

Collector Wind Farm: Proposed Modifications.

As discussed in our last newsletter, RATCH Australia ('RATCH') has continued to progress various refinements to the wind farm as we prepare for the construction phase. Following discussions with the NSW Department of Planning & Environment, we have concluded that we need a formal modification to the existing Project Approval. A number of minor changes are being proposed and we will go through a formal process with the Department to ensure that any potential impacts are comprehensively assessed by them and that all interested parties have an opportunity to consider the changes and comment.

The proposed modifications are now sufficiently progressed that they can be meaningfully described. However they are not yet finalised and we continue to prepare documentation for modification application.

What is being changed

- Refinement of site layout (roads, electrical cabling, project buildings)

(DISCUSSED ON PAGE 4 OF THIS NEWSLETTER)

- Increase in blade length of the turbine used (but lowering the towers, so the total height of the turbine to the blade tip remains unchanged)

(DISCUSSED ON PAGE 6 OF THIS NEWSLETTER)

- Adjustment of approval conditions relating to background noise

(DISCUSSED ON PAGE 7 OF THIS NEWSLETTER)

What is not being changed

Most aspects of the project remain unchanged, including:

- The number of wind turbines, their total height and their locations
- The noise performance of the wind farm, which remains compliant with all of NSW's planning guidelines and requirements
- The location of the substation to connect the wind farm into the grid
- Transport routes for construction and operations traffic
- Our commitment to the Community Enhancement Fund of \$200,000 per annum plus CPI once the wind farm starts operating

About this newsletter

Our objectives for this newsletter are:

- To make sure that you are aware of the process we are undertaking
- To provide an overview of the modifications we propose and details of how you can find out more information
- To offer the opportunity for any interested stakeholders to provide feedback/comment for RATCH to consider
- To collect email addresses or contact details of people who would like to receive updates from us as this modification process continues. This can be done by emailing us at: collector@ratchaustralia.com

Contact us

If you have any questions or comments, or would like to register your contact details so that you can receive updates from us about this modification application, please contact us:

Anthony Yeates, phone 02 8913 9407
Neil Weston, phone 02 8913 9431


Or contact us by email at:
collector@ratchaustralia.com


We will upload all the relevant information onto our website.

www.ratchaustralia.com/collector

Steps taken

Step 1 
Proposed modifications to Project Approval identified

Step 2 
Proposed modifications raised with Collector Wind Farm Forum, with the Department of Planning & Environment and in our Community Newsletter #9 (April 2015)

Step 3 
Proposed modifications sufficiently progressed to be meaningfully described

Now

Step 4 (current)
Community Newsletter #10 released (July 2015). Detail about the modifications made available on RATCH's website as the work is progressed. Stakeholders and the community invited to comment and provide feedback to RATCH

Next steps

Step 5
Stakeholders and the community can comment or provide feedback to RATCH on the proposed modifications

Step 6
RATCH considers the feedback provided, the Modification Application is finalised and submitted to the Department of Planning & Environment. We expect this will be during August or September 2015

Step 7
The Modification Application is assessed by the Department of Planning & Environment. Based on feedback we have received from the Department, we expect that the application will be placed on public exhibition for review and comment

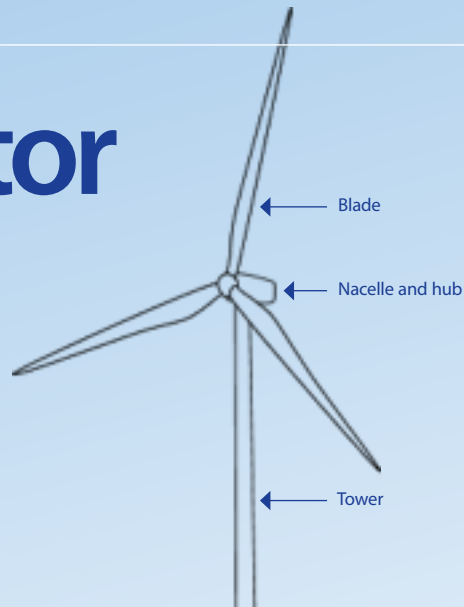
Step 8
It is likely that a final decision regarding the Modification Application will be made by the NSW Planning Assessment Commission, probably toward the end of this year

Step 9
If approved, RATCH will be in a position to commence construction of the wind farm from the beginning of next year



We welcome your feedback, questions and comments on the Modification Application proposal or process. We would also be happy to meet directly with any interested residents or groups to work through the modification proposals in more detail – please feel free to contact us via the details on the first page.

