



ARK ENERGY

Boomer Green Energy Hub

Community Information Session - Marlborough

4-6pm Wednesday, 10 May 2023

Acknowledgement of Country

We acknowledge the Traditional Custodians of the land upon which we meet and their continuing connection to lands, waters and communities.

We pay our respects to Elders past and present.

Introductions

Ark Energy

- Anthony Russo, GM Development, Queensland
- Jessica Picton, Snr Project Manager
- Melissa Pisani, Community Engagement & Stakeholder Relations

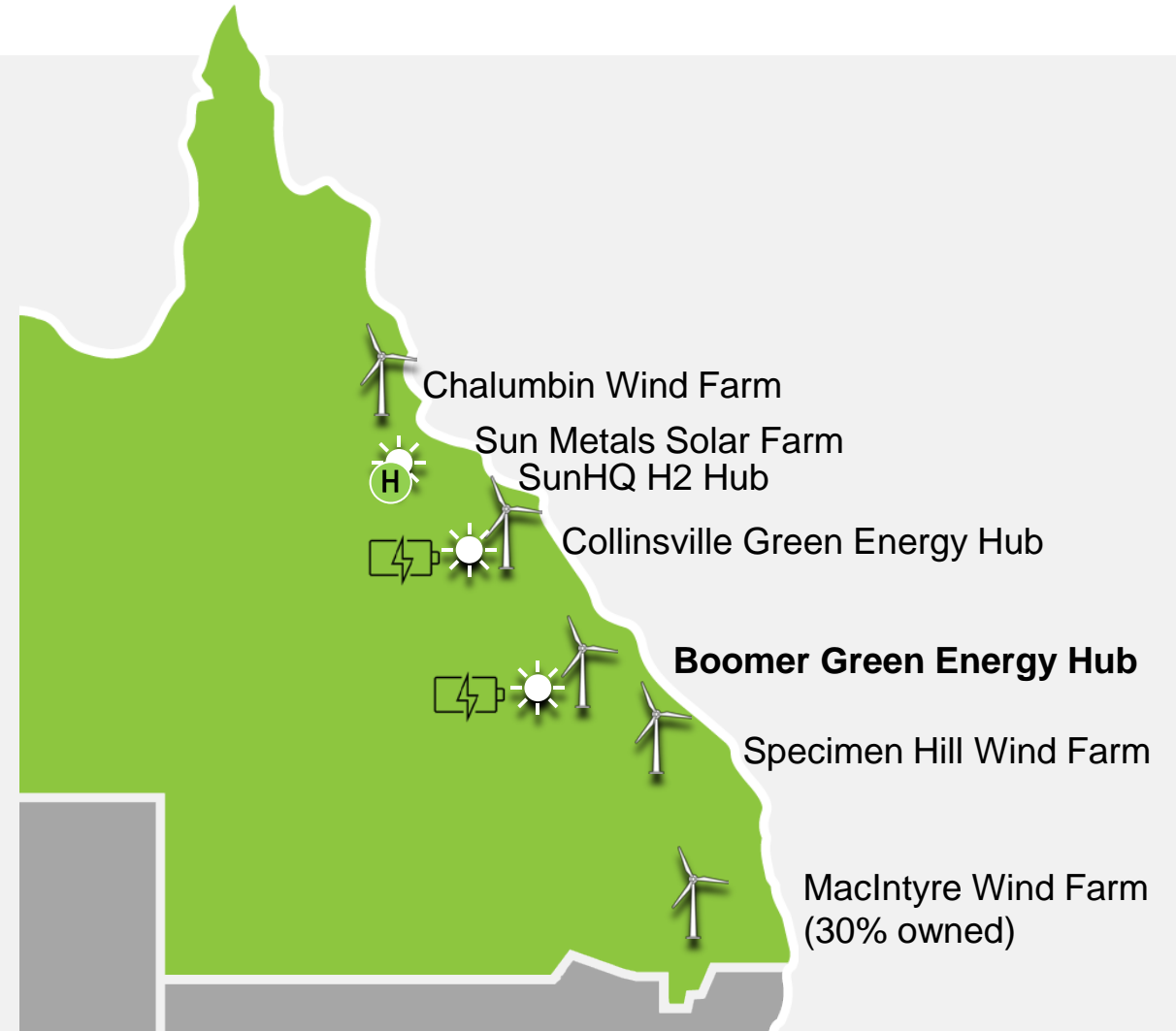
Specialist Consultants

- Chris Cantwell, Partner, Attexo - Environmental Planning
- Ian Crombie, Senior Consultant, Attexo - Landholder Engagement
- Patrice Brown, Director, CQG - Community Engagement



Ark Energy

- Specialising in greenfield utility-scale wind, solar and hydrogen. 20+ years experience, 13 projects in development.
- 25-year history in Qld through sister company Sun Metals - zinc refinery and solar farm.
- Mandate to decarbonise energy supply of parent company, Korea Zinc, and help third-party customers accelerate their energy transition.
- Korea Zinc is the first major refiner to join RE100 and commit to powering global operations from 100% clean energy by 2050.



