



# Power station peak time usage verification

Electricity generation verification  
Guernsey Electricity Limited



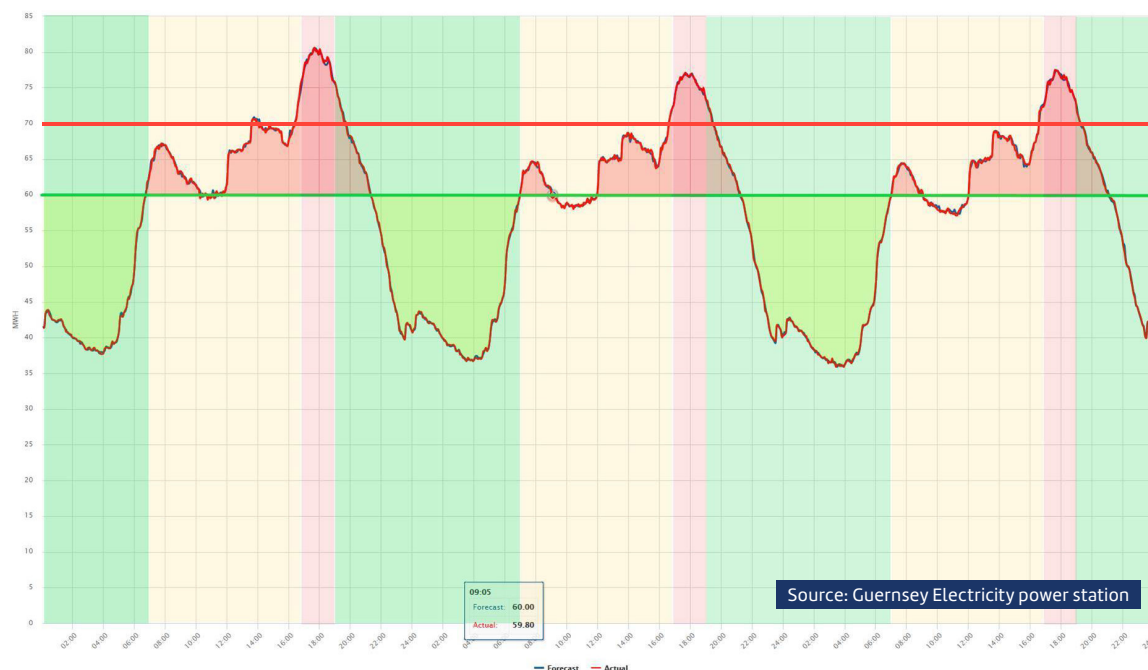
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## Vale Power Station Peak Time Graphs

Guernsey Electricity imports approximately 60MW of certified renewable electricity from the European grid. Annually this provides the island with over 90% renewable electricity.

The remaining demand is topped up by electricity generated at the Vale power station.

The following graph demonstrates the electricity generated to meet consumption in Guernsey over a 3 day period in December 2021 when peak demand was approximately 80MW.



### Key

X-axis	Time across 3 days	This is using 2 hour intervals
Y-axis	Guernsey electricity demand in Megawatts (MW) consisting of electricity imported and/or generated at the power station	Megawatts are used to measure the output of electricity from a power station required by the entire island. One megawatt (MW) = 1,000 kilowatts (kW)
Green line	The 60MW point to show the approximate maximum available renewable energy imported	Guernsey Electricity imports approximately 60MW* of certified renewable energy from sources in Europe including hydro, wind and solar power. *this may be around 57/58MW due to supply line losses
Red line	The 70MW point to show approximately where a second diesel generator is switched on to generate electricity	During peak times, a second diesel generator is required to top up demand for electricity around busy periods such as dinner time





## Overview

The graph provides a 3-day snapshot covering of a typical weekday in December 2021.

- The 60MW horizontal line represents the capacity limit of electricity imported from renewable sources.
- 60MW and above is top-up electricity generated at the Vale power station using diesel generation. Currently this is Very Low Sulphur Fuel Oil (VLSFO) or road diesel (USLD)

## Peak Times

Generation of electricity is in line with user's consumption, and we see 'peaks' of electricity usage around 8:00, 14:00 and 18:00.

During these periods, the electricity demand exceeds the approximate 60MW able to be met by the European renewable supply and Guernsey Electricity are required to start up a diesel generator at the power station. When the usage demand exceeds approximately 70MW, we are required to start up a second diesel generator and power the island using both generators.

As required by the States of Guernsey, Guernsey Electricity must maintain the "N-2 Policy." This requires us to have enough generators (or local assets that can supply electricity to the island) to meet the island's peak demand, which is nominally 95MW (Feb 2021) of electricity, with a reserve capacity equivalent to our two largest generators. This means if the subsea cable link and two of our largest generators are out of action, Guernsey Electricity can still supply the island with electricity on the coldest day of the year.

In the graph, we have marked the 60MW and 70MW points to show the time of day when electricity used by customers exceeds these two markers. This is a typical pattern that repeats itself daily from around 1 October to 31 March each year. During the summer months, the electricity consumption is usually within the 60MW range and 100% of Guernsey's electricity needs can be met using the 60MW imported renewable energy\*.

\*unless the subsea cable is out of action for a short period of time and we need to rely on the power station.

## Certified renewable energy importation

All imported electricity is certified as renewable energy under the European Guarantees of Origin (GoO) scheme.

In January 2020, Guernsey switched to imported electricity to be generated only from renewable sources.

These importations are a mix of hydro, wind and solar power available for everyone on the island to benefit from.

The European grid is supplied from a mix of electricity generated from all types of energy including solar, wind, hydro, coal, gas and nuclear. Despite being generated differently, the electrons are indistinguishable by source once they're in the grid.

Guernsey receives assurance directly from our energy supplier who provides certificates to guarantee the source of electricity. These are called Guarantee of Origin certificates (GoO's) and are issued with every unit of renewable electricity generated in accordance with article 15 of the European Directive 2009/28/EC. These act as tracking systems, from the electricity generation, to the consumption by recording where and how the electricity was generated.

Scepticism exists around green certification which can be purchased through many different suppliers with no clear link to source. However, Guernsey Electricity has chosen to receive GoO's directly from our electricity supplier rather than a third-party to ensure a transparent process between the energy production and the island using it. The GoO market in France is appropriately regulated to give further assurance and protect against issues such as double counting.

At the end of each year, Guernsey Electricity receive GoO's to certify that the total amount of electricity we used from the European grid was generated by renewable energy and supplied into it.

Guernsey Electricity Limited  
PO Box 4  
Electricity House  
North Side  
Vale  
Guernsey GY13AD

