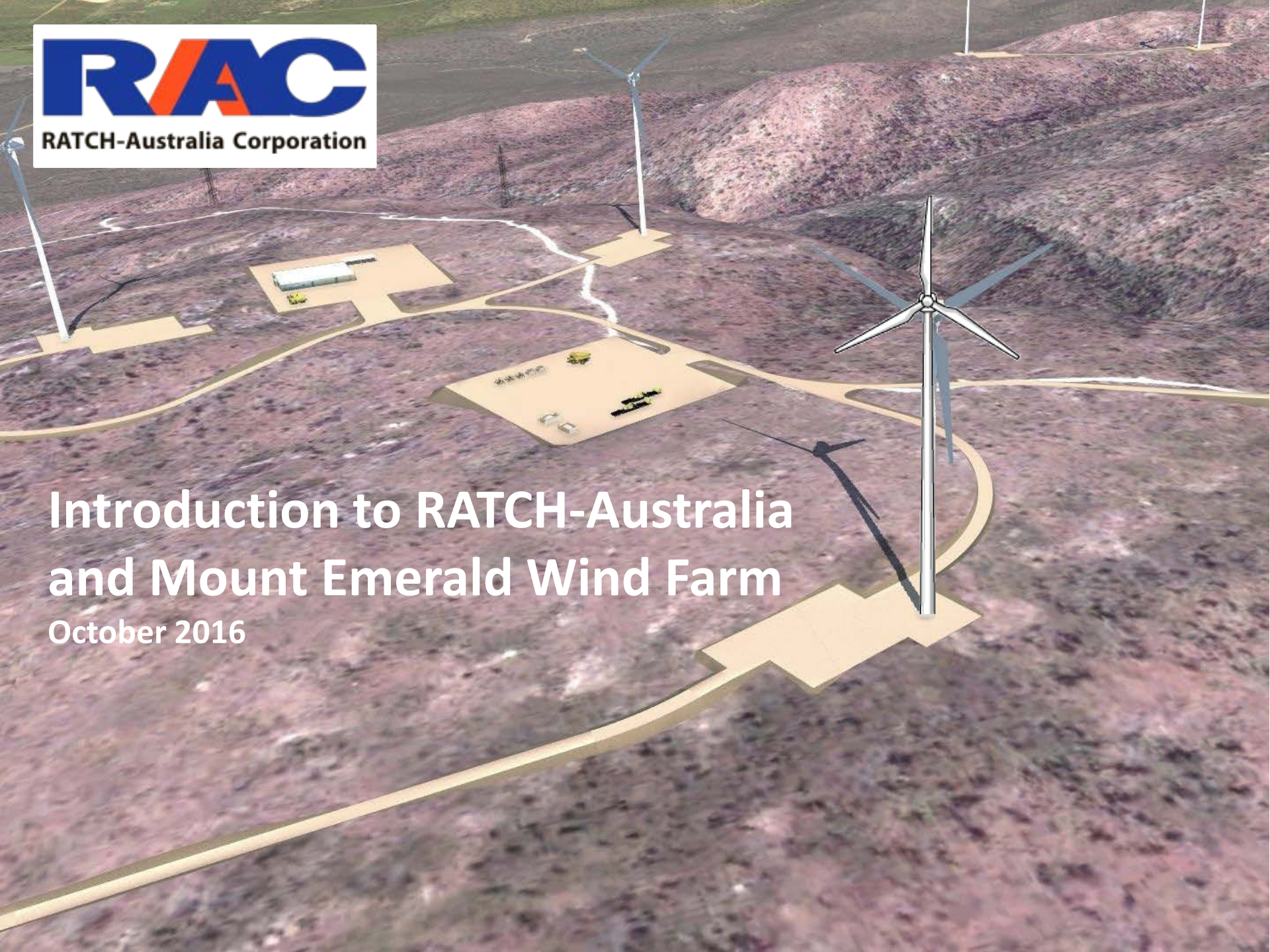




# Introduction to RATCH-Australia and Mount Emerald Wind Farm

October 2016

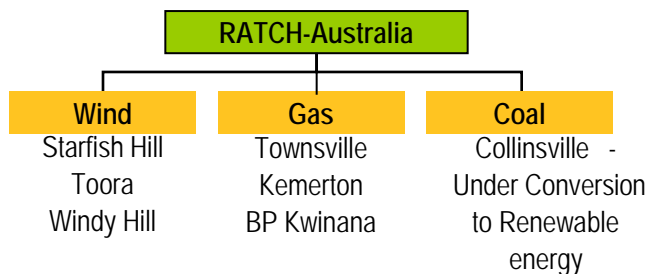


## Agenda:

- About RATCH-Australia and Port Bajool
- Renewable Energy in Australia
- Overview of the Mount Emerald Wind Farm
- Benefits for the region

# RATCH–Australia is an Australian power producer

## Our operating power stations...



### Location of Assets



Asset	Equity	Capacity	Equity	Type	Fuel
Starfish Hill WF	100%	33MW	33MW	Base*	Wind
Toora WF	100%	21MW	21MW	Base*	Wind
Windy Hill WF	100%	12MW	12MW	Base*	Wind
Townsville PS	100%	234MW	234MW	Intermediate	Gas
Kemerton PS	100%	300MW	300MW	Peak	Gas
BP Kwinana PS	30%	118MW	35MW	Base	Gas
<b>Total</b>		<b>718 MW</b>	<b>635 MW</b>		

