

A large circular image showing a wind farm in a vast, arid, brown landscape under a blue sky. Two white wind turbines are visible, with a dirt road winding through the terrain. The circular frame is decorated with blue and white diagonal lines on the left and bottom edges.

# Off the grid: The reliable transition to renewable energy

James Harman, CEO  
Australian Energy Week | 13 June 2019



# Global operations



EDL is a leading global producer of sustainable distributed energy

991MW | 98 power stations | 5 countries

## Diversified asset portfolio



355MW  
landfill gas



299MW  
remote energy



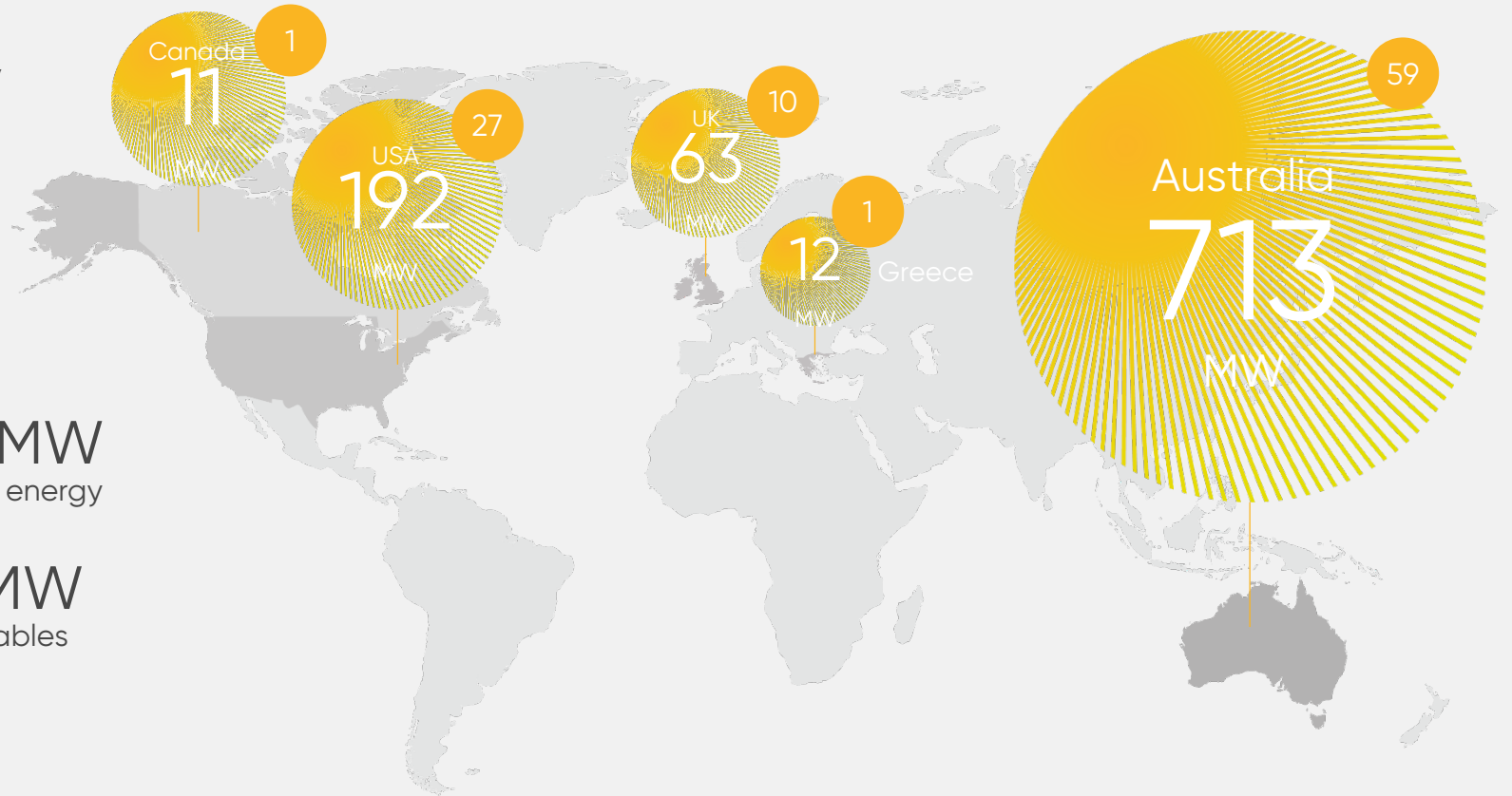
288MW  
waste coal mine gas



49MW  
renewables



21.8 TJ/day  
gas delivery (LNG/CNG/LFG)



● Number of power stations

# Australian operations



EDL owns and operates 59 power stations in clean and remote energy across Australia.