About Collector Wind Farm



Facts and figures

Number of turbines

55

Size of each turbine

3 to 3.4 MW generation capacity per turbine

The nacelle + hub is about 4m x 4m x 15m, and weighs about 70 tonnes. The nacelle houses the turbine's generator and is where the electricity is produced

Towers

The towers are made of steel. They will be transported in probably 4 sections each weighing around 15 to 20 tonnes.

Blades

Maximum length proposed of 58.5m each. Maximum diameter of 117m (including the width of the hub, on to which they are mounted).

The blades are not solid, they are made of fibre reinforced polymers (conceptually, a bit like fiberglass) bonded to an internal frame.

Electricity generation

The wind farm will produce around 500 to 550 GWh per year, depending on wind conditions. This is **equivalent to the annual energy consumption of around 70,000 NSW households**. The longer blades proposed generate around 4% more energy from the wind compared to those included in our original project assessment.

Greenhouse gas and other emissions

From the NSW Government publication, *Wind Energy in NSW: Myths and Facts*:

- wind farms generate more energy than used in their construction within about three to seven months of their operation
- Under all but extraordinary circumstances, every unit of wind power sent into the electricity grid will reduce greenhouse gas emissions
- A 150MW wind farm sends enough electricity into the grid to save on average 360,000 tonnes of greenhouse gas emissions annually

Project construction cost

Around \$350 million. We expect that roughly 10% of the total, or **around \$35 million, will be spent in the local region** via employment, subcontractors and suppliers working on or for the project.

Construction

Construction is expected to take around two years. We do not yet have a confirmed construction start date although are targeting early 2016. Construction will require up to around 120 employees on-site at the busiest times. The main phases of construction will be:

- Civil works (site roads, hardstands, excavation of foundations)
- Concrete pouring for turbine foundations
- Electrical works (cabling, substation)
- Turbine delivery and installation – installation is a surprisingly straight forward process. Once the bottom tower section is in place, it is possible to install the rest of the components for one turbine in just a few hours.
- Commissioning

Operations

The wind farm is expected to generate electricity for at least 25 years. We expect that up to 12 full-time workers will be employed on the site in the operational phase and that up to \$2 million will flow each year into the local economy from the operation of the wind farm.

