

Chalumbin Wind Farm

Community Information Sessions

Ravenshoe, 9-10 February 2022

Anthony Russo, General Manager Development - QLD

EPURON

Acknowledgement of Country

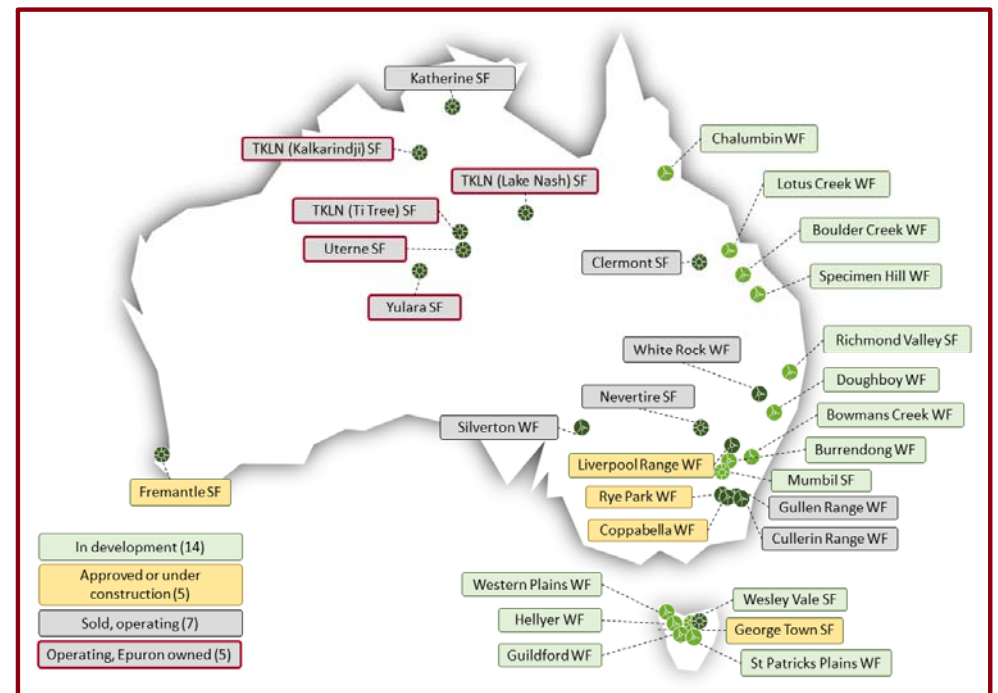
We acknowledge the Jirrbal Peoples as the Traditional Custodians of the land upon which we meet and their continuing connection to lands, waters and communities. We pay our respects to Elders past, present and emerging.

Introductions

- Epuron
 - Anthony Russo, General Manager Development, Qld
 - Melissa Pisani, Manager - Communications & Community Engagement
- The Missing Link
 - Kim Forde, Director and Principal Consultant
 - Ben Clarke, Senior Consultant
- Attexo
 - Chris Cantwell, Partner and Principal Consultant
 - Nikki O'Donnell, Principal – Biodiversity and Impact Assessment, Certified Environmental Practitioner (Impact Assessment specialization)

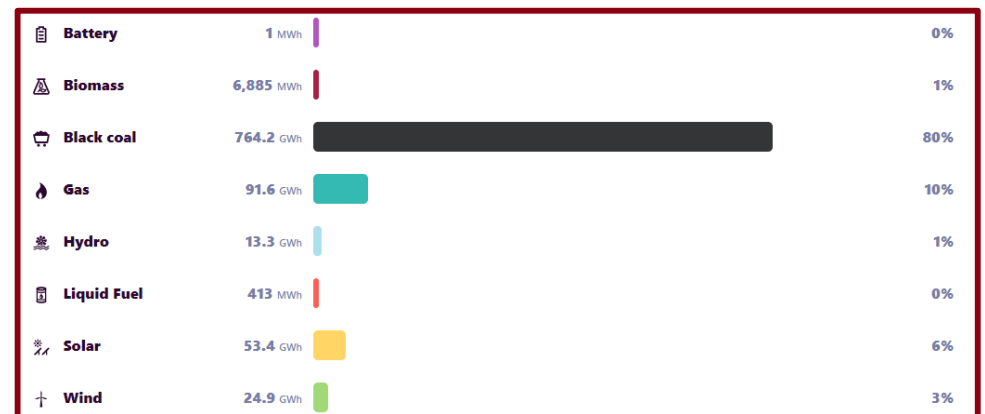
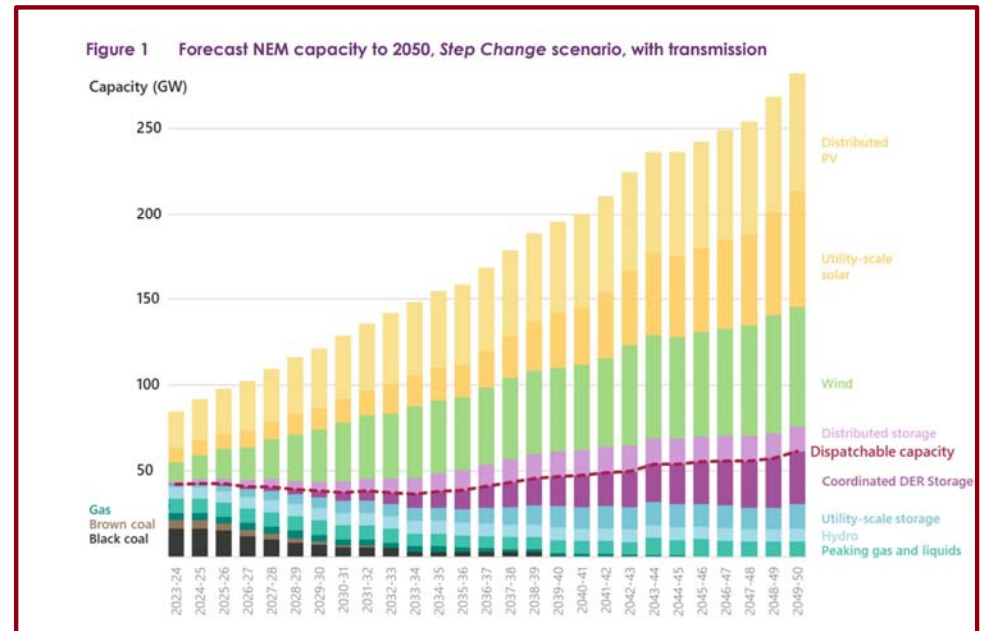
Epuron

