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 pastoral properties near Collinsville and south-west of Bowen in the Whitsunday region of Queensland.

The project is in the early development stage. Work underway includes wind resource monitoring, cultural heritage surveys with Traditional Owner groups, ecology surveys, technical studies for electrical and civil design, grid connection studies, and consultation with the community and local stakeholders.

Assessment of the development application

The development application will be subject to rigorous and comprehensive assessment by the Queensland Government, as per requirements outlined in *State code 23: Wind farm development* and the associated Planning Guideline. State code 23 aims to ensure that a wind farm is appropriately sited, designed, constructed and operated to ensure:

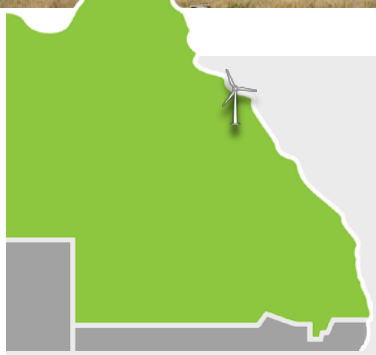
- Safety, operational integrity and efficiency of air services and aircraft operations.
- Risks to people, property and quality of life are minimised by providing acceptable levels of amenity and acoustic emissions at sensitive land uses and resilience to natural hazards.
- The development minimises adverse impacts on the natural environment, vegetation and associated ecological processes.
- Development in an area identified by local government as having high scenic amenity appropriately manages impacts on the character, scenic amenity and landscape values of the locality.
- The safe and efficient operation of local transport networks and road infrastructure.

Various technical and specialist assessment reports are required including for ecology (flora and fauna), use of agricultural land, erosion risk, natural hazards, acoustic amenity, electromagnetic interference, shadow flicker, workforce accommodation, scenic amenity, transport networks, aviation safety, community impacts and decommissioning. Several management plans will also be required, including for construction, fauna, vegetation, rehabilitation, water, sediment and erosion control, bushfire, traffic, decommissioning.

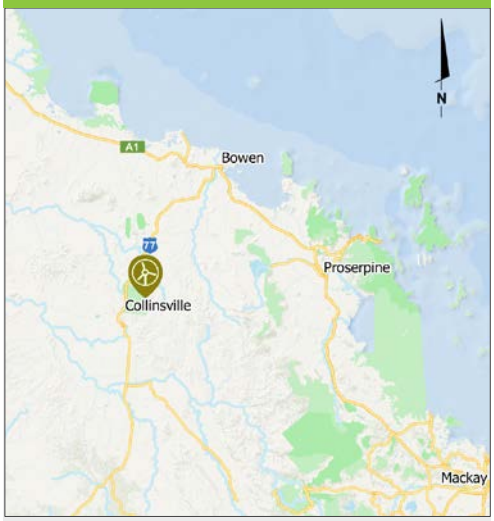
Environmental assessment by the Commonwealth

Potential impacts on matters of national environmental significance (MNES) protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) must also be assessed by the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW). After the proposal has been referred to DCCEEW for review under the EPBC Act, DCCEEW will issue tailored guidelines for the assessment and determine the appropriate assessment pathway.

Important note – the development application, environmental assessment reports and management plans will be placed on public exhibition for comment prior to a decision.



Location



- Capital investment of ~$7.5 billion
- Expected to create 1,000 direct/indirect jobs including 350+ during peak construction and 15-30 for operation.
- Estimated to generate >$1 billion in local and regional expenditure.
- Economic benefits for the Whitsunday, Mackay, Burdekin and Isaac Regional Council areas.
- Capacity of up to ~3,000 megawatts
- Target for start of construction - 2027
- Target for completion - 2031
- Project lifespan of up to 30 years

Ecology

Avoiding, minimising and mitigating impacts to the natural environment and fauna species that might utilise the project area is a priority, and comprehensive and thorough assessment of the potential ecological impacts is required by both the Queensland and Australian Governments.

