OFFGRID OUTBACK

DENHAM
KING ISLAND
DALY RIVER
ROTTNEST ISLAND
COOBER PEDY

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and the rest ..

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BEWARE
UNFENCED ROAD
FOR NEXT 1500km

The Infamous Five

Denham	King Is.	Daly River	Rottnest Is.	Cobber Pedy
West Australia	Tasmania	Northern Territory	West Australia	South Australia
Population 500	Population 1700	Population 127	Population 300	Population 1700
Annual Load GWh 5	Annual Load GWh 12	Annual Load GWh 3	Annual Load GWh 5	Annual Load GWh 12
RE% 45%	RE% 65%	RE% 50%	RE% 45%	RE% 70%
Commissioned 1997	Commissioned 1998	Commissioned 2016	Commissioned 2017	Commissioned 2018

and the rest …

Project	Annual Load MWh	Thermal MW	Wind MW	Solar MW	Storage MW/MWh	RE %	Year
Agnew	240,000	32	18	4	13, 4.0	60%	2020
Coober Pedy	11,500	3.92	4	1	1.5, 0.49	70%	2018
Coral bay	3,000	2.24	0.675			45%	2007
Daly River	3,000	1.82	0	1	0.8, 2.0	50%	2016
Denham	5,500	2.62	1.02			35%	1997
Doomadgee	5,700	2.5	0	0.264		8%	2013
Flinders Island	6,700	3	1.2	0.7	0.75, 0.3	55%	2016
Granny Smith	180,000	24.2	0	8	2.0, 1.0	10%	2020
Hopetoun	5,800	5.18	1.2			40%	2005
Kalbarri	12,000	4	1.6	1.1	5.0, 4.5	40%	2020
King Island	12,000	6	2.25	0.9	3.0, 1.6 (+2 FW)	60%	1998-2014
Lord Howe Island	2,300	1.325	0	1.2	1.0, 3.2	60%	2020
Mackerel Island	1,000	0.44	0	0.32	0.6, 0.6	92%	2014
Marble Bar	2,365	1.28	0	0.3	(0.5 FW)	30%	2010
Nullagine	1,200	0.96	0	0.2		34%	2010
Onslow	8,200	8	0	1	3.0, 2.0	50%	2019
Port Gregory	26,000	9	2.5	1	2.0, 0.5	70%	2020
Rottnest Island	5,000	2.1	1.2	0.6		45%	1982/2006/2017
Thursday Island	18,500	9	0.45			5%	1997
Windorah	1,090	0.75	0	.13 (thermal)		16%	2009

Denham, Western Australia

1997
- First variable speed inverter wind turbine in Australia
- Enercon E30 (Total 230kW) & Powercorp PSAC 20% wind penetration

1998
- Two additional E30 turbines (Total 690kW)
- 30-35% wind penetration

2001
- Plans for 2 x 300kVA flywheels to run diesel off abandoned after not meeting technical specification.

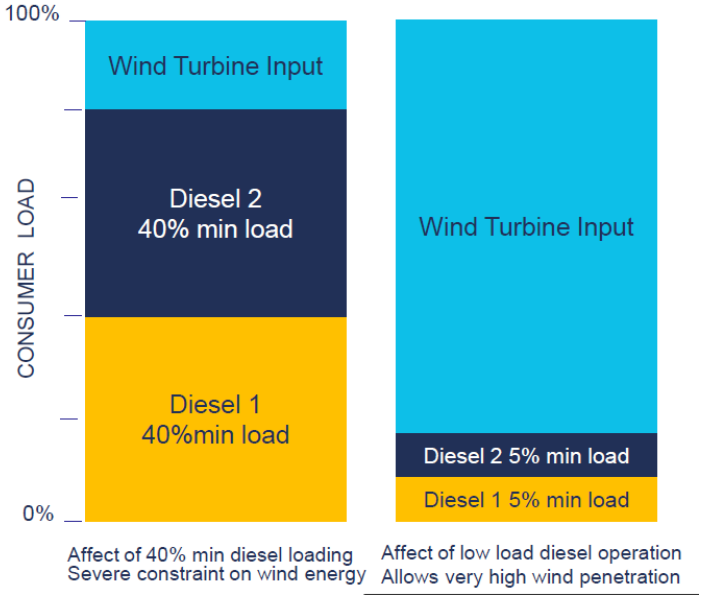
2003
- Low load diesel developed for MTU Series 60 engines
- 40-45% wind penetration

2007
- Enercon E 33 (Total 1020kW) added.
- Comparatively, 2940kW of diesel generation onsite.

