

*Building the case  
for an*  
**ARID ZONE  
LIVING LAB**

Collaboration  
across borders  
and climatic  
regions

Jimmy Cocking  
DKA CEO

Darwin Living Lab  
Symposium July 2023



## Acknowledgment of Country



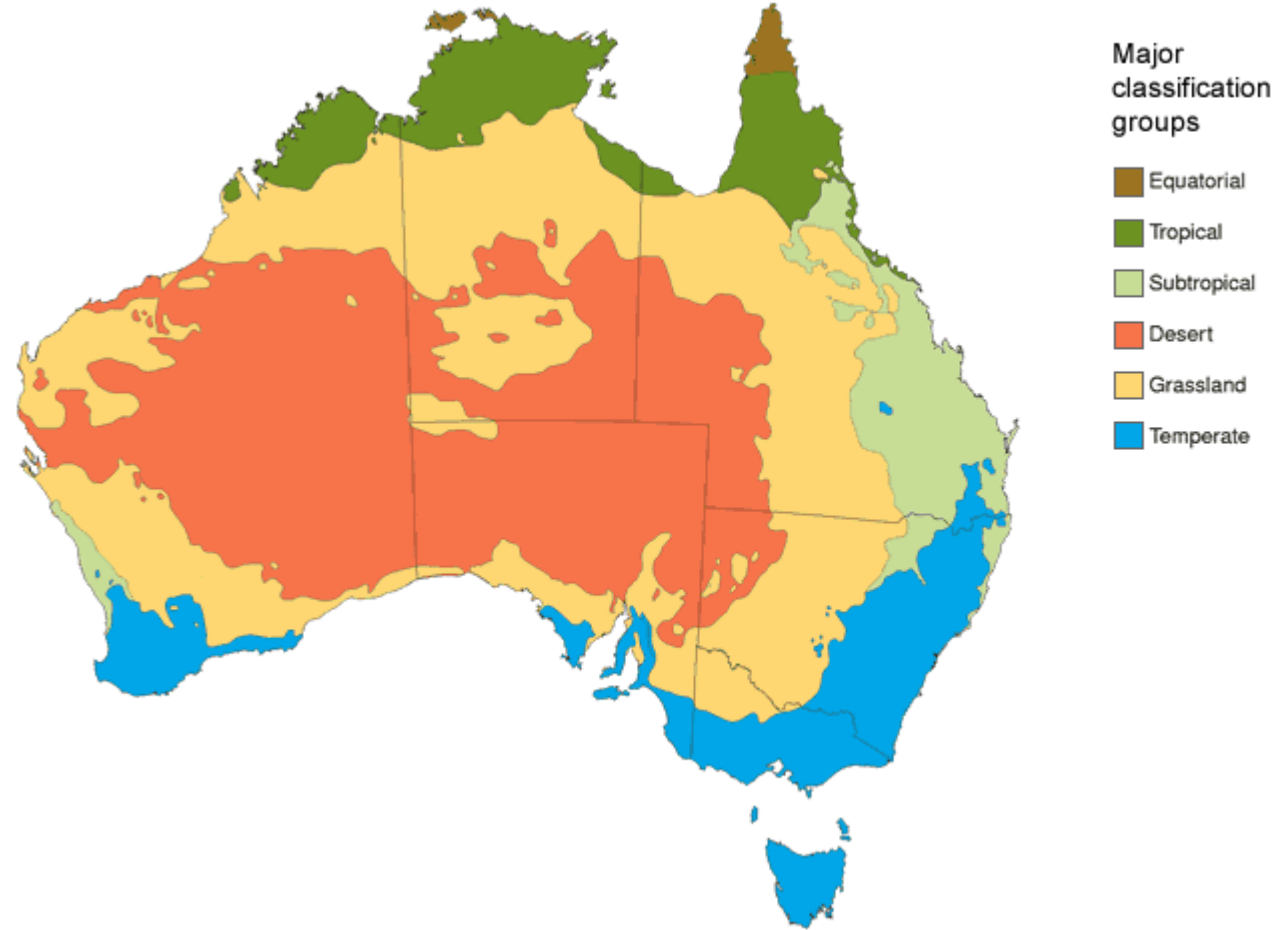
Desert Knowledge Australia acknowledges and pays respects to the Larrakia people, their Elders, past, present and emerging. Thank you for having us on this beautiful saltwater country and for your continued stewardship of this land.

I extend that respect and acknowledgement to any other First Nations People here.

DKA also acknowledges the Arrernte people, on whose land the Desert Knowledge Precinct is located. I want to acknowledge the leadership that created the Precinct and Lhere Artepe Aboriginal Corporation with whom we have an Indigenous Land Use Agreement.