Our global headquarters is in Brisbane, Queensland.

## Diversified asset portfolio

713MW

77MW

landfill gas

49MW

renewables

59

assets

288MW

waste coal mine gas

299MW

remote energy



# EDL's remote energy assets



- Powering off-grid remote communities and industries for 30 years
- Fuelled with natural gas and/or diesel
- Since 2017, grown to include three hybrid renewable assets:
  - Coober Pedy Renewable Hybrid Project
  - Cannington Power Station
  - Agnew Renewable Hybrid Project, under construction.



## KEY



Remote energy



LNG/CNG



Hybrid renewables

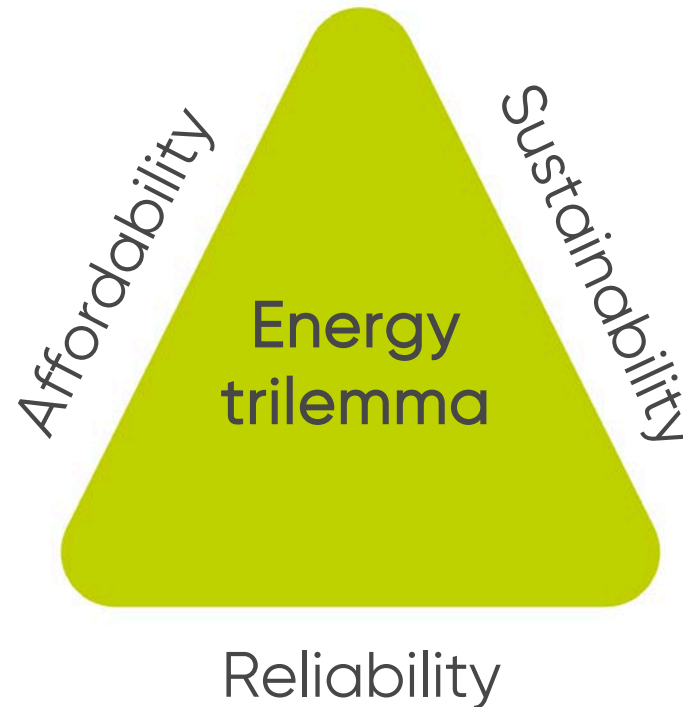
# Drivers of the transition to renewable energy



