

EPURON



**Liverpool Range Wind Farm
Merriwa Business Meeting
21 January 2014**



**Company
Information**

A leading Australian renewable energy company

Wind Power



Solar Power



Off-grid Power



Technology Development



Track Record



Cullerin Range Wind Farm – 30MW, Operational

One of Epuron's early projects, Cullerin Range WF was sold to Origin in December 2007 as a 'ready to build' development and began commercial operation in mid-2009. A testament to Epuron's development expertise, this 30MW project gave nation-leading performance in 2010 with the highest output per unity capacity of any wind farm in the National Electricity Market.



Gullen Range Wind Farm – 158.5MW, Under construction

Epuron's second wind farm to enter into construction, the Gullen Range WF was sold to Goldwind in 2009. Epuron assisted Goldwind to complete the development and grid connection aspects for the project which will use a combination of Goldwind's 1.5MW and 2.5MW turbines.



Silverton Wind Farm – up to 598 turbines

In an iconic setting on the Barrier Ranges west of Broken Hill, the proposed Silverton Wind Farm has the potential to supply as much as 5% of NSW's electricity needs. At its full capacity, the project could be the largest in the southern hemisphere. Originated by Epuron and developed in joint venture with Macquarie Capital Wind Fund, the project was sold to AGL in 2012.

Track Record



TKLN Solar – 1MW off-grid with GSS, Operational

Recently commissioned in the Northern Territory, Epuron's TKLN Solar project comprises a total of 1 megawatt of solar PV supplying three remote communities in Australia's outback (Ti Tree, Kalkarindji, Lake Nash). Using Epuron's Grid Stability System (GSS) concept, the high penetration solar system maximises fuel savings and smoothly integrates with the existing diesel generator. Power is sold to utility PWC.



Uterne Solar – 1MW grid-connected, Operational

"Uterne" means "bright sunny day" in the local Arrente language, and is the perfect name for a solar project located in one of the world's best solar energy resources. Located in the Northern Territory, Epuron now owns and operates the facility, and like TKLN Solar, the power is sold to the Northern Territory government's energy utility Power Water Corporation under a long term power purchase agreement.



Resource Monitoring and Sodar

Epuron developed and operates one of the largest networks of wind monitoring towers in Australia, both for itself and for 3rd party clients. Epuron also deploys Fulcrum3D's Sodar in the field to enable it to gather more accurate wind data including data at heights beyond those covered by masts.