- Developing renewables since 2003.
- **4000 MW** of utility-scale wind farm experience including 8 approved wind farms.
- **11** wind farm projects in development (Qld, NSW, Tas).
- **400 MW** of utility-scale solar energy experience including 5 operating solar farms
- **6** solar farm projects in development (WA, NSW, Tas, NT).
- Signatory to Clean Energy Council's Best Practice Charter.
- Expert team, collaborative and consultative approach.

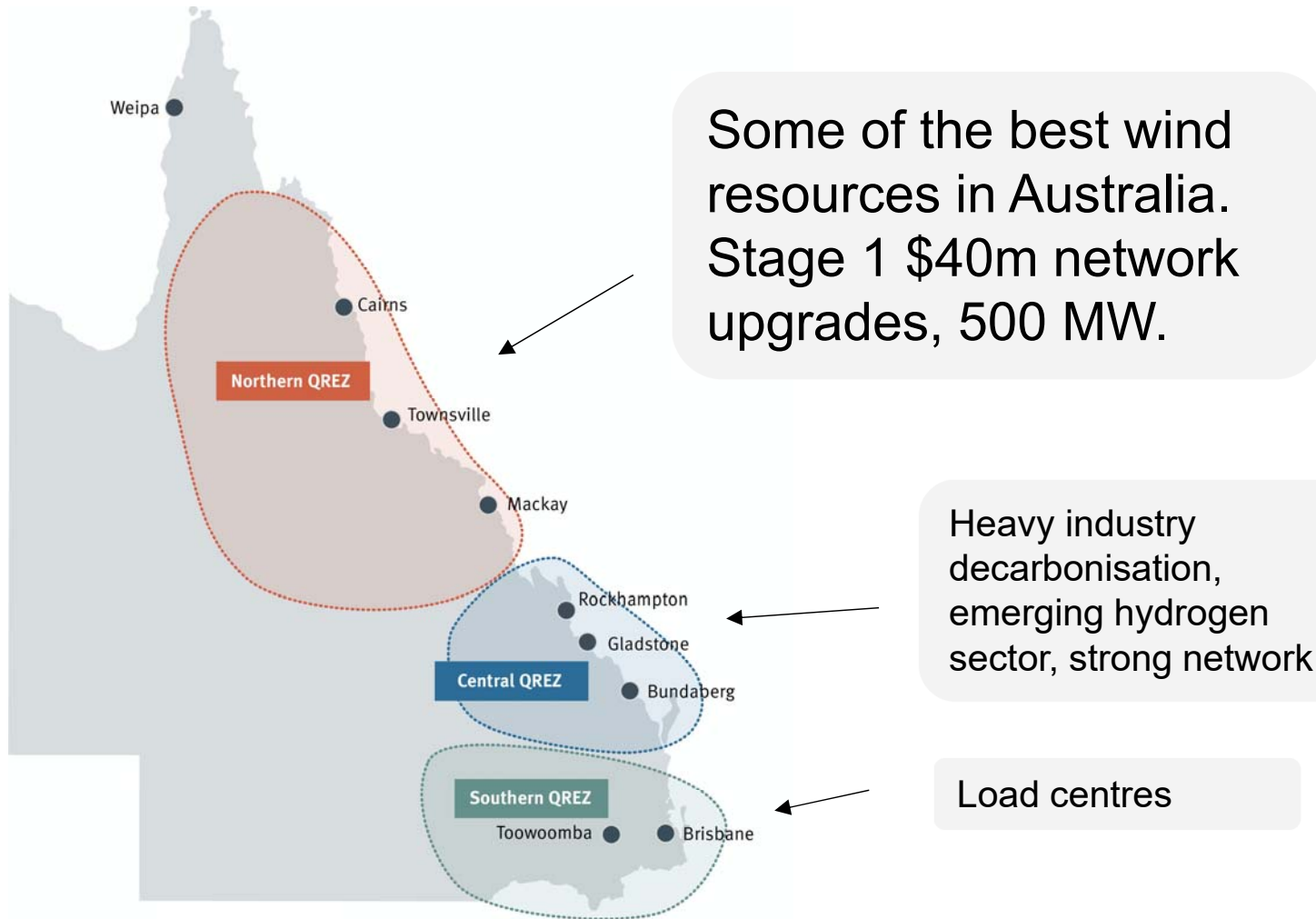


Big picture

- Coal retiring 2-3 times faster than expected.
- Draft 2022 ISP = NEM needs 135GW solar, 70GW wind, 45GW storage by 2050.
- Triple the previous forecast and nine-times the variable RE we have now.
- Qld. renewable energy target 50% by 2030 (currently ~20%).
- AEMO projects 47 GW of new RE in Qld by 2050.