Community Enhancement Fund

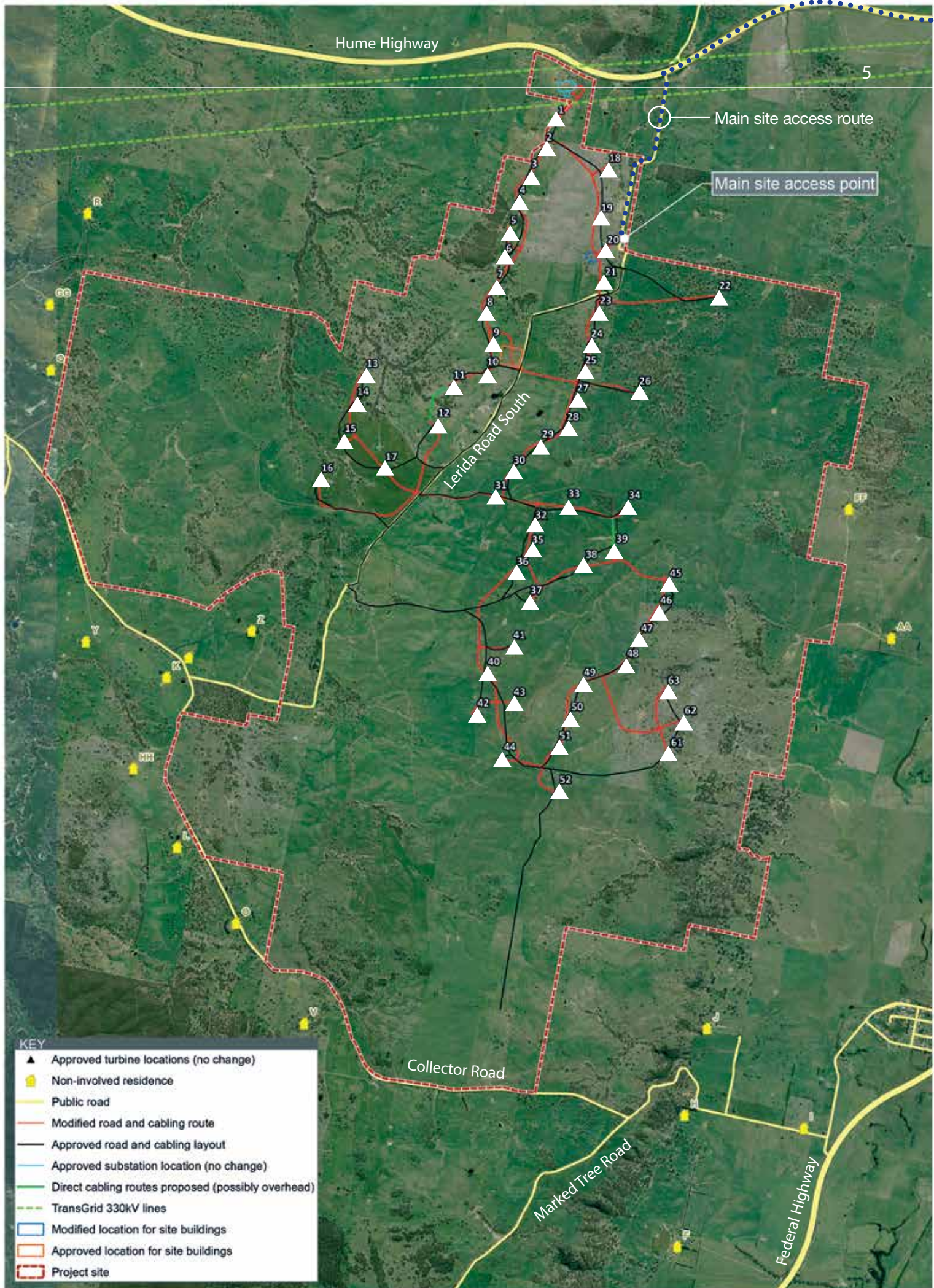
\$200,000 per annum (plus CPI) available from when the wind farm starts operating. We are currently working through the details of how this fund will be managed and administered.

Refinement of site layout

Changes to the on-site roads and cabling layout and location of the site buildings

The map on the following page shows the refinements that have been made to the site layout.

