

**NETWORK**

**OPPORTUNITY MAPS:**

Meeting the information needs  
of a new era

Ed Langham

Clean Energy Summit

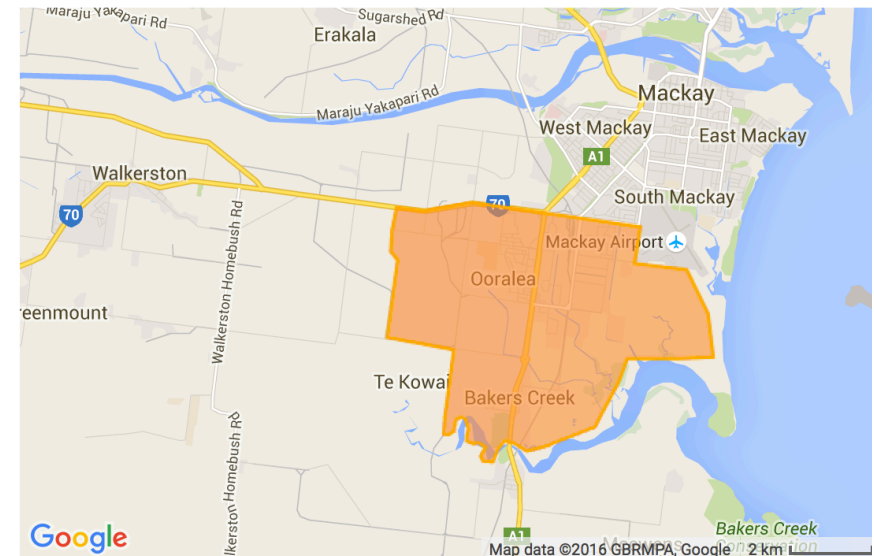
Hilton, Sydney, 27<sup>th</sup> July 2016



# ERGON ENERGY: MACKAY CONSTRAINT PROJECT (2013>)

- \$36 million proposed investment
- 1.4 MVA of load reduction
- Deferred capital costs: \$1.7 million in 2014/15
- Used “Network Capacity Incentive Map” driven by Ergon’s “Develop the Market principle”

Ooralea zone substation area



Source: DM Outcomes Report, 2014/15

# ERGON ENERGY: MACKAY CONSTRAINT PROJECT (2013>)

- Incentive Value: \$300/kVA

## Incentive payment details

Peak demand period	
Peak time of day	10am to 2pm
Days of the week	Monday to Friday (excluding public holidays)
Months of the year	October, November, December, January, February, March, April

# ERGON ENERGY: MACKAY CONSTRAINT PROJECT (2013>)

- Enabled lower cost 'deemed' items (easy approval) plus higher cost options with verification
- Large numbers of small service providers with no door knocking
- Established 'Trade Ally Network'
- = wider variety of solutions received

ENGAGING  
THE ENERGY  
SERVICES  
MARKET



Source: Demand & Energy Management Plan 16/17

# THE PROJECT: NETWORK OPPORTUNITY MAPS

**Where** within the electricity network do the most cost-effective decentralised energy (DE) opportunities exist?

**How much** could DE be worth at these locations?

**When** are the key years and times of constraint?

To answer these questions, ISF created  
**Network Opportunity Maps**

## NETWORK OPPORTUNITY MAPS

A resource to show where/when to target Renewable Energy and DE technologies & services:

- **Annually updated** through streamlined process
- **Consistently applied** in every (NEM) jurisdiction
- **Freely available** on online platform
- (Ultimately) woven into Networks' **Demand Side Engagement Strategies**