Liverpool Range Wind Farm



Liverpool Range Wind Farm

Regional Overview

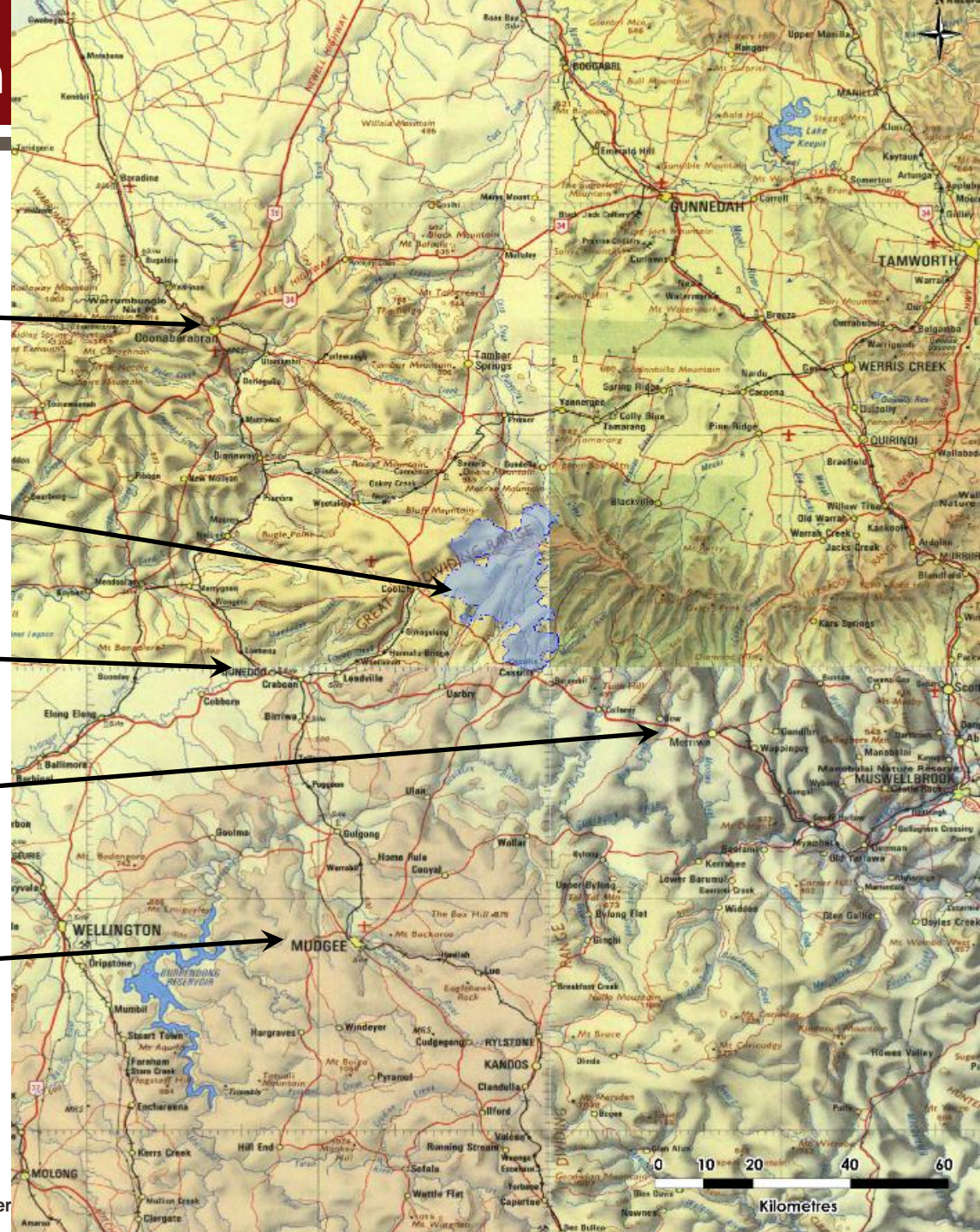
○ Coonabarabran

○ Project Site

○ Dunedoo

○ Merriwa

○ Mudgee



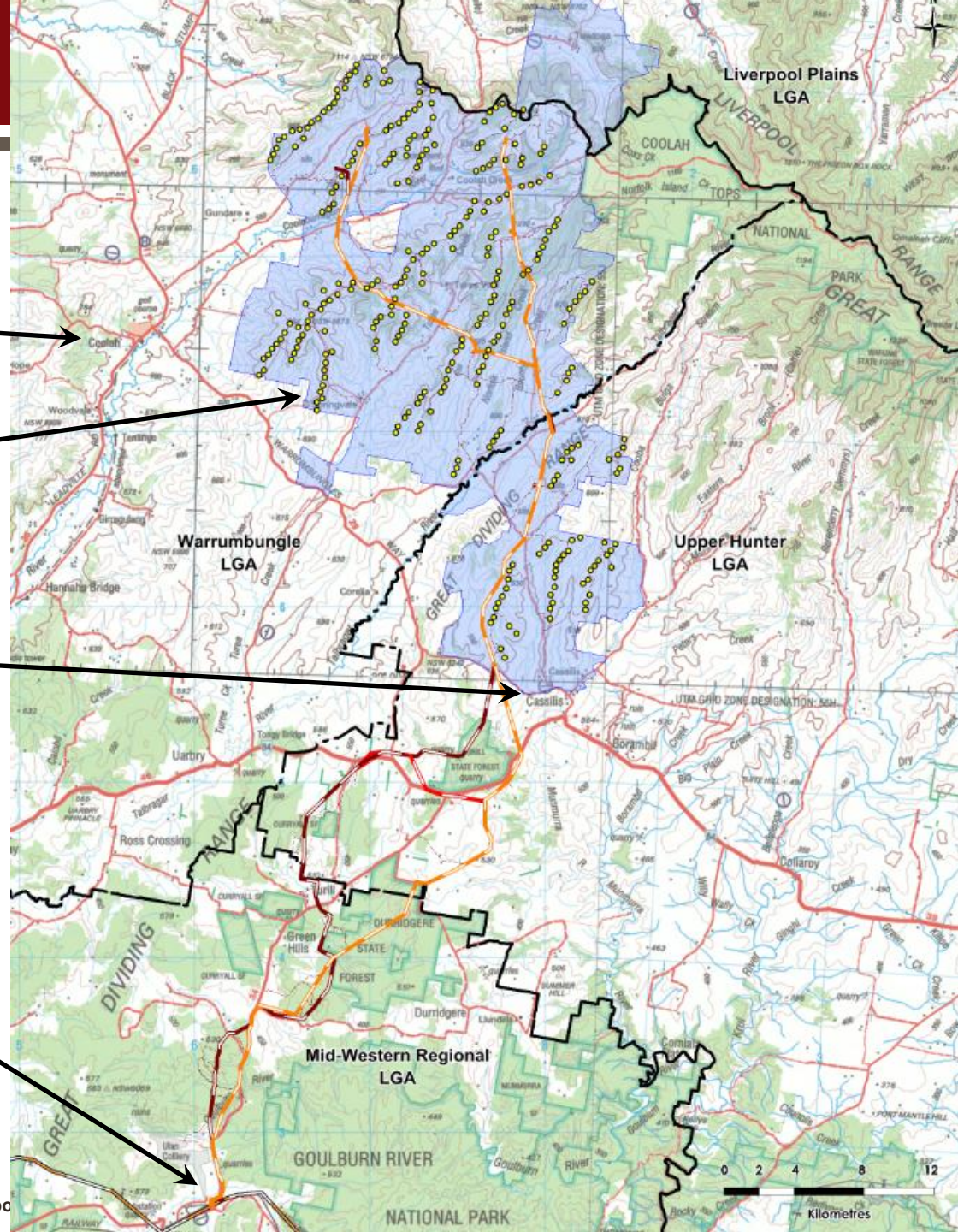
Fast Facts

- Proposed number of turbines – **288**
- Situated across **4 LGAs** (Local Government Areas)
 1. Warrumbungle Shire Council – 231 turbines