Queensland's renewable energy zones



Site selection



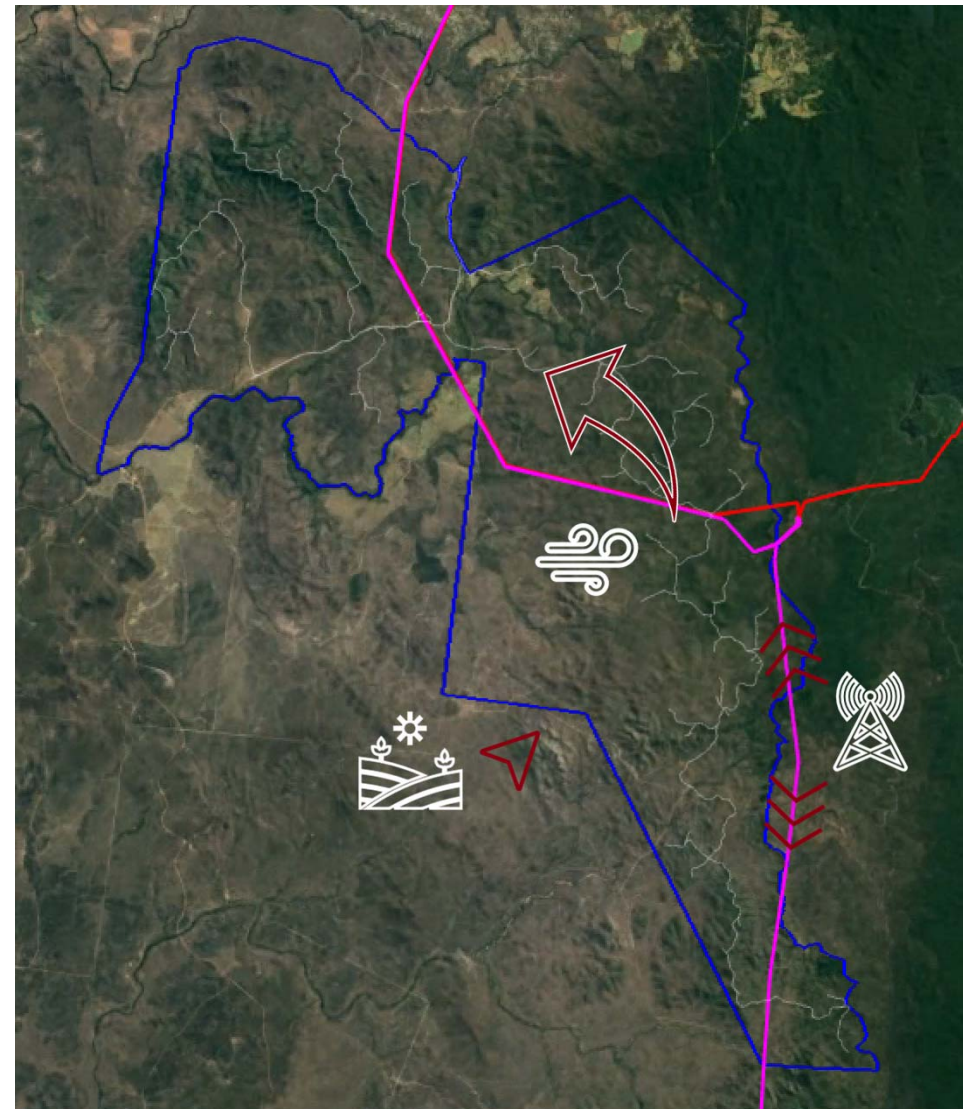
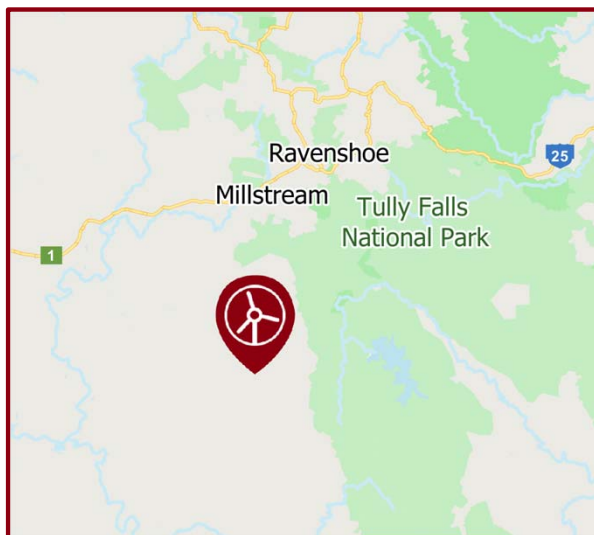
Wind resource