# THE ARID INLAND

- Extreme temperatures
- Unpredictable climate
- Social variability
- Remoteness



[http://www.bom.gov.au/iwk/climate\\_zones/map\\_1.shtml](http://www.bom.gov.au/iwk/climate_zones/map_1.shtml)

# REMOTENESS

- Remoteness
  - Governance and policy failure
  - Service delivery failure
  - Economic/market failure
- Climate vulnerability – already hitting 1.5C
- Highly transitory population
- Silos – cross border, fragmented between states, NT and Feds and within governments



# RESEARCH NOT HITTING THE GROUND

Aboriginal people are the most researched people in the world, with little to no benefit being received

Universities from all around Australia have researchers working periodically and throughout the arid lands – with no means or intent to share the findings meaningfully with local people.

Research is not being developed with First Nations People as the end-users or beneficiaries of the research.

Slow to no progress on Closing the Gap initiatives and various other indicators of wellbeing.

# TOWARDS SOLUTIONS FOCUSED APPROACHES

- Place-centred and place-based
- Community driven agenda
- Collaborative rather than competitive
- Knowledge sharing and benefit sharing
- City – bush partnerships



# GLOBAL NEED AND OPPORTUNITIES

- 1 Billion people live in deserts and arid lands
- Innovations tested and lessons shared
- Global need to adapt to extreme and highly variable conditions
- Water sensitive design



<https://earthobservatory.nasa.gov/biome/biodesert.ph>

# DESERT KNOWLEDGE AUSTRALIA



## DESERT KNOWLEDGE AUSTRALIA

- Statutory corporation *Desert Knowledge Australia Act 2003* (NT) established to support research, education and building partnerships for economic and social development in deserts
- Manages the 73ha Desert Knowledge Precinct including the DKA Solar Centre and microgrid
- Current and recent programs include Codes 4 Life, DKAccelerator and Alice Springs Future Grid
- *“Sharing our place on Country to innovate, progress social wellbeing and sustainability for desert & arid communities”*



# DESERT KNOWLEDGE RESEARCH INSTITUTE



## DESERT KNOWLEDGE RESEARCH INSTITUTE LTD (DKRI)

- Approved Research Institute with DGR status since 2018, evolved from the Desert Knowledge Foundation est. 2012.
- DKA is sole member, independent Board, Chair and Research Committee. DKRI/DKA are associated entities.
- Partnered with Batchelor Institute and CDU to co-host the Knowledge Intersections Symposium for last 5 years
- DKRI has auspiced some local research projects including aspects of Alice Springs Future Grid
- New strategic plan focused solely on 'maximising the community benefit of desert research'.



# ALICE SPRINGS FUTURE GRID



## 1 Modelling

Computer modelling testing different generation scenarios, helping us to prepare for a future with more renewables in our electricity grid.

## 2 Commercial Microgrid

Creating a microgrid at the Desert Knowledge Precinct to understand how the site can disconnect or "island" itself, and what effect this has on the grid and the site's tenants.

## 3 Community solutions

Providing opportunities for the community to get involved in Virtual Power Plant trials and learn more about our grid of the future, building on the enthusiasm for rooftop solar.