Decreasing costs of renewable energy technologies

Price volatility of traditional fuel sources

Potential cost savings for operation/project



Social sustainability imperatives to reduce emissions

Execution of Paris Agreement in 2016

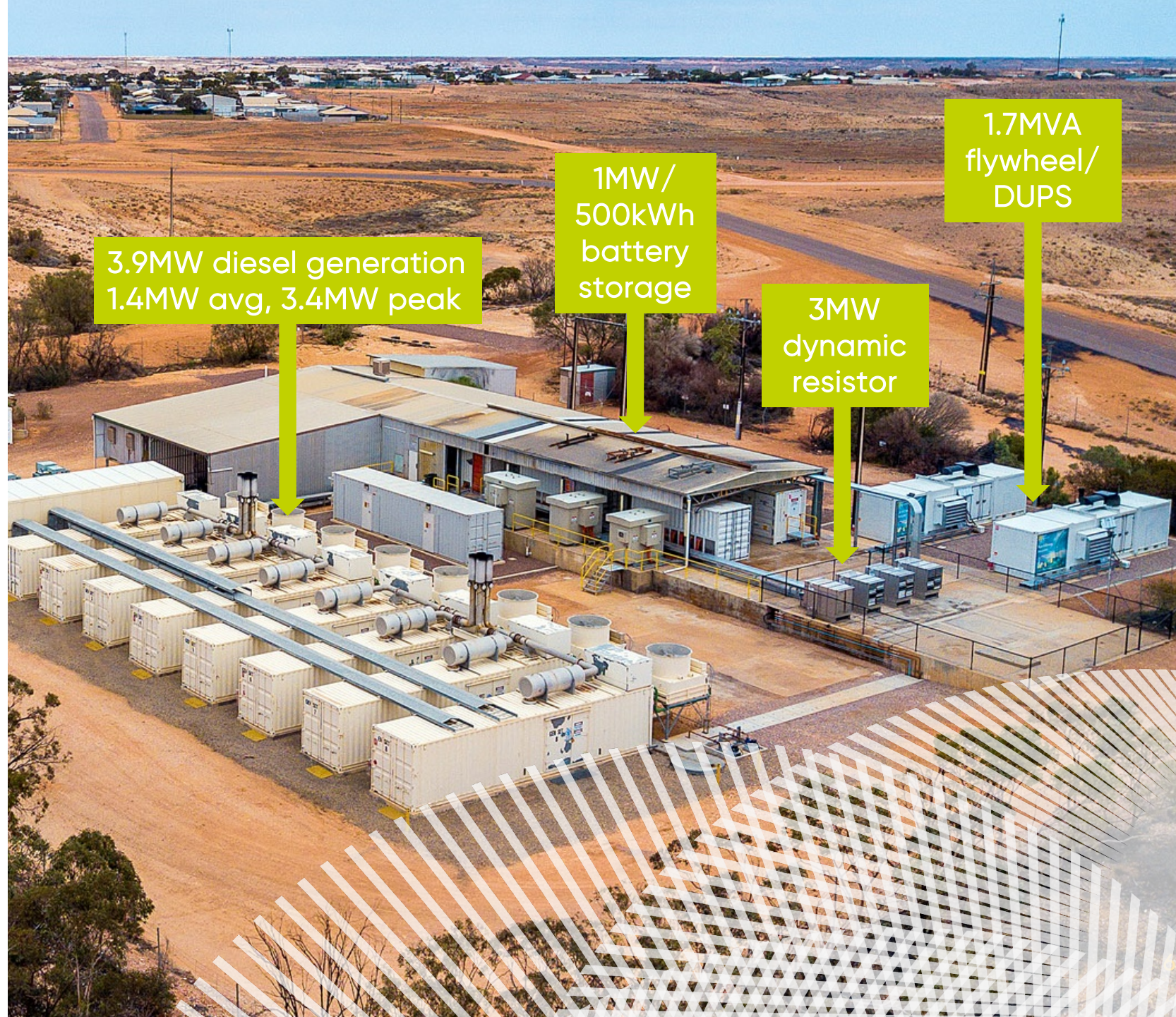


# Coober Pedy Renewable Hybrid Project

1MW AC solar



4MW wind generation



3.9MW diesel generation  
1.4MW avg, 3.4MW peak

1MW/  
500kWh  
battery  
storage

3MW  
dynamic  
resistor

1.7MVA  
flywheel/  
DUPS



# Coober Pedy Renewable Hybrid Project



| Period             | Year | Unplanned outages |            |
|--------------------|------|-------------------|------------|
|                    |      | Number            | Duration   |
| Pre-hybridisation  | FY15 | 4                 | 3.5 hours  |
|                    | FY16 | 5                 | 1.1 hours  |
|                    | FY17 | 4                 | 4.2 hours  |
|                    | Ave. | 4.3               | 2.9 hours  |
| Post-hybridisation | FY18 | 4                 | 0.47 hours |

## Project outcomes

**99.995%**  
reliability in FY18

**73%**  
ave renewable energy  
contribution

**8GWh**  
p.a. of renewable  
electricity

**99.999%**  
reliability in FY19 to date  
(31 mins/345 days unplanned outage)

**>2,100,000 litres**  
p.a. reduction in diesel consumption

**81 hours**  
longest uninterrupted period at  
100% renewable supply (Dec 2018)

# Cannington Power Station

Initially commissioned as a diesel power station for South32's Cannington mine, the facility was upgraded to a primarily gas-fired power station in 1999.

EDL recently commissioned a 3MW solar farm to integrate with existing power station.

## At a glance

2018

upgraded to hybrid  
renewable

35MW

gas capacity

3MW

solar generation

5MW

diesel capacity





# Agnew Renewable Hybrid Project

- Greenfields energy solution for a remote mining operation
- 10 year PPA
- Current supply:
  - neighbouring mine's transmission line – 12MW
  - diesel hire sets – 6MW.