Grid connection



Land tenure



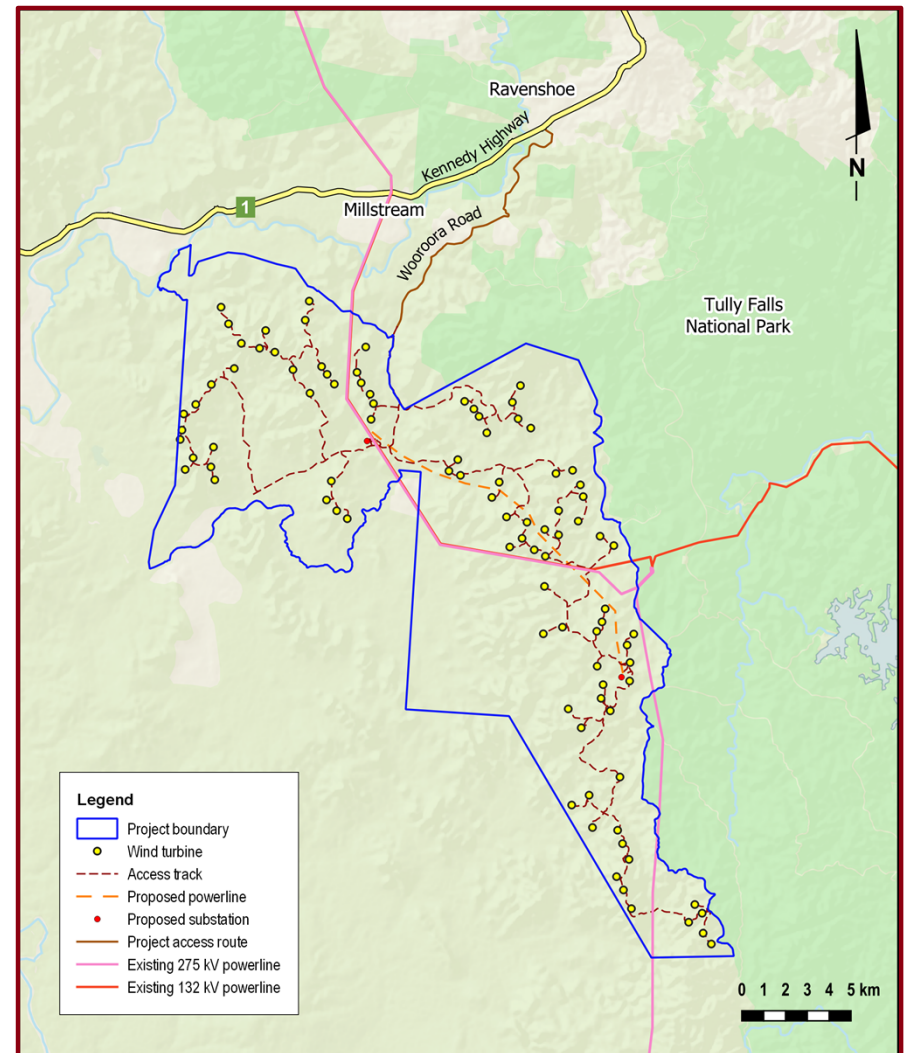
Project design process



- Project definition advances over time through the feasibility study process.
- Project design takes into account constraints and opportunities (e.g. flora, fauna, cultural heritage, wind resource modelling etc..)

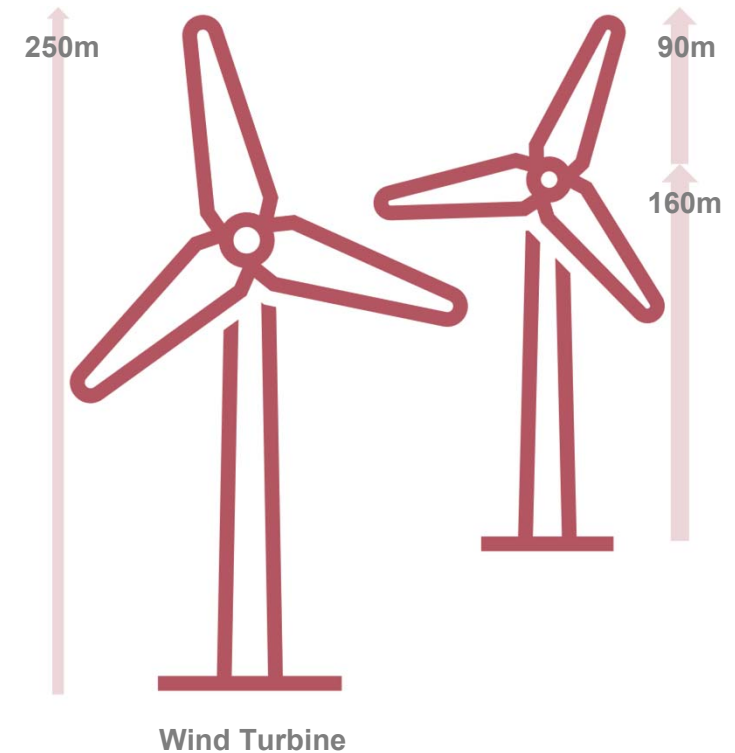
Proposal

- Location: 15 km south of Ravenshoe, Tablelands Regional Council LGA.
- Capacity: 94 wind turbines, ~600MW.
- Wind resource: monitoring across the ranges on the Wooroora and Glen Gordon Stations since 2017 (9 sodar sites, 3 met masts).
- Grid connection: 275 kV Powerlink transmission line.
- Land tenure: land agreements with landholders, pastoral land use.
- 800 m west of Wet Tropics World Heritage Area.