PS = power station, WF = wind farm

# RATCH-Australia is looking to expand its Australian operations

## Our pipeline of development projects...



	Location	Expected Generation Capacity (MW)
<b>Development Approved</b>		
Collector Wind Farm	NSW	175
Mt Emerald Wind Farm	QLD	180
Collinsville Solar Stg I	QLD	42
<b>Feasibility</b>		
Collinsville Solar Stg II	QLD	36
High Road Wind Farm	QLD	80
<b>Other Developments</b>		
Kongorong Wind Farm	SA	100
Kulpara Wind Farm	SA	100
Ben More Wind Farm	VIC	80



# RATCH-Australia's ownership...

# RATCH



**RATCHABURI**  
ELECTRICITY GENERATING  
HOLDING PCL.

Listed Thai independent power producer, with ~5,000MW of installed capacity in Thailand, and ~7,000MW of generation capacity worldwide.

# ferrovial

>90%



**BROADSPECTRUM**

Spanish infrastructure investor and construction / engineering company. Acquired Broadspectrum in April 2016

80%

20%



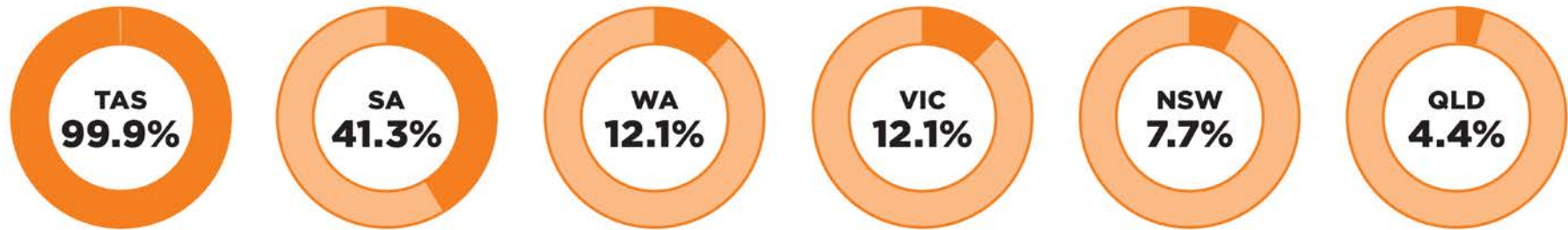
**RATCH-Australia Corporation**

Formerly Transfield Services. Australian engineering and services provider, active in the Defence, Property, Social, Infrastructure, Resources and Industrial sectors



- Port Bajool is a North Queensland based property and investment company
- Mt Emerald Wind Farm Pty Ltd was developed as a joint venture between RAC and Port Bajool Pty Ltd
- Recently RAC and Port Bajool reached an agreement for RAC to acquire the full (100%) ownership of the project, by purchasing the Port Bajool share.
- Port Bajool remain involved with the project through their ownership of the land, and will continue to work closely with RAC through the construction and operation of the wind farm.
- Port Bajool have further plans for the site, including a plan to develop a technology hub near the wind farm to be called the Asia Pacific Energy Innovation Centre (APEIC), and plans to open up the site to the public via mountain bike trails