The ecological assessment work will be done by specialist ecologists and survey teams over multiple seasons, and in accordance with state and federal guidelines. As findings from the work become available the project's design will be refined and modified accordingly to avoid sensitive ecological areas or habitat. 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 collaborating with ecology stakeholders and host landowners to implement responsible strategies to mitigate impacts and a key aim of the project will be to achieve net gains for biodiversity in the area over the longer term.

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

Landscape and visual impact

The wind farm development application requires assessment of the 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.

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.

Noise

Technological advances have reduced operational wind turbine noise and current wind turbine models are much quieter than most people expect.

Noise output from a wind farm can be predicted using acoustic modelling, and a technical noise impact assessment by acoustic specialists is required for the application.

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.*"

Noise limits for wind farms in Queensland are amongst the most stringent in Australia and internationally. For a non-involved sensitive land use (ie a residence or accommodation) the limit is the greater of 35 decibels (dB)(A) or the background noise plus 5 dB at night (10pm-6am) and 37 dB(A) 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.

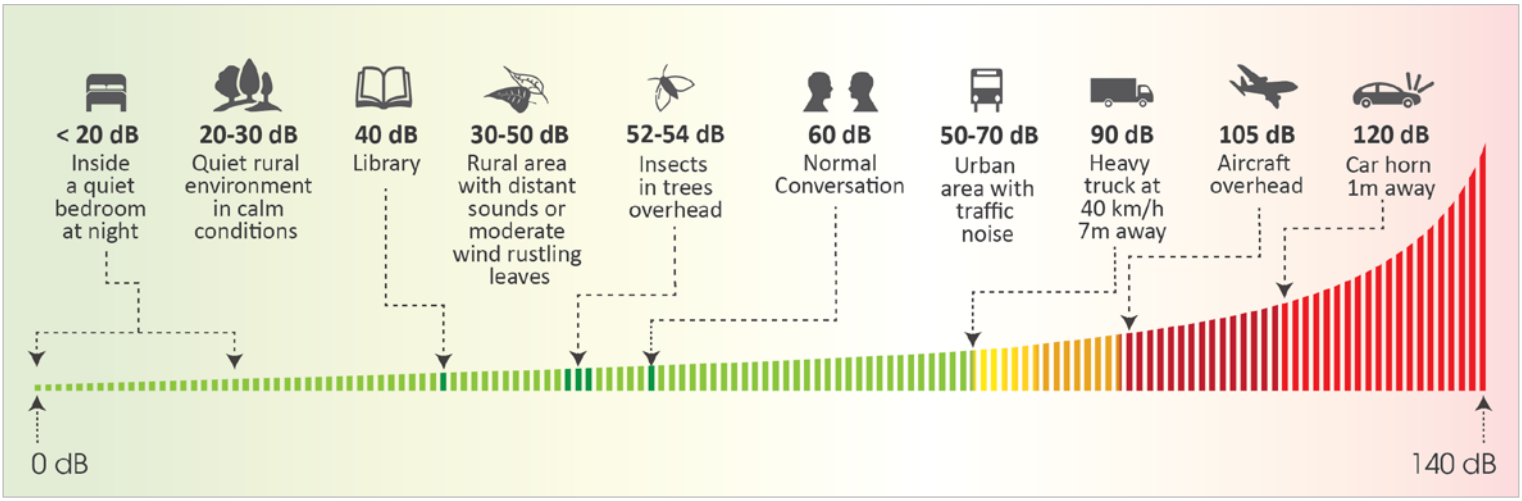
Compliance with noise limits must be demonstrated before approval can be granted and again post-construction.

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 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.



More information about renewable energy

Energy Fact Check is a website to help answer questions about the energy transition, and provides information on the energy system, electricity costs, renewable energy and storage.

Visit energyfactcheck.com.au or scan QR code right.

