

Best practice at BDU & SSP Switch from Generator to Mains



Overview

As part of the BDU team's commitment to reduce carbon and emissions throughout the project the office power was switched from diesel generator to mains electricity. The switch has led to a huge reduction in carbon along with many other benefits for the project and surrounding community.

The Challenge

At the beginning of the project the site offices were set up in a location that previously had no access to mains electricity. To power the site offices and welfare facilities a generator was used to meet the demand needed for the computers, canteen and other facilities.

Inefficient generator use can be common on construction sites. Traditionally the same generator used to cater for periods of high load is left running for times of low load. Generators run less efficiently at low loads as the engines are unable to produce the same amount of kWh energy when delivering power outputs of less than 25% of their generating capacity leading to fuel being burned unnecessarily. Generators will also consume a baseline of fuel, even if they are delivering no power. These factors increase both the costs and emissions associated with generator power.

Generator power is also a more carbon intense way to create electricity as generators cannot match the efficiency of the power plants or renewables used to produce mains electricity. This further increases the carbon emissions associated with this means of power generation.

The process of acquiring and installing mains electricity is a technically challenging and lengthy process. The project needed to ensure an adequate supply while also installing the associated



cabling, substations and transformers. Through BDU's commitment to reducing carbon and emissions the switchover was successful and has hugely contributed to the projects carbon and emissions targets.

Benefits

Carbon Savings

The switch from mains to electricity has reduced the emissions associated with office electricity by **48%**

This is a reduction of 133 tonnes of carbon per annum

It would take over 665 trees one year to soak up this much carbon

Cost Savings

Generator hire/fuel cost per year = **£90938**
Average electricity cost per year = **£33190**

Giving a total saving of £57746 per year

The direct cost of Network Rail bringing power to site was **£106,900**, giving a payback period of **1.85 years**

Supporting benefits

- Improvement in air quality on site
- Less noise
- No fuel spillages
- Less likely to break down
- Fewer fuel deliveries to site
- More space on site

Meets SDS Objectives

- 11 – achieving efficiency targets
- 12 – achieving CEEQUAL targets
- 15 – reduce carbon & energy
- 19 – reduce noise & vibration and improve air quality