	What has changed?	Why has this change been made?
The main site entry/exit point	The main site entry/exit point, where vehicles will access the site from Lerida Road South, has been moved approximately 2km north, closer to the Hume Highway.	To accommodate the requests of Upper Lachlan Shire Council. To improve road safety and minimise impacts on users of the public road.
On-site road layout	The location of some of the on-site roads has changed. In addition, there is one fewer intersection with Lerida Road South. In most instances, the refinement to the layout results in the site road moving by less than 100m from the previous location. The main site access route has not changed and will remain via the Hume Highway, with no construction traffic expected to pass through the Collector village or use the Collector – Gunning Road.	The proposed changes are a result of the changed site access point; and more detailed site engineering analyses that we have now carried out (such as detailed topographic data and the results of geo-technical investigations). To reduce the amount of earthworks needed and minimise the clearance of threatened native vegetation we have sought to minimise the need to build roads on steep hills. We have made changes to reduce the number of intersections between site roads and the public road (Lerida Road South), which improves road safety.
On-site cabling layout	The on-site cabling layout has changed in parallel with the road layout. As originally proposed, the majority of the cabling will be underground, however we are seeking the flexibility to have short direct links in two areas (rather than following the road), with the option for overhead cabling at these points.	We are seeking the option to utilise direct cable links in two specific locations (rather than following roads) because the direct link between two points will be much shorter, requiring less cabling and involving less ground disturbance. The option for overhead cabling is due to the nature of the ground in these two areas. This cabling will look similar to the overhead cabling that currently runs down Lerida Rd South (or down many suburban streets). Neither section is located near any houses. One section is located approximately 600m from the public road, the other is located more than 2km from the public road.
Revision of the area of vegetation impacted by our project	Given the changes to the road and cabling network, we anticipate that we will need to clear a larger area of vegetation around the site than previously proposed. We will still be offsetting all of the area impacted, and our “biodiversity offset area” will be increased in size to reflect these changes.	Changes to the road network have increased the length of site roads needed, hence the greater area of vegetation to be cleared for construction. Our revised design is aimed at minimising the areas of threatened native vegetation to be cleared, with the increased clearing undertaken in less ecologically-significant habitats. We have identified more than enough equivalent areas of land to offset this clearing within the committed biodiversity offset area.



KEY

- ▲ Approved turbine locations (no change)
- 🏠 Non-involved residence
- 🛣️ Public road
- 🛤️ Modified road and cabling route
- 🛤️ Approved road and cabling layout
- 📍 Approved substation location (no change)
- 📍 Direct cabling routes proposed (possibly overhead)
- 📍 TransGrid 330kV lines
- 📍 Modified location for site buildings
- 📍 Approved location for site buildings
- 📍 Project site

Main site access route

Main site access point

Increasing the length of the blades

Since our original development application was prepared, turbine design and blade technology has advanced, with longer turbine blades being developed that are able to capture larger amounts of energy from the wind.

In our original application, based on proven technology at that time, the longest turbine blade we considered was 56m in length supported on a 94m high tower, giving a total height from ground level to the blade tip of 150m. The largest turbine considered was the such as on the Vestas V112.

We have now analysed the latest technology available for the project, and have concluded that blades up to 58.5m in length will offer more efficient energy capture from the wind (such as on the Vestas V117).

We have not finalised our turbine design, so cannot specify exactly which turbine will be used, but our modification application is proposed to give us flexibility to choose a turbine with a blade length of up to 58.5m (117m in diameter) with the tower height adjusted to remain within the total tip height of 150m that was originally assessed and approved.

What we do know is that the new turbines that we select will not increase the noise generated by the wind farm. The noise emitted by the turbines using the longer blades and lower hub height will be the same as within the original proposal and the project will still have to comply with the noise limits that were previously approved.

Given the minor nature of the proposed change to the wind turbine dimensions, and more importantly, no change to the approved 150m tip height, there will be no change to the level of visual significance and visual impacts previously determined.

We have already considered the longer blades within the project's draft Bird & Bat Adaptive Management Plan (BBAMP), which has been developed in consultation with the NSW Office of Environment and Heritage. Extensive on-site bird and bat monitoring undertaken to allow us to finalise the BBAMP shows that the vast majority of avifauna movements (>90%) are within a zone less than 20m above ground, and therefore outside of the rotor swept area of the turbine blades.



■ Vestas V112

Hub Height: 94m
Rotor Diameter: 112m
Total Height at Tip: 150m
Generating Capacity: 3.0 MW

■ Vestas V117

Hub Height: 91.5m
Rotor Diameter: 117m
Total Height at Tip: 150m
Generating Capacity: 3.45 MW

Background noise monitoring

This change aims to ensure that our compliance with the noise conditions in the Project Approval is as straightforward as possible to assess and prove. This will not result in any change to the noise the turbines produce.

We are essentially seeking to change the way that compliance is assessed and demonstrated. This part of the modification was foreshadowed by the Department of Planning & Environment in their original assessment of our project in 2013.