# NETWORK OPPORTUNITY MAPS

## Major funder



## Supporting funders



## In-kind support



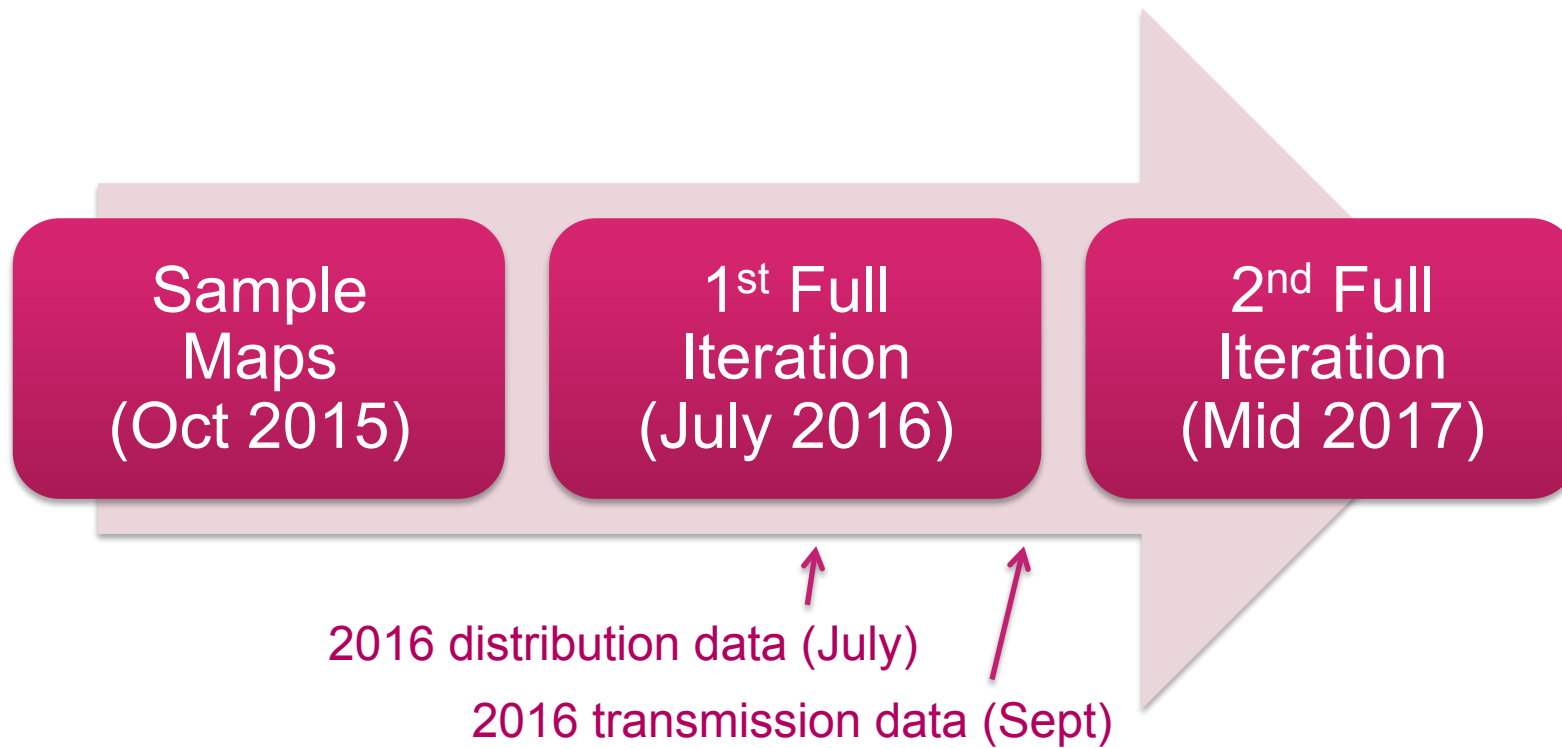
(+ All Network Businesses in the NEM!)



[isf.uts.edu.au](http://isf.uts.edu.au)