Why renewables? Energy transition

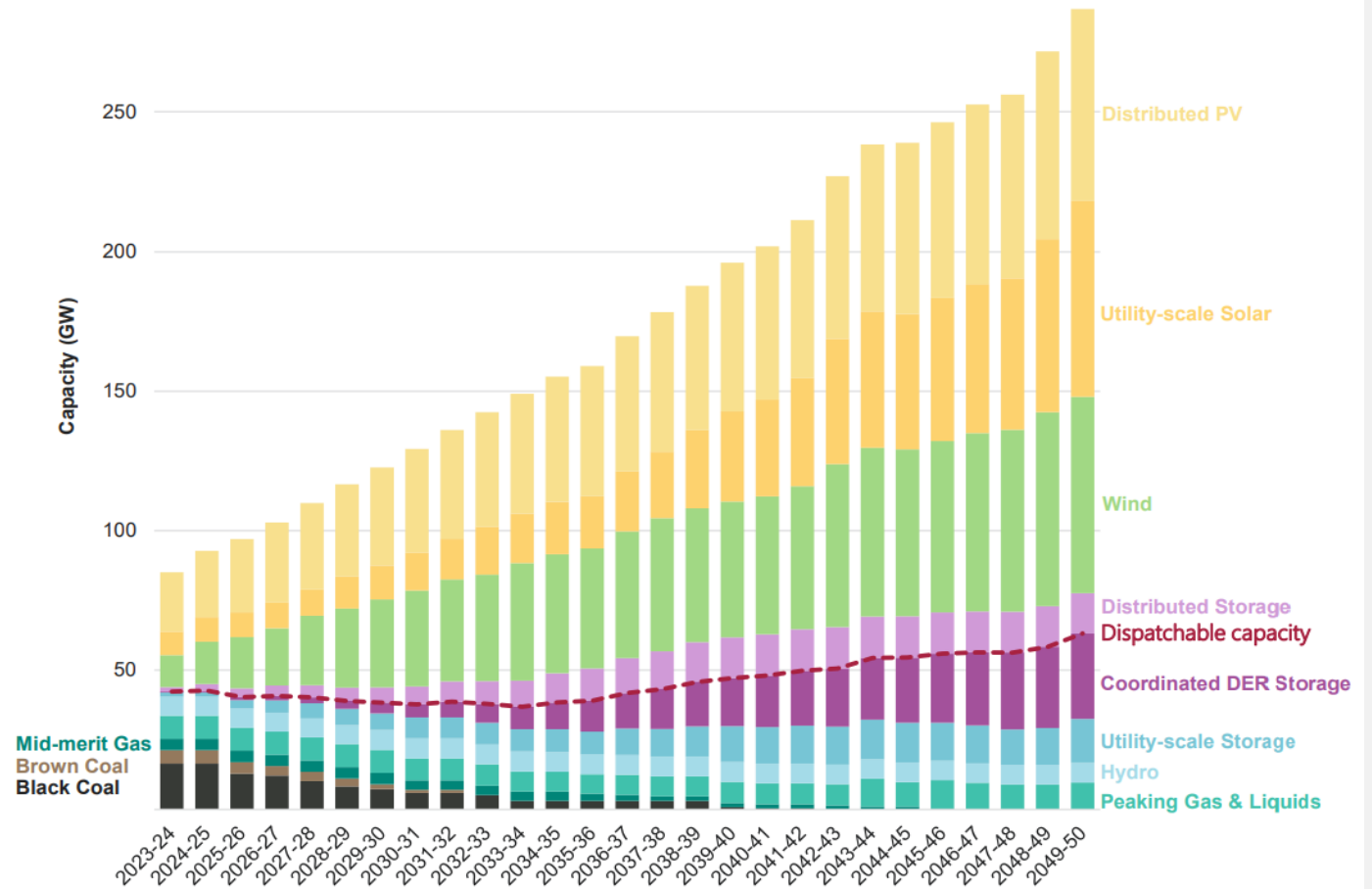
Australian Energy Market Operator's 2022 Integrated System Plan *Step-change scenario*, by 2050:

- Electricity demand to double
- Coal retired 2-3 times faster
- Nine-fold increase in grid scale wind and solar required; incl. 50 GW from Qld.

National targets

- 82% RE in NEM by 2030.
- Emissions reduction - 43% by 2030, net zero by 2050.
- 2022 = 36%.