## RENEWABLE ENERGY PENETRATION – STATE BY STATE



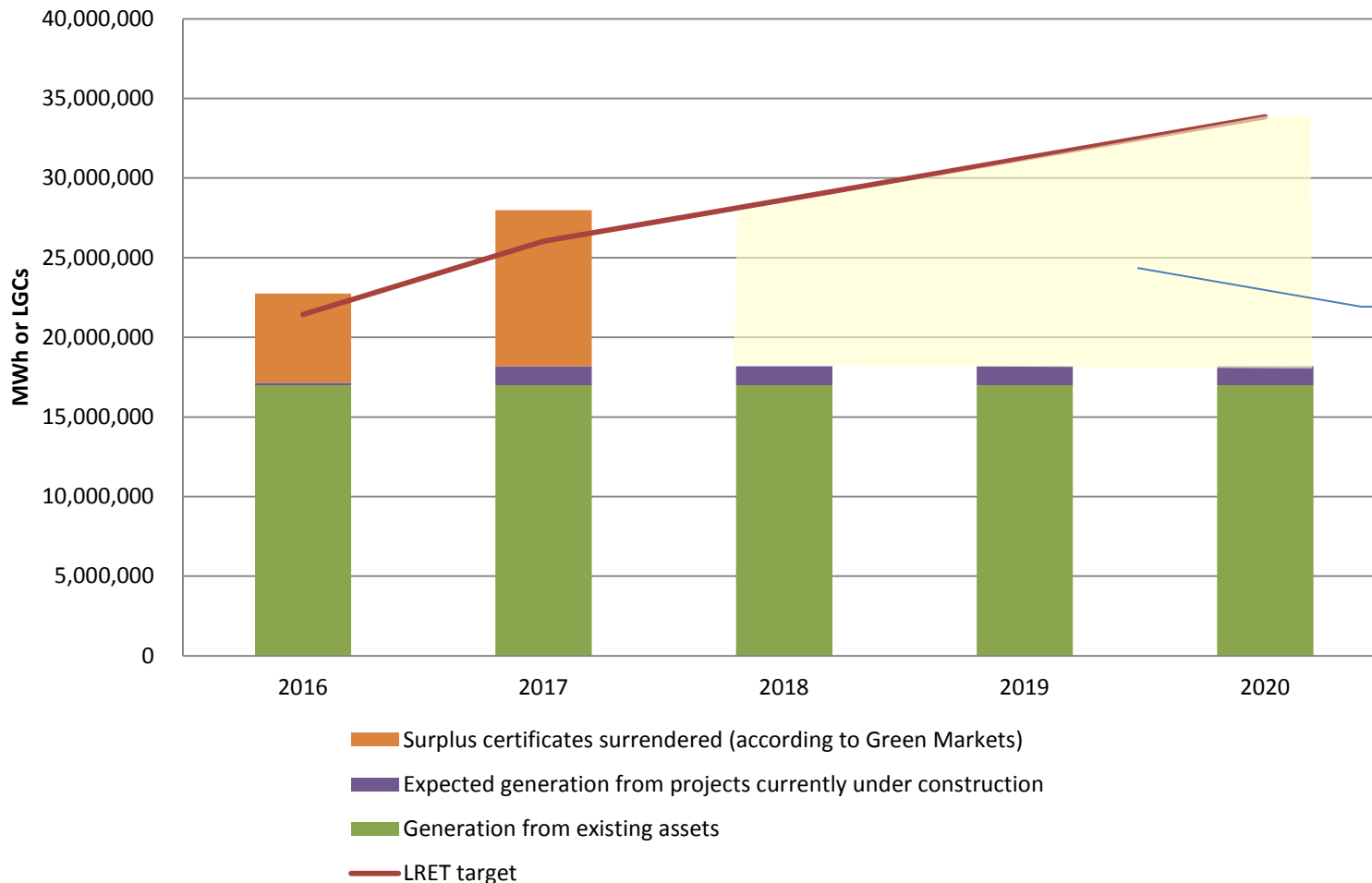
The RATCH-Australia owned Windy Hill Wind Farm, in nearby Ravenshoe, is the state's largest renewable energy facility

Other than Windy Hill, Qld's renewable energy generation is mostly hydro and rooftop solar systems.

Hydro = Wivenhoe (500MW), Kareeya (88MW), Barron Gorge (60MW), plus a number of others

Qld has ~460,000 rooftop solar installations, equivalent to ~1,400MW of generation capacity

## Renewable Energy Target and generation capacity



This is the shortfall of projects that needs to be filled to meet the Renewable Energy Target. Roughly 25 projects equivalent to Mt Emerald Wind Farm need to be built in the next 4 years. Including Mt Emerald Wind Farm, there are 4 major wind farms under way at the moment as well as one or two large scale solar PV projects.



