

# Boomer Green Energy Hub



A photomontage showing what the wind farm would look like from Apis Creek Road, Mount Gardiner, about 9.6 km away.

The Boomer Green Energy Hub is a large-scale renewable energy generation project proposed for a group of pastoral properties about 100 km north-west of Rockhampton and 30 km south-west of Marlborough in central Queensland.

It involves land in the Central Highlands Regional Council, Livingstone Shire Council and Rockhampton Regional Council areas.

The project is in early development. Work underway includes wind resource monitoring, cultural heritage studies with the Traditional Owners, the Barada Kabalbara Yetimarala People, environmental assessment work, consultation, and civil and electrical design.

As findings from assessment and technical studies become available, the design is being refined and modified. The current design involves a wind farm with about 150 wind turbines, and potential for solar will be assessed in the future.

## State assessment

The development application for the wind farm will be assessed by the Queensland Government's State Assessment and Referral Agency (SARA).

The assessments required and the technical criteria for assessments are outlined in *State code 23: Wind farm development*. Areas of assessment include aviation, noise, visual impact, ecology and electromagnetic interference. State code 23 aims to make sure that a wind farm is located, sited, designed, constructed and operated to ensure:

- Safety, operational integrity and efficiency of air services and aircraft operations.
- Risks to human health, wellbeing and quality of life are minimised by ensuring acceptable levels of amenity and acoustic emissions at sensitive locations.
- The development avoids, or minimises and mitigates, adverse impacts on the natural environment (fauna and flora) and associated ecological processes.
- The development does not unreasonably impact on the character, scenic amenity and landscape values of the locality.
- The safe and efficient operation of local transport networks and road infrastructure.

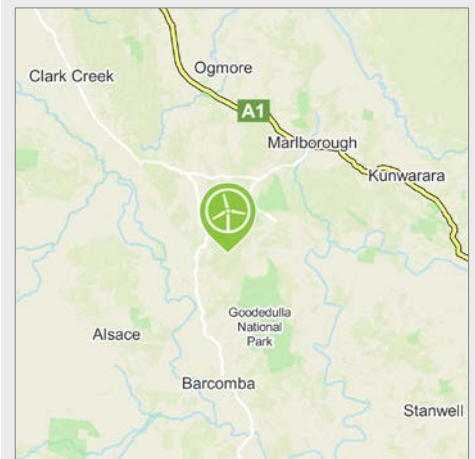
## Commonwealth assessment

The Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) has determined that the proposal will also require approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EBPC no 2022/09396). DCCEEW will assess the proposal through an Environmental Impact Statement (EIS), which must respond to the guidelines issued for the EIS by DCCEEW.

The development application for any solar component would be assessed by the relevant council under its local planning scheme, through a similarly rigorous process.

The planning and assessment phase may take up to two years.

## Location



The project area for the Boomer Green Energy Hub is about 100 km north-west of Rockhampton and 30 km south-west of Marlborough in central Queensland.

It is within the Central Queensland Renewable Energy Zone, an area identified as optimal for new renewable energy generation.

- Investment of ~\$3 billion
- Estimated to generate >\$500 million in local and regional expenditure.
- Estimated to create 350+ jobs during construction and ~20 full-time jobs during operation.
- A community benefit program from the start of construction and for the life of the wind farm.
- Target start of construction: Q1 2026
- Target completion: Q3 2029
- Capacity of ~ 1,000 megawatts (MW)

## Ecology

Avoiding, minimising and mitigating impacts to the natural environment is a priority, and thorough research and assessment into the potential impacts on flora and fauna across the site is required by both the Queensland and Australian Governments.

The ecological assessment work is done by independent ecologists and site survey teams over multiple seasons and in accordance with comprehensive State and Federal environmental assessment guidelines.

As findings from the ecology work become available the project's design may be refined and modified to avoid sensitive ecological areas or key habitat for particular species.

The project team is committed to collaborating with ecology stakeholders, scientists and host landowners to implement responsible strategies to mitigate construction impacts and a key aim of the project will be to achieve net positive outcomes for biodiversity in the area over the longer term.

