



# Crudine Ridge Wind Farm

CCC Meeting 26/4/18



# Agenda

- Project Update
  - Design
  - Contracting
  - Community Benefits
- Pre-construction Update
  - Management Plans
  - Road Upgrades
  - Material Sourcing
  - Noise Impacts
  - Visual Impacts
- Construction Timeline

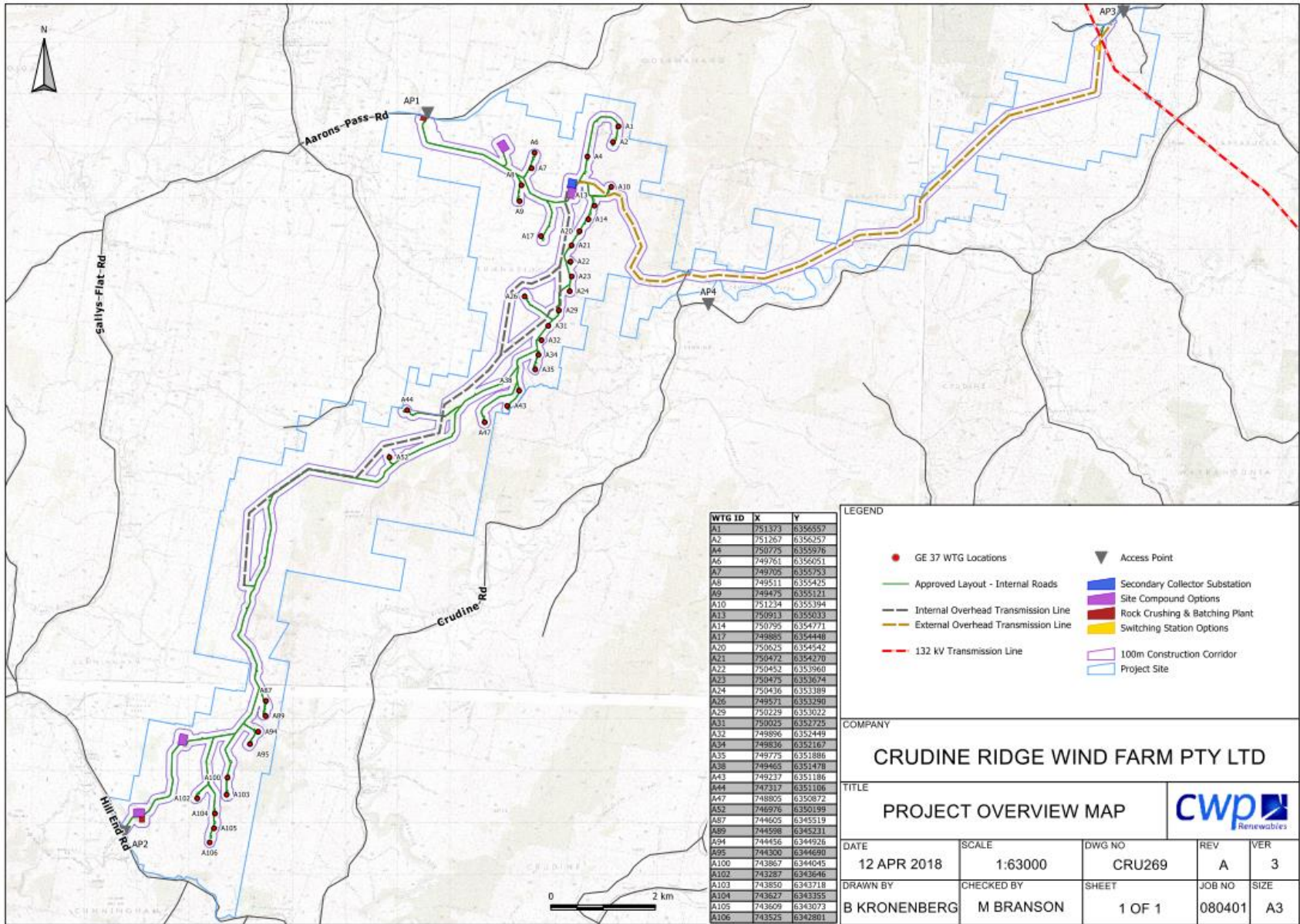


# Project Update: Design

- The Project secured a Power Purchase Agreement with Meridian Energy earlier this year and is expected to commence construction in May.
- The project will consist of:
  - 37 wind turbine generators
  - Each of 3.63 MW capacity
  - Project capacity of approximately 135MW
  - a maximum tip height of 160m
- 27 turbines will be constructed in the Mid-Western Regional Council area.
- 10 turbines will be constructed in Bathurst Regional Council area.
- Project Financing is underway using an equity and debt funding model and we expect to commence construction in May.







