

# Collinsville Green Energy Hub



Photograph of the project area

The Collinsville Green Energy Hub is a large-scale renewable energy generation project proposed for a number of cattle grazing properties near Collinsville and south-west of Bowen in the Whitsunday Region of Queensland.

## Planning and assessment

The project is in the early feasibility stage with on-site investigations and the preparation of various preliminary reports. The development application will be subject to rigorous and comprehensive assessment by Whitsunday Regional Council, the Queensland Government and the Australian Government.

## Development application assessment

The development application for the wind farm will be assessed by the Queensland Government through its State Assessment and Referral Agency (SARA). SARA delivers a co-ordinated, whole-of-government approach to wind farm assessment, with requirements outlined in *State code 23: Wind farm development*.

State code 23 prescribes the assessments required, the methodology for technical assessments, minimum actions and acceptable outcomes to demonstrate compliance. Areas of assessment include aviation, noise, visual impact, ecology and electromagnetic interference. The code also requires preliminary management plans for construction, fauna, sediment control, water and traffic. State code 23 aims to make sure that a wind farm is located, sited, designed, constructed and operated to ensure:

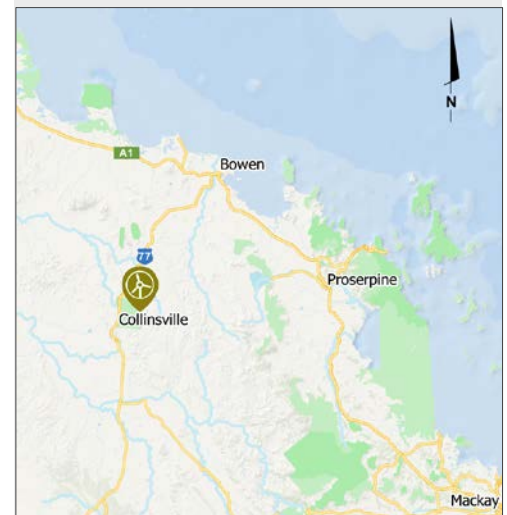
- Safety, operational integrity and efficiency of air services and aircraft operations.
- Risks to human health, wellbeing and quality of life are minimised by ensuring acceptable levels of amenity and acoustic emissions at sensitive locations.
- The development avoids, or minimises and mitigates, adverse 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.

The development application for any solar component would be assessed by Whitsunday Regional Council. Development applications will require various technical specialist assessment reports for matters such as aviation, ecology, noise, visual impact and electromagnetic interference, as well as preliminary management plans for matters such as construction, fauna, sediment control, water and traffic.

## Commonwealth assessment

The project will be referred to the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) for review under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). DCCEEW will then determine the appropriate pathway for Commonwealth assessment.

## Location



The project area for the Collinsville Green Energy Hub is about 80 km south-west of Bowen in Queensland. It is in the candidate Northern Queensland Renewable Energy Zone, an area identified as optimal for new renewable energy generation.

- Investment of ~\$7.5 billion.
- Expected to generate ~\$1 billion in local and regional expenditure.
- Expected to create 350+ jobs during construction and 15-30 jobs for operation.
- Significant economic boost for the Whitsunday, Mackay, Burdekin and Isaac Regional Council areas.
- Capacity of ~3,000 MW
- Result in a net reduction in greenhouse gas emissions of 3,000,000 t CO<sub>2</sub>-e / yr.
- Target investment decision: 2027
- Target completion: 2030

## Ecology

Avoiding, minimising and mitigating impacts to the natural environment is a priority for the project team, 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 will be 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 accordingly to avoid sensitive ecological areas or key habitat for particular species. Often site investigations for new renewable energy projects also provide a deeper and more comprehensive understanding of biodiversity in an area and add to scientific knowledge for key species.

The project team is committed to working 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.

## Aboriginal cultural heritage

Ark Energy and the Collinsville Green Energy Hub project team recognise the continuing connection that Aboriginal and Torres Strait Islander Peoples have to their land.

