

Silverton Wind Farm

Community Consultative Committee
Meeting No.CCC-028

Thursday, 7 June 2018



Powering
Australian
Renewables
Fund



Agenda

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Welcome

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Previous
minutes

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Project update

- Overview
- Wind Farm Works
- Commissioning

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Community
relations
update

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Topics of interest

- Wilangee Road
- Solar PV Voltage Rise

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Other
business



1. Welcome



2. Previous minutes

2. Previous minutes

Action items



Item	Action	Status	Who
5.19.01	AGL to arrange site tour for interested Silverton community members and the Broken Hill City Council.	Open	AGL – 1/18
3.23.16	AGL to contact Rod Grenfell in relation to erecting a fence along Daydream Mine Road near the Umberumberka pipeline access.	Open	AGL – 1/18
4.24.02	AGL noted that the Water Tank Program for supply and installation of domestic sized water tanks will commence in early 2018 after the Solar Silverton Program has commenced.	Open	AGL – 2/18
4.25.07	AGL to progress the 20 m monopole with Telstra and Crown as part of the mobile reception program and contact AW to discuss the proposed solution	Open	AGL – 1/18
4.25.08	AGL confirmed that further works would with Telstra in relation to Eldee's existing telecommunication solution and noted that contact details had been provided by the Schmidts	Open	AGL – 11/17
3.26.24	AGL to liaise with C Langford in relation to a fence on Purnamoota and whether the fence associated with the track will be removed	Open	AGL – 3/18
3.26.25	AGL will continue to liaise with Telstra to avoid any impacts to N Schmidt's tower	Open	AGL – 3/18
5.27.03	AGL to speak with RMS in relation to the maintenance works on Wilangee Road	Open	AGL – 5/18
5.27.04	AGL to review dust control (water carts) on the access roads around Umberumberka Reservoir with GE-CATCON.	Open	AGL – 5/18
5.27.05	AGL to review noise from night works around Umberumberka Reservoir with GE-CATCON.	Open	AGL – 5/18

- Overview
- Wind Farm Works
- Connection Works



3. Project update

3. Project update

Silverton Wind Farm



Silverton Wind Farm

- Located in the Barrier Ranges approximately 5km north of the Silverton township
- Generation capacity of 200 MW
- Wind turbines: 58 x GE 3.43-130
- Annual Energy Production (AEP)
 - ~780,000 MWh (capacity factor of 44.5%)
 - Powering more than 137,000 average Australian homes
- Connects into TransGrid's existing 220 kV substation at Broken Hill
- Design life of 25 years