WTG ID	X	Y
A1	751373	6356557
A2	751387	6356257
A4	750775	6355976
A6	749761	6356051
A7	749705	6355753
A8	749511	6355425
A9	749475	6355121
A10	751234	6355394
A13	750913	6355033
A14	750795	6354771
A17	749885	6354448
A20	750025	6354542
A21	750472	6354270
A22	750452	6353960
A23	750475	6353674
A24	750436	6353389
A26	749571	6353290
A29	750229	6353022
A31	750035	6352725
A32	749856	6352448
A34	749836	6352167
A35	749775	6351886
A38	749465	6351478
A43	749237	6351186
A44	747317	6351106
A47	748805	6350872
A52	748976	6350195
A87	744605	6345519
A89	744598	6345231
A94	744456	6344926
A95	744300	6344690
A100	743867	6344045
A102	743287	6343646
A103	743550	6343715
A104	743287	6343355
A105	743609	6343073
A106	743525	6342801

**LEGEND**

- GE 37 WTG Locations
- Approved Layout - Internal Roads
- Internal Overhead Transmission Line
- External Overhead Transmission Line
- 132 kV Transmission Line
- ▼ Access Point
- Secondary Collector Substation
- Site Compound Options
- Rock Crushing & Batching Plant
- Switching Station Options
- 100m Construction Corridor
- Project Site


**COMPANY**

**CRUDINE RIDGE WIND FARM PTY LTD**

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**TITLE**

**PROJECT OVERVIEW MAP**



<b>DATE</b>	<b>SCALE</b>	<b>DWG NO</b>	<b>REV</b>	<b>VER</b>
12 APR 2018	1:63000	CRU269	A	3
<b>DRAWN BY</b>	<b>CHECKED BY</b>	<b>SHEET</b>	<b>JOB NO</b>	<b>SIZE</b>
B KRONENBERG	M BRANSON	1 OF 1	080401	A3

# Project Update: Contracting

- Construction contracts are being finalised with preferred suppliers:

- Turbine Supply:  GE Renewable Energy

- Balance of Plant:  Zenvion

- Substation:  TransGrid

- Contracts are expected to be finalised in April.
- An Early Works contract is underway to deliver long-lead time items:
  - Aarons Pass Road design
  - Geotechnical studies
  - Material and water procurement





