

EPURON



**Liverpool Range Wind Farm
Coolah & Cassilis Business Meeting
20 November 2013**

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.

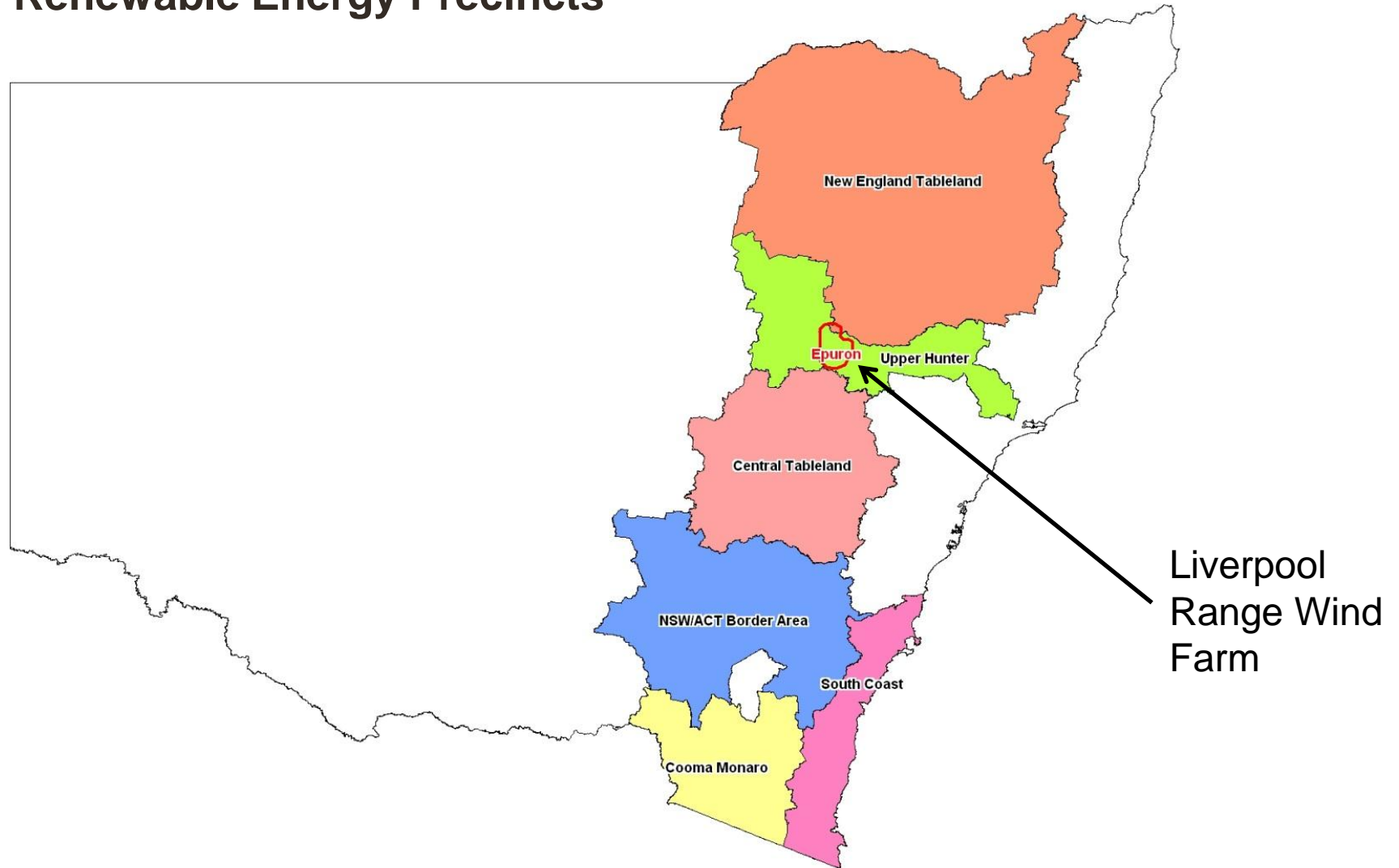
Liverpool Range Wind Farm



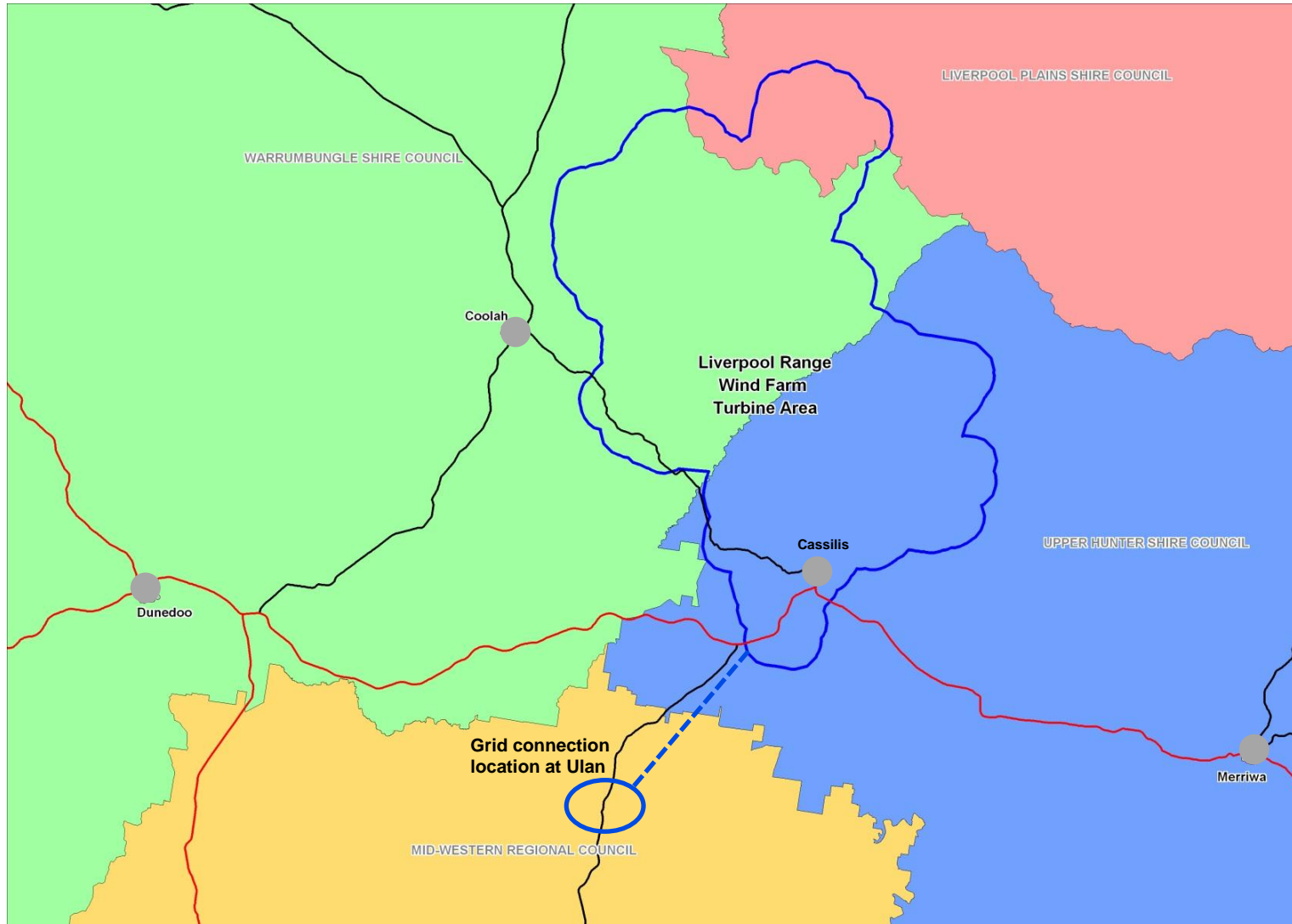
Fast Facts

- Located in the NSW Governments **Upper Hunter** Renewable Energy Precinct
- Situated across **4 LGAs** (Local Government Areas)
 1. Warrumbungle Shire Council
 2. Liverpool Plains Shire Council
 3. Upper Hunter Shire Council
 4. Mid-Western Regional Council
- Number of involved wind farm landowners - **22**
- Size of wind farm site – approximately **50,000** hectares or 123,500 acres
- Proposed number of turbines – **288**
- **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**

NSW Renewable Energy Precincts



Local Government Area Boundaries



Construction Opportunities

- 362km of new access roads – 5m to 10m wide
- Upgrade existing local roads in conjunction with councils and RMS
- 204km of underground electrical 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 foundations – around 400 cubic meters each
- Up to 4 temporary concrete batching plant including supply of aggregates & water
- Site offices, lay down areas and construction compounds
- Permanent operations building and control centre
- Accommodation and local services required from nearby towns
- Opportunity for local trades, contractors and employment

Construction photos



Access roads



Cable trenching (underground cabling)



Construction compound

Construction & Operational Expenditure

- **\$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)

Construction Works	Local / Regional Expenditure (\$million)
Wind turbines	\$ 165,888,000
Site administration and design	\$ 20,736,000
Site construction works	\$ 20,736,000
Site electrical works	\$ 23,328,000
Labour	\$ 25,920,000
Total construction	\$ 256,608,000
Local operational expenses (per annum)	\$ 17,280,000

- Local / regional expenditure figures exclude state and national flow on effects

