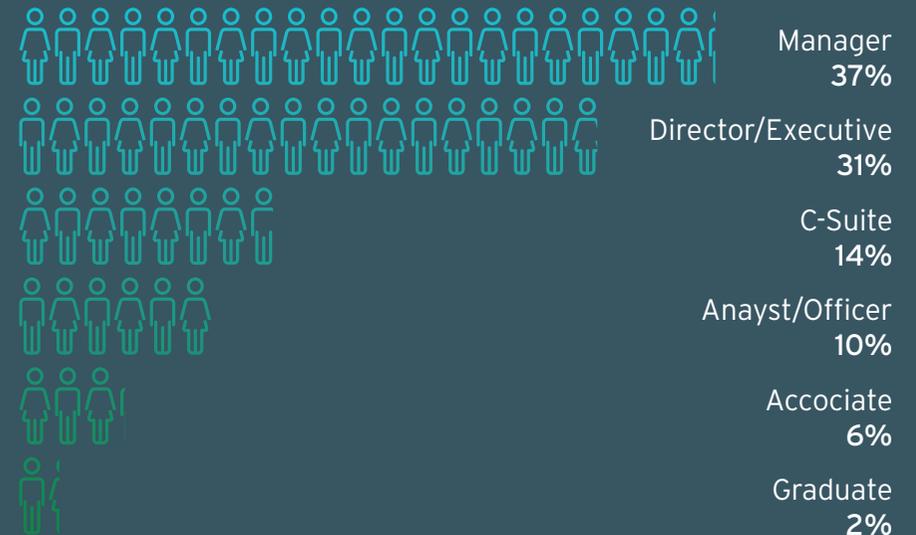
## A-LAB ACCUMULATIVE

Total funding awarded: **\$48.5m**

Total A-Lab participants: **545**

Total organisations: **203**

### WHO'S IN THE ROOM?



# CASE STUDY 1

## BUILDING A NEW CROSS-INDUSTRY COLLABORATION ON DISTRIBUTED ENERGY

6 MARCH 2018

MELBOURNE, VICTORIA

**APPROACH:**  
A-Lab Accelerate

**PARTICIPANTS:** 60

### WHY?

To explore options for enhancing collaboration on the challenge of integrating distributed energy resources (such as solar PV, batteries, electric vehicles and smart appliances) into the grid.

### OUTCOME:

This event was the genesis for the Distributed Energy Integration Program (DEIP) a collaboration of key industry players working towards gaining maximum benefit from Australia's distributed energy resources.

### DEMONSTRATES:



Australia is at the global forefront in the **deployment of distributed energy resources (DER)** and a number of trials, programs and policy initiatives are supporting this transformation. ARENA understands just how important this area is, having supported more than **90 demonstration projects, trials and studies** to develop new technologies, commercialise businesses and test regulatory settings. And the industry agrees. There are already several industry initiatives which consider how to enhance DER, such as CSIRO and Energy Network Australia's (ENA) Electricity Network Transformation Roadmap, ARENA and ENA's Renewables Integration Stocktake, the Australian Energy Market Commission (AEMC) Distributed Market Model and the Australian Energy Regulator (AER) reformed Demand Management Innovation Allowance and Demand Management Incentive Scheme.

ARENA hypothesised that by **improving industry collaboration** we could accelerate the successful deployment of DER and **maximise the value this technology** provides to consumers and the energy system as a whole. A-Lab was the perfect vehicle to test this thought.

It was an intense day for our hard working participants. But by the end we had developed more than a dozen possible models for **improved industry wide collaboration**. These ranged from the establishment of a new peak body or agency, through to more flexible arrangements for regulatory sandboxes, where trials and technologies could be rapidly implemented within a 'safe container' to enable innovation.

Following this A-Lab session, ARENA continued its work with participants, investigating and refining potential models in order to build consensus around a pathway forward. It was from here that the **Distributed Energy Integration Program (DEIP)** was born. DEIP is a collaboration of government agencies, market authorities, industry and consumer associations aimed at maximising the value of customers' distributed energy resources for all energy users.

Figure 1: DEIP Evolution



The DEIP Steering Group has catalogued existing trials and programs underway to improve access to knowledge across the industry. The group has also established priorities across four work streams:

- > Consumers
- > Market participation
- > Technical integration
- > Regulatory frameworks

Figure 2: DEIP Steering Group



This case study demonstrates the importance of A-Lab's work in creating a collaborative community of industry practitioners working towards common objectives. A-Lab's convening power, and its ability to lead industry participants to work creatively and collaboratively, helped to launch an industry wide initiative jointly led by ARENA.

For further information about DEIP visit the [ARENA website](#).

MARCH 2018



**APPROACH:**  
A-Lab Ideate  
and



A-Lab Incubate

**OUTCOMES:**

\$10 million funding program, a new AEMO process and 11 new short-term forecasting projects.