Figure 1 Forecast NEM capacity to 2050, *Step Change scenario*



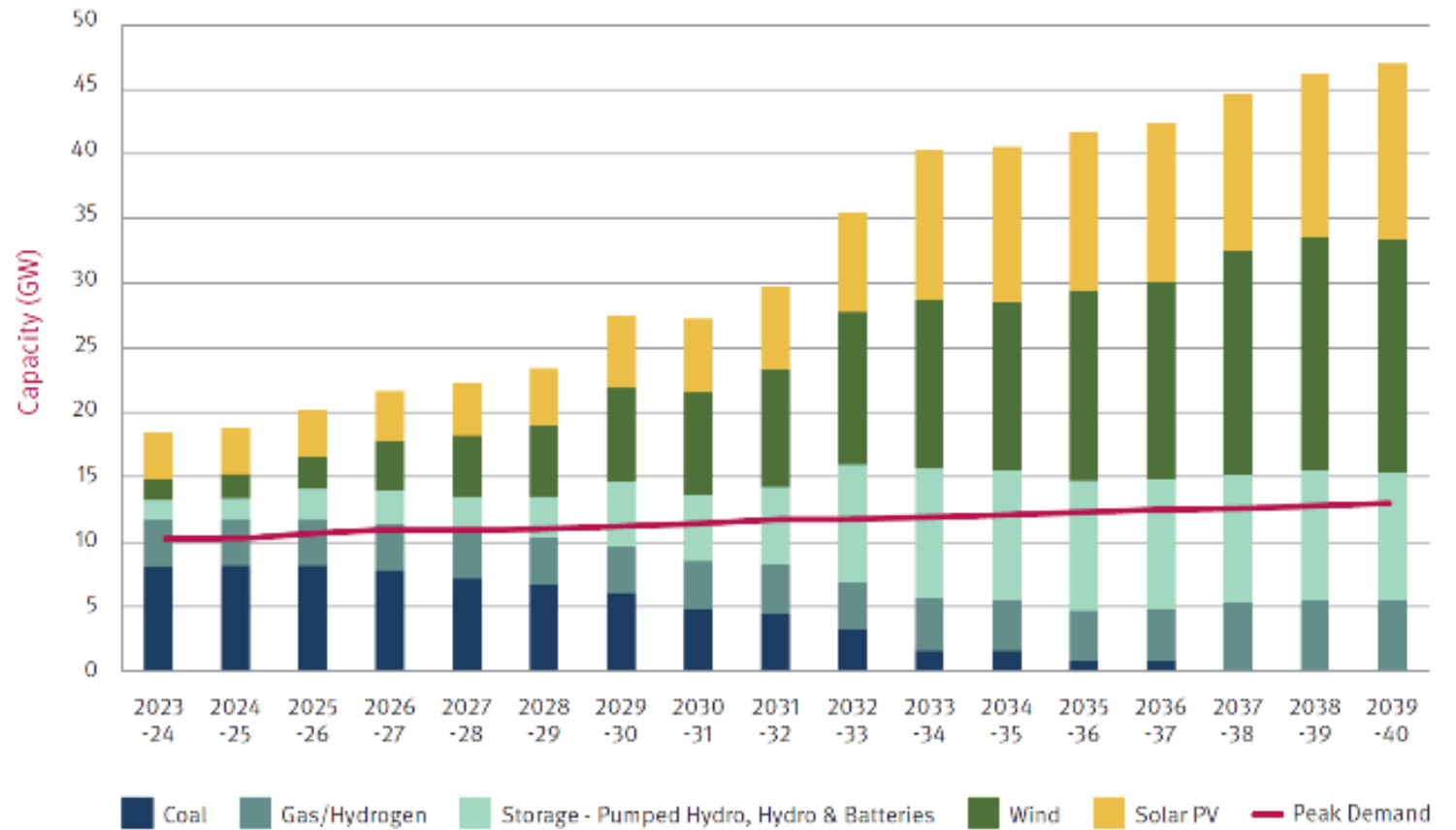
Source: AEMO ISP 2022



Why renewables? Energy transition

Queensland renewable energy targets:

- 70% by 2032
- 80% by 2035 incl. 25 GW of large-scale wind and solar.
- Net zero by 2050.
- 2022 = 23%