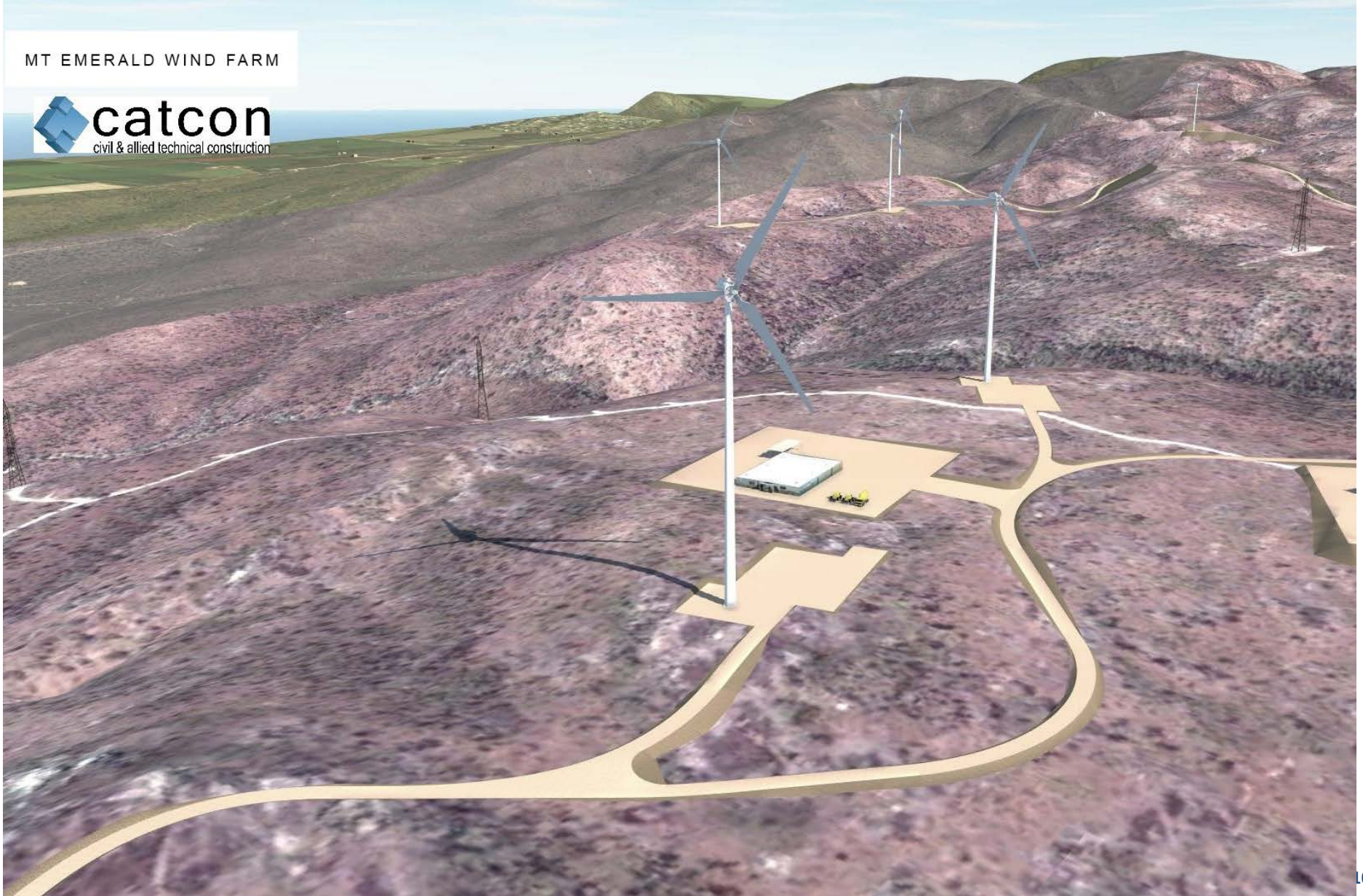
# MOUNT EMERALD WIND FARM BEFORE





# MOUNT EMERALD WIND FARM AFTER

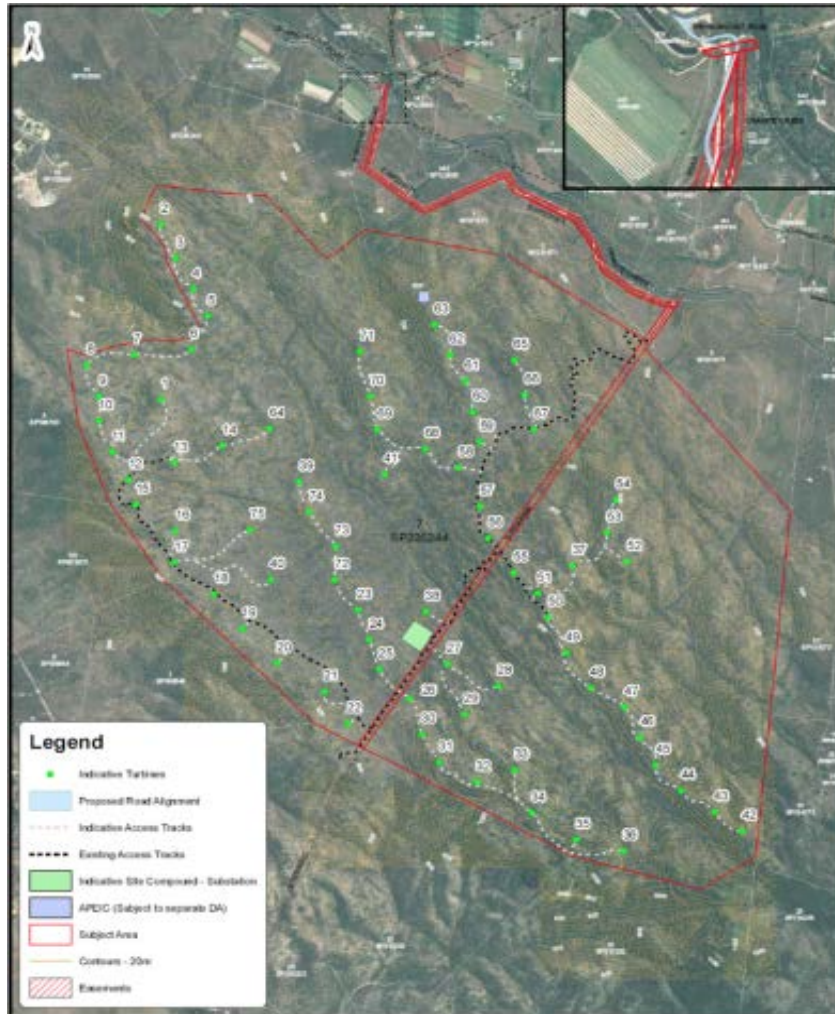
MT EMERALD WIND FARM





# MOUNT EMERALD WIND FARM PROJECT OVERVIEW

## Project map

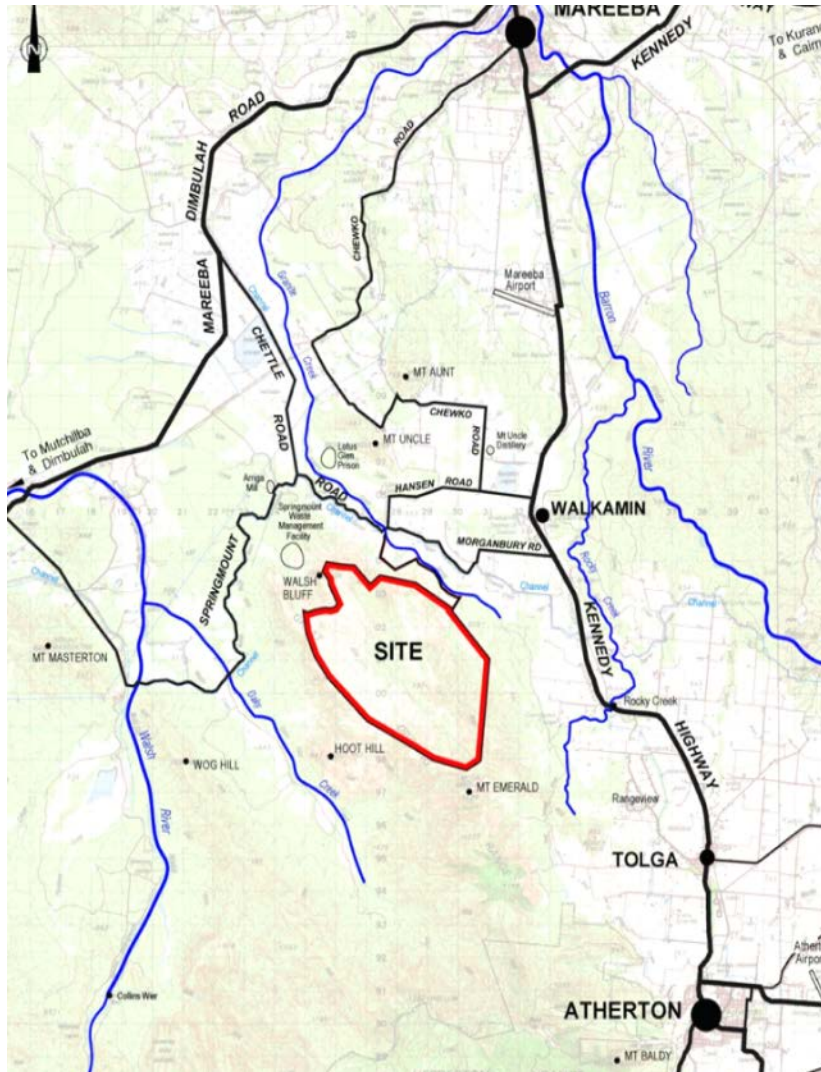


## Overview

- Greenfield wind farm development
- Development approved for to 63 turbines
- Installed capacity ~180MW Estimated Construction Cost ~ \$350 to \$400 M
- Estimated Annual Generation 500-600 GWh p.a.
- Will generate enough electricity to power the average use of 75,000 – 90,000 homes (about 1/3 of the homes in FNQ)
- Approximately 40km of new site roads
- New 33/275kV substation and switching yard