We are currently undertaking a program to assess the existing level of background environmental noise that is present in the area. This is being done by placing specialist microphones and recording equipment in various carefully selected locations in and around the site. These locations have been agreed in consultation with the Department of Planning & Environment and include a location close to Collector village, as well as locations on and off-site to the east and west of the site boundary. We will make available on our website all the analysis and reporting from the noise monitoring and assessment once it is finalised.

We know that at times of high wind there can be a significant level of existing background noise; for example caused by leaves rustling or wind rushing through trees and grass. The data we have collected so far shows that at times of strong wind, background noise is often greater than 35dB(A). This is significant because our existing project approval has a 35dB(A) level as a compliance limit at residential properties around the site. In other words, the data we have collected so far indicates that the existing background noise level can, during high wind periods, be greater than the limit that we are permitted to produce once the wind farm is operational.

Clearly there are significant technical challenges to demonstrate compliance with such a noise limit if the existing background noise level already exceeds it. It is possible, but it is a complex and time-consuming task. The methodology relies on analytical calculations, which may be open to debate about inputs and assumptions.

By introducing this change to our Project Approval, we hope to avoid any protracted and technical discussions, either with consent authorities or the local community, so as not to erode confidence about our compliance.

Our proposal is that the noise conditions within the Project Approval be modified such that compliance will be much easier to assess and prove (or disprove).

Our proposed change is as follows:

- Current compliance limit: not to exceed 35dB(A)
- Proposed compliance limit: not to exceed 35dB(A) or the level of existing background noise plus 5dB(A), whichever is greater

This change would make our project approval consistent with approval conditions applied to most other wind farms in Australia.

Changes to the Renewable Energy Target have now been agreed

In our April newsletter we explained that the construction timetable at Collector remained uncertain at that time because of the political impasse in Canberra concerning the RET's future.

The political logjam was broken on June 23 when legislation to reduce the RET to 33,000 gigawatt hours was passed by the Senate, with the support of the major political parties. The RET Scheme mandates that at

least 20% of Australia's electricity be generated from renewable sources by 2020 and underpins investment in Australian solar power, wind farms, hydro power and bio-energy projects.

With this target now agreed and legislated, a level of certainty has been restored for the renewable energy industry. We and the energy industry as a whole are still assessing what the new target

means. We do not yet have any firm timetable for when construction might commence but are targeting early 2016, subject to approval of our proposed modifications.

We will keep you informed as our construction plans mature via future issues of this Community Newsletter, website updates and via our consultative committee.

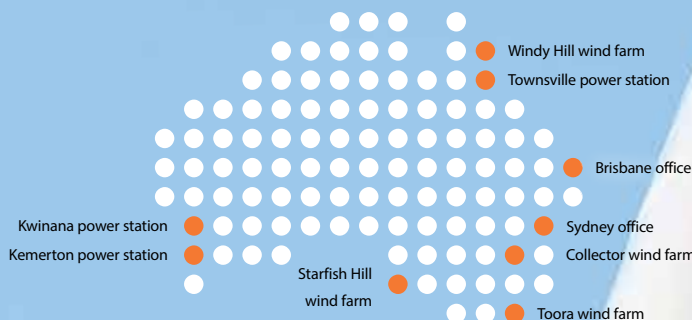
Marking five years of our sponsorship of the Collector Village Pumpkin Festival

Congratulations to everyone involved in organising and running this event. We are pleased that it was very successful again this year.



About RATCH-Australia

RATCH-Australia is an independent power producer in Australia and owns a portfolio of power generation assets, with an installed capacity of 635 MW. This portfolio includes gas fired power stations and wind farms around Australia. RATCH-Australia's operating wind farms are Toora Wind Farm (Victoria), Windy Hill Wind Farm (Queensland) and Starfish Wind Farm (South Australia). RATCH-Australia has its head office in Sydney with a regional office located in Brisbane.



For more information

www.ratchaustralia.com/collector
www.collectorwindfarmforum.com.au

RATCH's project managers for this development are:

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collector@ratchaustralia.com