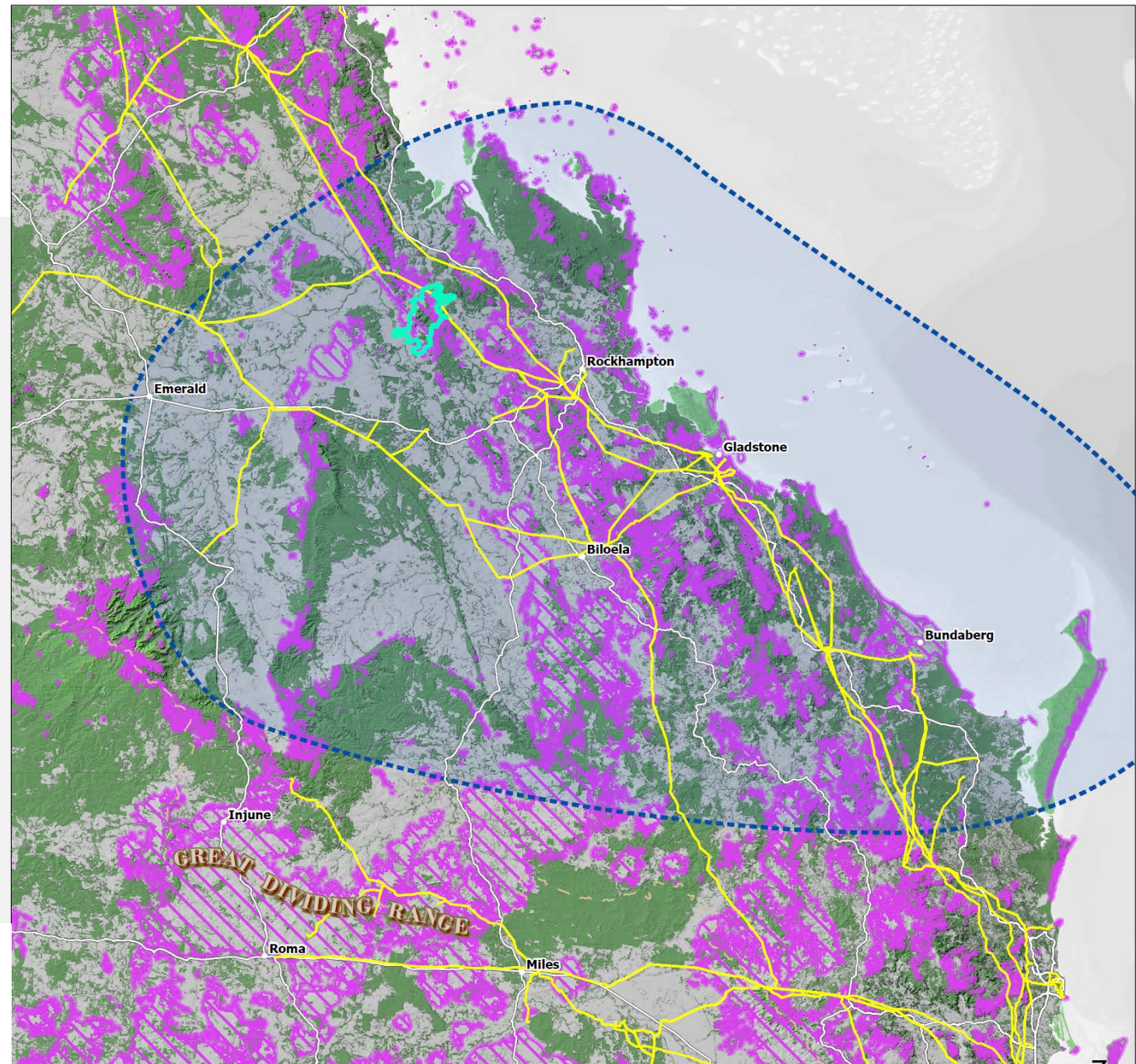
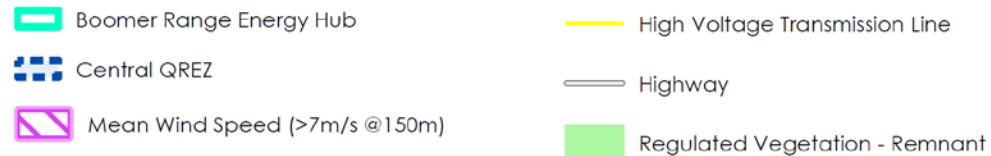
Based on independent modelling

Source: Queensland Energy and Jobs Plan



Challenge

- Wind resource located along the Great Dividing Range ridgelines
- Overlap with vegetation
- Vegetation = habitat