- No transmission line required (275kV NEM crosses site)
- Dedicated on-site O&M compound and control room

# MOUNT EMERALD WIND FARM LOCATION AND LAND USE

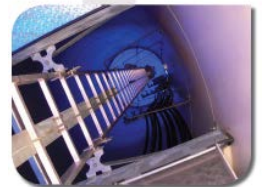
## Project map



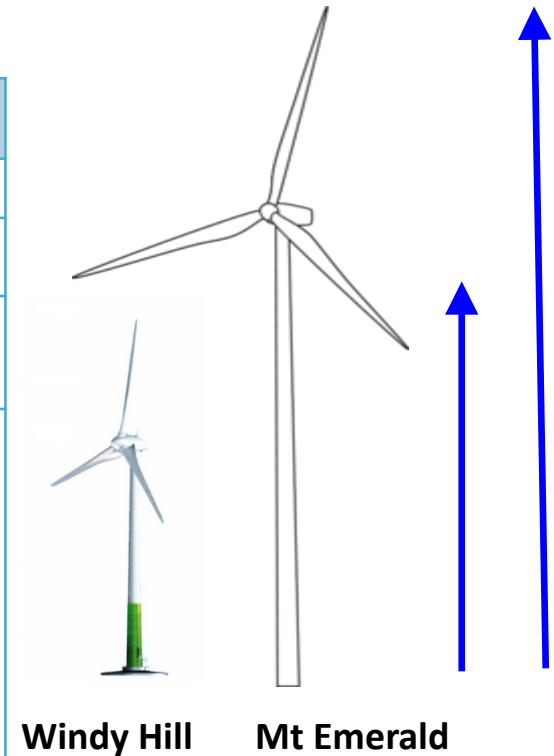
## Overview

- Located ~80km inland from Cairns, between Mareeba and Atherton
- The site lies between the landmarks of Walsh Bluff and Mount Emerald, and is currently unused and unimproved
- Land surrounding the project site is utilised for a diverse array of uses, including:
  - Springmount Waste Management Facility
  - Lotu Glen Correctional Centre
  - Outdoor Sport and Entertainment Facility (Drag strip)
  - Hard Rock Quarry
  - Tablelands Sugar Mill
  - Ethanol Distillery