Construction photos



Foundation steel reinforcing



Concrete foundation

Construction & Operational Employment

- 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 fuel, food and accommodation is estimated to be ~\$2.3 million

Construction photos



Collection substation



Turbine assembly



Completed wind farm

Employment Opportunities

- During consultation a number of people have asked us about the kinds of job and skills required to work on the wind farm construction or maintenance team during operations.
- Below is a list of general job types, skills or qualifications that local people and businesses can use as a guide for seeking employment on the wind farm.
- A project database is kept of people and businesses interested in participating in the wind farm construction or operation phases. Please let us know if you would like your details and capabilities added to this list.
 - 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
 - Caters
 - Administration staff

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 on fuel etc)

Plus.....

- 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
- Ongoing involvement via the Community Consultation Committee

How can the local community contribute

- Capability Statement of local businesses, skills and services
- Availability of resources including gravel, cement and water
- Expression of community support to capture project benefits
- Ongoing interaction with CCC
- Increase awareness with state and federal members

Anticipated Project Timing

- December – Business capability statement
- Late 2013 / early 2014 – Government's public exhibition of EA
- Around mid 2014 – Approval decision by consent authority (Minister)
- 2015 – Commence construction (2 year program)
- 2016/17 – Commence operations (25 years)
- Community Consultation Committee currently meets every 2-3 months

Contact Details

75 Miller Street
North Sydney
NSW 2060
AUSTRALIA

www.epuron.com.au

T 02 8456 7400

F 02 9922 6645