3. Project update

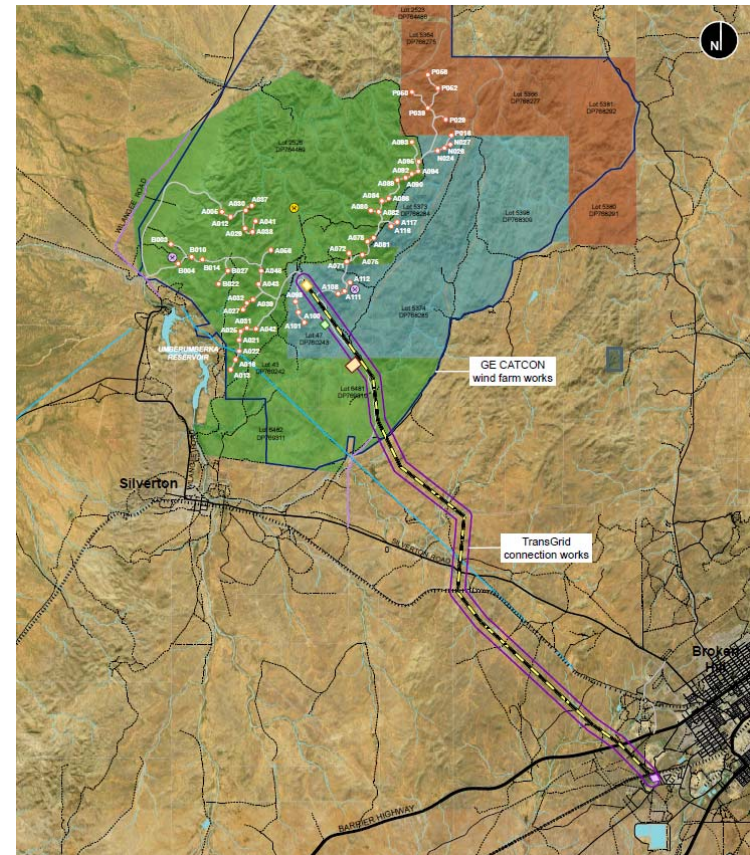
Silverton Wind Farm



Scope of works

- Silverton Wind Farm consists of two main scope of work:
 - Wind Farm Works (GE-CATCON)
 - Connection Works (TransGrid)
- AGL has prepared an Overview Environmental Management Strategy (OEMS) in accordance with the project approval
- Overview activities include
 - Community enhancement
 - Community consultative committee
 - Project website

<https://www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/silverton-wind-farm>



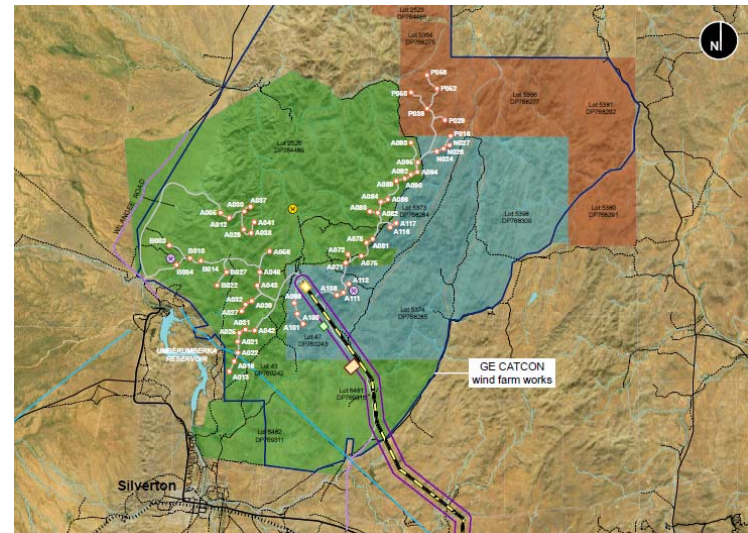
3. Project update

Silverton Wind Farm



Wind Farm Works

- GE-CATCON (joint venture) has been engaged to deliver the wind farm works
 - Engineer, Procure, Construct (EPC) Contract
- Scope of works, includes
 - 58 x GE 3.43-130 wind turbines
 - 33kV electrical reticulation (underground and overhead) and 33kV switchyard
 - Site access roads and O&M buildings
- Key project milestones (following previous CCC)
 - First generation commenced on 12 May 2018
 - Last concrete pour for WTG Foundation
 - Second main crane mobilised for erection activities
- Construction work hours
 - Out of hours work continuing for wind turbine erection and crane relocation in accordance with the project approval where noise does not impact neighbouring residents.



3. Project update

Silverton Wind Farm



Connection Works

- TransGrid has achieved Practical Completion on 20 February 2018
 - Existing Broken Hill 220kV substation (connection point)
 - 220kV transmission line
 - Wind farm 220kV substation
- Connection works were successfully energised on 23 Feb 2018.
- TransGrid’s Project Director summed up the milestone well:
 - **“It has been a challenging job but a great effort by a lot of people”**



3. Project update

Wind Farm Works



Construction works

- Civil works progress:
 - Access road clearance: 65/65km (100%)
 - Access road capping: 64/65km (~98%)
- Structural works progress:
 - WTG foundations excavated: 58/58 (100%)
 - WTG foundations poured: 58/58 (100%)
- Electrical works progress:
 - 33kV collector cable (U/G): 28/32km (~88%)
 - 33kV OHL poles: 56/56 (100%)
 - 33kV OHL cable: 23/23km (100%)
- Wind turbines progress:
 - Down tower assembly installed: 39/58 (~67%)
 - WTG tower “stubs”: 39/58 (~67%)
 - WTG erection complete: 21/58 (~36%)