2021
- Renewable hydrogen production and generation pilot

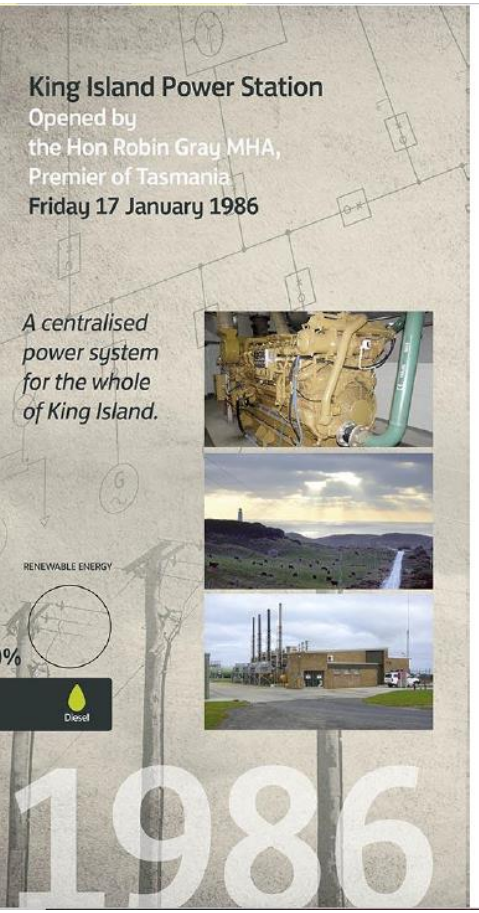
Source: Chris Dowe, Synergy, 2018

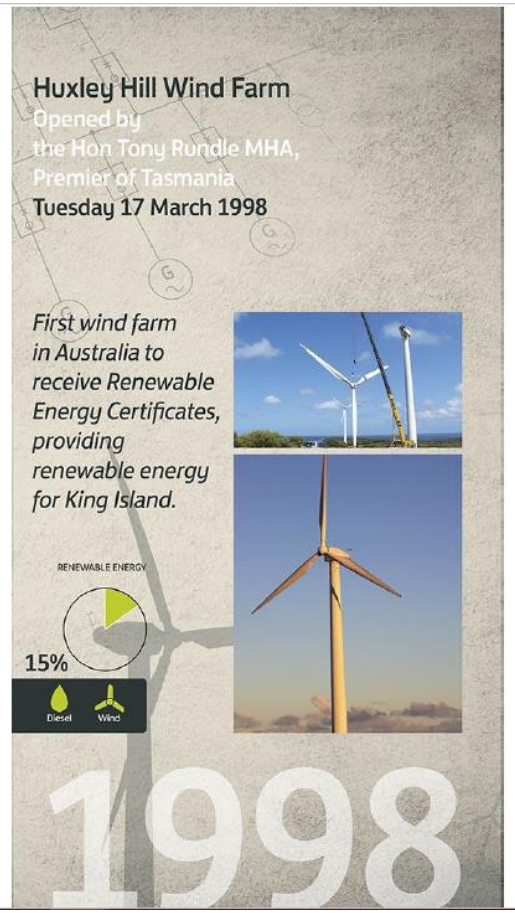
Population: 500
Load: 5050 MWh
REP: 45%

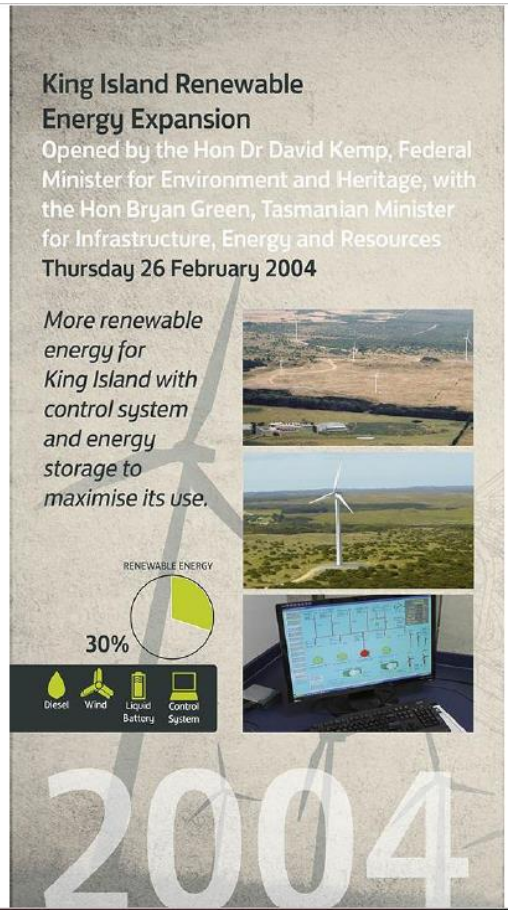


King Island, Tasmania

Population: 1600