# MT EMERALD WIND FARM – COMPARISON TO WINDY HILL



	Windy Hill	Mt Emerald
Hub Height	44m	80m
Total Height	66m	130 - 140m
Number of turbines	20	Up to 63 <b>53</b>
Total Capacity	12MW	^ 175 MW
Generator Size	600kW	^ 3MW
Blade length	22m (cricket pitch)	48m
Revs per min	30	15 - 20
Generation (Yr.)	26.5 GWh	500 - 600 GWh
Supply (approx)	3,900 homes	75,000 homes



enough electricity to power the average use of about 1/3 of the homes in FNQ



# MOUNT EMERALD WIND FARM OUR CONTRACTOR'S CRUCIAL ROLE IN THIS



The logo for Vestas, featuring the word 'Vestas' in a bold, blue, italicized, sans-serif font with a registered trademark symbol (®) to the right.



- Subject to finalising contract terms, the project will be delivered under an EPC led by Danish turbine supplier Vestas, with Australian civil and electrical subcontractors contractors CPP and Catcon (“CPPC”).
- Vestas and CPPC will be responsible for outsourcing all sub-contractors and work packages needed to complete this work. One of the reasons they were selected was because of their commitment to providing clear pathways for local people to participate in the project
- Vestas and CPPC have only confirmed their partnership recently, and expect to commence a public “expression of interest” process in the coming weeks
- Ratch is maintaining an “interested parties” list which we have provided and will continue to provide to all prospective tenderers.

# MOUNT EMERALD WIND FARM TIMING EXPECTATIONS



- Aug - Sept 2016: Construction contract awarded
  - Minor works, site geotech studies, detailed design
- Nov 2016: “Financial Close”
  - Construction early works (road upgrades, site compounds etc.)
- March 2017 (after wet season): Construction commencement
  - Construction period – 22 to 24 months
- Mid 2018: Operations commencement – ramping up from mid 2018.
- Sept 2018: Full operations
  - Expected operating life – at least 25 years

- Comparable with any major new development in the north
- Site access requires a new access road to be built up the hill capable of accommodating oversize and over-length construction traffic
- Wet season scheduling and program management
- UXO (Unexploded Ordinances) – one corner of the site is located near a WW2 mortar training facility
- Environmental regulation (state and federal approvals) – conditions on habitat clearance, flora protection, avian species impacts, Northern Quoll population; to be managed through Northern Quoll management strategy, threatened plants management plan, offset area identification and management, etc

## Documentation

- EIS complete
- Approval by Federal Govt Minister for Environment – Nov 2015
- Approval from Queensland Government – April 2015
- Standard Conditions of Approval - pre-construction and ongoing environmental monitoring
- Power Purchase Agreement (PPA) signed – 2018-2030 guaranteed supply to Ergon
- For more information see: [www.mtemeraldwindfarm.com.au](http://www.mtemeraldwindfarm.com.au)



**Hon Jackie Trad MP**

Deputy Premier  
Minister for Transport, Minister for Infrastructure,  
Local Government and Planning and Minister for Trade

Our ref: MBN14/753

24 April 2015

Mr Geoff Dutton  
Mount Emerald Wind Farm Pty Ltd  
c/- RATCH Australia  
Level 4, 231 George Street  
BRISBANE QLD 4000  
Email: Geoff.Dutton@ratchaustralia.com

Dear Mr Dutton

**DECISION NOTICE**  
**Ministerial Call In of Development Application**  
**Mount Emerald Wind Farm, Arriaga**

I refer to the then Deputy Premier, Minister for State Development, Infrastructure and Planning's decision on 11 June 2014 to exercise ministerial call in powers under the *Sustainable Planning Act 2009* (SPA) to call in the development application for the Mount Emerald Wind Farm, Arriaga.

Please be advised that on 24 April 2015, I decided to approve the development application subject to conditions.

Applicant details	
Name of applicant:	Mount Emerald Wind Farm Pty Ltd
Address of applicant:	c/- RATCH Australia Level 4, 231 George Street BRISBANE QLD 4000
Application details	
Original assessment manager:	Mareeba Shire Council
Date application properly made:	29 March 2012
Approvals sought:	Development Permit for a Material Change of Use for a Wind Farm comprising a maximum of 63 turbines
Description of development:	Wind Farm comprising a maximum of 63 turbines and ancillary infrastructure
Category of development:	Code Assessment
Property details	
Real property description ("the site"):	Lot 7 on SP235244, part of Lot 905 on CP896501 and Easement A in Lot 1, Easement C in Lot 2 and Easement E in Lot 3 on SP231871
Address of property:	Springmount Road and Kippin Drive, Arriaga