This project will provide the mine with **greater than 50% renewable energy** over the long term, **without compromising power quality or reliability**.





# Agnew Renewable Hybrid Project



In an Australian first, the project will utilise wind generation as part of a large hybrid microgrid in the mining sector.

## Stage 1

23MW

power station inc 16MW gas and 3MW diesel gen. and 4MW PV solar

4MW

PV solar

## Stage 2

5

wind turbines

18MW

wind generation

13MW

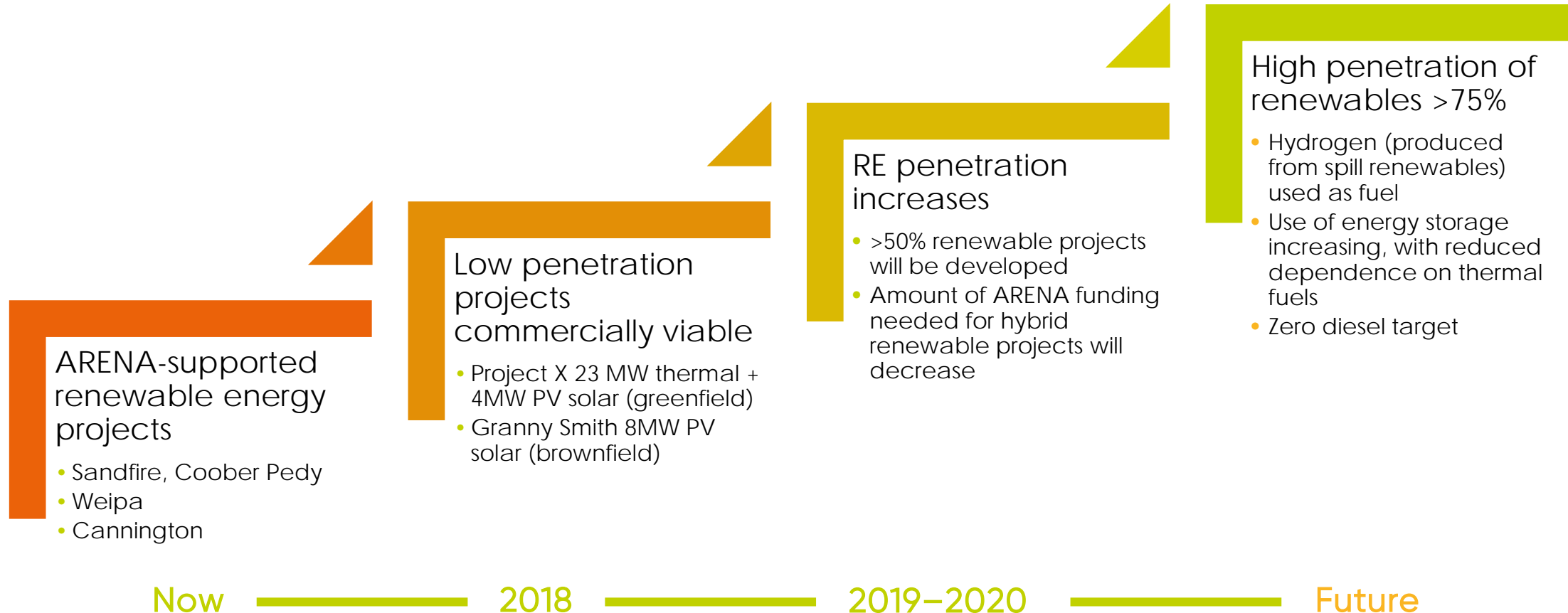
battery





# The transition to renewables

Hybrid technologies manage reliability risk and facilitate higher penetration of renewable energy



# The path ahead

- Moving forward, we see high penetration renewables playing an increasing role.
- Remote hybrid renewables market around 1GW, \$2 billion capital.
- EDL can play a leading role addressing the energy transition in off-grid and edge of grid applications:
  - transition fossil fuel-powered remote communities and mines to high penetration renewable generation
  - partner with networks to develop and run microgrids.
- Take-up influenced by scale of mechanisms that encourage fossil fuel displacement.





# Thank you

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A world of  
new energy