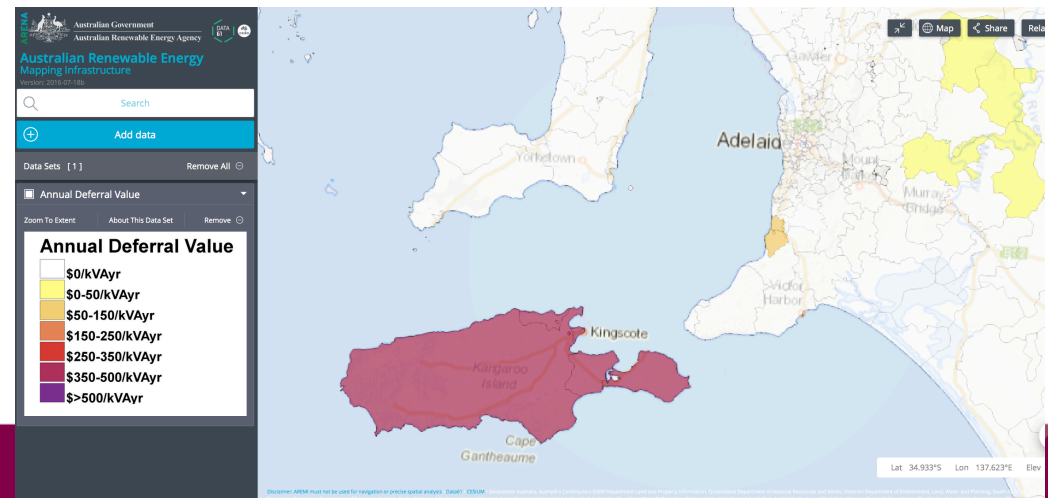
# PROJECT TIMELINE



# THE MAPS: LIVE ONLINE

## CASE STUDY: Kangaroo Island

- Population: 4300      Peak Demand 7.6 MW      Load factor: 46%
- Undersea electricity supply cable nearing end of design life
- Replacement cable cost: ~\$45 million, plus energy purchase from the mainland
- SA Power Networks has issued a request for Non Network Options
- Diesel standby generation expensive and difficult to support
- Good wind and solar resources
- Regulatory and other challenges



# INDICATIVE NON-NETWORK SOLUTION

## Illustrative option

- 8 MW wind turbines
- 4 MW centralised solar PV
- 4 MW rooftop PV (50% subsidy)
- 3 MW battery storage
  - co-located w solar PV- 70% subsidy
- 21% Energy Efficiency (subsidy @\$50/MWh)
- 3MW Diesel Rotating UPS /Standby generation
  - 3% load factor
- (+ option of 5 MW of biomass generation?)



