

Silverton Wind Farm

Community Consultative Committee
Meeting No.CCC-030

Wednesday, 14 November 2018



Agenda

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Welcome

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Previous
minutes

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Project update

- Overview
- Wind Farm Works
- Commissioning

4

Community
relations
update

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Topics of
interest

- Wholesale Electricity Market
- Night-time Generation
- Progressive Rehabilitation
- NSW Drought

6

Other
business



1. Welcome



2. Previous minutes

2. Previous minutes

Action items



Item	Action	Status	Who
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
4.25.07	AGL to progress the 20m monopole with Telstra and Crown as part of the mobile reception program and contact AW to discuss the proposed solution.	Open	AGL – 1/18
3.26.25	AGL will continue to liaise with Telstra to avoid any impacts to N Schmidt's tower	Open	AGL – 3/18
5.27.05	AGL to review noise from night works around Umberumberka Reservoir with GE-CATCON.	Open	AGL – 5/18
4.28.08	AGL noted advice from our local landscaper that the best time for planning was in Aug/Sept to avoid frost shock. We will continue to work with the supplier in relation to timing to ensure the best success for the screening. AGL noted that the landscaper has already visited three properties.	Open	AGL – 8/18
4.28.04	AGL to provide a timeline for the Mobile Reception Program	Open	AGL – 8/18
5.28.03	CCC member raised the potential of utilising the Silverton Wind Farm to attract tourism into the region. Discussion amongst the CCC and community considered the benefits and noted the concerns in relation to access on private property. AGL to liaise with the relevant stakeholders (lease holders, SVC, NSW Crown) and comment.	Open	AGL – 8/18