3. Project update

Wind Farm Works



Construction works – Progress photos



3. Project update

Wind Farm Works



Wind Turbine Deliveries

- Components requiring police escort
 - Tower mid section A
 - Tower top section
 - Blades
- Components requiring pilot escort
 - Tower mid section B
 - Tower mid section C
 - Tower door section
 - Nacelle and Hub
- Deliver status
 - Tower Sections: 200/290 (~69%)
 - Nacelles: 41/58 (~71%)
 - Hubs: 50/58 (~86%)
 - Blades: 63/174 (~36%)
- Deliveries expected until CAL Q3 2018



3. Project update

Wind Farm Works



Wind Turbine Erection

- GE-CATCON mobilised a second main crane during April 2018.
- Two main cranes are currently being used for the erection of wind turbines. These cranes have been certified and registered with SafeWork NSW.
 - LR1650 (650 tonne crane) – Sarens
 - LR1750 (750 tonne crane) – Boom Logistics
- Erection status
 - Down Tower Assembly (DTA): 39/58 (~67%)
 - WTG tower “stubs”: 39/58 (~67%)
 - WTG erection complete: 21/58 (~36%)



3. Project update

Wind Farm Works



Wind Turbine Commissioning

- The wind farm is currently being commissioned in accordance with the AEMO commissioning plan which involves coordination with AEMO and TransGrid (NSP).
 - AEMO – Australian Energy Market Operator
 - NSP – Network Service Provider
- Commissioning status:
 - WTGs mechanical completion: 21/58 (~21%)
 - WTGs commissioned: 10/58 (~17%)
 - WTGs 24-hour test: 8/58 (~14%)
 - WTG reliability testing (240 hr)
- Wind turbines will commence generating after being commissioned subject to the AEMO commissioning plan and any network constraints.



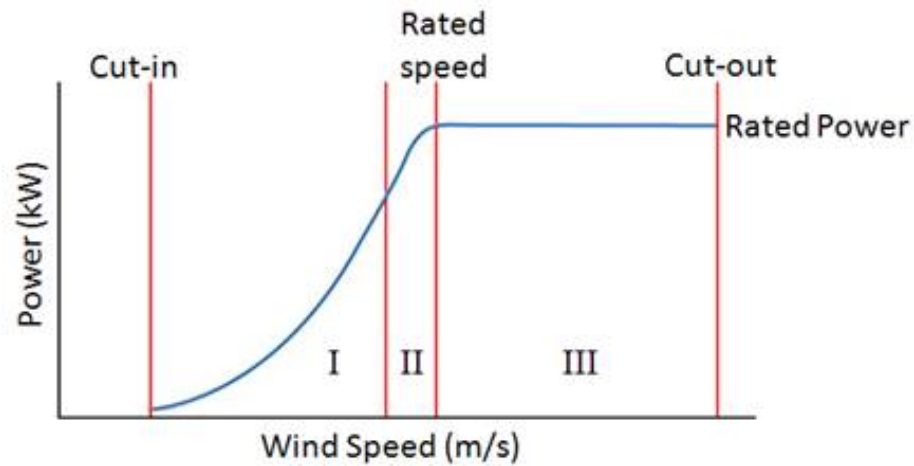
3. Project update

Wind Farm Works



Wind Turbine GE 3.43-130

- GE 3.43-130 Power Curve
 - Cut in wind speed – 3 m/s
 - Rated wind speed – 12 m/s
 - Cut out wind speed – 25 m/s