The project team will work with the Traditional Owners and their representatives to establish an agreement that will provide meaningful benefits and ensure the protection and maintenance of cultural heritage sites within the project area.

## Landscape and visual impact

The wind farm development application requires assessment of the wind farm's visual impact on the landscape. For this, photomontages will be produced to show what the wind farm would look like from selected public viewpoints where it could be seen. Photomontages combine 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.

## Noise

Technological advances have reduced operational wind turbine noise and current wind turbine models are much quieter than most people expect. For example, wind turbine blades are now upwind of the tower reducing infrasound, which usually refers to very low frequency sounds below 20 Hz, to below the threshold of human perception.

Noise output from a wind farm can be predicted using acoustic modelling, and a technical noise impact assessment by acoustic specialists is required under State code 23.

The technical criteria and methodologies for noise assessment are prescribed in the code, which states that:

*"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 limits for wind farms in Queensland are amongst the most stringent in Australia and internationally.

At any non-involved residence the noise limit 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 various familiar sounds for reference.

Compliance with the noise limits must be demonstrated before approval can be granted and again post-construction.

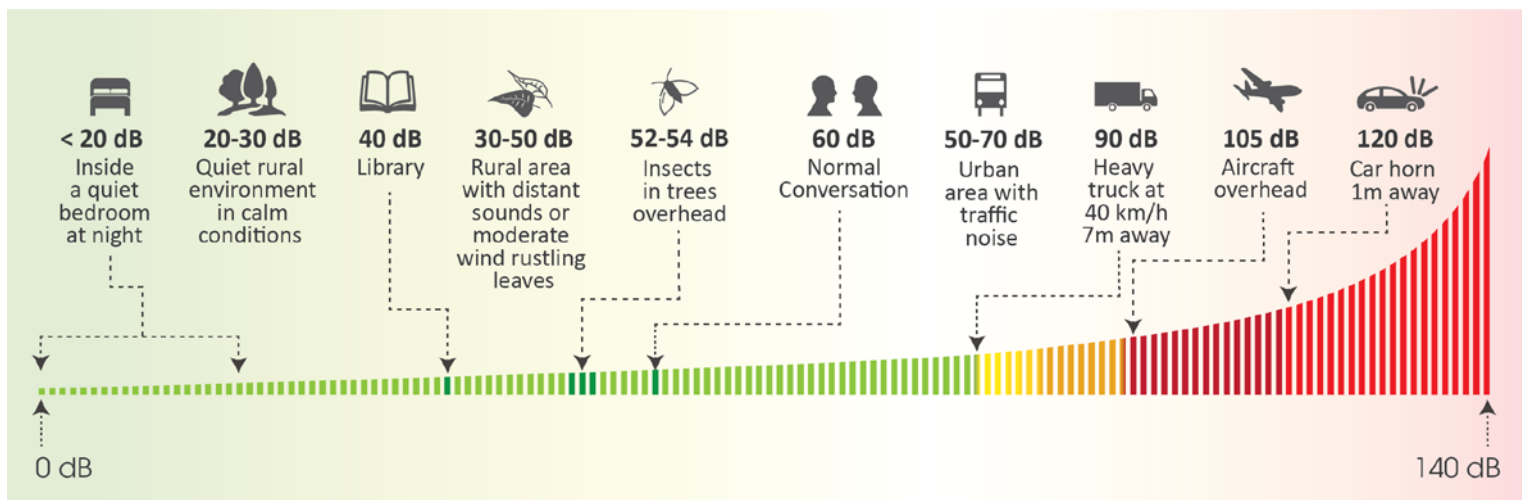
## Wind farms and health

The relationship between operating wind farms and human health has been the subject of extensive review by medical and research organisations, including Australia's National Health and Medical Research Council (NHMRC) and the Australian Medical Association (AMA).