# MOUNT EMERALD WIND FARM

## WIND RESOURCE

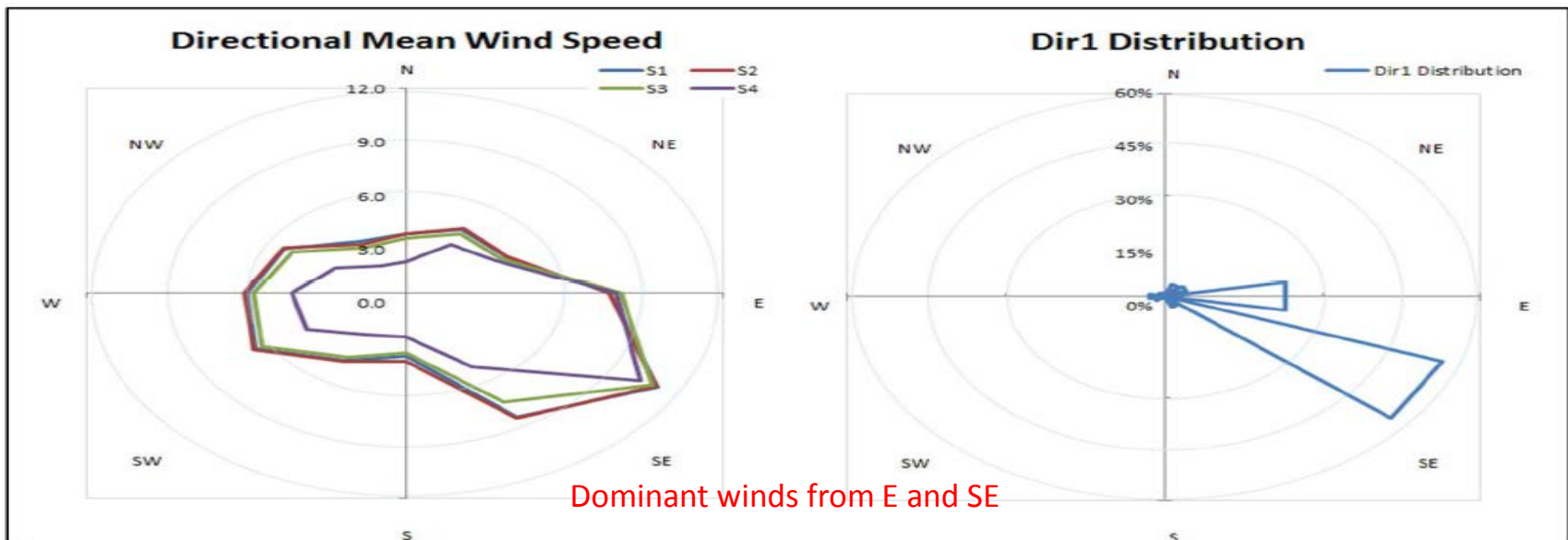
### Overview

- Wind Monitoring commenced on-site in May 2010 with installation of an 80m and 50m mast
- Further monitors installed in August 2014, with two SODAR units
- Collects data at various heights above ground, on wind speed, direction, temperature, humidity, rainfall
- The wind data collected shows an average wind speed range at a height of 80m of:

7.4m/s to 9.3m/s (27km/h to 33km/h)



SODAR unit (Sonic Detection & Ranging) emits a sound wave vertically into the air. Wave reflection allows the device to collect data on wind speed and direction.





# MOUNT EMERALD WIND FARM

## BENEFITS TO THE REGION - EMPLOYMENT

### **Employment**

The following information is based on experience gained from previous wind farms constructed and operated throughout Australia.

### **Construction - Direct and indirect Jobs**

Estimate based on industry standard multipliers for the region

- On average around 150 workers
- estimate 40% will be sourced from the FNQ region
- Tableland Region – 60

### **Operations**

**Direct jobs** – 15 (all direct employees local)

**Indirect jobs** – 30



# MOUNT EMERALD WIND FARM SUBCONTRACTORS AND SUPPLIERS

A wide range of subcontractors and suppliers will need to be sourced locally...