Load: 12,000 MWh
REP: 60%



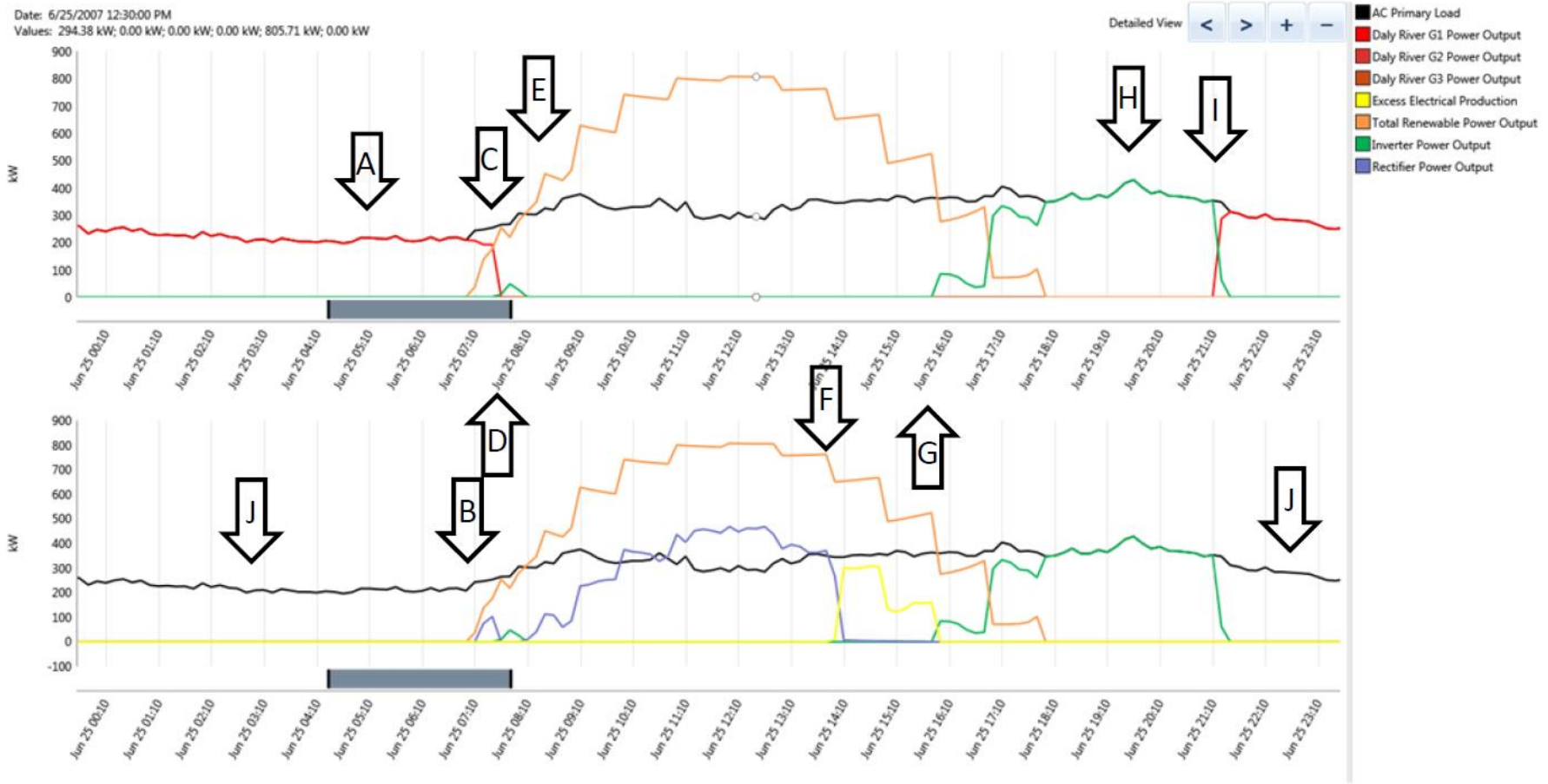




Daly River, Northern Territory

Population: 127
Load: 3,000 MWh
REP: 50%

A. Morning load, diesel on, BESS empty.
B. PV coming online
C. Diesel at low load with BESS charging
D. Bess charging & performing isochrono control
