



Isle of Skye Resiliency-as-a-Service Microgrid Case Study



Project Overview

The Isle of Skye lies just off the west coast of Scotland and is the largest and best known of the Inner Hebrides Island chain. Its colorful history includes occupation by both Celtic tribes as well as Vikings, becoming part of Scotland in 1266. More recently, the island's dramatic mountains are featured in the opening scene of the sci-fi movie *Prometheus*. Perhaps the most famous products made on the island are premium alcohols such as Drambuie and Talisker whiskey.

Following on from the successful [Simris](#) 100% renewable energy microgrid in southern Sweden for E.ON — one of the world's largest investor-owned utilities headquartered in Essen, Germany — Encorp is now supporting another microgrid developed by E.ON in Skye to test out a new resiliency-as-a-service (RaaS) concept. The project would represent a market-based solution to obviate the need for a diesel generator to restore power on the island in the event of a grid fault outage. Funded by the United Kingdom's (U.K.) Ogem Network Innovation Competition (NIC) program, 27 similar projects are in the queue throughout the U.K. once the RaaS microgrid is up and running and validated. This project commenced in 2020 but encountered delays due to COVID. Once construction is finished a trial testing period is expected to last up to two years.

RaaS Value Proposition

GTC sought to double the size of a 50,000 square foot. Along with lowering carbon emissions, this pilot project is designed to develop the commercial RaaS framework, with a focus on the economics from a distribution network operator (DNO) perspective, displacing the need for grid infrastructure reinforcements. The project would also provide data supporting the value proposition of RaaS projects for energy service providers, illuminating options for revenue stacking in other flexibility service markets. A methodology for DNO valuation will be based on individual site Interruption Incentive Scheme (IIS) savings and Value of Lost Load (VoLL) impacts on customers.

The prime contractor is Loccioni, which will integrate E.ON's battery energy storage system (BESS); Ameresco is also a project partner. Encorp provides the Egility controls platform which serves as the brain of the system, and enables the BESS to respond to resiliency needs in the event of a blackout.

The BESS will be part of a retrofit at the point of common coupling (PCC) for the Drynoch substation providing grid services to the local distribution network. The Encorp Egility platform is the key technology enabling seamless coordination between Scottish & Southern Electricity Network's (SEN) substation equipment and E.ON's BESS.

The Role of the Egility Controls Platform

Encorp’s advanced Egility platform – referred to as the RaaS Controller in the diagram above - ensures reliable energy management by performing the following critical functions:

Smart Grid Connection

- Keeps the BESS operating efficiently to support a steady and balanced electricity grid.
- Encorp’s Egility platform adapts to changes in supply and customer demand by responding to necessary power adjustment requests.

Smooth Transitions to Island Mode

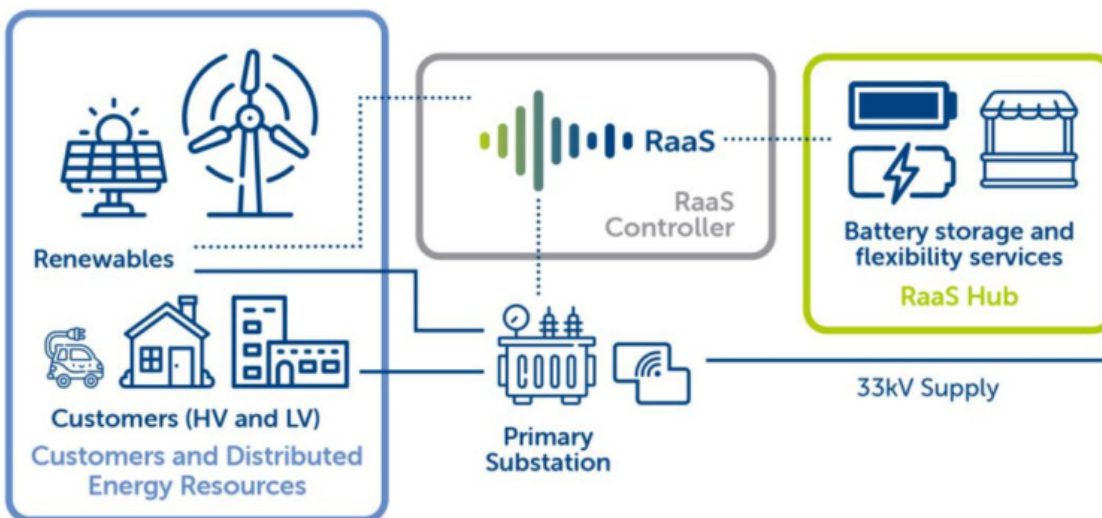
- Shifts the BESS seamlessly from grid-following mode to island mode during planned or unexpected outages, ensuring uninterrupted power and increased resiliency.

Reliable Island Grid Operations

- Maintains stable voltage (11kV) and frequency (50Hz) for independent operation when there is no connection from the Isle of Skye to the mainland Scottish grid.
- Adjusts voltage and frequency in response to Encorp’s Egility controller commands.
- Storm Anticipation Mode (SAM) used for planned islanding operations to provide resiliency services in the event of a power outage.

Seamless Return to Normal Grid Operations

- Encorp Egility controller synchronizes the BESS with the distribution grid for a smooth reconnection and return to normal grid operations.



Conclusion

The Encorp Egility platform provides real-time system updates to E.ON, ensuring optimal BESS performance and transparency. The Egility platform focuses exclusively on control functions and does not perform protective roles, maintaining a clear separation of duties between Encorp and E.ON for enhanced system integrity. With the Encorp Egility, energy resiliency and efficiency reach new heights, empowering the Isle of Skye and potentially other U.K. remote sites with smarter and more sustainable energy solutions.