Specifications

Parameter	Unit	Qty
1. Hub Height (Up to)	Metres	160
2. Blade Length (Up to)	Metres	90
3. Total Tower Height (Up to)	Metres	250
4. Wind Turbine Capacity	Megawatt	5 to 7
5. Wind Farm Size	# Wind Turbines	94
6. Total Wind Farm Capacity	Megawatt	~600



Components - examples

Access tracks



- 5.5m crest width
- Wider toe width required for cut / fill batters, drainage and erosion control
- Buried cabling
- Preliminary design

Tower foundations



- 800m³ concrete
- Constant pour to maintain integrity
- Preliminary design (final planned in 2022)

Components - examples

Hardstands



- Crane assist pad, high / large equipment
- Laydown area (blades, tower, nacelle etc.)
- 1.5 to 2 ha per turbine

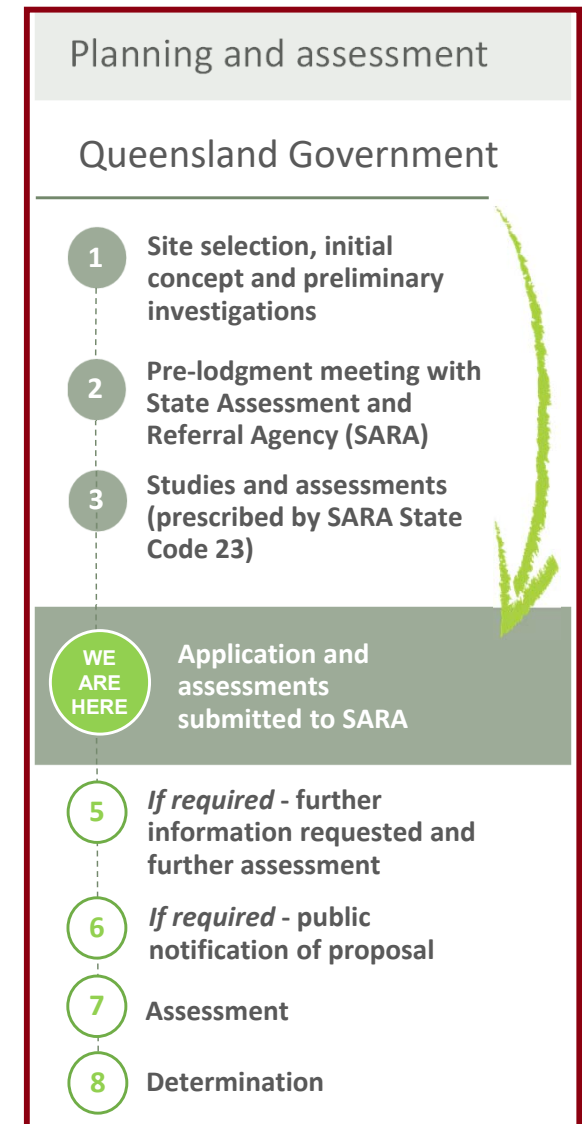
Substations



- Wind farm collector to link turbines across site
- Low voltage to high voltage connection
- Potential for battery storage to support grid connection
- 2 ha each

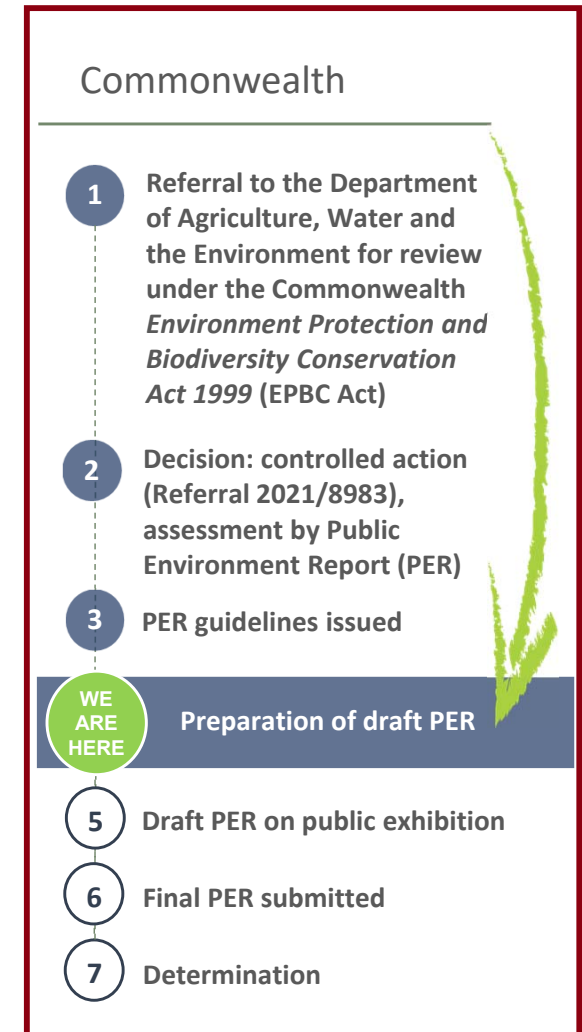
Assessment – State

- Development Application lodged December 2021
 - Material change of use for Wind Farm (State code 23).
 - Operational works for clearing native vegetation (State Code 16).
- Technical studies include:
 - Aviation Impact Assessment.
 - Ecological Assessment Report (including Vegetation Management Plan, Fauna Management Plan, Bird and Bat Management Plan).
 - Electromagnetic Interference Assessment.
 - Landscape and Visual Impact Assessment.
 - Noise Impact and Shadow Flicker Assessment.
 - Traffic Impact Assessment and Preliminary Route Assessment (port to site).
 - Preliminary Stormwater Management Plan.
 - Preliminary Construction Management Plan and Erosion and Sediment Control Plan.



