



Energy Solutions develop Containerised Hybrid Power Unit for Channel Tunnel maintenance.

The Client

Groupe Eurotunnel SE manages and operates the Channel Tunnel between Britain and France including the vehicle shuttle services, and earns revenue on other trains (DB Schenker freight and Eurostar passenger) through the tunnel.

The railway operation has 31 miles of double track railway in the main tunnels, plus extensive surface-level terminal facilities at Folkestone in the UK and at Frethun in France; the operation is entirely self-contained, with connections near the two terminals to the respective national railway networks.

Train operation consists of shuttle trains conveying cars and coaches and other trains conveying heavy goods vehicles between the two terminals.



Our Brief

Eurotunnel recognised that the continued use of diesel generators on their works trains had to be reduced, these generators produced harmful emissions and were inefficient. They approached Energy Solutions to develop a lithium based hybrid power system within the very tight constraints of a 10ft ISO container. The system had to be self contained, complete with remote monitoring, alarms and fire system.

Case Study

Containerised Hybrid Maintenance Power Unit



The Solution

Energy Solutions have extensive experience in developing hybrid power solutions for unusual environments and were aware that the tight space restraints would be an issue for the build. The unit needed to be able to supply power for a working team within the tunnel for a full 12 hour shift, with no returns to base and the potential for high load demands.

After site meetings and gaining full understanding of the specific demands of the environment the container was to be working within, the engineering team specified the elements of the build and work commenced within three weeks.

The solution developed was a compact generator designed to run during the day when the container was out of the tunnel and in the open. The generator would power up a bank of highly efficient, high capacity lithium batteries via a set of Victron Quattro inverter chargers. The battery bank would contain sufficient power to operate the container unit for a complete shift in the tunnel. Safety was a prime factor for the build and bespoke fire alarms and extinguishing systems were built into the container.

The monitoring system would allow staff within the engineering department at Eurotunnel to monitor in real time the loads and capacities of the container and also to programme changes and updates.

The project was required for testing within just three months. Energy Solutions delivered to this deadline and continue to provide servicing and support.



Specification

- 10ft ISO Container
- JCB Generator
- 4 x Energy Solutions Lithium Batteries
- 3 x Victron Quattros
- Bespoke remote monitoring and control system.
- Bespoke fire detection and extinguishing system

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