ENERGY FACT CHECK

Opportunity for coexistence *- Hosting renewable energy infrastructure is a productive land use that's complementary to agriculture and can provide a reliable supplementary income stream. Livestock are unaffected by wind turbines and will often use the towers for shelter or shade.*

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 is working with the Traditional Owner groups and their representatives to establish agreements that will provide meaningful benefits and ensure the protection and maintenance of cultural heritage sites within the project area.

Construction and traffic

The project will involve comprehensive construction management and traffic management plans, compliant with legislation and the local government planning scheme, and developed in consultation with key stakeholders. Plans 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.

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.

What can the project bring to the community?

JOBS - The project is expected to generate 1,000 direct and indirect jobs, including ~350 direct jobs for construction and 15-30 ongoing jobs for maintenance and operations.

ECONOMIC BOOST – Capital investment of $7.5 billion. Expected to generate a significant economic boost for the Whitsunday, Mackay, Burdekin and Isaac Regional Council areas, 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.

OPPORTUNITIES FOR TRADITIONAL OWNERS - Ark Energy works closely with First Nations stakeholders to ensure preservation of cultural heritage on project sites and make agreements with Traditional Owner groups that will provide meaningful benefits.

COMMUNITY BENEFIT PROGRAM - The project will involve a program to share the benefits and support local initiatives. It will be designed in consultation with the community and local stakeholders, with funding from the start of construction and for the life of the project.

RENEWABLE ENERGY - Renewable energy is the cheapest source of energy and more is needed to reduce carbon emissions and meet growing electricity demand as fossil fuel sources are retired. Growth in renewable energy capacity will put downward pressure on electricity prices and deliver more affordable, cleaner, reliable electricity.

NET GAINS FOR ECOLOGY – A goal of the project will be to achieve a net gain for biodiversity and key species in the project area over time. This might involve various initiatives including rehabilitation of the initial construction disturbance, strategic environmental offset management areas, and improved land management regimes for fire, weed and pest control.

Project phases

Site selection & feasibility

- Identify suitable site
- Early discussions with landholders and other local stakeholders
- Commence wind monitoring
- Initial concept design
- Grid connection studies
- Preliminary technical and environmental studies

Planning & development

WE ARE HERE

- Expanded wind monitoring
- Land agreements
- Community and local stakeholder consultation
- Detailed technical and environmental studies
- Project layout, electrical and civil design, based on all inputs
- Secure grid connection
- Constructability studies
- Secure regulatory approvals

Construction

- Contracts and hire workers
- Earthworks and civil works
- Grid connection
- Equipment installation
- Environmental monitoring
- Traffic and transport management
- Community and local stakeholder consultation