 2. Liverpool Plains Shire Council – 1 turbine
 3. Upper Hunter Shire Council – 56 turbines
 4. Mid-Western Regional Council – 0 turbines (powerline)
- Number of involved wind farm landowners - **22**
- Size of wind farm site – approximately **50,000** hectares or 123,500 acres
- **864MW** renewable energy project based on a 3MW turbine
- Represents a total project investment value of around **~\$1.7 billion**
- Maximum turbine tip height - **165m** (~100m hub height and ~130m rotor)
- Project generally located between **Coolah** and **Cassilis**
- A **Community Consultation Committee** has been established for the project

Liverpool Range Wind Farm

Project Layout

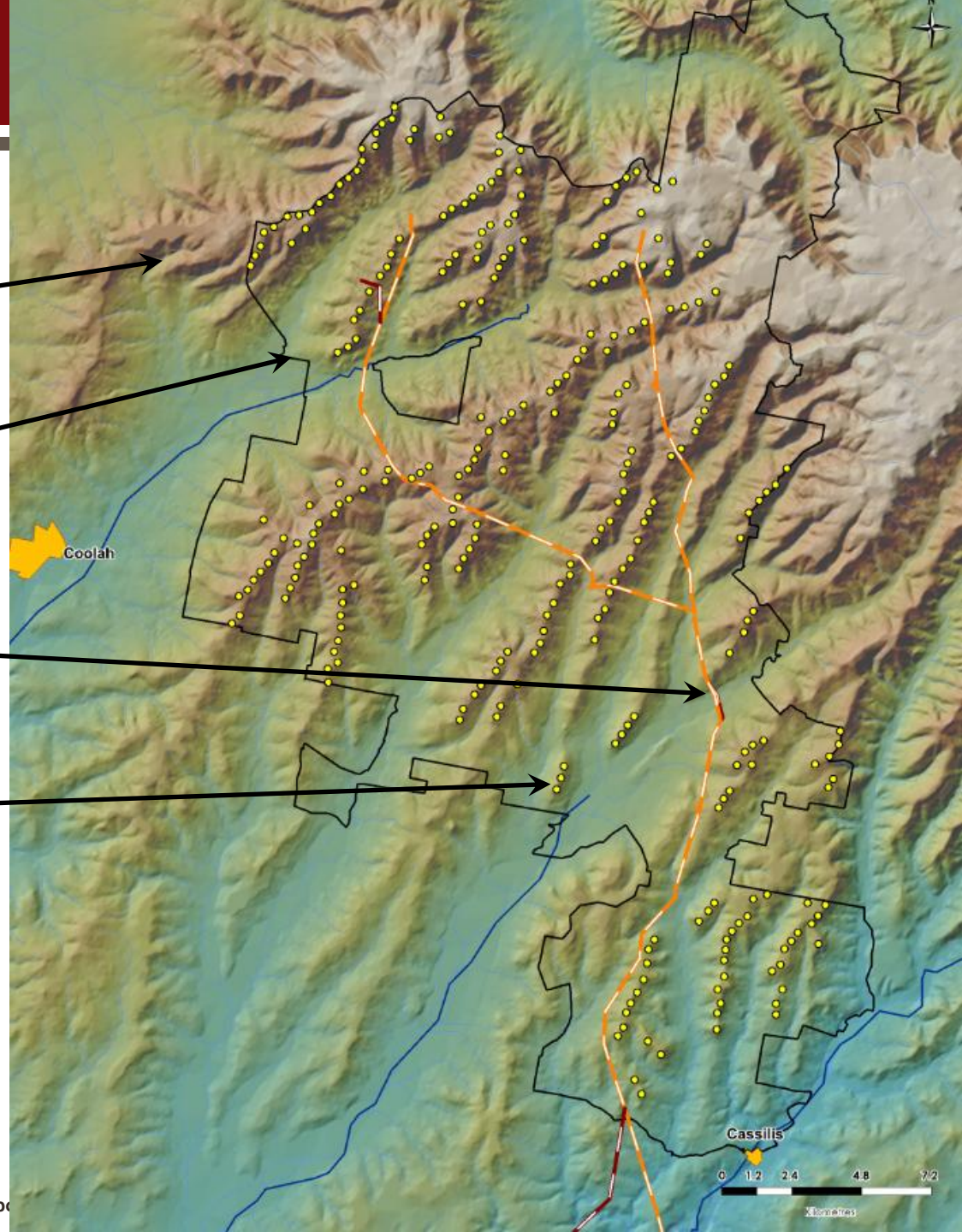
- Coolah
- Project Site
- Cassilis
- Grid connection near Ulan