Site selection

Candidate Central Queensland
Renewable Energy Zone



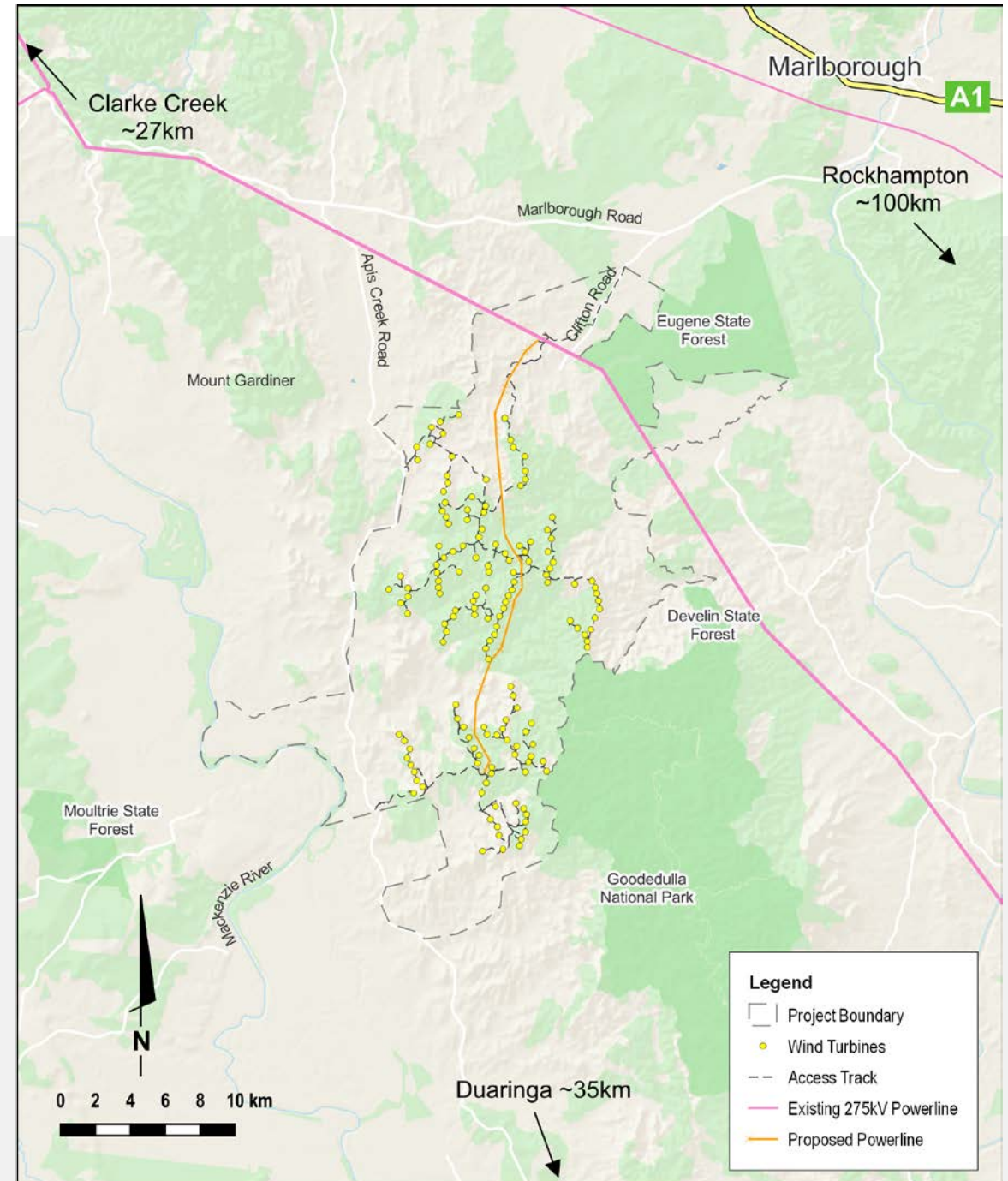
Economic resource



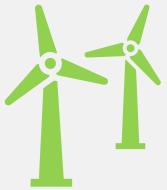
Grid connection - two Powerlink
275kV transmission lines.



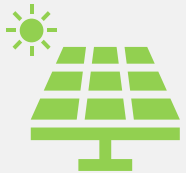
Land tenure - cattle grazing
properties, ~30 km south-west of
Marlborough.



Boomer Green Energy Hub



~150 turbines with capacity for **~1GW**



Potential solar opportunity of **>500MWac**

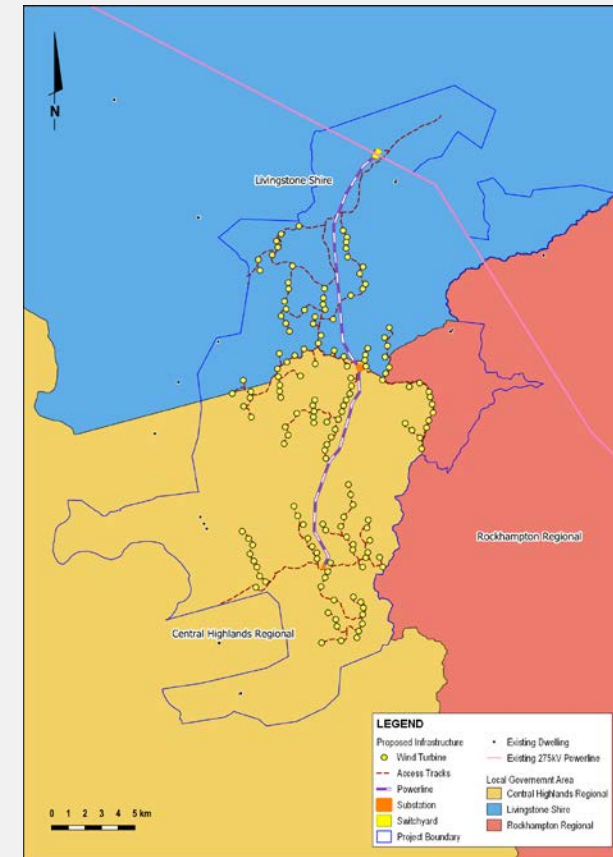


BESS opportunity of **2GW/4WGh** modelled

Develop to own, build and operate.