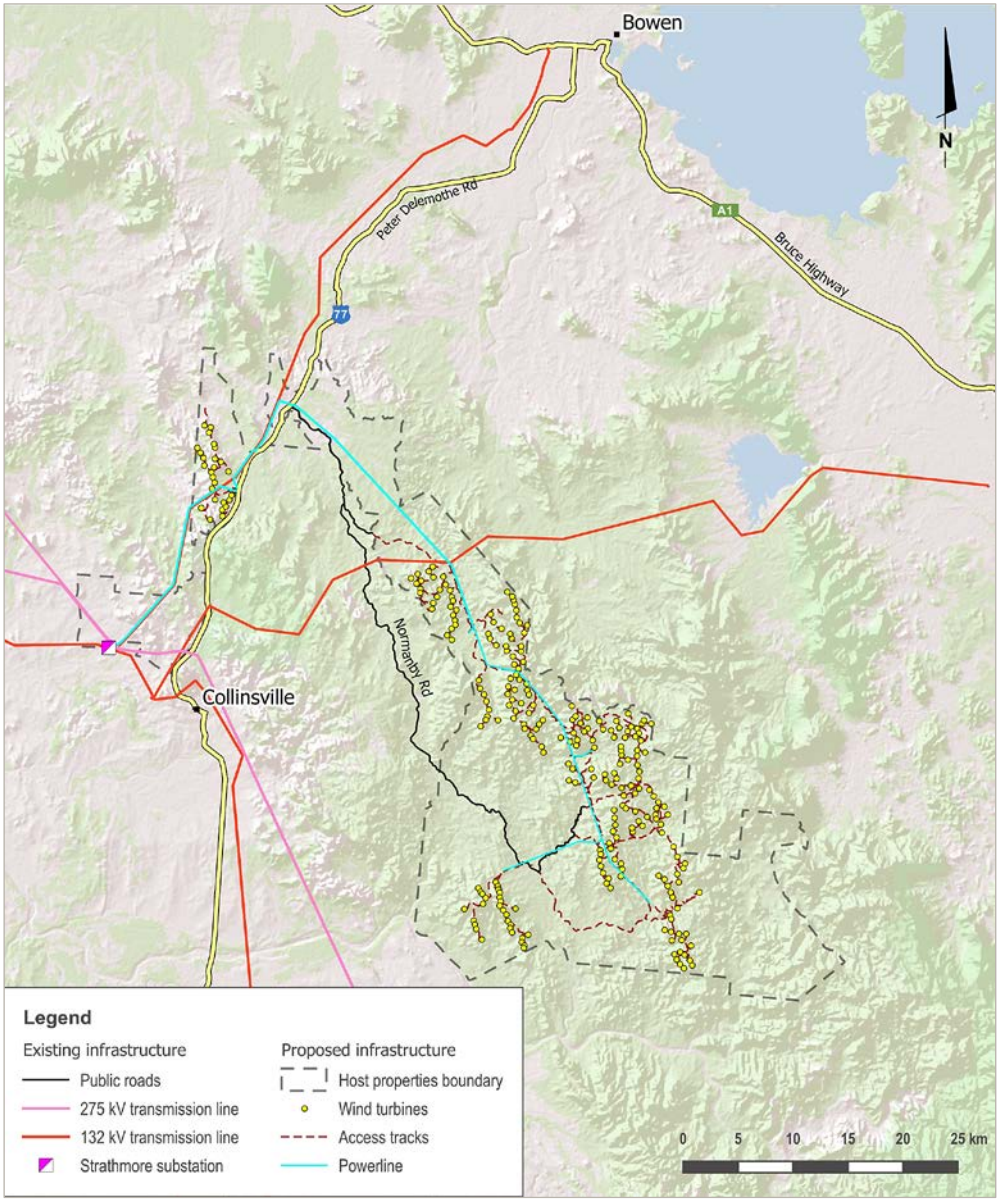
Operation

- Operate and maintain project (25-35 years)
- Manage benefit sharing program, based on annual funding.
- Ongoing land management

End of operation

- Refurbish and renew, *or*
- Decommission, remove infrastructure and restore site to original condition
- Recycle components

Collinsville Green Energy Hub indicative project layout



The project area is near Collinsville and south-west of Bowen in the Whitsunday region of Queensland. The project layout shown above is indicative and subject to change.

Questions and input welcome

Ark Energy appreciates the importance of involving community members and local stakeholders, to ensure consideration of local priorities and provide meaningful and lasting community benefits. Questions and feedback are welcome at any time and can be sent directly to the project team via the contact details below or the online form under the 'Feedback' tab on the website. Interested community members are also encouraged to register for newsletters – details below - and local suppliers encouraged to register their interest via the 'Suppliers' form on the website.

More information

Visit Collinsville Green Energy Hub Office & Information Centre
47 Railway Road, Collinsville.
See the window and project website for open times.

Email info@collinsvillehub.com.au

Tel 1800 731 296

Website collinsvillehub.com.au or scan QR code right

News Register at arkenergy.com.au/mailing-list-details for e-news or send the project team your mail address and a request to be added to the mail (post) list.

Scan QR code to visit the project website

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