- 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

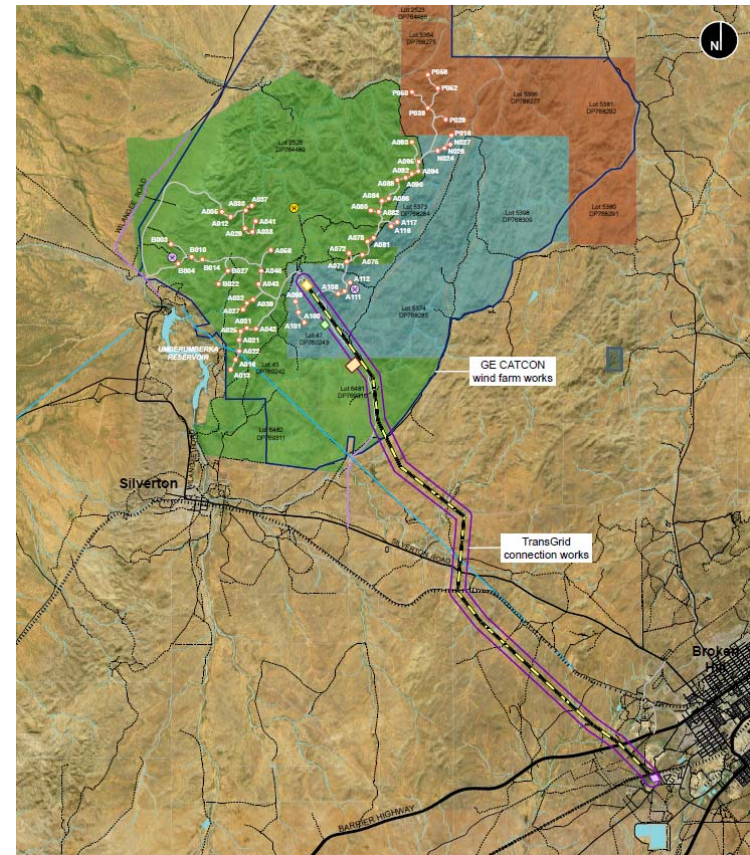
Silverton Wind Farm



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>



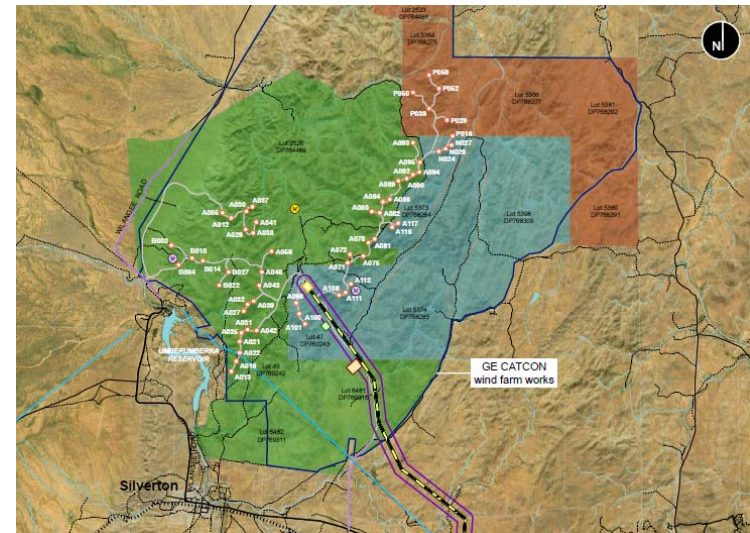
3. Project update

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
 - 33kV collector cable installation complete
 - AEMO (commissioning) hold point no.2
- 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: 65/65km (100%)
- Structural works progress:
 - WTG foundations excavated: 58/58 (100%)
 - WTG foundations poured: 58/58 (100%)
- Electrical works progress:
 - 33kV collector cable (U/G) installed: 32/32km (100%)
 - 33kV OHL poles: 56/56 (100%)
 - 33kV OHL cable: 23/23km (100%)
- Wind turbines progress (current):
 - WTG tower “stubs”: 57/58 (~98%)
 - WTG “hammerheads”: 57/58 (~98%)
 - WTG erection complete: 52/58 (~90%)
 - WTG commissioning: 41/58 (~71%)



3. Project update

Wind Farm Works



Construction works – Progress photos



3. Project update

Wind Farm Works



Wind Turbine Deliveries

- The last wind turbine was delivered to site week on Wednesday, 24 October 2018.
 - Image showing delivery of top tower section is shown below
- Remaining onsite movements will be coordinated and complete as part of the remaining.



3. Project update

Wind Farm Works



Wind Turbine Erection

- Cranes:
 - Sarens LR1650 (650 tonne crane) – operating
 - Boom Logistics LTM1750 (Blade only crane) – currently impacted by industrial action
- Erection status
 - Down Tower Assembly (DTA): 57/58 (~98%)
 - WTG tower “stubs”: 57/58 (~98%)
 - Nacelle: 57/58 (~98%)
 - Hubs: 57/58 (~98%) → “hammerheads”
 - Blade sets: 52/58 (~90%)
 - WTG erection complete: 52/58 (~90%)



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: 44/58 (~76%)
 - WTGs commissioned: 41/58 (~71%)
 - WTGs generating (AEMO HP2): 13/58 (~22%)
 - WTG reliability testing completed (10d): 22/58 (~38%)
- Wind turbines will commence generating after being commissioned subject to the AEMO commissioning plan and any network constraints.



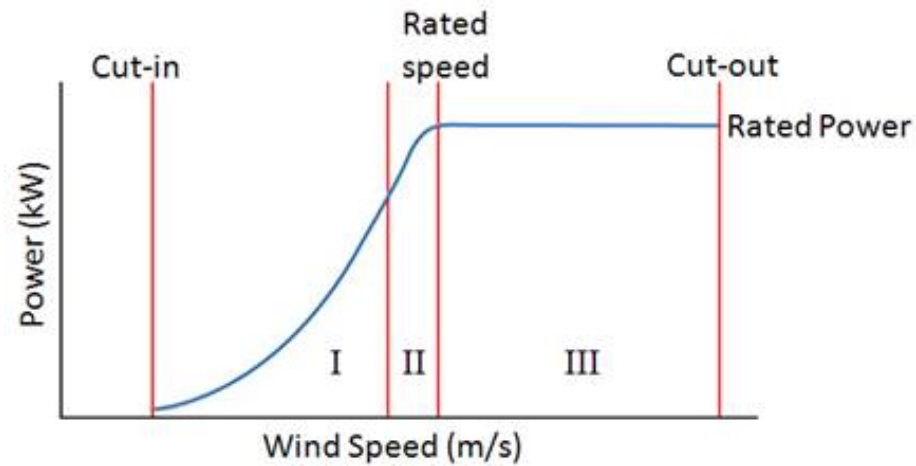
3. Project update

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 – 13 m/s
 - Cut out wind speed – 25 m/s



