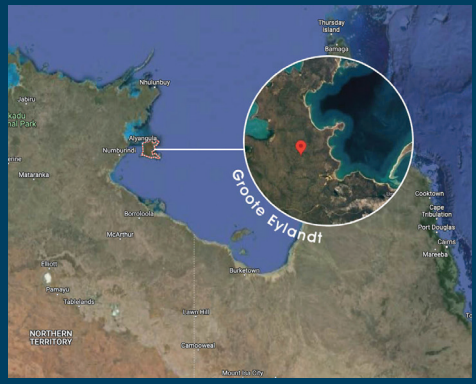
Case Study

Groote Eylandt Off-grid Battery Project

Empowering Resilience in Remote Environments

Energy Renaissance, in partnership with Circular Solutions, has successfully implemented an advanced off-grid battery project on Groote Eylandt, an area noted for its extreme remoteness and challenging conditions. The island lies 50km off the eastern coast of Arnhem Land in the Gulf of Carpentaria and is owned and managed by the Anindilyakwa Land Council. The project powers the innovative, community-based Cultural Rehabilitation Centre on Groote Eylandt. The installation comprises a robust combination of solar energy, innovative outdoor battery storage, and auxiliary diesel generators, specifically designed to ensure consistent, secure off-grid power for one of the most isolated regions in Australia.



energy renaissance

Circular

The Journey

Circular Solutions faced the significant challenge of designing an off-grid energy system for Groote Island's demanding conditions. The system needed to endure the island's harsh transport conditions, operate autonomously in a hot and humid climate and maintain safety without supervision. Collaborating with Energy Renaissance, they developed a solution incorporating ruggedised components, secure remote management, and intelligent automation. This design ethos ensured the system was transportable, resilient, and adapted to remote Australia's unique environmental challenges.

> "When I arrived at Groote Eylandt in January this year to oversee and support the installation and commissioning of this project with Circular Solutions, I couldn't have been more impressed or proud of how our superRack™ outdoor solution has stood up to the logistical complexity, location challenges and extreme conditions. Testament to the years of R&D with CSIRO and Australian suppliers my team has put in to develop a product fit for unique Australian conditions.
>
> **Dr Howard Lovatt, CTO, Energy Renaissance**

The Solution

The success of the collaboration hinged on Circular Solutions' expert design and project management, which the innovative Renaissance superEMS™ system facilitated. This integrated solution efficiently managed the solar inverters, diesel generators, and ER batteries, ensuring seamless energy consumption monitoring and a reliable power supply underpinned by safety, efficiency, and simplicity.

Battery Storage

Three 107kWh superRack™ outdoor systems equipped with integrated fire and pressure release safety systems and cutting-edge cybersecure battery and energy management systems, ensuring reliability and resilience.

Solar Power

Equipped with 137KW of durable, ground-mounted solar panels paired with an SMA Sunny Tripower Core inverter, the system optimizes energy conversion even under harsh environmental conditions.

Additional Features

The installation includes two 88kW CAT Diesel Generators C4.4 DE110E2, controlled by the superEMS™ via ComAp IG200 controllers, which dynamically balance energy provision and demand, demonstrating unparalleled system responsiveness.

> “Partnering with Energy Renaissance on our recent project was a valuable experience. Their dedication to improvement and collaborative spirit stood out throughout our engagement. We appreciate their commitment to providing innovative solutions and look forward to further collaboration to enhance our offerings together.
>
> **David Dennis,**
> **CEO, Circular Solutions**

Outcomes

This initiative demonstrates the practicality and environmental advantages of autonomous, robust, off-grid systems and significantly advances sustainable living in remote locations. The pivotal partnership between Circular Solutions and Energy Renaissance focused on system transportability, installation, and efficiency. Their combined efforts in factory testing, commissioning, and ongoing optimisation have led to a project that integrates seamlessly and continues to improve, highlighting it as a model for future sustainable energy deployments. This achievement illustrates the impact of renewable energy and innovative technology in creating efficient, green power supplies for remote communities.

Generates 250MWh of energy annually

A vital contribution in an area with no traditional power infrastructure.

Saves 200,000 kg of CO_2 annually*

Akin to the carbon sequestration of 100 hectares of eucalypt forest^

Projected ROI 7% resulting in approximate savings of $52,000 annually

*Based on average 800 kg CO_2 emitted for each MWh of electricity generated from a black coal power station.
^Based on lowest carbon sequestration rate of young eucalypt forests 2000 kg of CO_2 equivalent per hectare per year.

Conclusion

In remote locations with limited local resources, the transportability and simplicity of installation are crucial attributes of battery solutions for renewable power systems. The Energy Renaissance superStorage batteries excel in these areas. Just two months after their installation, these batteries faced the severe conditions of Cyclone Megan and demonstrated remarkable resilience. Not only did they withstand the cyclone's devastating impacts, but they were also among the first systems to resume operations. This was crucial for powering the Cultural Rehabilitation Centre and supporting the community during a critical time.

This case study underlines the significant role of innovative, tailor-made energy solutions in overcoming the multifaceted challenges of remote and harsh environments, reinforcing our commitment to enhancing lives through technology.

The Energy Renaissance difference...
Ship-in-rack transportation enables simpest on-site installation

For more information

email **sales@energyrenaissance.com.au**
or visit **energyrenaissance.com.au**

energy renaissance