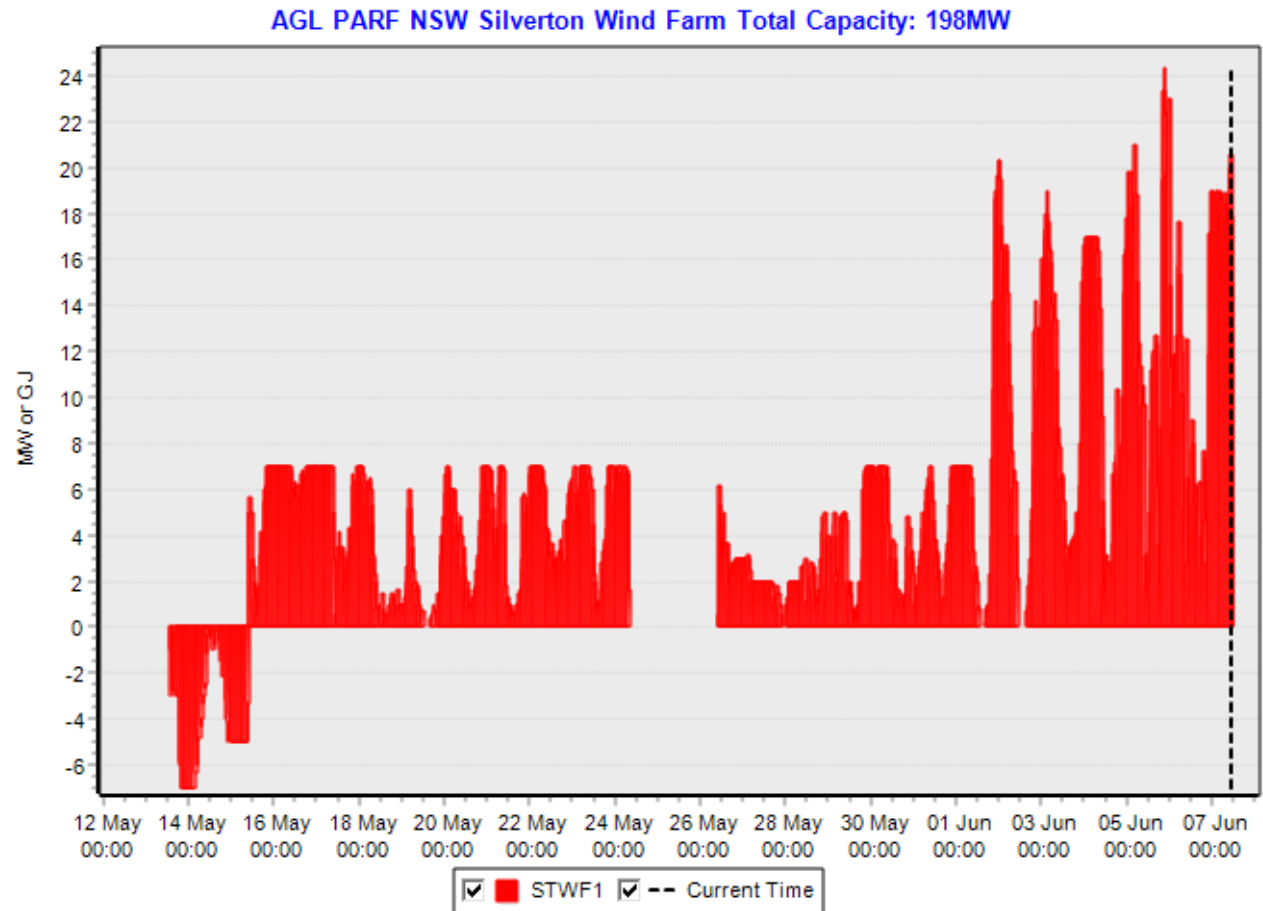
3. Project update

Wind Farm Works



First Generation

- First generation occurred from the Silverton Wind Farm (STWF) on Saturday, 12 May 2018 at 23:30 hrs
- Generation from the Silverton Wind Farm (STWF) as at 11:00hrs Thursday, 7 June 2018
 - 3,061.60 MWh
 - Already powering more than 500 average Australian homes (based on their annual consumption).



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3. Project update

Wind Farm Works



Local Industry Participation

- Currently ~115 construction workers with approximately 24% from the local area.
 - Reduced workers as the civil works and electrical works have progressed to completion.
 - Increase in wind turbine specialist for commissioning which has also involved training of local works.
- High involvement of local suppliers.
 - Mawsons Concrete & Quarries have completed the final WTG foundation and are demobilizing the temporary site concrete batching plant.

Employment Forecast

- Employment opportunities
 - Up to 150 jobs during the peak of construction
 - Up to 10 full time jobs during the operations phase