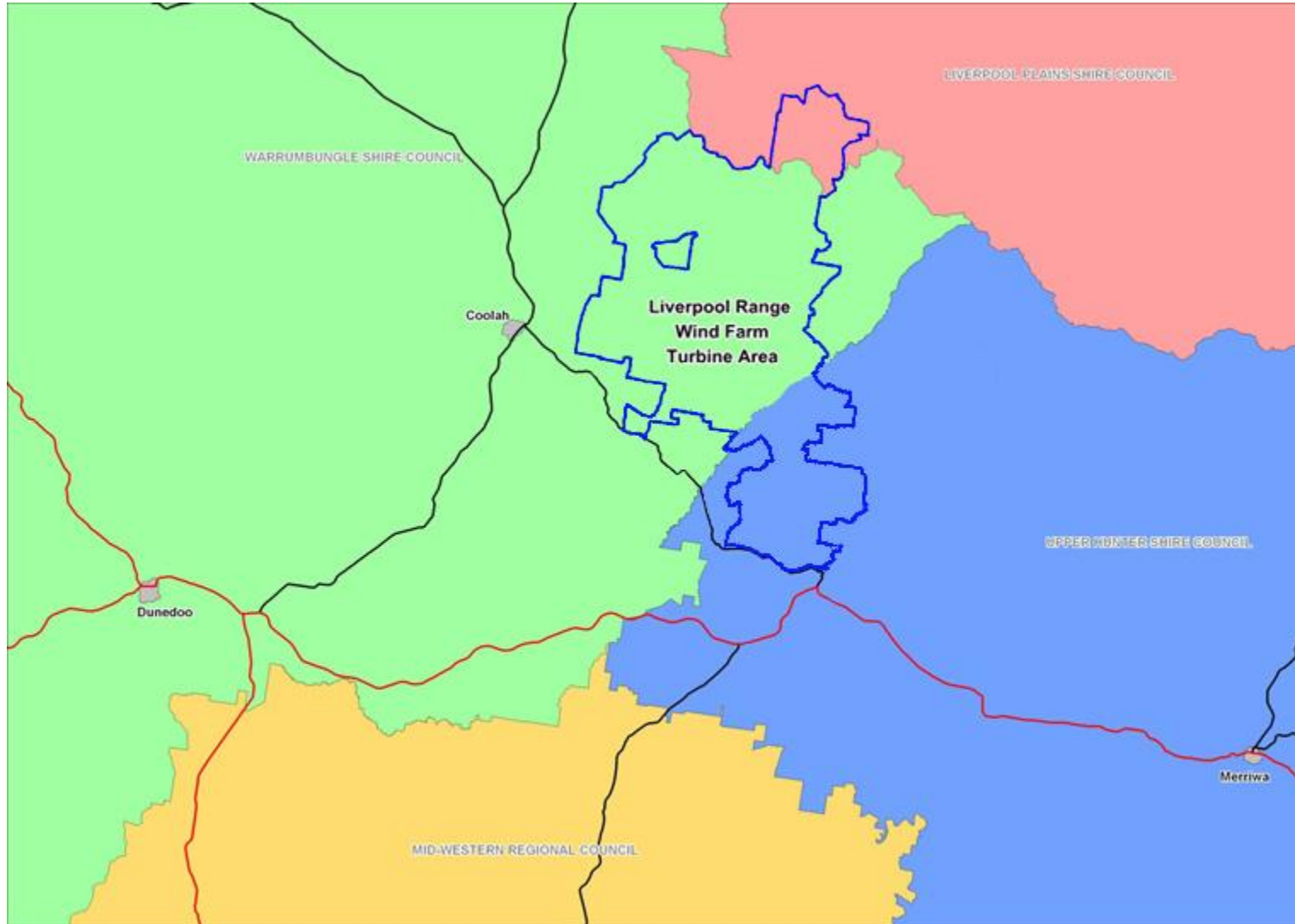
Liverpool Range Wind Farm

Digital Terrain Map

- Elevated terrain
- Site boundary
- Site powerline
- Turbines



Local Government Area Boundaries



Construction Opportunities

- **362km** of new wind farm access roads – 5m to 10m wide
- Upgrade existing local roads where required in conjunction with Councils and RMS
- **204km** of underground electrical reticulation cabling – 22kV or 33kV
- **96km** of new overhead powerline - ranging from 33kV to 330kV
- **1** electrical switching yard and up to **6** electrical collection substations
- **288** turbine concrete reinforced foundations – around **400** cubic meters each
- Up to **4** temporary concrete batching plant including supply of aggregates & water
- Site office facilities, lay down areas and construction compounds
- Permanent operations building and control centre
- Worker accommodation and support services required from nearby towns
- Opportunity for local trades, contractors and employment

Construction photos



Access roads



Cable trenching (underground cabling)



Construction compound

Expenditure during Construction & Operations

- Overall project investment value of around **~\$1.7 billion**
- **\$256 million** local expenditure estimate based on the construction of a wind farm comprising 288 x 3MW turbines
- **\$17 million** local annual expenditure estimate during operations (25 years)
- Local / regional expenditure figures exclude state and national flow on effects

Construction photos



Foundation under construction

Construction photos



Foundation steel reinforcing



Concrete foundation

Employment during Construction & Operations

- Employment estimates based on the construction of a wind farm comprising 288 x 3MW turbines

Employment Area	Local / Regional Employment Number
Construction employment	829
Operational employment	78

- Based on **78** ongoing employment roles during operations the local project expenditure on items such as fuel, food and accommodation is estimated to be **~\$2.3 million** per annum

Construction photos



Collection substation



Turbine assembly



Completed wind farm

Contracting and Employment Opportunities

- Electricians HV/LV
 - Engineers & technicians
 - Heavy vehicle drivers
 - Steel fixers
 - Riggers
 - Labourers
 - Crane operators
 - Excavator operators
 - Mechanical fitters
 - Welders
 - Project managers
 - Environmental officers
 - Plumbers
 - Supervisory roles
 - Project managers
 - Landscapers / Gardeners
 - Safety officers
 - Cleaners
 - Maintenance staff
 - Caterers
 - Administration staff
-
- List your capabilities on our construction database.....

Summary of likely benefits available to the local region

Based on the current wind farm layout of **288** turbines.....

- Total project investment value **~\$1.7 billion**
- Direct regional investment from construction **~\$256 million**
- Direct regional investment from operations **~\$17 million** per annum
- Direct jobs during construction **~829**
- Direct jobs during operations **~78**.....plus **~\$2.3 million** local expenditure

Plus other benefits including.....

- State and national flow on effects (jobs, services and expenditure multipliers)
- Carbon emissions abatement **~1,700,000 tonnes** per annum
- Proposed establishment of a Community Enhancement Fund

How can the local community contribute

- Send capability statement of business skills and services
- Register details on construction database
- Advise availability of local resources including gravel, cement and water etc
- Expression of community support to capture project benefits
- Ongoing interaction with CCC
- Increase awareness of project with state and federal members

Anticipated Project Timing and Next Steps

- December 2013 (done) – Submit Environmental Assessment (EA)
- Early to mid 2014 – Government's public exhibition of EA
- Mid to late 2014 – Approval decision by government
- Late 2014 – Construction tender process
- 2015 – Commence construction (2 year build program)
- 2016/17 – Commence operations (25 years)

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