**DEMONSTRATES:**



Building innovation capacity



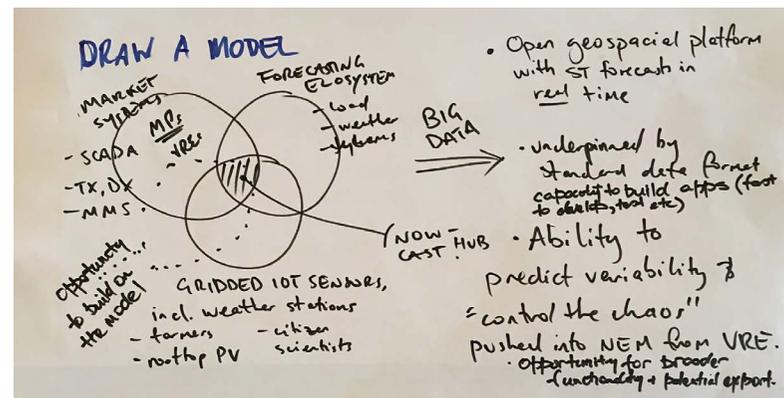
Collaborative community

We want to share one of our favourite A-Lab success stories. It has all the ingredients A-Lab tries to foster.

At an A-Lab Ideate session in August 2017, two participants, one from ARENA and one from AEMO started discussing an idea to develop a national, data rich “nowcasting” system. So passionate about the idea were these two, they pitched it to the A-Lab Dolphin Tank. They explained that “nowcasting” could be a new way for millions of data points to be integrated into a complex system of forecasting for wind and solar generation as well as local, regional and national demand.

With their idea gaining momentum, the pair **grew their team to include other representatives from AEMO and the CEFC** and refined their idea using A-Lab’s incubate process. The focus evolved to providing a new way to deliver five-minute ahead forecasting for wind and solar generators, which is a capability that drives operations and costs for renewable plants as well as the market operator. Through the process of rapid testing and iteration the project team were able to rapidly refine the scope of the idea, and take it back to their organisations to get buy-in.

**The result?** In March 2018 ARENA’s announced a **\$10 million funding program** for short-term wind and solar forecasting. In July 2018,



AEMO announced a process seeking to build a new operational forecast submission capability for all registered wind and solar generators in the NEM. In early 2019, ARENA announced **11 successful projects**, involving 45% of the national electricity markets currently operating solar and wind capacity.

From what started as a simple conversation between two passionate individuals has now developed into a **deeply collaborative effort** between dozens of generators, developers, technology vendors, universities and start-ups all working closely with ARENA and AEMO to potentially change the way renewable energy generators forecast their output. The main objective will be to improve system security, reduce costs and enable higher penetration of variable renewables.

If successful, it will be an enormous achievement for the advancement of renewable energy. It will also further highlight that A-Lab’s approach to fostering collaboration and creative problem solving is successful.

For more information on the short term forecasting initiative, including details of the successful projects, have a look at [ARENA’s website](#).

# CASE STUDY 3

## CUTTING THROUGH ON ENERGY PRODUCTIVITY FOR INDUSTRIAL PROCESS HEATING

11 APRIL 2018

SYDNEY, NEW SOUTH WALES



**APPROACH:**  
A-Lab Accelerate

**PARTICIPANTS:** 60

### WHY?

Increase the uptake of renewables in Australian industry.

### OUTCOME:

A stronger understanding of the challenges and complexities and the development of a pilot program of feasibility studies.

### DEMONSTRATES:



Building innovation capacity

### WHAT WE SET OUT TO DO

ARENA believed that the combination of A-Lab's unique methods, coupled with an ability to invest, could create **renewable action** in the industry space. While a number of technical solutions are available, the uptake of renewables in industry has been limited due to several well-documented barriers inhibiting energy efficiency measures generally<sup>1</sup> and the nascent state of some renewable energy solutions for industry. This A-Lab aimed to inform ARENA the most **effective ways to overcome these barriers**, stimulate demonstration deployments and ultimately help to **transform the market**.

### WHAT HAPPENED

The complexity of the task was noted throughout the day, as well as key barriers identified including:

- > lack of impartial information and advice on relevant technologies
- > risk aversion to business disruption
- > institutional "silos" and misalignment of budgets and resources (i.e. internal "split incentives")
- > regulatory barriers (notably for bio-energy technologies and also for energy "sharing" across property barriers)
- > high capital hurdle rates - opportunity cost of funds, and
- > difficult or complex to access funding sources.



After generating a large volume of potential ideas for projects, trials and other initiatives, we found there was greatest interest for undertaking **site-specific investigations** to determine the most appropriate energy productivity / renewable energy technologies.

Subsequently, the Australian Alliance for Energy Productivity (A2EP), in conjunction with the NSW Office of Environment & Heritage and Sustainability Victoria, applied for and received ARENA funding to support a pilot program of feasibility studies investigating technologies to reduce or replace steam generation and use across a range of manufacturing sites.

ARENA will evaluate the learnings from this pilot to inform future activities in this area.