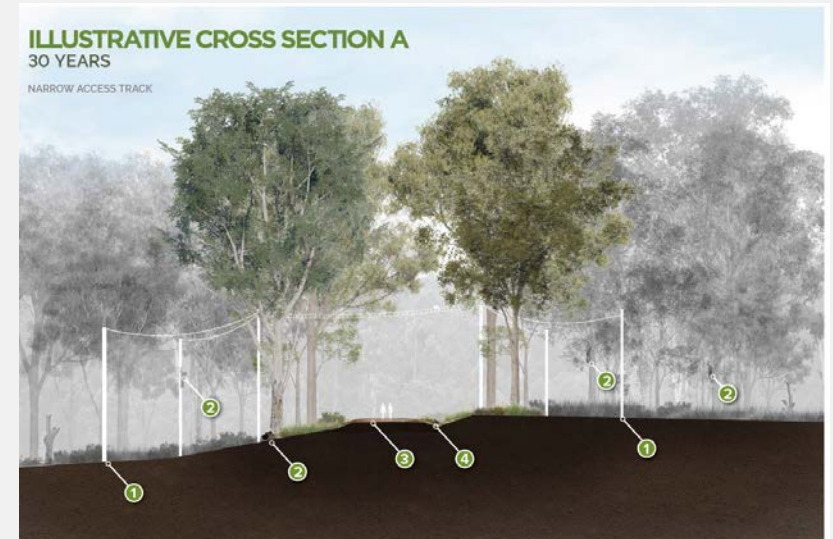
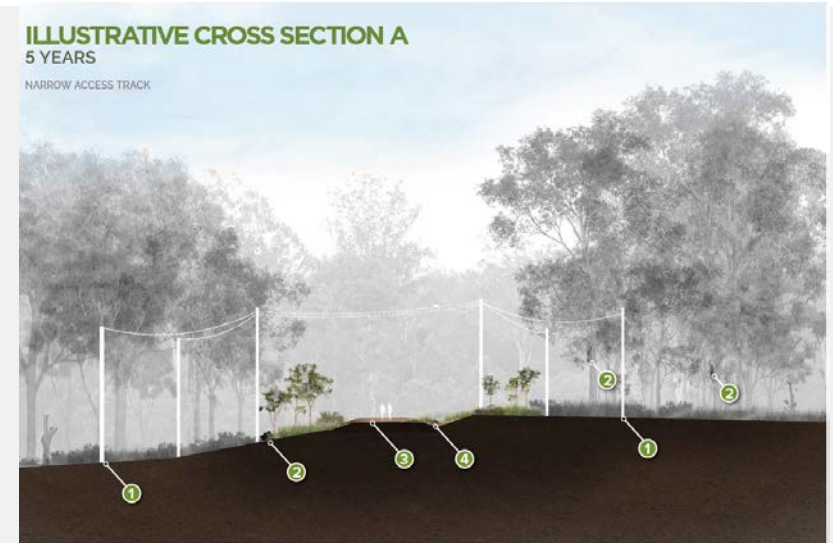
Three LGAs:

- Livingstone Shire Council
- Rockhampton Regional Council
- Central Highlands Regional Council



Environmentally responsible development

- Maximum extent achievable: avoid, minimise, mitigate.
- Consult with ecology stakeholders - identify key concerns, workshop solutions.
- Collaborate – consultants, specialists, cross-functional teams.
- Find workable compromises with meaningful benefit.
- Invest and collaborate on strategies and commitments for repair i.e. rehabilitation.
- Strategic, generous environmental offsets with active management regimes - weed, fire, feral pest control - to improve habitat values.
- **Opportunity and focus: net positive outcomes**



State and local government assessment

- Wind component assessed State Assessment and Referral Agency (SARA) under State code 23 – wind farm development.
- Solar component assessed by Local Government under Planning Scheme.
- Rigorous technical studies and assessments, and preliminary management plans, including for:
 - Ecology, environmental offsets, rehabilitation.
 - Landscape and visual amenity
 - Electromagnetic interference
 - Aviation operations
 - Noise and shadow flicker
 - Traffic and transport
 - Stormwater management, erosion and sediment control



Commonwealth assessment: EPBC Act

- Department of Climate Change, the Energy, Environment and Water - *Environment Conservation and Biodiversity Conservation Act 1999*
- Referral September 2022 - considered footprint of ~2,000 ha with preliminary ecology findings of potential impact on habitat types for:
 - Koala - 34 ha refuge, 891 ha general.
 - Greater glider - 59 ha denning, 179 ha foraging.
 - Squatter pigeon - 576 ha breeding, 333 ha foraging.
- Determined controlled action with assessment by Environmental Impact Statement (EIS):
 - EIS based on guidelines, due soon, and process involves public exhibition.
 - As results of the ecology work become available they will be communicated and the project design will be refined.
- Documentation available on the EPBC Act Public Portal (EPBC No 2022/09396).



Status

- Resource monitoring
- Civil and electrical design
- Ecological assessment:
 - Ground-truthing of desktop vegetation mapping.
 - First year of on-site seasonal surveys by ecologist teams (Autumn, Spring).
 - Cameras, spotlighting, bird and bat surveys, reptiles.
- Engagement:
 - Traditional Owners, Barada Kabalbara Yetimarala Peoples.
 - Community
 - Other key stakeholders (ecology)



Component examples (wind)



Access tracks:
5.5m crest width; wider toe width required for cut / fill batters; drainage and erosion control; buried cabling.