GE-CATCON Silverton contacts

- WF Procurement: silvertonwf@catcon.com.au
- WF Employment: hr@catcon.com.au



3. Project update

Wind Farm Works



Local suppliers

- Delivery of the Silverton Wind Farm to date has involved the following local suppliers / contractors
 - Attards Transport
 - Barrier Daily Truth
 - Boss Construction
 - Broken Hill City Council
 - Broken Hill Hire & Engineering Services
 - Broken Hill Mini Excavators
 - Broken Hill Nissan
 - Broken Hill Skip Bins
 - Broken Hill Supplies
 - Cresswell Drilling
 - Getting There Excavations
 - Globe Timber Mills & Joinery
 - Goodyear Autocare
 - Hire vehicles – Avis and Hertz
 - Interhealth Broken Hill
 - Judd Plumbing
 - Lawrence Engineering
 - Mawsons Concrete & Quarries
 - My Maid Support
 - RPF Resources & Rural Supplies
 - Schembri Earthmovers
 - Silver City Plumbing
 - Silver Haven Motor Inn
 - Silverton Civil
 - Silverton Hotel / Sturt Motel
 - Solcon Trading
 - SouthState Industrial Supplies
 - Tasco Petroleum
 - Vertex Power & Process



4. Community relations update

4. Community relations update

Community enhancement program



Community Enhancement Program

AGL has started the Community Enhancement Program for the Silverton Wind Farm, in accordance with condition 18 (schedule 2) of the project approval and will implement the program in order to give effect to the commitments in Appendix 3, including

- Silverton Community Fund
 - \$15,000 per year + CPI (life of project)
- Solar Silverton Program
 - 5kW solar PV for leaseholder and residences within 10 km of project.
- Water tank program
 - Domestic sized water tank to all inhabited residences. Local plumber engaged and will be contacting property owners to arrange for inspections.
- Mobile reception program
 - Contribute up to \$50,000 for mobile reception improvement works



4. Community relations update

Community enhancement program



Silverton Community Fund

- The Silverton Village Committee has applied for funding to support the upgrade of the Silverton Municipal Chambers to turn it into a **Community Hub**
- The Chambers would support community interaction and social inclusion and would provide a space for residents and visitors to come together.
- Funds would support the installation of new floors, a large, flat screen television with internet and conferencing capabilities and book shelves for books and DVDs.
- The space could be used for community movie nights, DVD and book exchanges, exercise and yoga classes, exhibitions, community group meetings.



4. Community relations update

Community enhancement program



Silverton Solar Program

- AGL commenced installation of the first 5kW solar PV system on 7 May 2018 and has completed 3* to date.
 - *Two installations awaiting inverters
- Further installation planning:
 - 13 installations planned for week commencing, Monday, 18 June 2018
- Connection applications for individual properties are submitted to the Distribution Network Service Provider (DNSP) → Essential Energy
- The final size of the solar PV system is subject to the available roof space and connection approval by Essential Energy



4. Community relations update

Community enhancement program



Water Tank Program

- AGL has progressed discussions with our preferred suppliers in relation to supply, install and connection of a domestic sized water tank (10,000L)
 - Water tank supply → Landmark
 - Installation and connection → Broken Hill Plumbing Services
- Property inspections are planned to occur in June 2018
 - Installer preference to conduct property inspections on the weekend
- Property inspections will involve:
 - Placement (within 2m of the roof collection)
 - Ground condition (structural support)
 - Connection → roof drainage
- Rolling installation will commence in June-July 2018 dependent upon property inspections and availability of tank supplies



Capacity: 10000 L

Inlet Height: 1.49 m

Diameter: 3.08 m

Total Height: 1.7

State Available: ACT, NSW, NT, SA, VIC

Available Colours



4. Community relations update

Community enhancement program



Mobile Reception Program

- AGL is progressing an Enterprise Work Agreement (EWA) with Telstra in relation to the proposed 4GX solution developed with Telstra for the mobile reception program
 - Installation of a 20m monopole at Telstra's Silverton Exchange site with a 4GX small cell which will provide 4G 700 MHz coverage to the Silverton Village
- Construction timing for completion would be ~4 months, subject to approval requirements and availability of power
- Telstra has provided details on the approval process which we need to finalise with Crown and the Silverton Village Committee in order to hopefully simplify the process.