For more, see the **Ecology** information sheet.

## Erosion and sediment control

The project area is located within the upper Mackenzie River and Fitzroy River sub-basins of the greater Fitzroy Basin, and mostly drains west to the Mackenzie River.

The largest waterway running through it is Leura Creek. A Baseline Aquatic Ecology Assessment has been completed to understand existing water quality and aquatic ecology.

During construction areas at high risk of erosion will be avoided and water quality maintained through appropriate erosion and sediment control measures, to avoid detrimental impacts on waterways in the local catchment area.

The development application requires a comprehensive Erosion Risk Assessment, including mitigation measures where required. An Erosion and Sediment Control Plan – Construction must be completed prior to construction, and a Preliminary Rehabilitation Plan will outline areas to be rehabilitated. Prior to operation a Site Stabilisation Plan – Operations and a Stormwater Management Plan must also be developed.

## Aboriginal cultural heritage

Ark Energy recognises the continuing connection that Aboriginal and Torres Strait Islander Peoples have to their land and Traditional Custodians are important project stakeholders. The Boomer Green Energy Hub project area is Barada Kabalbara Yetimarala Peoples country.

The project team is engaging with the Traditional Owners to establish an agreement that will provide meaningful benefits for them, and ensure the protection and maintenance of cultural heritage sites within the project area.

## Landscape and visual impact

The development application requires assessment of the wind farm's visual impact on the landscape. As part of this photomontages – such as the example on the front page - are produced to show what the wind farm would look like from representative public viewpoints where it could be seen.

Photomontages are produced by technical specialists and involve combining location photographs with a technical digital representation of the wind farm called a wireframe.

Wireframes are produced using specialist industry software and based on precise locations and dimensions of the proposed wind turbine model to give an accurate and correctly scaled representation.

## Wind turbine noise and health

Modern wind turbines are much quieter than many people imagine. Noise output from a wind farm is predicted using acoustic modelling, and a technical noise impact assessment by acoustic specialists is required for the development application.

Many variables influence noise emissions including background noise, wind turbine layout, the acoustic characteristics of the candidate wind turbine, land topography, and wind speed and direction.

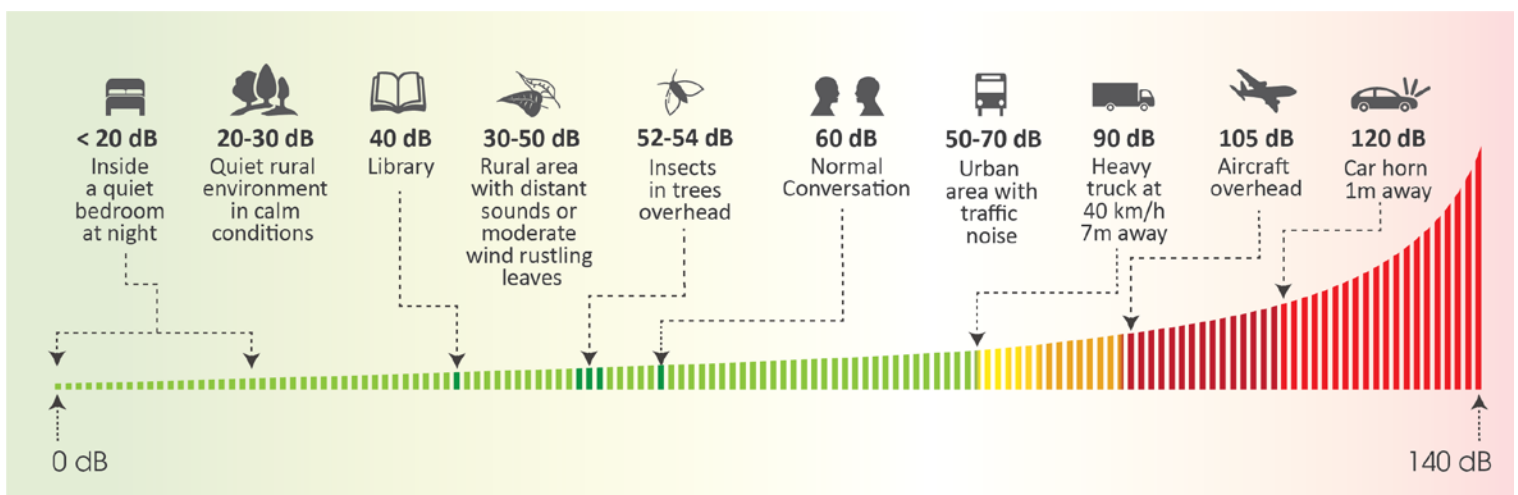
The operational wind farm noise limits in Queensland are the most stringent in Australia and designed to ensure the health and safety of individuals and preserve peoples' amenity, including the ability to sleep at night when background noise is usually low.