Tower foundations:
~800m³ concrete.



Hardstands -
crane assist pad, high / large equipment; laydown area (blades, tower, nacelle etc.); 1.5 -2 ha per turbine.

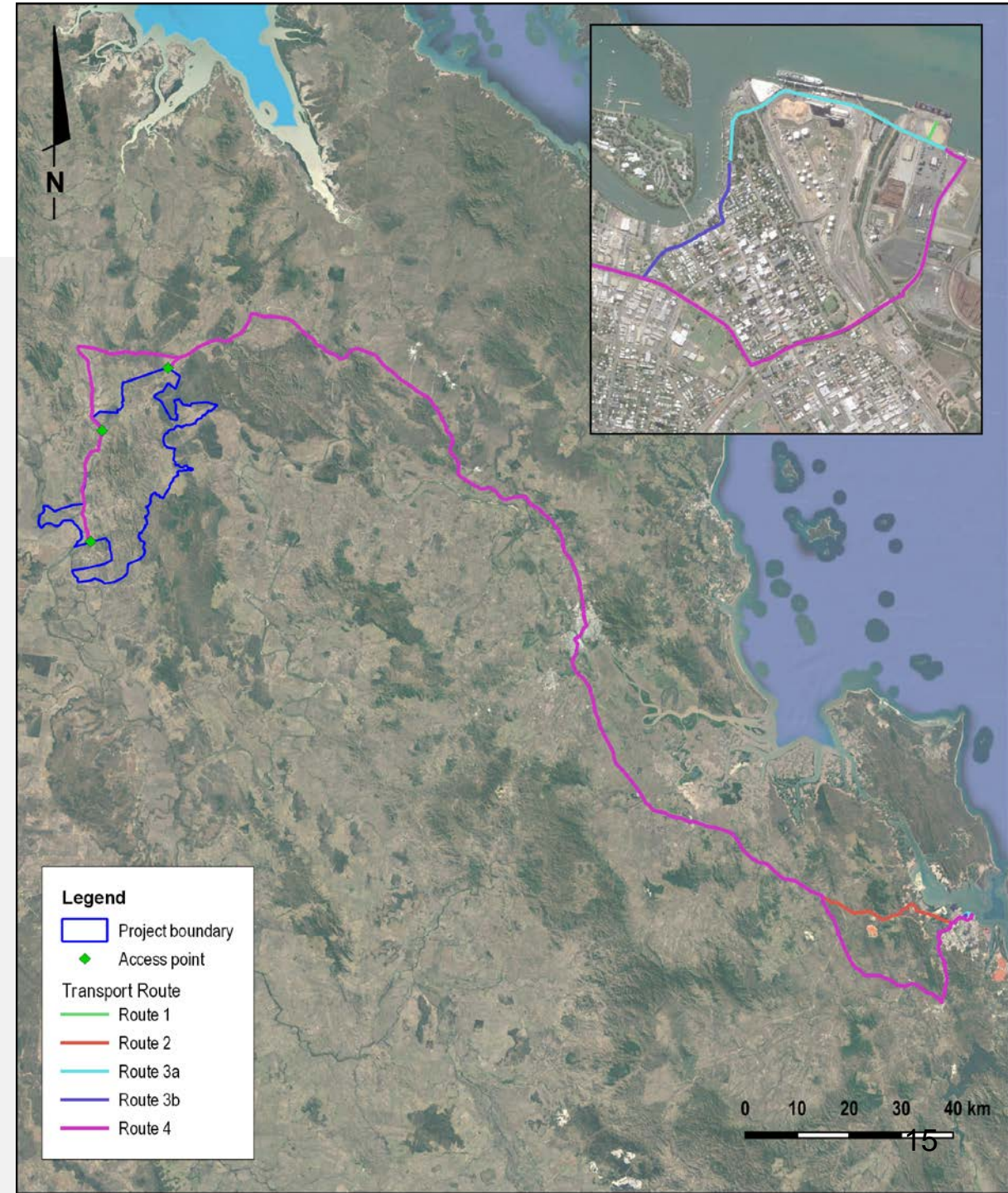


Substations -
wind farm collector to link turbines across site; low voltage to high voltage connection; potential for battery storage to support grid connection; 2 ha each.



Transport route

- Transportation via Port of Gladstone or Port of Mackay under assessment.
- Port of Gladstone accommodating current wind farm projects.
- Larger components (longer than 89m) may be transported via Duaringa.