E. Excess solar charges BESS
F. Solar PV spill as BESS full
G. BESS discharge into evening.
H. Diesel off until BESS empty
I. Diesel on
J. Diesel supply night time load



Source: Power and Water Corporation, Daly River Lessons Learnt, 2019

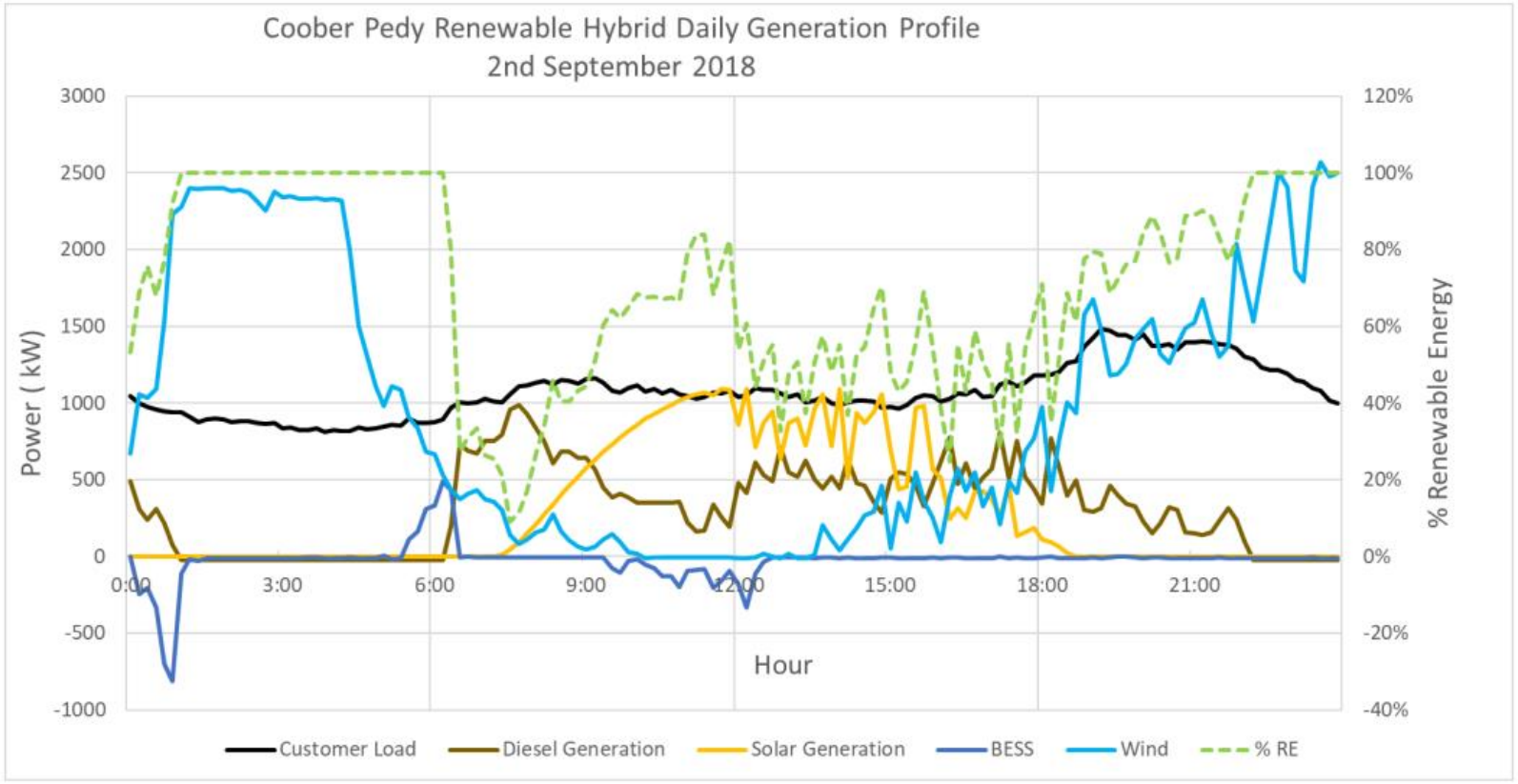
Rottnest Island, West Aus.