Assessment - Commonwealth

- Referral lodged July 2021
- Federal Department of Agriculture, Water and Environment (DAWE) deemed proposal a 'controlled action' assessable by Public Environment Report (PER) in August 2021
- Draft PER guidelines exhibited in October 2021 and issued in November 2021.
- Draft PER due to be submitted Q1 2022
- Draft PER will be placed on public exhibition following adequacy review by DAWE, most likely in Q2 2022.



Traditional Owners

- Cultural Heritage Management Agreement signed in October 2020
 - Jirrbal #4 registered native title applicant
 - Wabubadda Aboriginal Corporation
 - Inputs into design process to avoid sensitive locations e.g. Arthurs Seat
- Indigenous Land Use Agreement
 - Authorisation meeting planned for January 2022 and deferred due to COVID 19 (Omicron) 'stay at home orders' in Palm Island and Jumbun

Ecology

- Rigorous and comprehensive assessment requirements
- Extensive surveys – 15 months, 225 person days, 14 ecologists
 - Consultation with a range of experts and stakeholders.
 - Surveys and stakeholder input into project design to avoid or minimise potential impacts to the extent practicable.
 - Significant residual impact (SRI) to be offset.
- Matters of State Environmental Significance
 - Potential for SRI on 239 ha 'of concern' & 24.1 ha 'watercourse' vegetation



Ecology

- Matters of National Environmental Significance (EPBC Act)
 - Assessment of SRI for PER in progress.
 - Red Goshawk not observed, key habitat avoided.
 - Northern Greater Glider identified 64 individuals over 103 person hours, informed project design to avoid habitat to the extent practical.
 - Magnificent Brood Frog (MBF) observations from over 140 hours of survey effort shared with working group and informed project design to avoid habitat to the extent practical.



Bird and Bat Management Plan

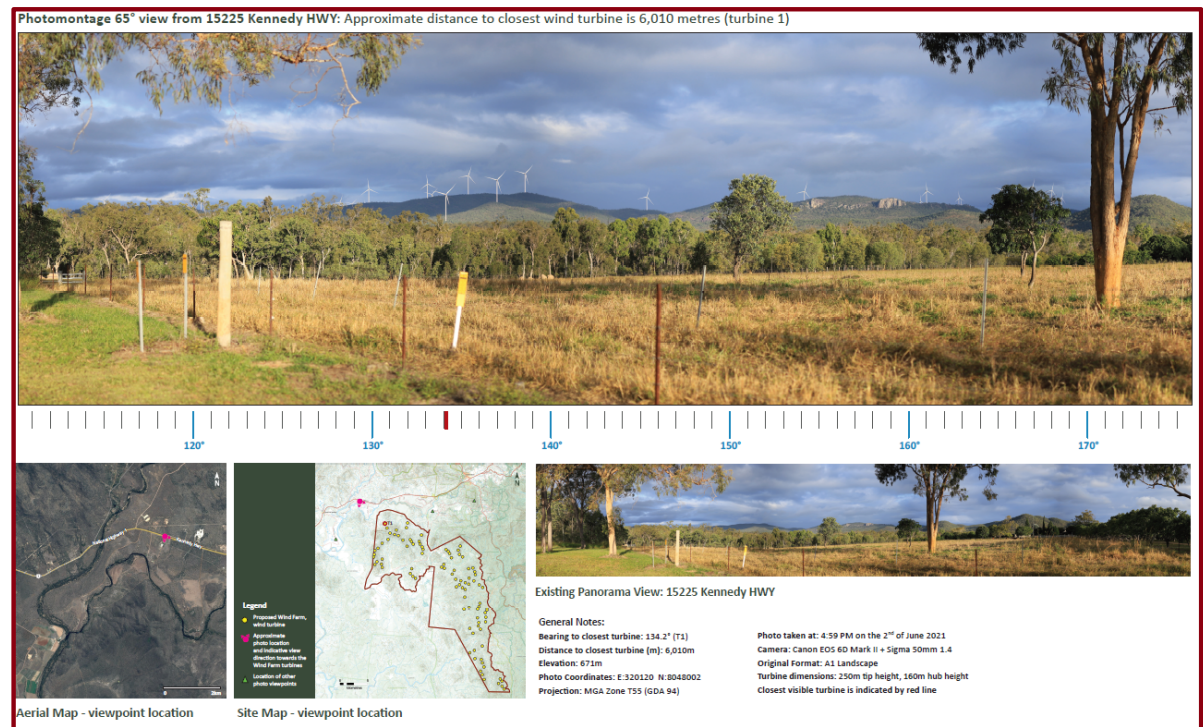
- Bird Utilisation Surveys (BUS) to identify the bird species using the site and their flight behaviour/height
 - Inform the risk assessment for operational impacts associated with "bird strike"
- Very low rate of bird strike for species of conservation significance across Australian operational wind.
- Rotor swept area (RSA) assessment
 - No bird species of conservation significance observed within RSA
 - No bat species of conservation significance likely to fly within RSA height.
- Adaptive Bird and Bat Management Plan.