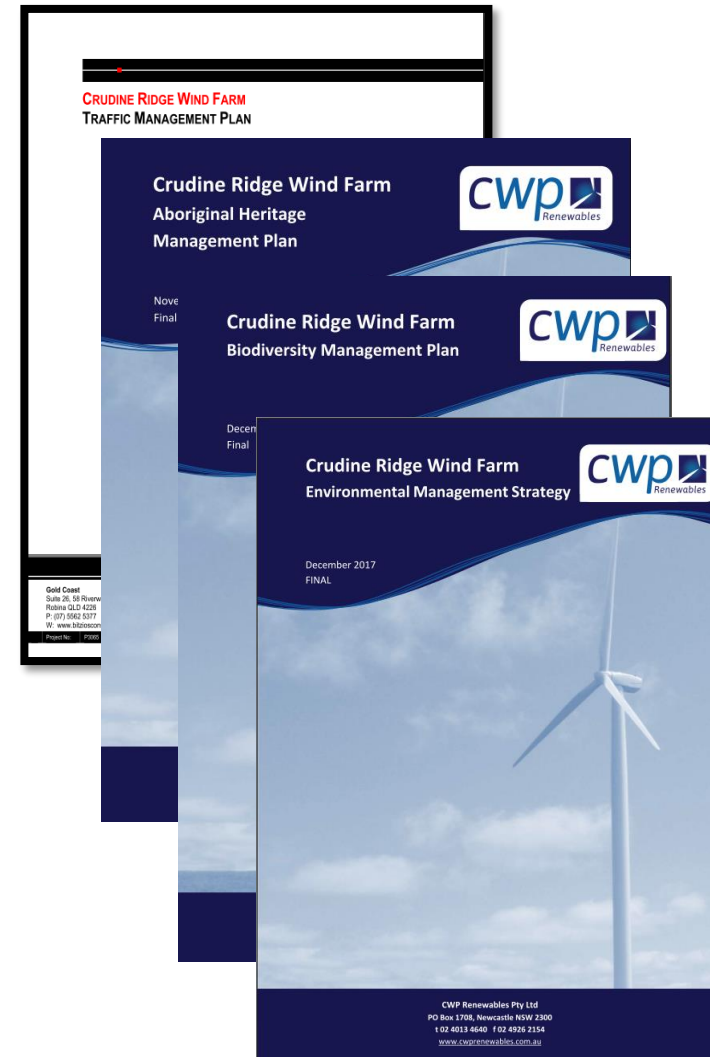
# Project Update: Community Benefits

- The Project has an Australian Industry Participation Plan and Zenviron is using the Industry Capability Network to maximise the local workforce during construction.
- Construction contracts have been open for tender for the past two months.
- CWP has recently committed to contribute to help run Pyramul Hall.
- Community Benefits Funds will generate approx. \$167,000 for the region annually in contributions.
- Extensive road upgrades and maintenance program throughout the construction phase of the Project.



# Management Plans

- Following consultation with MWRC, management plans were approved by NSW Department of Planning and Environment in December 2017:
  - Environmental Management Strategy
  - Biodiversity Management Plan
  - Aboriginal Heritage Management Plan
  - Traffic Management Plan
- These plans provide the framework under which construction and operations must occur.
- The Project will conduct regular monitoring programs and will be externally audited for compliance against these plans.



# Road Upgrades

- The Project Approval requires upgrades to be undertaken to **Aarons Pass Road** and **Bombandi Road**.
- CWP has been engaged with MWRC for over twelve months in relation to the scope and design of the works program to ensure that it meets the needs of Council, the community and the Project.
- Detailed design has been prepared to address the design criteria required for project transport:
  - Supersedes the original concept plans prepared during the Environmental Assessment
  - Improves the safety of Aarons Pass Road, particularly in relation to blind corners and crests
  - Avoids and minimises impacts to threatened species and endangered ecological communities
  - Was provided to MWRC Works Dept. for review and for costing
- MWRC has advised us to tender the works for the road upgrades which is currently in progress.
- MWRC Works Dept. supervise and audit the works to ensure they meets council standards.
- The revised 3D design has been approved as a component of the **Traffic Management Plan** which was endorsed by both Mid-western and Bathurst regional councils, and **approved** by the Department of Planning and Environment in December 2017.