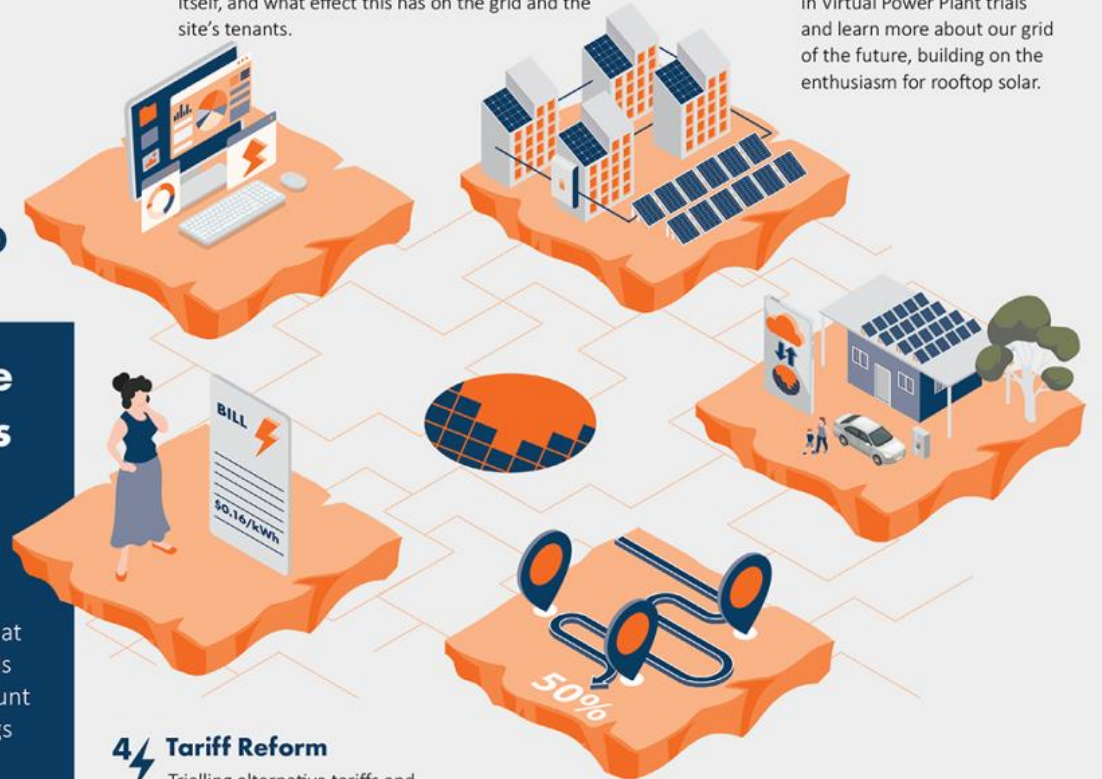
# ALICE SPRINGS FUTURE GRID

## Alice Springs Future Grid - How it works

Every electricity grid faces challenges associated with the transition to renewable energy.

Future Grid is a collaborative project that uses a series of innovative trials, models and investigations to increase the amount of renewable energy in the Alice Springs electricity system.

Through five interdependent sub projects, Future Grid will address challenges that are technical, regulatory, economic and community-focused.



## 4 Tariff Reform

Trialling alternative tariffs and incentives for energy customers with household batteries to support development of the NT's first residential Virtual Power Plant (VPP) which also includes solar-only households.

## 5 Future Grid Deployments

Improving how solar electricity from households and businesses can be used by the System Operator, by using more advanced forecasting of solar generation and load. Culminating in a Roadmap to 2030 report which will outline the pathway to 50% renewable energy for Alice Springs.



# ARID ZONE LIVING LAB

## STRATEGIC PLAN 2023-2025

*"Sharing our place on Country to innovate, progress social wellbeing and sustainability for desert & arid communities"*

DKA BOARD | DECEMBER 2022

DKA strategic  
planning:  
Final Report

2023 - 2025



## DKA's strategic priorities from 2023-25 include:

- Developing Accommodation on the Precinct
- Increased Precinct Utilisation
- Developing a Cultural Centre on the Precinct
- Establishing a Desert Resilience Research Centre
- Accelerate the roll out of renewable energy
- Work to support sustainable service systems



# ARID ZONE *LIVING LAB*

## LONG-TERM STRATEGIC PILLAR

*Establish the Desert Resilience Initiative to co-design the research, analysis and delivery of solutions to prevalent problems faced by desert and arid communities.*

**PROJECT 4** – Establish a Living Lab Research Centre to drive research in:

- Climate Adaptation
- Water scarcity
- Renewable Energy
- Housing and building design
- Education, Training, & Workforce Development