State code 23 states: *"The applicable acoustic criteria has been established based on national and international best practice, including a detailed review of the various standards, guidelines and frameworks in place throughout Australia, New Zealand and abroad"*.

The noise limit at any non-involved residence is the greater of 35 decibels (dB) or the background noise plus 5 dB at night (10pm-6am) and 37 dB or the background noise plus 5 dB during the day (6am -10pm). The diagram below provides the noise levels in dB of familiar sounds for reference. Compliance with the noise limits must be demonstrated before approval can be granted and again post-construction.

The relationship between operating wind farms and human health has been the subject of extensive review by independent medical and research organisations including the National Health and Medical Research Council and the Australian Medical Association.

Both have published statements that conclude there is no consistent evidence that wind turbine noise causes adverse health effects in humans. The Australian Energy Infrastructure Commissioner has published observations on health matters consistent with these statements.





## Fire management and safety

Wind turbines and solar panels are constructed from fire resistant materials and designed to mitigate fire risk.

Wind turbines are operated by sophisticated monitoring systems that automatically follow shutdown procedures in response to operational issues and can be remotely shut down in the event of fire in the area. They also provide a safe path to ground for lightning strikes and access tracks associated with wind farms serve as natural fire breaks.

Following approval, a Bushfire Management Plan for both the construction and operation period must be prepared by a suitability qualified person in consultation with Queensland Fire and Emergency Services (QFES). It will include a fire hazard analysis, evacuation procedures, mitigation strategies and details of consultation with host landowners.

QFES would manage firefighting on the site in the same way as any other area, using ground and air-based resources subject to prevailing weather conditions, and avoiding wind turbines in the same manner as other obstructions such as buildings or powerlines.

## Construction traffic

Preliminary transport routes and site access points have been identified and will be finalised in consultation with the Ports of Gladstone and Mackay, local councils and the community.

A Traffic Impact Assessment must be prepared for the application, and the project will involve comprehensive construction management and traffic management plans, compliant with Queensland legislation, and developed in consultation with the councils and other key stakeholders. They will cover all aspects of construction and traffic management including working hours, noise, traffic and dust.

Preparation may require road upgrades and construction of new internal access roads, which would be the standard width of 5.5 m or wider where required due to topography or for parts, cabling, safety, fire management and erosion and sediment control.

## Water usage

Water supply will be determined in consultation with regulatory authorities, landowners and other stakeholders, and sourced appropriately for each component. Water for construction activities may be brought in or subject to availability, drawn from local sources. Relevant approvals and permits would be sought for the take of water in accordance with state legislation.

## Electromagnetic interference

Electromagnetic interference (EMI) refers to interference by operating wind turbines with the transmission of magnetic waves emitted from a source such as television, radar or radio signals. A technical EMI assessment is required, and it is not anticipated that there will be any issues with EMI impacts.

## Livestock

Hosting renewable energy infrastructure is a complementary land use for agriculture and can provide a reliable supplementary income stream for farmers. Livestock appear to be unaffected by wind turbines and will often use the towers for shelter or shade.

## Workforce accommodation

Construction of the project would take about 3.5 years. An on site workers camp is proposed for the construction workforce, which is estimated to peak at 350. The final location and solution for workers' accommodation will be determined in consultation with the local councils and nearby communities.