NHMRC is Australia's leading expert body promoting the development and maintenance of health standards and the authority in health and medical research. AMA is Australia's peak professional body for doctors.

Both organisations have published position statements in relation to wind farms and health, stating that there is no consistent evidence that wind farms and wind turbine noise cause adverse health effects in humans.

Similarly, there is no evidence that wind farms cause adverse health impacts to livestock or domestic animals.





## Construction and traffic

The project will involve comprehensive construction management and traffic management plans, compliant with Queensland Occupational Health & Safety legislation and the local government planning scheme, and developed in consultation with all key stakeholders. They will cover all aspects of construction and traffic management including working hours, noise, traffic and dust.

Construction can only commence after the detailed engineering design has been completed. Preparation may require upgrading 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.

## Fire safety and management

Wind turbines and solar panels are constructed with 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 serve as natural fire breaks.

A comprehensive bushfire management plan for the site would be developed in consultation with Queensland Fire and Emergency Services (QFES).

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.

## 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.

## Shadow flicker

Shadow flicker refers to the appearance of shadows from rotating turbines under certain conditions and times of day. A technical shadow flicker assessment is required and it is not anticipated that there will be any issues with shadow flicker.

## 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. Agrovoltaics is the focus and practice of sustainable development that combines solar photovoltaic energy capture and agriculture. It is used to design solar arrays to optimise the synergy between generating solar energy and the host land's agricultural use.

## 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 15-30 ongoing jobs for 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. Economic analysis indicates benefits to the local and regional economy of about \$1 billion in expenditure, value-add and household income.

**COMMUNITY BENEFIT PROGRAM** - The project will involve a program to support local projects and initiatives. It will be designed with the community and local stakeholders, and funding will commence from the start of construction and continue for the life of the wind farm.

**RENEWABLE ENERGY** - Renewable energy is the cheapest source of energy and more is urgently needed to reduce carbon emissions, 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 lifecycle analysis for this project estimates that it would reduce greenhouse gas emissions by 3,000,000 t CO<sub>2-e</sub>/year.

**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, offsets, and management regimes for fire, weed and pest management.