Proposed 4G small cell location



A typical 20m monopole with an omni antenna configuration

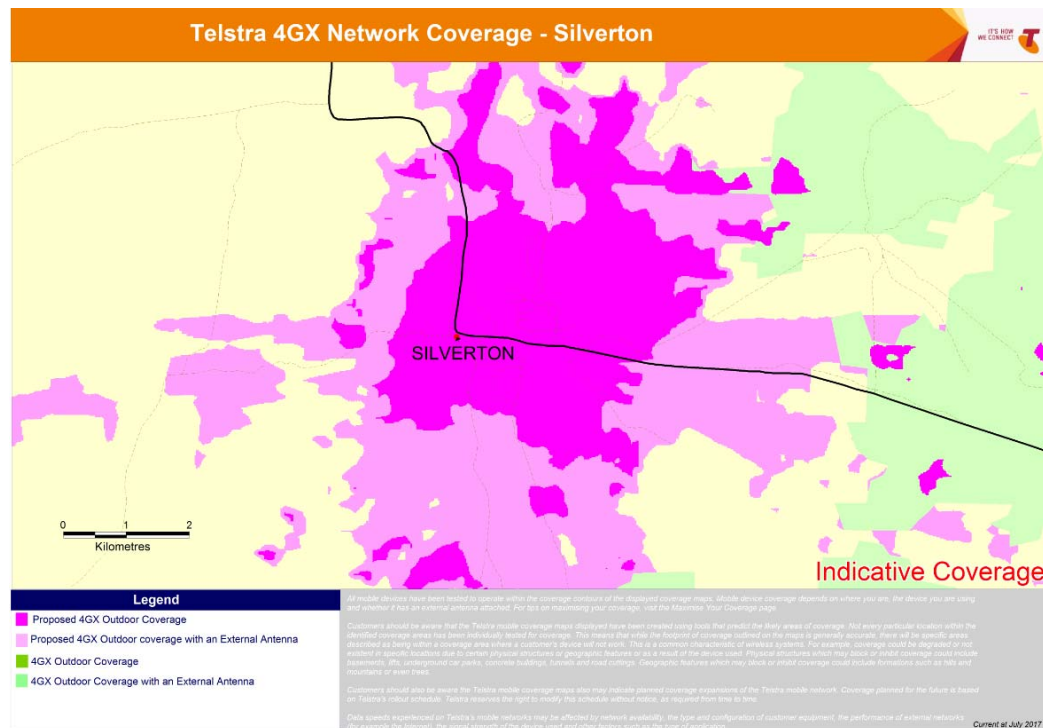
4. Community relations update

Community enhancement program



Mobile Reception Program

- The coverage predications below provide and indicative view of the coverage the proposed 4GX small cell would provide
 - Proposed 4GX solution would require a 4G 700 MHz compatible device to benefit from the improved coverage. This should cover any new smart phones purchased over the last 2 years



4. Community relations update

Visual impact mitigation



Visual Impact Mitigation

AGL issued notification to the Silverton residents in accordance with condition 2 (schedule 3) of the project approval in relation to the visual impact mitigation measures outlined in condition 1 (schedule 3).

- Owners within 6km of any wind turbine forming the Silverton Wind Farm may request additional visual mitigation measures (such as landscaping and vegetation screening) at their residence to reduce visual impact of the wind turbines.
- Owners have the right to request the implementation of these additional visual mitigation measures at their residence at any time within 3 years of the commencement of construction.
- Landscaper has started viewing properties in the area to discuss most appropriate measures
- Timing for sourcing and planting vegetation and maintenance must be considered

The identification of appropriate visual impact mitigation measures will be easier following the construction of the wind turbines.



4. Community relations update

Community engagement



Community information

AGL contact details for community and project information are shown below:

- P: 1800-039-600
- E: AGLcommunity@agl.com.au
- W: agl.com.au/silverton

Construction information

GE-CATCON will provide contact details on the project signage for construction related queries.



- Wilangee Road
- Solar PV Voltage Rise



5. Topics of interest

5. Topics of interest

Wilangee Road



Wind Farm Emergency Access

- The emergency access from the Silverton Wind Farm intersects with Wilangee Road on the western boundary of the wind farm.
- Access for construction of this emergency access was internal to the wind farm.
- RMS installed advisory signage (pre-construction) notes “rough surface – reduce speed”
- RMS consultation
- AGL understand that RMS cover a large network of unsealed roads in the unincorporated area and works are prioritised. Current works include:
 - Balaclava rehabilitation (~7.2 km) – south of Broken Hill
 - Cobb Highway, Ivanhoe
 - Silver City Hwy (maintenance)
- RMS has regraded Wilangee Road and completed heavy patch (bull dust holes) around Easter. Future maintenance works will be subject to work priorities.