# ARID ZONE LIVING LAB

## LONG-TERM STRATEGIC PILLAR – PROJECT 4:

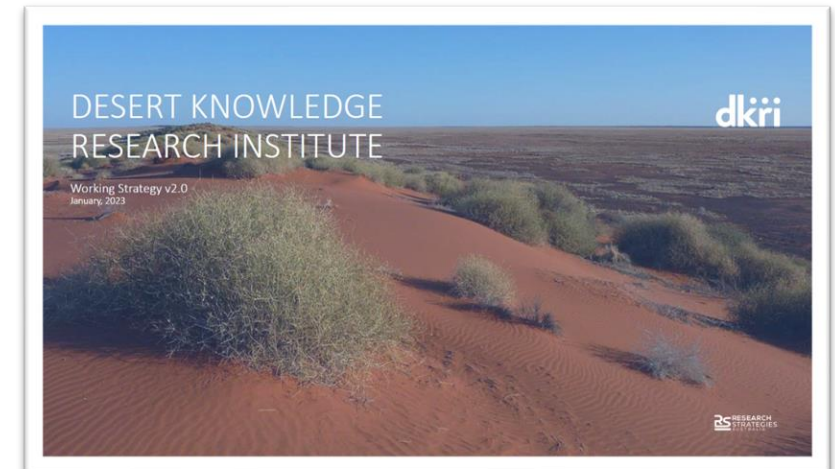
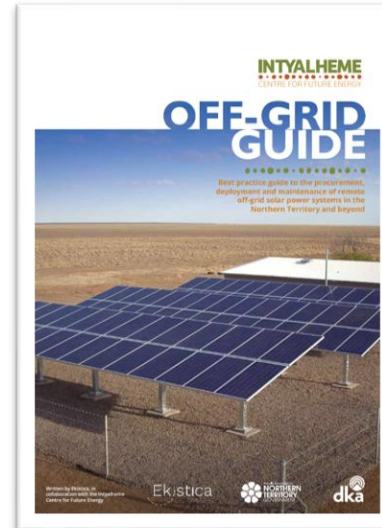
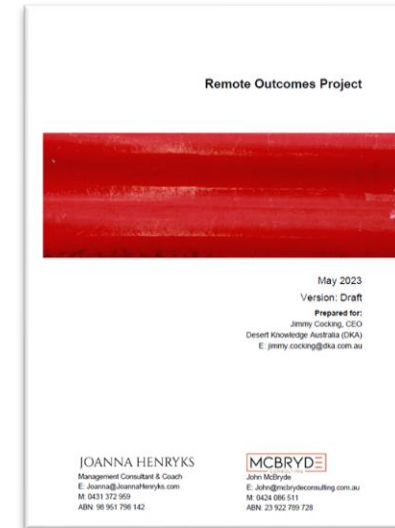
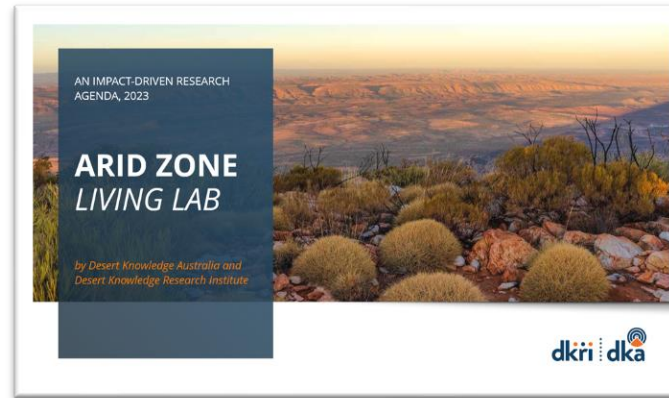
- Establish Arid Zone Living Lab (AZLL) Research Centre
- Develop AZLL prospectus
- Establish partnerships
- Research to benefit desert & arid communities



# ARID ZONE LIVING LAB

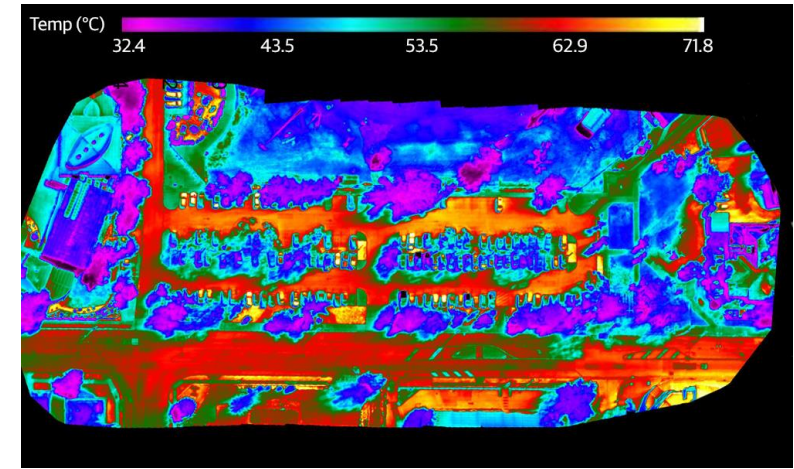
## AVAILABLE SUPPORTING DOCUMENTS:

- *Arid Zone Living Lab  
Impact-driven Draft Agenda*
- *Remote Outcomes Report*
- *Off-grid Guide*
- *DKRI Working Strategy*
- *Fixing the hole in Australia's  
Heartland*



# RESEARCH AGENDA

- Climate Adaptation in the deserts
- Integrated water management
- Renewable Energy Systems
- Housing and urban design
- Education, Training, & Workforce Development



# NEXT STEPS

- - Prospectus and business case developed
- Community and partner co-design workshops
- Partnership and Governance structure
- Explore international connections and examples
- Seek long-term funding and investment





# WE NEED YOUR HELP

- Spread the word
- Share advice and contacts
- Partner with us



# References

[Ober, R. Oliver, R. and Dovchin, S. 2022 'You can't just show up and start asking questions': why researchers need to understand the importance of yarning for First Nations. \*The Conversation\*](#)

Stafford-Smith, M. 2008

The 'desert syndrome' – causally-linked factors that characterise outback Australia

*The Rangeland Journal* 30(1) 3-14 <https://doi.org/10.1071/RJ07063>

<https://www.unsw.edu.au/content/dam/pdfs/unsw-adobe-websites/arts-design-architecture/built-environment/our-research/high-performance-architecture-research-cluster/2021-06-alice-springs.pdf>

[Walker BW, Porter DJ, and Marsh I. 2012 Fixing the Hole in Australia's Heartland: How Government needs to work in remote Australia, Desert Knowledge Australia, Alice Springs](#)



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