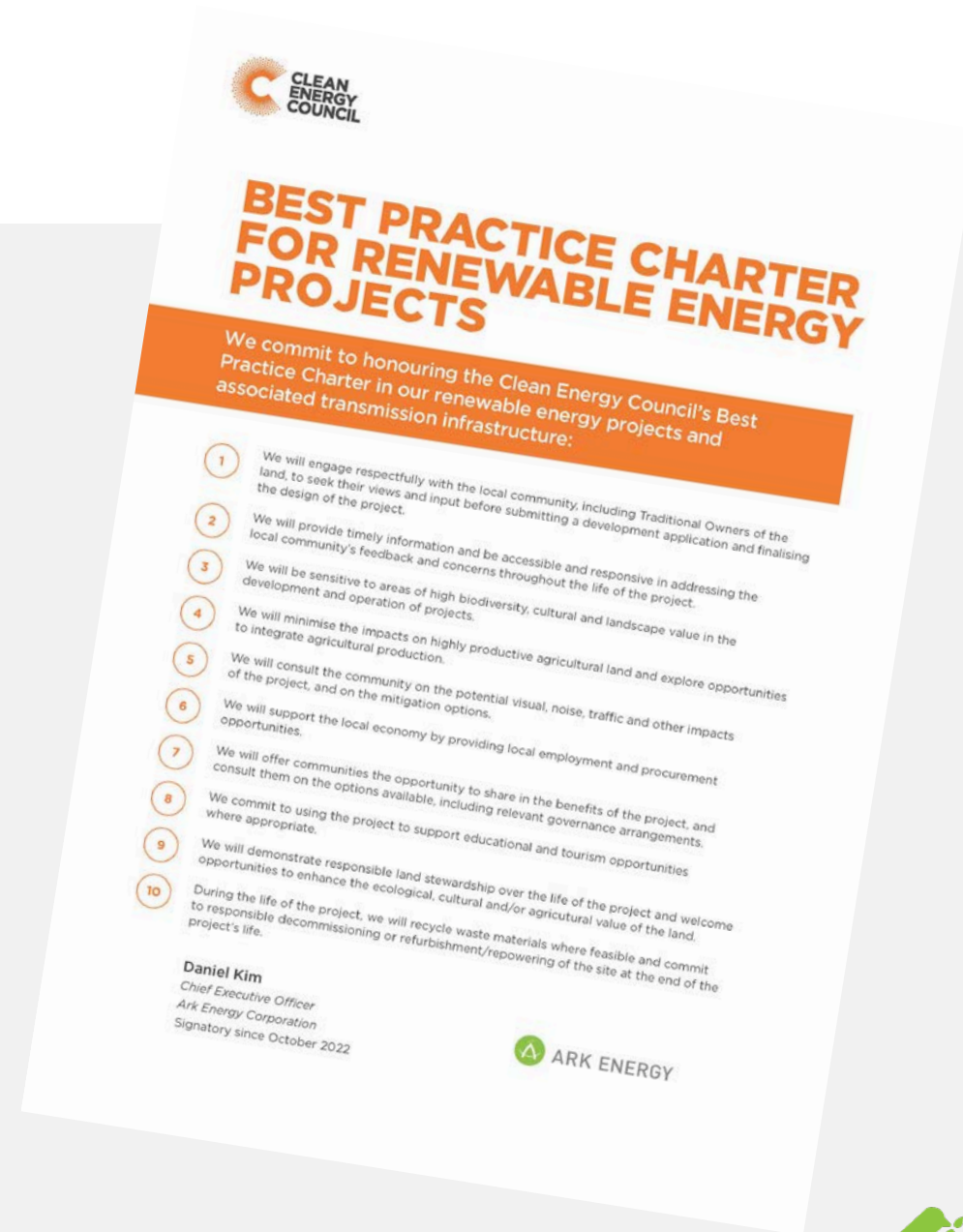


Community engagement

- Guided by best practice and International Association for Public Participation (IAP2).
- Signatory to the Clean Energy Council's *Best Practice Charter for Renewable Energy Projects*.
- Open, accessible, transparent.

Focused on:

- Providing opportunities for interested community members and stakeholders to participate.
- Maximising opportunities for the local/regional community to benefit in meaningful ways.



Summary - key points

- Investment of ~\$3.5 billion.
- Generate >\$600M in local and regional expenditure.
- 350+ jobs during construction and ~20 full time jobs during operation.
- Capacity of up to 1,100 MW clean energy – reduce carbon emissions and put downward pressure on electricity prices.
- Community benefit program from start of construction and for the life of the project.
- Reduction in greenhouse gas emissions of 1,200,000 t CO₂-e / yr. Life cycle analysis indicates net positive after 1.7 years of operation (including component manufacture, construction and clearing).
- Opportunity of net gains for key species and biodiversity in the area.



Next steps

- Resource monitoring – ongoing
- Environmental assessment work
- Cultural heritage work and ongoing engagement with Traditional Owners.
- Ongoing engagement with local community and stakeholders
- Open information centre, Rockhampton.
- Form Community Consultative Group
- Civil and electrical design
- Geotechnical studies
- Progress grid connection
- Lodge DA (State): 2023
- EIS Process (Cmwlth): 2023 - 2024



Questions & discussion



Thank you

Boomer Green Energy Hub

T 1800 731 296

E info@boomerhub.com.au

W boomerhub.com.au