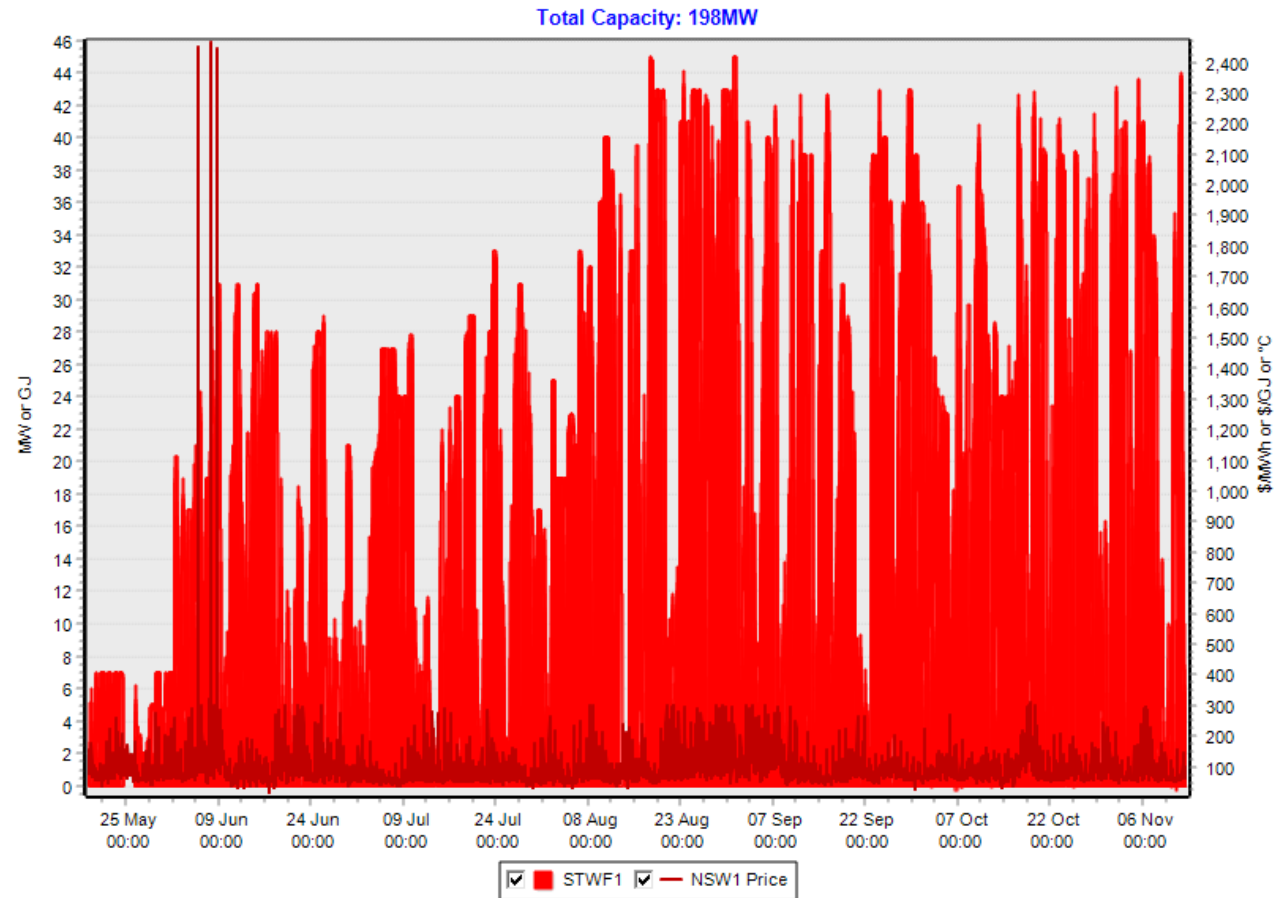
3. Project update

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 Monday, 12 November 2018.
 - 68,500 MWh
 - Already powering more than 12,000 average Australian homes (based on their annual consumption).