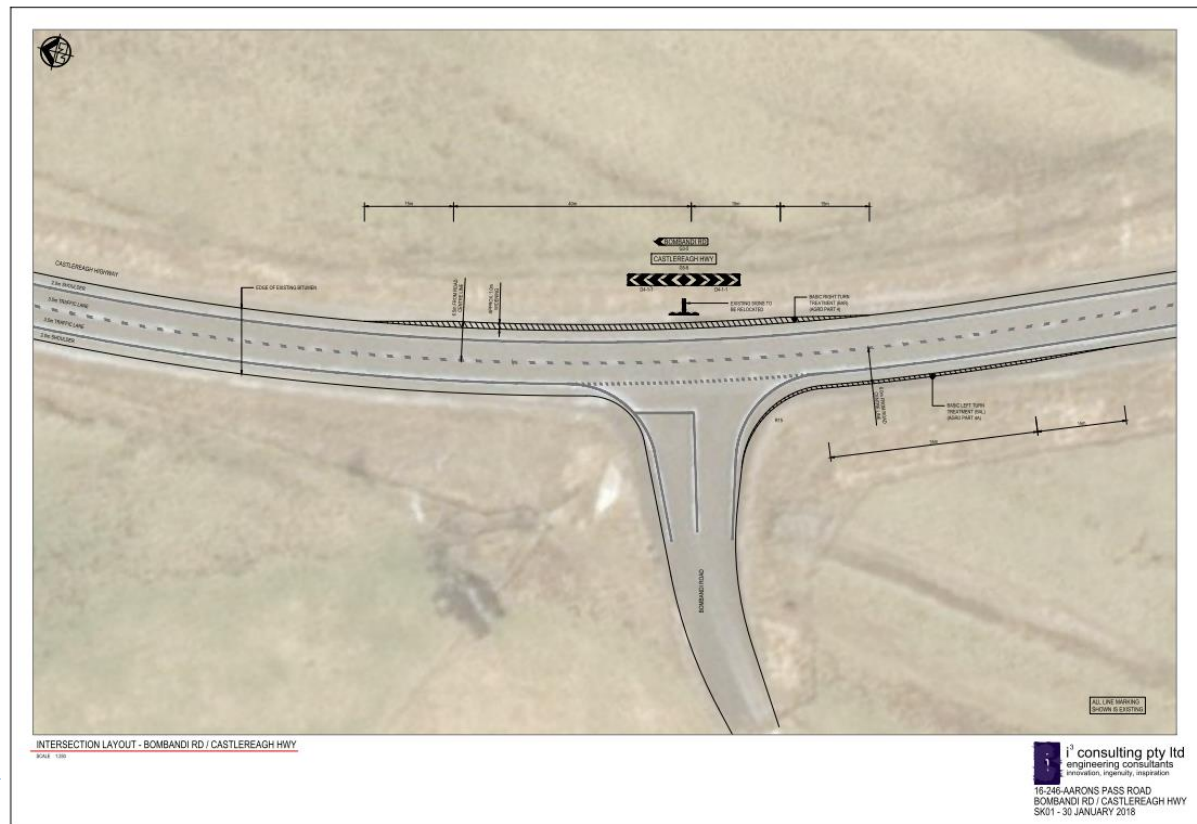


# Aarons Pass Road

- The Development Consent requires that the Project upgrades Aarons Pass Road to the satisfaction of MWRC.
- CWP engaged the experienced wind farm civil design team, iCubed, to design the road upgrades with multiple aims:
  - Improving safety of the road during project construction
  - Avoiding impacts to threatened species and endangered ecological communities
  - MWRC standards and project transport requirements.
- MWRC has reviewed and confirmed that the plans are to MWRC satisfaction.
- The approved Biodiversity Management Plan has guided the procedures to ensure that impacts to biodiversity are minimised and are within the limits of the Development Consent.
  - Additional biodiversity survey of Aarons Pass Road was undertaken and threatened species locations were identified by cadastral survey.
  - Detailed design of the road was prepared to ensure avoidance of threatened species.
  - Vegetation clearance will be within the limits permitted in the Development Consent.
- The project impacts will be offset with the establishment of the 674ha Stewardship Site in Hill End.

# Bombandi Road

- The Project is required to upgrade the Castlereagh Hwy / Bombandi Rd intersection.
- A Works Authorisation Deed has been initiated to undertake the upgrade to RMS requirements.
- Additional minor upgrades to culverts and gates will be undertaken along Bombandi Rd as required under the Consent.
- Minor upgrades are agreed with MWRC Works Dept.



# Geotechnical Study

- Geotechnical surveys have been underway to assess rock and soil structure across the site:
  - Turbine footing and crane pad locations
  - Substation and compound areas
  - Along the access roads
- Geotechnical works are permitted under the Development Consent as defined as pre-construction minor works.
- Excavator test pits and drilling is being undertaken which will be backfilled following works.





# Material Sourcing

- The Balance of Plant contractor has been investigating opportunities for sourcing hard rock, gravel and water within the Project area.
- The benefits of sourcing materials onsite include:
  1. Improved safety by reducing traffic, particularly along Aarons Pass Road and Hill End Road
  2. Reduced dust and noise impacts on neighbouring residences
  3. Minimise damage to Council roads from heavy vehicle haulage
  4. Avoid existing quarries required for the ongoing Council road works program
- Australian Resource Development Group (ARDG) is a third party that has been assessing suitability and availability of construction materials:
  - ARDG has submitted three Development Applications for quarries to be used during project construction to minimise traffic and other impacts.
  - Water supply licences will be sought from the NSW Office of Water.
- ARDG are not a related entity to CWP or the Project, but would supply materials under a commercial contract.