## End of operation

Wind turbines and solar panels have a standard operational life of approximately 25 years. Options at the end of a project's initial operational life include extending the life of the facility via refurbishment, repowering with new infrastructure or decommissioning.

If the decision is made not to extend or refurbish the facility it will be decommissioned, usually within 12 months of ceasing operation. The costs of decommissioning are the responsibility of the asset owner. Decommissioning would involve the establishment of a decommissioning fund by the operator, and the removal of above ground infrastructure including wind turbines, solar panels, electrical infrastructure and maintenance buildings, and returning the site to its former state where practicable.

Wind turbines are predominantly made of recyclable materials and approximately 85-94% of today's wind turbines are recyclable. Research and developments in technology continue to advance recyclability of wind turbine and solar panel components. Most – if not all – of the materials will be reused, repurposed, recycled and recovered.

## Key benefits

**Jobs** - The project is expected to generate 350+ jobs during the construction period and ~20 full time jobs during operation.

**Economic boost** - Construction would generate significant expenditure within the local, regional and Queensland economy, including work for contractors and increased patronage for surrounding accommodation, retail, service and hospitality businesses. With a capital investment of ~\$3 billion, it is estimated that the project would generate >\$500 million in expenditure, value-add and household income.

**Community benefit program** - The project will involve a program to provide meaningful benefits to nearby residents and communities. It will be co-designed with community members and local stakeholders and provide funding annually from the start of construction and for the life of the project.

**Clean energy** - Renewable energy is the cheapest source of electricity and more is needed to replace fossil fuel sources and meet growing electricity demand. Growth in renewable energy capacity will put downward pressure on electricity prices and deliver more affordable, clean, reliable electricity. A carbon life cycle analysis estimates that the project would achieve net positive greenhouse gas emissions after 1.7 years of operation.

**Net gain for biodiversity** - A goal of the project will be to achieve a net gain for biodiversity in the project area over the longer term. This might involve various initiatives including rehabilitation of the construction disturbance and environmental offset with improved land management regimes.