Visual Amenity

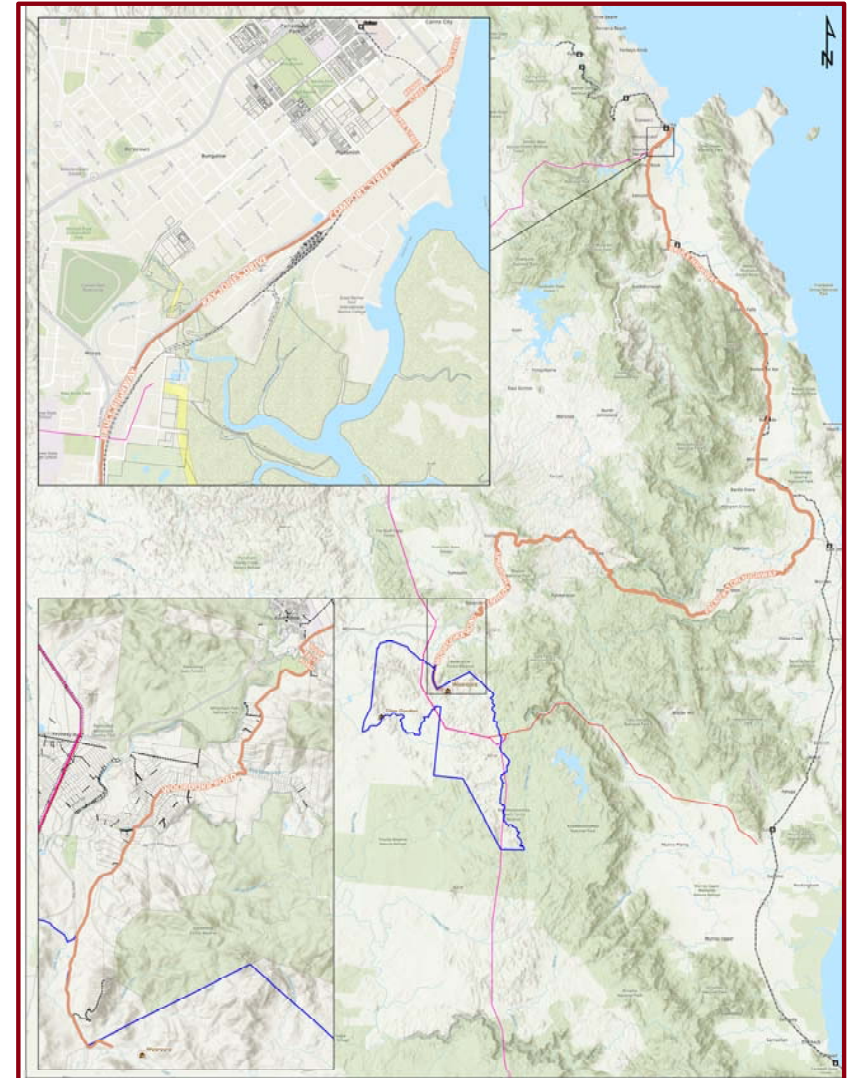
State Code 23 Performance Outcome 09

Development avoids, or minimises and mitigates, adverse impacts on the character, scenic amenity and landscape values of the locality and region through effective siting and design.



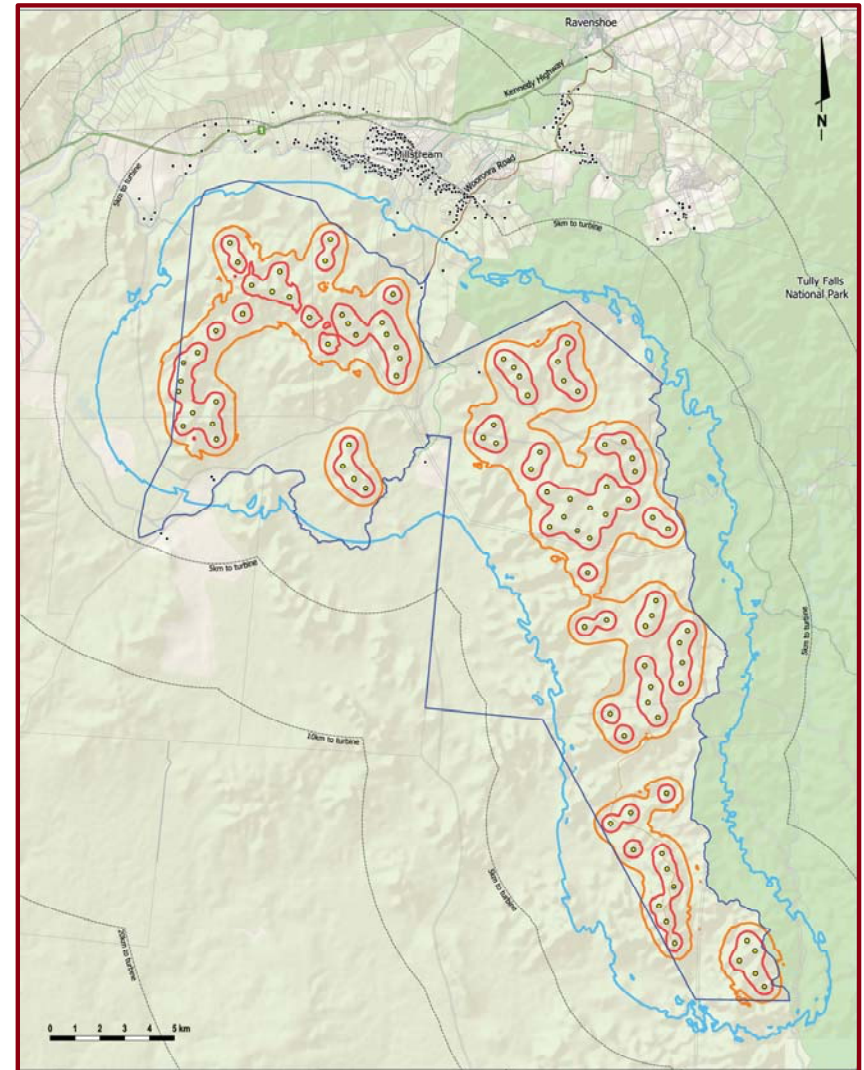
Transport

- Delivery of components along existing 185km transport route from Port of Cairns.
 - Swept path analysis for transport of large components: blades (90m length) and tower (5.5m diameter)
 - Feasible route identified, Traffic Management Plan for rectification of 15 pinch points prior to construction (e.g. pavement widening, vegetation clearing, signage removal etc.)
- Low volume of traffic movements, deliveries of large components to avoid temporary road closures during key periods.