## Planning & assessment

### Queensland Government

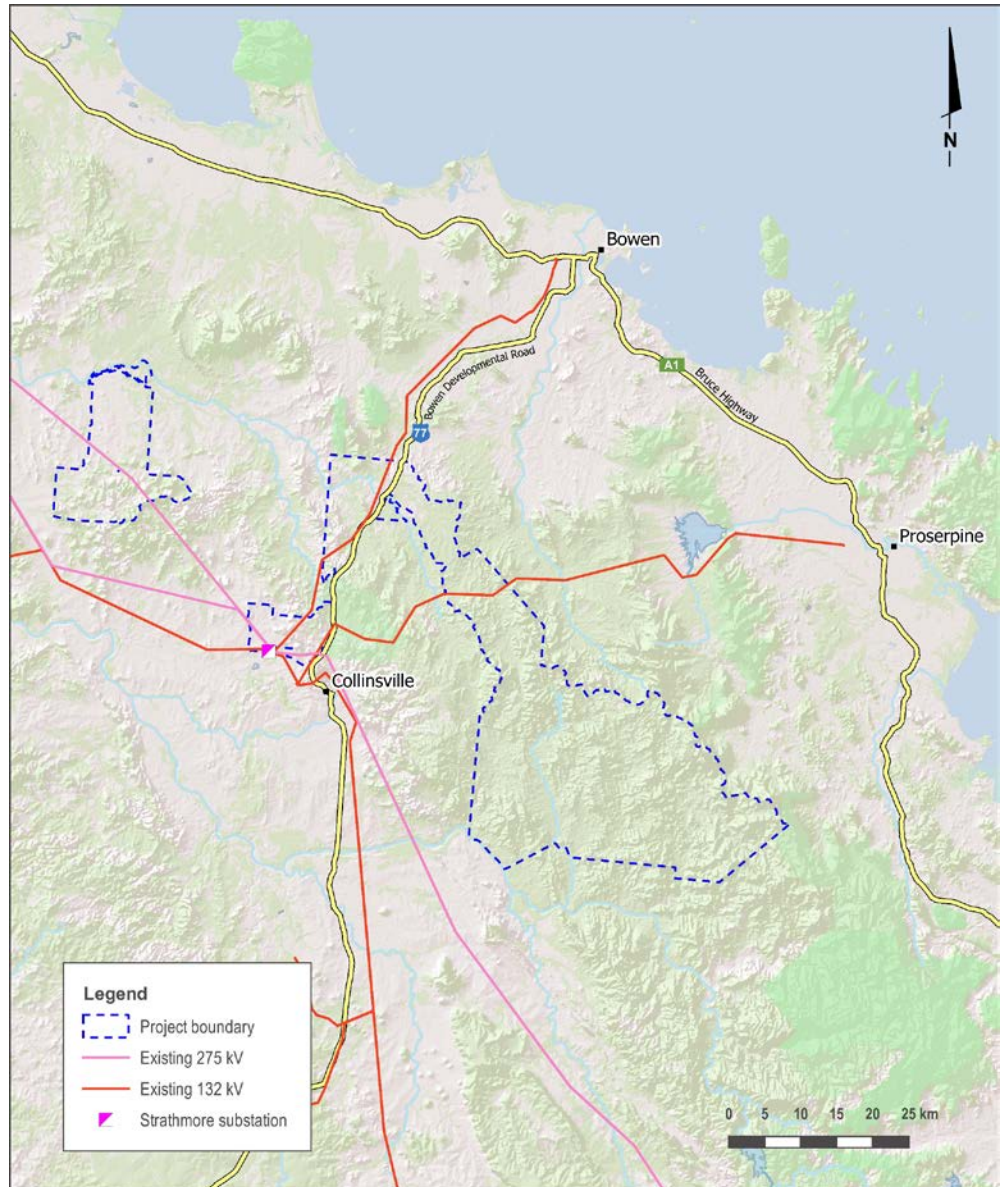
- 1 Site selection, initial concept and preliminary investigations **WE ARE HERE**
- 2 Pre-lodgment meeting with the State Assessment and Referral Agency (SARA)
- 3 Studies and technical assessments (prescribed by SARA State code 23)
- 4 Development application and assessments lodged with SARA
- 5 Request from SARA 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) **Est Q1 2024**
- 2 Determination and advice on assessment pathway
- 3 Preparation of assessment
- 4 Draft assessment submitted for adequacy review
- 5 Request from DCCEEW for further information (if required) and response
- 6 Assessment accepted by DCCEEW and placed on public exhibition
- 7 Response to submissions (if required) and lodgment of updated assessment
- 8 Final assessment submitted
- 9 Determination

## Collinsville Green Energy Hub Indicative Project Area



The project area for the Collinsville Green Energy Hub is near Collinsville and south-west of Bowen in the Whitsunday Region of Queensland. It is within the candidate Northern Queensland Renewable Energy Zone, with some of the best renewable energy resources in Queensland.

## Questions and feedback

Ark Energy appreciates the importance of engaging, listening to and involving local community members and stakeholders, to ensure local priorities and concerns are considered, and to help develop meaningful and lasting community benefits. Questions and feedback are welcome at any time, and local input is valued. Questions and feedback can be sent directly to the project team via the details below or the feedback form under the 'Feedback' tab on the website. Stay up to date on other opportunities to participate by registering for newsletters – details below.

## More information

**Visit** - Collinsville Green Energy Hub Information Centre, 47 Railway Road, Collinsville. Please check the website/window for open times.

**Tel** - 1800 731 296

**Email** - [info@collinsvillehub.com.au](mailto:info@collinsvillehub.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 the project team your address and a request to be added to the mail (post) list.

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



Scan QR CODE to visit the website