<sup>1</sup> There is an extensive literature on market failures which prevent the optimal uptake of energy efficiency opportunities. See for example: ClimateWorks 2012, *Inputs to the Energy Savings Initiative modelling from the Industrial Energy Efficiency Data Analysis Project* [https://www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks\\_esi\\_iedap\\_report\\_jul2012.pdf](https://www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_esi_iedap_report_jul2012.pdf)

# CASE STUDY 4

## DELIVERING 50% RENEWABLES BY 2030: RE-IMAGING AND LEVERAGING THE ALICE SPRINGS EXPERIENCE

7-8 NOVEMBER 2018

DESERT KNOWLEDGE PRECINCT, ALICE SPRINGS NORTHERN TERRITORY

**IDEATE** APPROACH:  
A-Lab Ideate

**PARTICIPANTS:** 50

**PARTNERSHIP:** Intyalheme

### WHY?

Generate ideas for projects to help overcome the challenges of increasing and optimising renewables in the Alice Springs power system.

### OUTCOME:

Creation of 200 new ideas  
9 of which are progressing  
as potential future projects.

### DEMONSTRATES:

 Building innovation capacity

 Collaborative community

 Driving systemic change

A-Lab stretched its wings and went regional for the first time, visiting the iconic town of Alice Springs. This Ideate session sought to generate ideas and projects to tackle some of the significant challenges facing the Alice Springs power system. This included accommodating higher penetration of renewables, and leveraging the Alice Springs experience to explore solutions that could be adopted more broadly in the National Electricity Market (NEM).

To deliver this session the A-Lab team partnered with the Intyalheme Centre for New Energy in Alice Springs. Intyalheme (pronounced in-char-lum) is an Arrernte word that describes a fire reigniting.

Established in 2017 with \$5 million seed funding from the Northern Territory (NT) Government, Intyalheme occupies a unique space in the NT energy sector. Intyalheme's role is to identify and bridge gaps in relationships, knowledge, and technologies and drive projects that bring people and opportunities together to increase the uptake of renewable technologies. It also seeks to reduce reliance on conventional sources of power and contribute towards the Northern Territory's target of 50% renewable energy by 2030.

Both Large-scale and small-scale solar can no longer be integrated easily into the Alice Springs network due to network challenges. These include low fault current, lack of inertia and spinning reserve, and poor frequency control. Through this A-Lab event, participants were challenged to develop new ideas and collaborations to overcome the physical, commercial and regulatory barriers to the further deployment of renewable energy.

The event drew together more than 50 people from 29 organisations, with more than half of those organisations coming from outside the NT. This group responded brilliantly to the challenge, generating in excess of 200 new ideas, translating those into 19 project concepts, and finally pitching nine project ideas to the A-Lab 'Dolphin Tank' which included the NT Minister for Minister for Renewable Energy and Essential Services, Hon. Dale Wakefield.

Since the event, the Intyalheme team has continued to work with A-Lab participants to further develop their ideas and concepts. This has resulted in the development of the Alice Springs Future Grid Project - an amalgamation of several of the ideas created at A-Lab and the continued collaboration of the participants. This project is still under development, however, ARENA is monitoring closely its progress. If the idea comes to fruition, it would result in the transformation of the Alice Springs energy system, with lessons learned directly applicable to the rest of the NT and the nation.



# CASE STUDY 5

## HATCHING NEW IDEAS: INCUBATE 2018

21-23 NOVEMBER 2018

MELBOURNE ZOO, VICTORIA

**IDEATE** APPROACH:  
A-Lab Incubate

TEAMS: 10

### WHY?

Refine renewable energy project ideas and develop detailed business plans for testing with industry

### OUTCOME:

All 10 teams are progressing their ideas towards future projects

### DEMONSTRATES:

 Collaborative community

 Driving systemic change

In 2018, we launched our first ever A-Lab project incubate program: Incubate 2018.

In the lead up to the event, ARENA invited the public to submit their best ideas to help accelerate Australia to transition to renewable energy.

ARENA received an overwhelming number of applications, from which 10 teams were invited to participate.

Teams investigated projects for a variety of uses across the energy sector including electric vehicles, distributed energy resource optimisation, smart hot water systems, optimising solar for multi-metered buildings, and supporting greater access to renewables for low-income households.

The three-day intensive working session saw teams progress through 12 modules to refine ideas, develop detailed business plans and budgets, and test concepts with industry, venture capitalists and other cleantech funding bodies. The event culminated in a pitch session to the A-Lab Dolphin Tank.

Teams were supported by A-Lab facilitators and other experts to improve the quality of their ideas, enable cross-sector collaboration and accelerate the process of taking concepts through to delivery. Participants also had access to experts and industry representatives who gave feedback on project ideas, regulatory issues, stakeholder engagement and funding models.

It was a huge success and all 10 teams are now progressing their projects to the next stage and ARENA is monitoring their progress closely.

For more information on A-Lab Incubate 2018 refer to the [ARENA website](#).



# PEOPLE MAKE CHANGE HAPPEN



[www.arena.gov.au/a-lab](http://www.arena.gov.au/a-lab)



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