## Planning & assessment

### Queensland Government (wind) Local councils (solar - tbc)

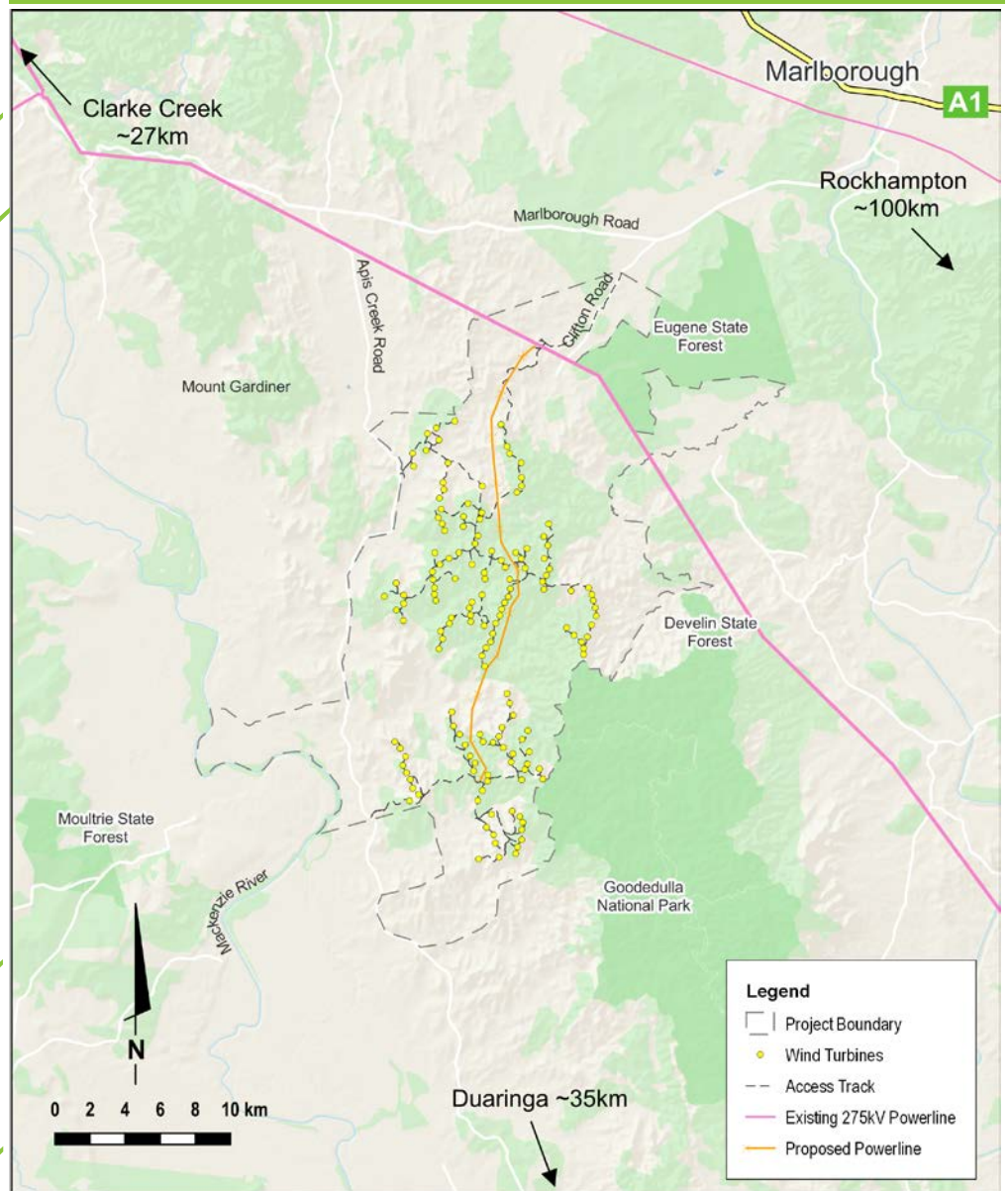
- 1 Site selection, initial concept and preliminary investigations ✓
- 2 Pre-lodgment meeting ✓
- 3 Studies and technical assessments **WE ARE HERE**
- 4 Development application and assessments lodged **Est Q2 2024**
- 5 Requests for further information (if required) and response
- 6 Assessment
- 7 Determination



### Australian Government

- 1 Referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for review under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) ✓
- 2 Decision and advice on assessment pathway: *Determined a controlled action with assessment by Environmental Impact Statement (EIS)*. EBPC no 2022/09396. ✓
- 3 Assessment work for the EIS **WE ARE HERE**
- 4 Draft EIS submitted for adequacy review **Est Q2 2024**
- 5 Requests for further information (if required) and responses
- 6 EIS accepted by DCCEEW and placed on public exhibition
- 7 Response to submissions and updates to EIS (if required)
- 8 Final EIS submitted
- 9 Determination

## Boomer Green Energy Hub indicative wind turbine layout



The project area is about 100 km north-west of Rockhampton and 30 km south-west of Marlborough. The current design includes ~150 wind turbines and would connect to the existing 275 kV transmission line.

## Questions and feedback

Ark Energy appreciates the importance of involving community members and local stakeholders in its projects. We are focused on providing opportunities for interested community members and stakeholders to participate, and maximising opportunities for the local and regional communities to benefit in meaningful ways.

Questions and feedback are welcome at any time and can be sent directly to the project team. We also encourage you to stay up to date on project developments and opportunities to participate by registering for project newsletters. See details below.

## More information

**Visit** – Boomer Green Energy Hub Office & Information Centre,  
1/24 William Street, Rockhampton CBD.

**Tel** - 1800 731 296

**Email** - [info@boomerhub.com.au](mailto:info@boomerhub.com.au)

**Newsletters** – register at [arkenergy.com.au/mailling-list-details](http://arkenergy.com.au/mailling-list-details) for email news, or to receive newsletters by post, send us your postal address and a request to be added to the mail (post) list.

**Website** - [boomerhub.com.au](http://boomerhub.com.au) or scan QR code right



Scan QR code to visit the project website