# Water for Construction

- ARDG has been investigating availability of water for Project construction.
- 65ML of water is required for construction – this includes all direct and indirect consumption for the project.
- A Water Access Licence with a Zero Share Component is currently being procured from Water NSW.
- Once a WAL is established with zero units, water from another holder will be transferred on temporary basis after WaterNSW issues an approval. The WAL is to be traded within the Murray Darling Basin Fractured Groundwater Source.
- Landholders wishing to supply water to the project will need to provide an authority for utilisation of their bores, to be consented by WaterNSW under the terms of the WAL.
- Water supply options include:
  - Existing bores
  - Existing dams
  - Bulk water supply contracts as a back up
- Licence is planned for commencement on 1 July 2018, to be renewed annually during construction. There are no other approvals required by WaterNSW since the project is of ‘State Significance’.
- ARDG are not a related entity to CWP or the Project, but would supply water under a commercial contract.

# Noise Impacts

- The Development Consent sets the limits of permissible noise impacts at neighbouring residences to the wind farm.
- Noise impacts are predicted to be significantly lower at neighbouring residences based on the 37 turbine layout, than the impacts predicted from the 77 turbine layout.
- An Environmental Protection Licence (EPL) is being prepared currently by the NSW EPA which will enforce the noise limits and set the monitoring and auditing procedures.
- The EPL is enforceable by the NSW EPA.
- The Development Consent requires that:
  12. *Within 3 months of the commencement of operations, the Applicant shall:*
    - a) *Undertaken noise monitoring to determine whether the development is complying with the relevant conditions of this consent; and*
    - b) *Submit a copy of the monitoring results to the Department and the EPA.*

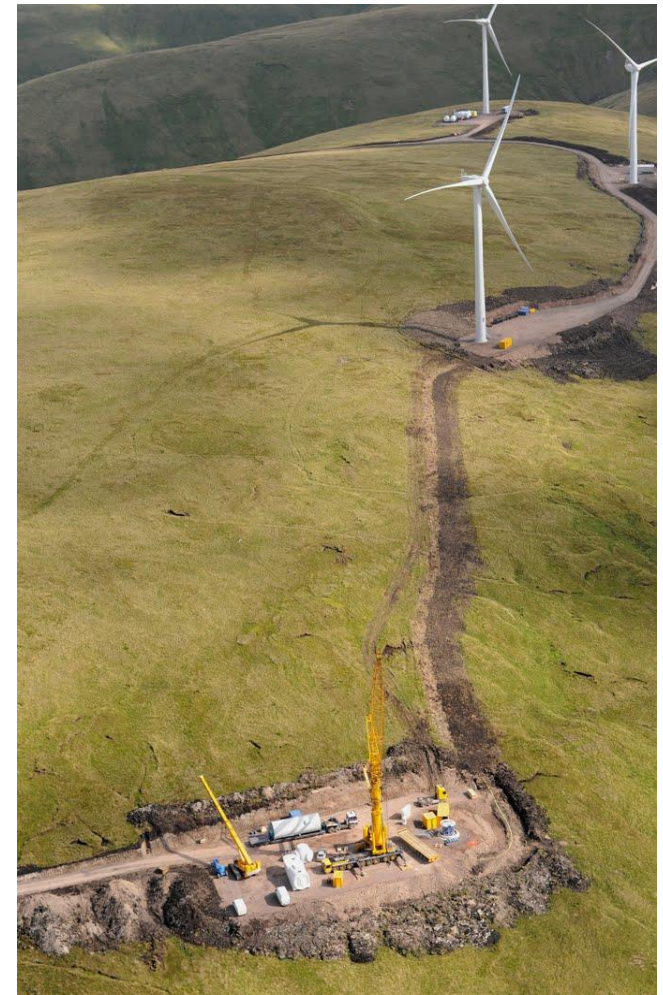


# Visual Impacts

- The visual impacts for all residences within 4km of a wind turbine, as well as individual residence listed in the Development Consent, are currently being revisited based on the final Project layout.
- Visual impacts have seen a significant reduction across the board because of the reduction in turbines from 77 to 37.
- Within one month of the commencement of construction, the project will contact each of those residences to inform them of the anticipated impacts, and their entitlements under the development consent.

# Construction Timeframe

- VPAs – Endorsed and signed by Council
- Management Plans – approved by DPE
- Road Upgrades
  - Biodiversity surveys completed
  - Detailed design and avoidance completed
  - Tendering underway
- Construction Contracting - underway
- Pre-construction Minor Works - underway
- Due Diligence and Financing - underway
- Construction period to commence in May
- First generation will commence ~ Q2 2019







Questions and discussion