Noise

- Noise assessment undertaken against criteria provided in State code 23.
 - Night-time (host): 45 dB(A) / background + 5 dB(A)
 - Night-time (non-host): 35 dB(A) / background + 5 dB(A)
 - Day-time (host): 37 dB(A)
 - Day-time (non-host): background + 5 dB(A)
- Predictive modelling indicates compliance at all host and non-host lots.



Carbon lifecycle

- Greenhouse gas (GHG) emissions from construction 970,557 t CO₂-e
 - Transportation of materials (e.g. tower and blade from China, nacelle from Europe)
 - Vegetation clearing and earthworks
 - Construction and operational workforce
- GHG reductions 651,779 t CO₂-e/year
 - Wind energy replacement of coal
- 1.5 years for GHG from construction to be offset by emission reductions generated by the wind farm .

Socio-economic benefits

- >\$1bn investment to engineer, procure and construct the project
 - Significant direct and indirect expenditure, value-add and household income in local, regional and Qld economy.
 - Economic analysis indicates \$150m-\$300m in direct and indirect expenditure in local economy.
- Community Benefit Program
 - Approx. \$500 k per year from construction and for life of the wind farm.
- 2 years of construction work
 - 250-350 jobs on site – civil/electrical, construction, admin, support etc..
 - Aim for local work force where possible.
- 25 + years of operation
 - 15-30 long term jobs for local people.
 - Mostly wind turbine technicians – electrical trade.
 - Landscaping, admin, support etc..

Community engagement

- Acknowledgement in-depth face-to-face engagement opportunities have been limited.
- New information space in Ravenshoe.
- New Community Advisory Group.
- Co-development of Community Benefit Program.
- Dedicated website with feedback form.
- Regular newsletters – email or post.
- Team always available – email, phone.



21 January 2022

#Project Update
#Wind
#Queensland
#Chalumbin

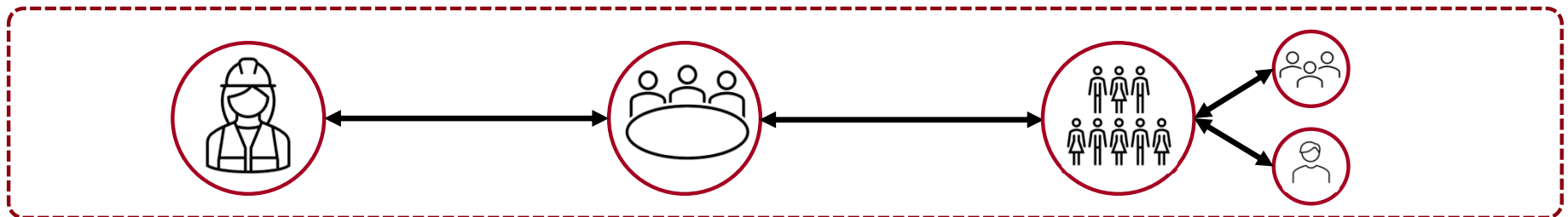


Community Advisory Group

Nominations for membership open

- Individuals with interest in the region / renewable energy eligible to participate.
- Seeking approx. 8- 10 members.
- Members to serve initial 12 months – with potential for extension.
- Meetings to be held locally every 2 months.
- *Charter, Code and Terms of Reference* to guide operations.
- Forum for updates, discussion & listen to / consider feedback.
- Input for project design, delivery and social outcomes.
- Nomination form today and online at chalumbinwindfarm.com.au – due 11/3.

EOI for Independent Chair invited: CWFCAG@chalumbinwindfarm.com.au



Community Benefit Program

- Based on approx. \$500 k p.a. – industry-leading commitment.
- To kick-in at start of construction and for life of the wind farm.
- Shares a generous allocation of returns and contributes to issues the community cares about.
- Final program to be co-designed with the community and local stakeholders. Survey today or online at chalumbinwindfarm.com.au

Hybrid program – initial ideas for allocation:

Community Fund to support local initiatives and projects.

Community Fund



Social housing program to contribute to sustainable housing stock

Social Housing

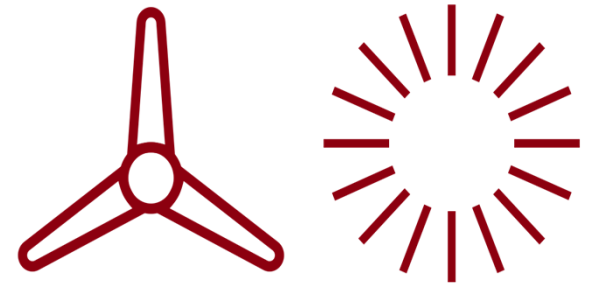


Allocation for emergencies and natural disasters.

Emergency Relief



Questions



EPURON



Thank you

Anthony Russo – GM Qld

Chalumbin Wind Farm
55 Grigg Street, Ravenshoe
1800 731 296
info@chalumbinwindfarm.com.au
www.chalumbinwindfarm.com.au