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3. Project update

Wind Farm Works



Local Industry Participation

- Currently ~80 construction workers with approximately 10% from the local area.
 - Reduced workers as the civil works and electrical works have progressed to completion.
- High involvement of local suppliers.
 - Vertex Power & Process providing electrical contracting services.
- Involvement of local workers in the operations team.



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

The Community Enhancement Program for the Silverton Wind Farm is progressing, in accordance with condition 18 (schedule 2) of the project approval. We are implementing the program to give effect to the commitments in Appendix 3, including:

- **Silverton Community Fund**
 - \$15,000 per year + CPI (life of project) – Applications for next round of funding will be announced in late January/early February 2019
- **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
- **Mobile reception program**
 - Contribution of up to \$50,000 for mobile reception improvement works



4. Community relations update

Community enhancement program



Silverton Solar Program

- To date, AGL has provided solar panels to 24 property owners and 13 of these properties have received their smart meters. Installers will visit Silverton to complete the remaining installations and share operations and maintenance material
- For properties that cannot support solar installations, AGL is working with the property owners to find alternative solutions
- Origin and Acumen are generally the energy retailer and meter provider in the area and will be managing meter upgrades
- 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 started work on the supply, installation and connection of a domestic sized water tank (10,000L)
 - Water tank supply → Landmark
 - Installation and connection → Broken Hill Plumbing Services

- Rolling installations started in August/September 2018 and 5 property owners have received their water tanks.

- Broken Hill Plumbing will continue contacting property owners to arrange for inspections and installations over the next few weeks.



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.
- AGL will provide a timeline for the program prior to end of 2018.



A typical 20m monopole with an omni antenna configuration



Silverton Wind Farm | 14 November 2018



Proposed 4G small cell location

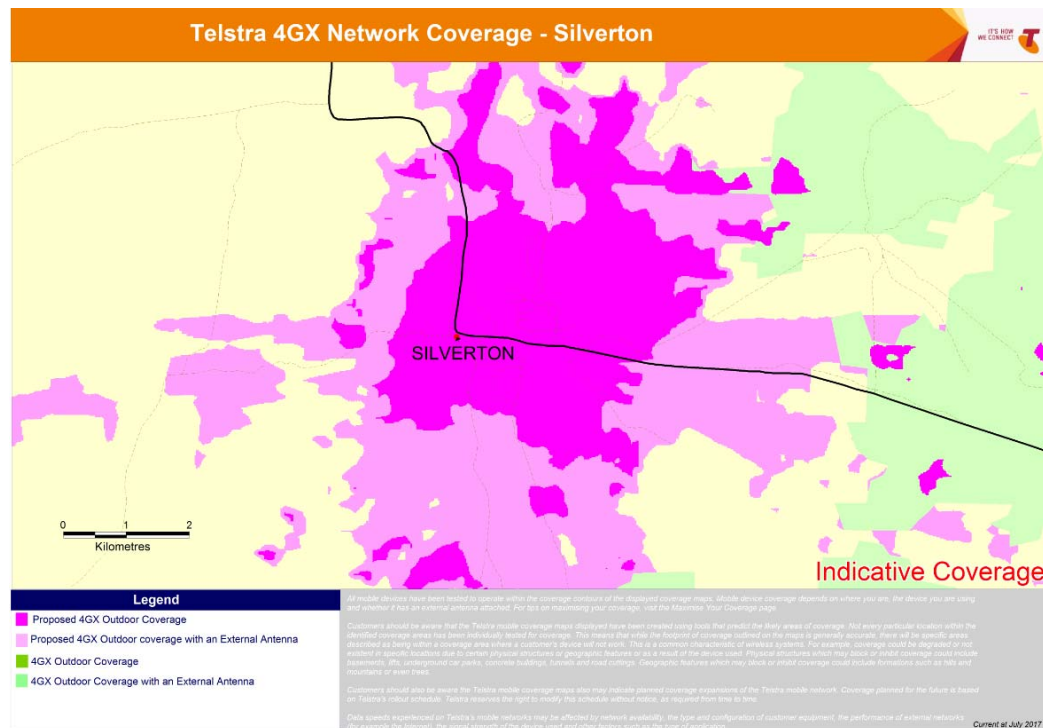
4. Community relations update

Community enhancement program



Mobile Reception Program

- The coverage predications below provide an 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 events



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.