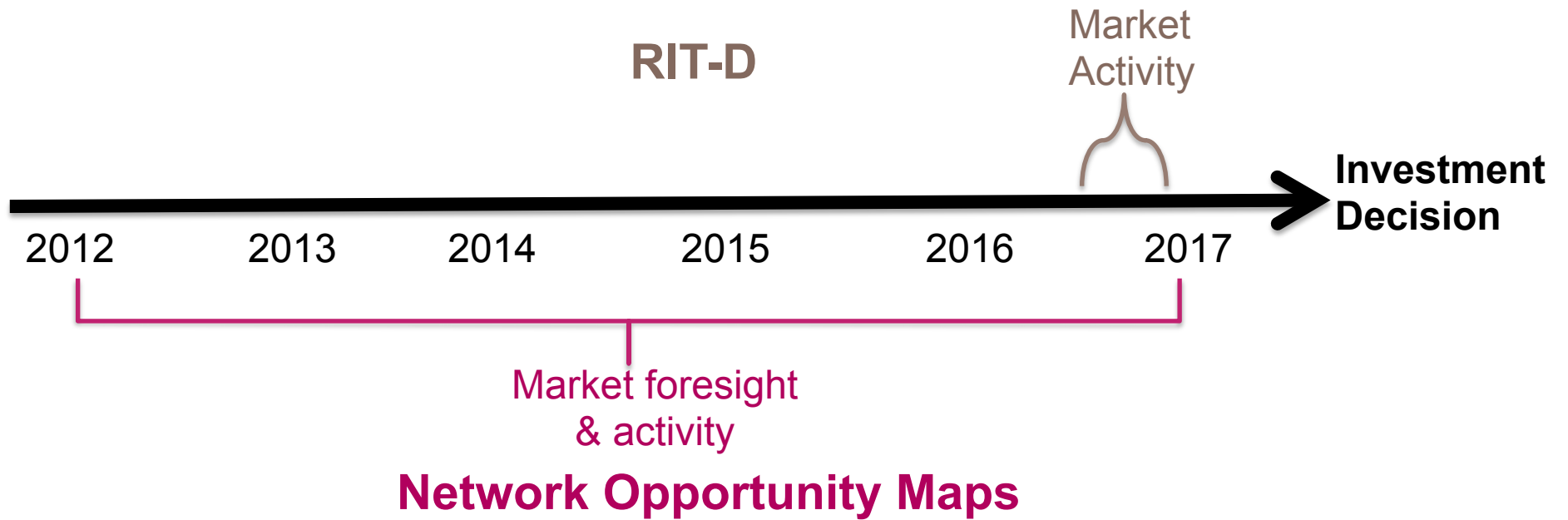
## INDICATIVE NON-NETWORK SOLUTION



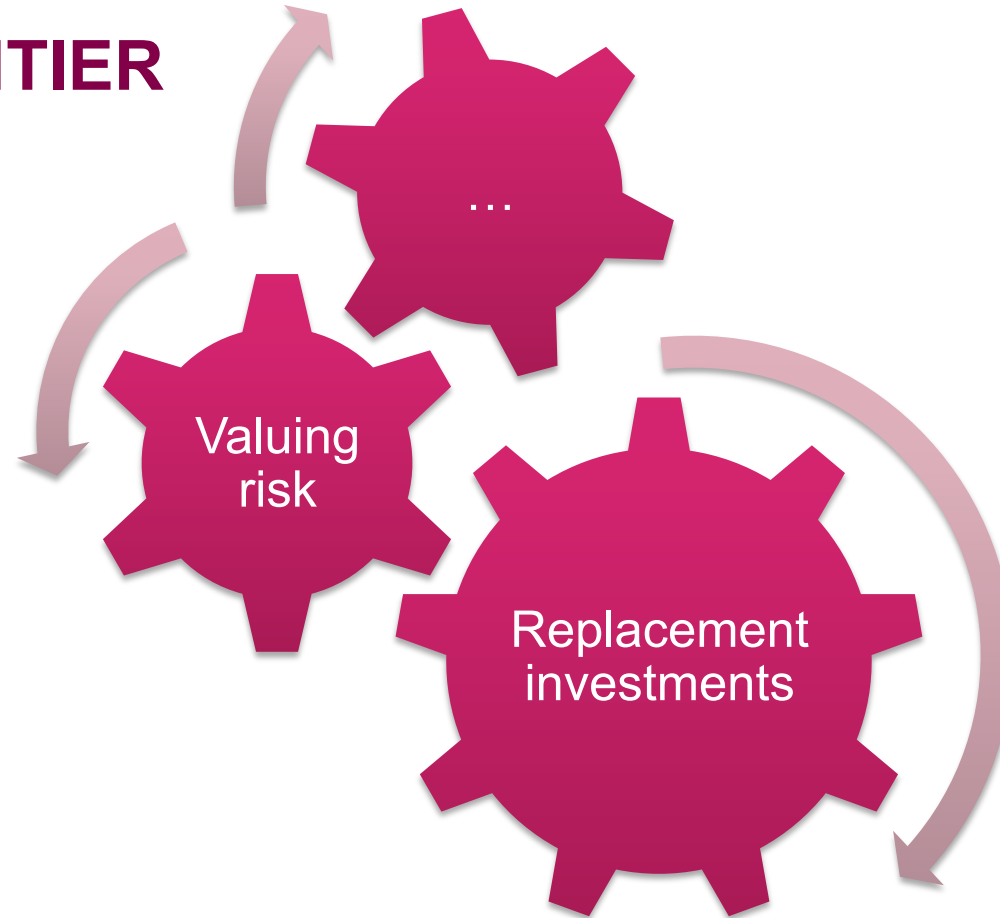
Outcomes:

- **Indicative total cost: \$50m**
  - same as cable (but invested on the Island)
- **Additional opex on the island: \$1.2m p.a**
- **Annual savings to Kangaroo Is customers: \$3m p.a.**
- **Additional generation and REC revenue: \$3.8m**
- **97% Renewable Energy** (Bioenergy or more storage for the other 3%?)

# EXAMPLE TIMELINE WITH RIT-D VS NETWORK OPPORTUNITY MAPS



# THE NEXT FRONTIER



# FUTURE OPPORTUNITIES...



[alicewalkersgarden.com](http://alicewalkersgarden.com)



## WANT TO KNOW MORE?

- Register for the webinar:

**Wednesday 3<sup>rd</sup> August 2016, 2.00-3.30pm**

- Email: [Alison.Atherton@uts.edu.au](mailto:Alison.Atherton@uts.edu.au)

# THANKYOU

Explore the maps: <http://nationalmap.gov.au/renewables/>  
[click 'Add data', 'Electricity Infrastructure', 'Network Opportunities – ISF']

**Reminder: 2016 Transmission Data Update Coming in September!**

Ed Langham

Research Principal

[edward.langham@uts.edu.au](mailto:edward.langham@uts.edu.au)

(02) 9514 4971, 0403 820 913

Chris Dunstan

Research Director

[chris.dunstan@uts.edu.au](mailto:chris.dunstan@uts.edu.au)

(02) 9514 4882, 0419 498 434

**UTS:ISF**  
INSTITUTE FOR SUSTAINABLE FUTURES