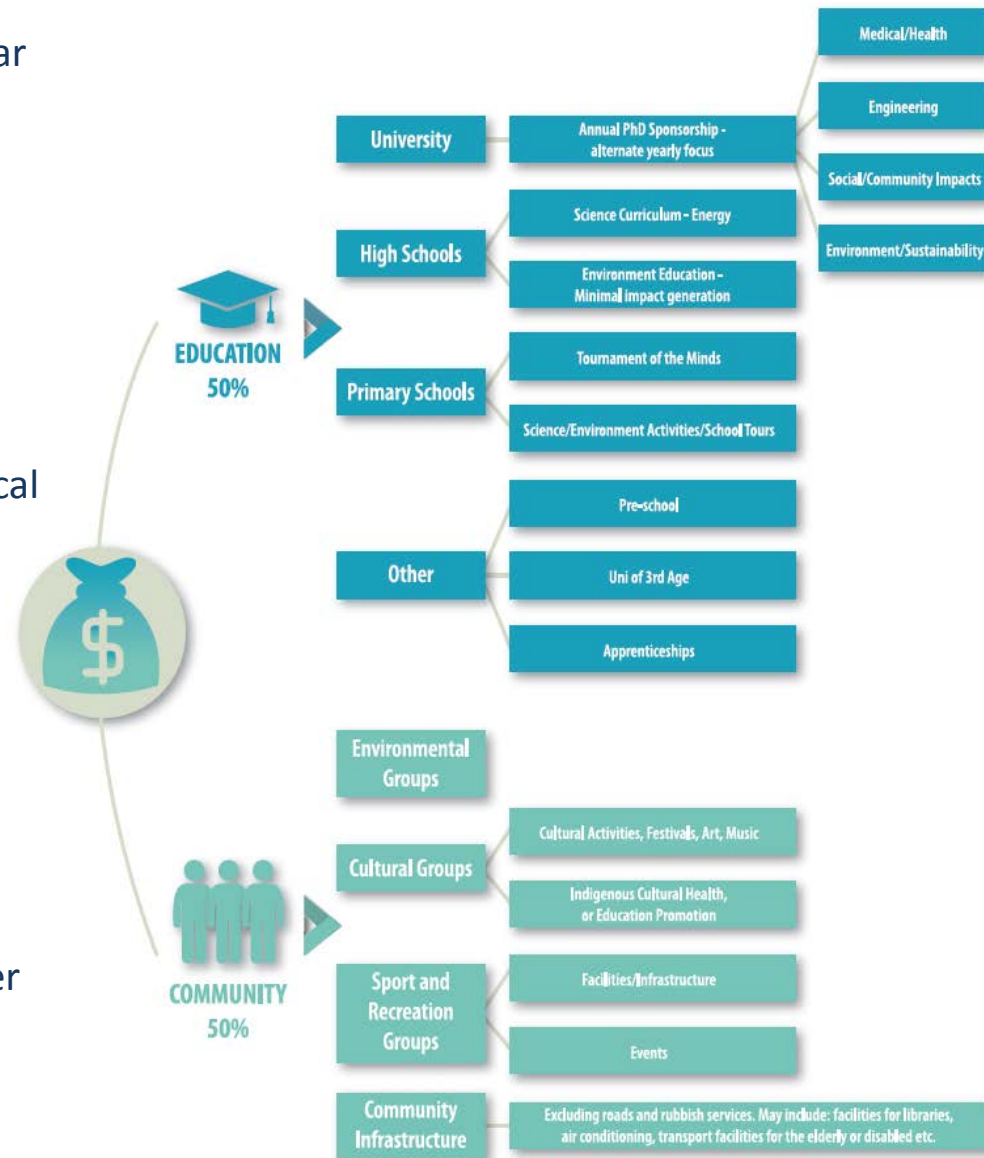
- Accommodation - short and long term
- Air-conditioning servicing
- Arborists, Weed Spraying, and Landscaping
- Catering
- Civil design and construction
- Cleaners, waste removal providers
- Construction materials (aggregate, concrete, road base, reinforcing steel etc.)
- Crane Hire
- Earthworks, public and private roads and access tracks
- Electrical Wholesalers
- Fencing Contractors
- Fire alarm & Fire Extinguisher services
- General Contractors (mechanical & electrical trades-wind turbine training experience desirable)
- High & Low voltage electrical (maintenance and repairs)
- IT & telecommunications services
- Office equipment suppliers
- Plant & equipment hire services (wet or dry)
- Plumbers & Building Maintenance
- Professional services
- Recruitment Services and Labour Hire
- Sign writers and signage suppliers
- Site facilities and temporary services (power, water, telecommunications etc.)
- Structural concrete products
- Suppliers of tools, hardware, engineering supplies, safety equipment and construction consumables
- Temporary and permanent buildings supply
- Training Providers (RTO's) particularly construction safety training and high voltage training
- Transportation & Couriers (local, state-wide, interstate and international)
- Vehicle and Equipment Hire

Local spending during operations ~\$1.5 M per year

## COMMUNITY BENEFITS FUND

- Education and Community shared  
 \$200 000 per year-for life of project  
 (from commencement of operations in 2018)

- Sponsorships – local sporting, social clubs, local festivals and fetes
- Grants for sporting, musical or educational equipment for local schools and groups; equipment for emergency services organisations
- Funding for Scholarships for local children to attend schools and university
- Local apprenticeships or traineeships
- Community education like first aid courses, community health initiatives, sustainable farming techniques, energy efficiency or other appropriate subjects
- Grants for approved community projects





*BP Kwinana Cogen (30%)*



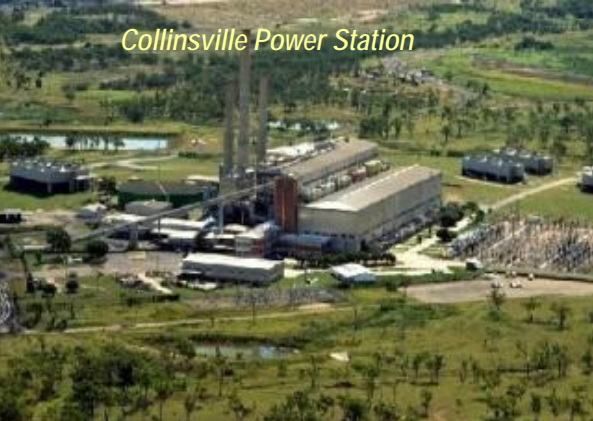
*Townsville Power Station*



*Kemerton Power Station*



*Collinsville Power Station*



*Windy Hill Wind Farm*



*Toora Wind Farm*



*Starfish Hill Wind Farm*