- Wholesale Electricity Market
- Night-time Generation
- Progressive Rehabilitation
- NSW Drought



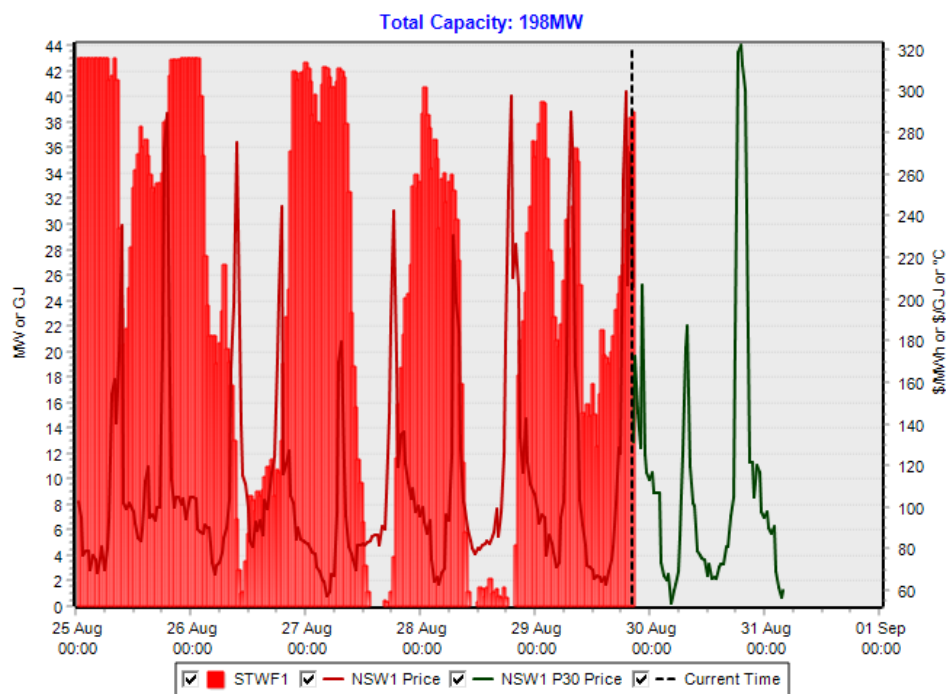
5. Topics of interest

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Wholesale Electricity Market

National Electricity Market (NEM)

- The NEM is comprised of five physically connected regions on the east coast of Australia: Queensland, New South Wales, Victoria, Tasmania and South Australia.
- The NEM is managed by the Australian Energy Market Operator (AEMO) as is responsible for energy security.
- The National Electricity Rules (NER) sets the maximum spot price (Market Cap Price) which was \$14,200 (on July 2017)