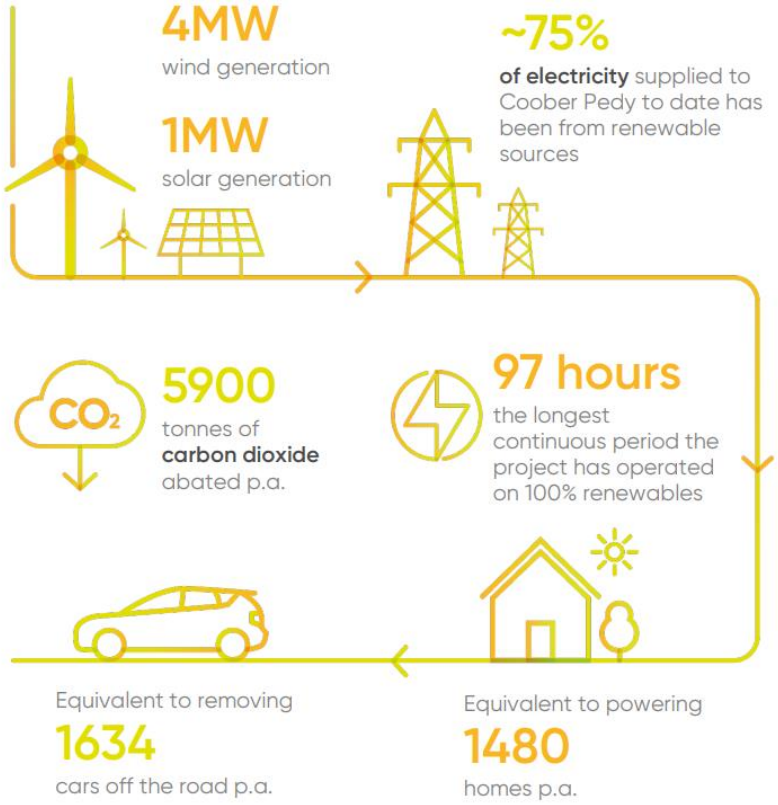
Population: 300
Load: 5,000 MWh
REP: 45%

http://www.rottnestisland.com/the-island/travel-tools-and-tips/apps

Coober Pedy, South Australia

Population: 1790
Load: 11,500 MWh
REP: 70%





Knowledge Bank

- https://www.hydro.com.au/clean-energy/hybrid-energy-solutions/success-stories
- https://www.powerwater.com.au/about/projects/current-projects/solar-energy-transformation-program
- https://edlenergy.com/project/coober-pedy/

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