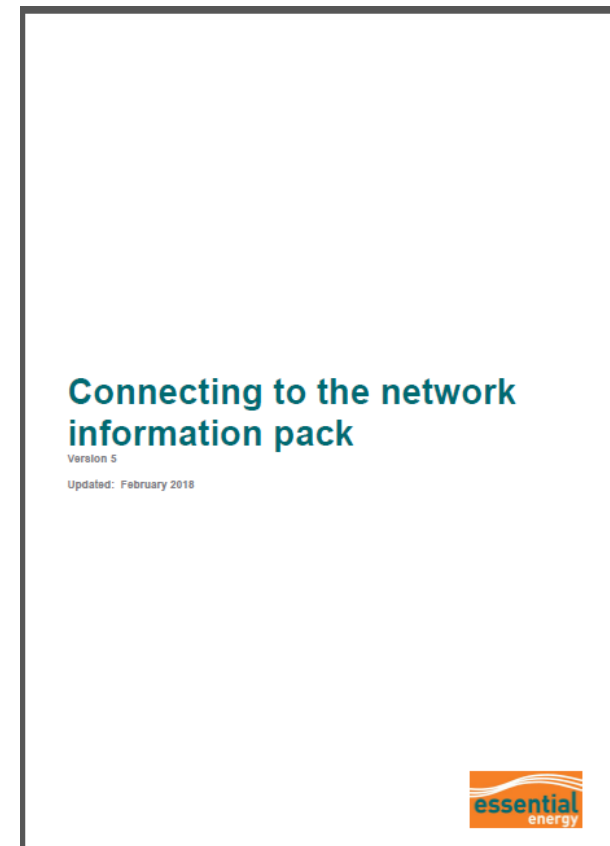
5. Topics of interest

Solar PV Voltage Rise



Solar Silverton

- Voltage rise calculations are required for all solar PV system >3kW for rural areas.
- As per Service Installation Rules of NSW 8.6.1.3., details of the voltage rise calculations for each of the three components of the generating system that indicate the system will operate correctly and not cause any adverse effects on the customers installation are required. The three components are the:
 - Service Mains (including any dedicated mains in rural situations)
 - Consumers mains
 - Conductors between the main switchboard and the inverter terminals
- Service main is between the distribution network and the property connection (either pole or side of house)
- Consumers main is between the property connection and the switchboard



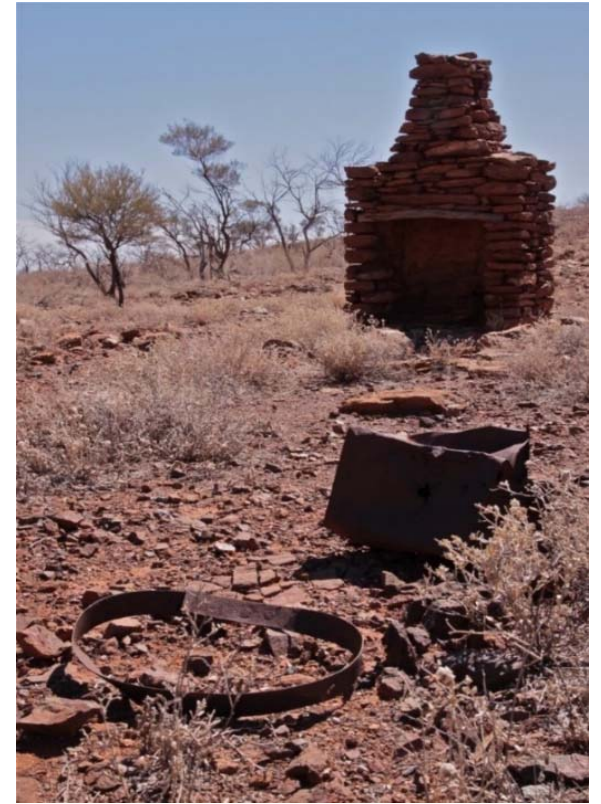


6. Other business

Silverton Wind Farm

Community Consultative Committee (CCC)

- Next meeting (TBC)
 - Thursday, 30 August 2018
 - Time: 3-5pm
 - Silverton Municipal Chambers, Silverton



Next meeting

Contact

AGL Energy
Silverton Wind Farm
1800-039-600

AGLcommunity@agl.com.au