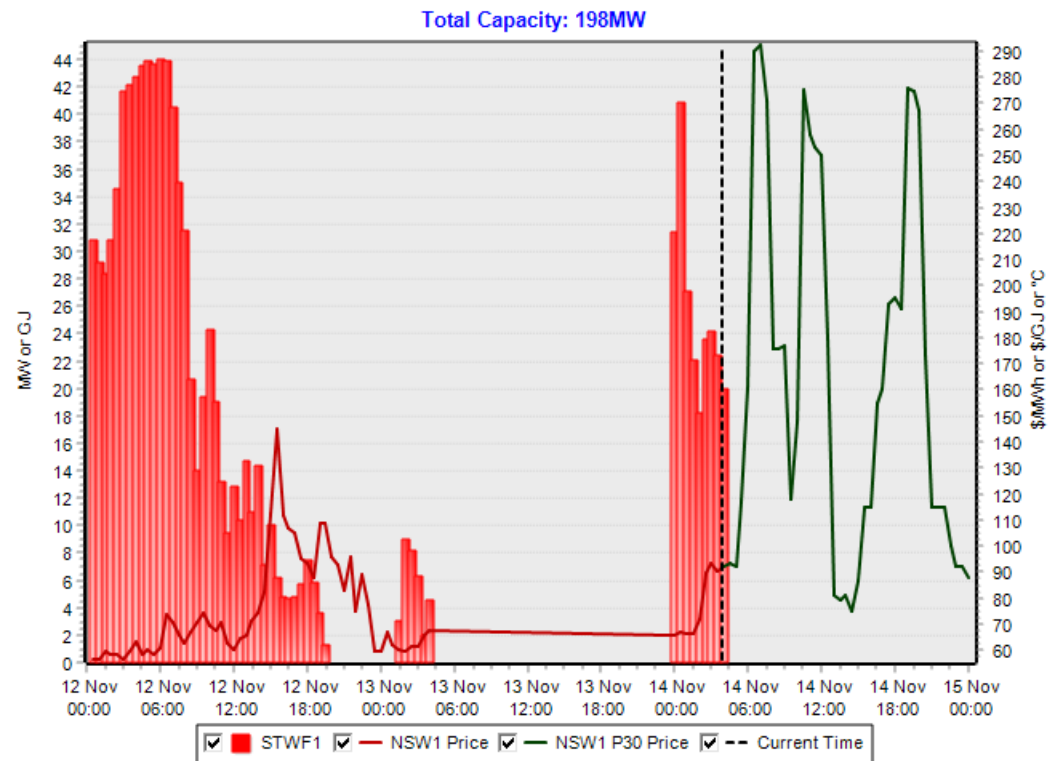
5. Topics of interest

Night-time Generation



AEMO commissioning process

- AEMO and TransGrid provided approval to increase generation during the night-time period.
- Last night the number of wind turbines in service increased from 13 (45* MW) to 18 (62* MW) (*subject to wind conditions).
 - Voltage and power step test were successfully complete above 30 MW.
- Planning to increase to 22 x WTGs (76* MW) (*subject to wind conditions) this evening.



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5. Topics of interest

Progressive Rehabilitation



Wind Farm Works

- GE-CATCON is completing progressive rehabilitation in accordance with condition 36 (schedule 4) of the project approval.
- Works are being undertaken in accordance with the construction phase rehabilitation management plan specific to the Silverton Wind Farm site.
- Formal process to rehabilitation across site has commenced.
- Native seed is being collected and sowed across rehabilitated sites.



(Right) Rehabilitation of temporary site access track and (Above) Rehabilitation of underground 33kV collector cable

5. Topics of interest

Progressive Rehabilitation



Installation of Permanent Drainage Works



(Above) Installed spoon drains
(Right) Installed cross drain
(Far Right) Installed spoon drains

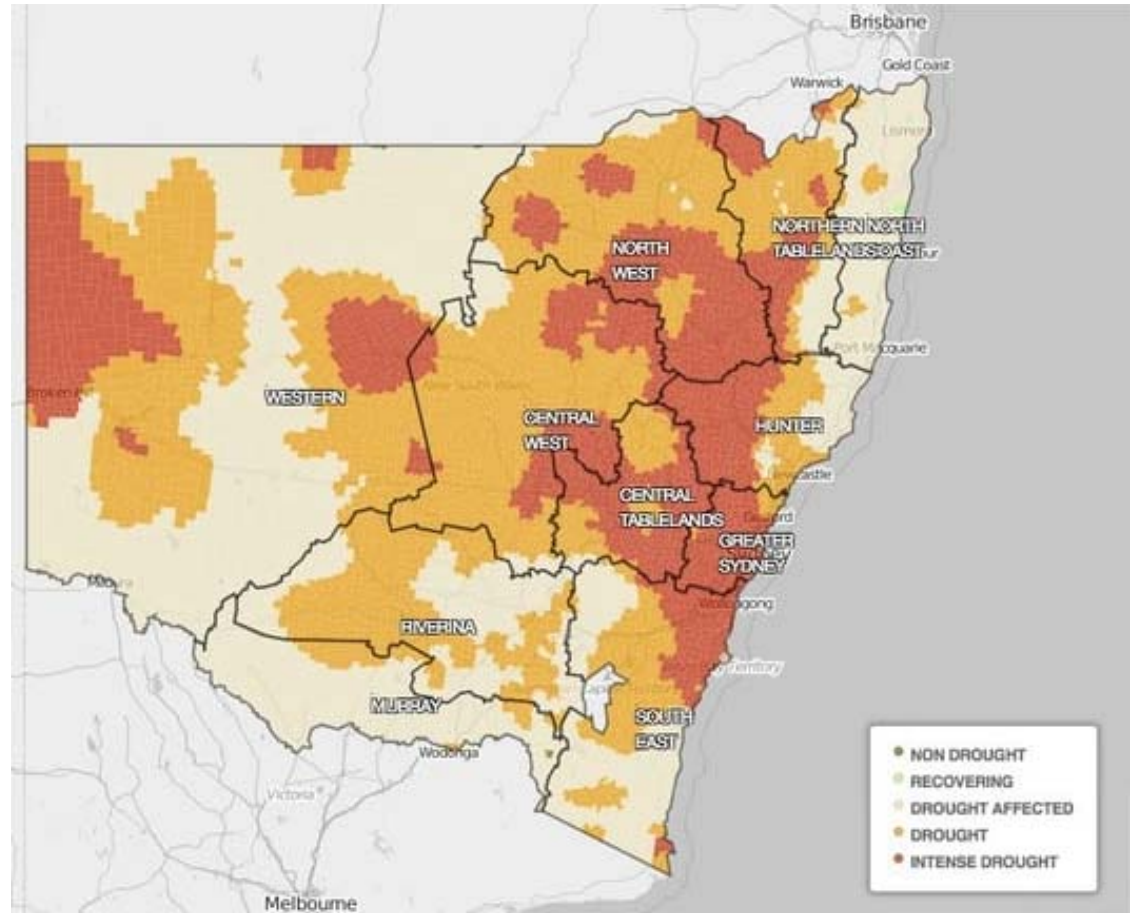
5. Topics of interest

NSW Drought



NSW Drought

- A total of 77% of the state is in drought or drought affected, while 23% is experiencing intense drought.



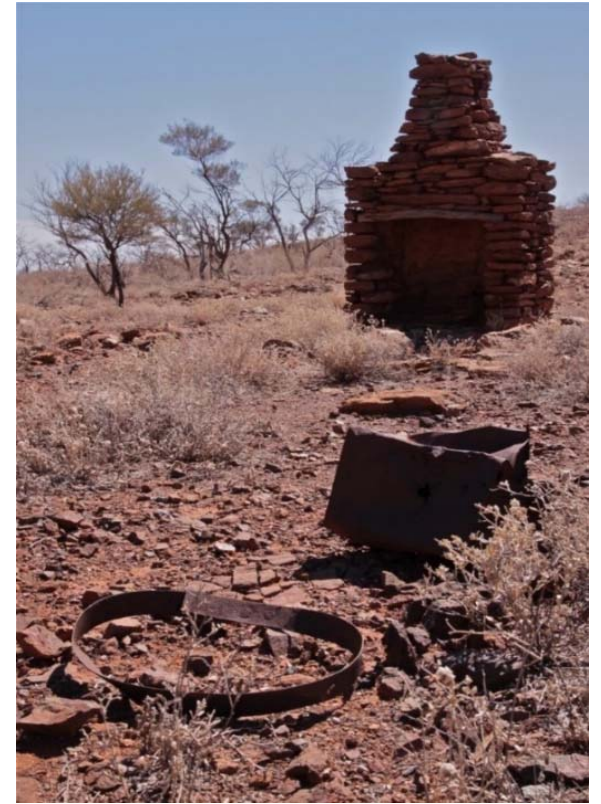


6. Other business

Silverton Wind Farm

Community Consultative Committee (CCC)

- Next meeting (TBC)
 - CALQ1 2019 (Thursday)
 - Time: 3pm
 - Silverton Municipal Chambers, Silverton



Next meeting

Contact

AGL Energy
Silverton Wind Farm
1800-039-600

AGLcommunity@agl.com.au