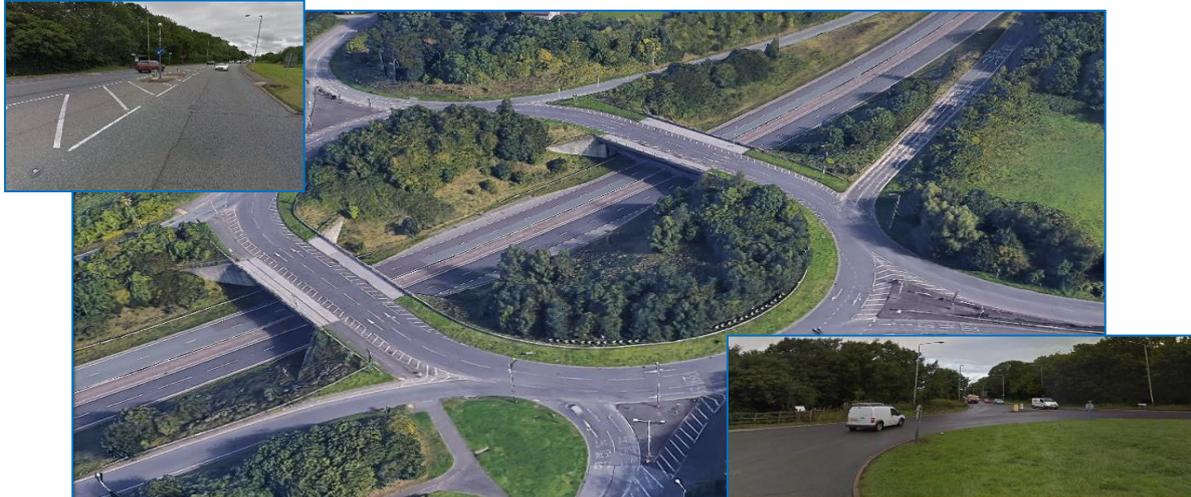


Best Practice – OffGrid battery packs for hybrid power supply

A46/A5630 Anstey Lane Junction Improvement Works



The A46/A53630 Growth and Housing Fund scheme involves improvements of a major connection between the strategic A46, the Leicester local highway network and an area of significant housing growth in North Leicester. The proposed improvements are to provide gyratory and signalisation improvements to the A46 Anstey Lane Junction; duelling of the single carriageway section of Anstey Lane (A5630) between the A46 interchange and Bennion Road roundabout; and improvements to Bennion Road junction.

The local constraints of the scheme meant that the site accommodation area could not be provided with a permanent mains power supply. As part of energy reduction initiatives Galliford Try took the decision to use battery packs to accompany the generators that would power the site. The battery packs would allow the site utilise hybrid power and the site to be powered by battery at periods of low demand in order to reduce generator running time.

Application

The site utilised two OffGrid Powercubes to accompany each of the 80KVa diesel generators. to provide a bespoke site power solution utilising two diesel generators each linked to a hybrid unit, to help reduce fuel consumption and CO2 emissions. Meaning the site can be powered without the need of a generator when fewer people are using the base. The bespoke configuration also allows the opportunity for at least one of the hybrid units to provide power when certain areas of the site offices are unoccupied.

One of the challenges of running this site, is that the works continue for 24 hours, with both night and day shift. The use of this system has shown that with careful planning, benefits of hybrid power can be utilised for most situations. The battery packs have a potential run time of up to 10 hours depending on demand.



Set up in use at Anstey

Results

Since the power sources went live on the A46/A5630 works in September last year, the solution has already reduced fuel consumption by over 35,000L, and cut CO₂ emissions by over 94Tonnes – the approximate annual emissions of 59 diesel cars in the UK*. Compared to using a standard generator the solution has also provided a net saving to the contractor of over £6,000 over the period to the end of December.

Benefits

The following future savings are estimated from the units for January to June.

Jan-Jun

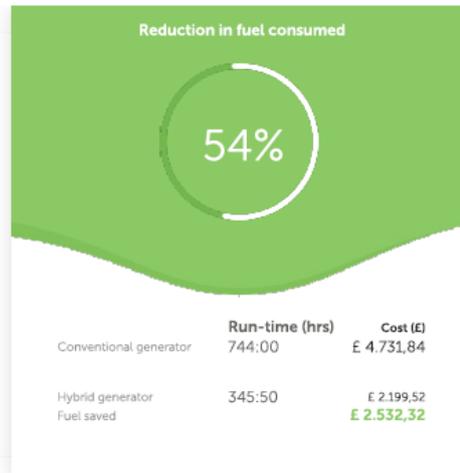
£9484 nett saving

109.9T Reduction in CO₂ emissions

41,612L Diesel saving

The overriding benefit from the use of these hybrid battery units is the reduction in environmental impact. estimated totals for the scheme are for a 204T reduction in CO₂ emissions over the duration of the project. This enables Galliford Try to construct the new works, while minimising our impact on the local surroundings.

Breakdown of Savings in Engine Hours and Fuel



Fuel costs saved
£ 2.532,32

CO₂ savings
11142.2 kg

Hybrid Report for October for one hybrid battery unit

Product Specification



gridtogo™ POWERCUBE (MKII)

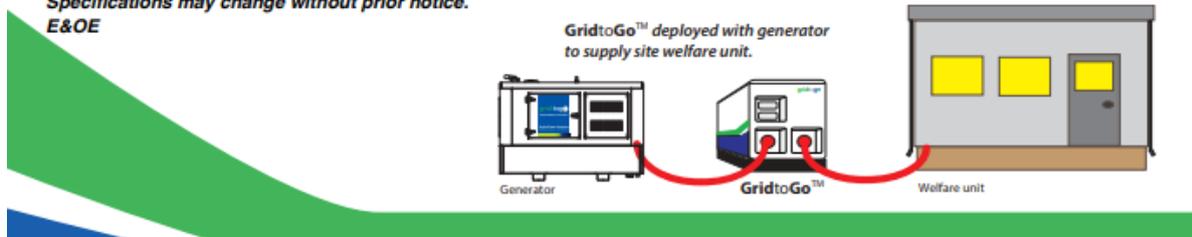
Features:

- 30kVA 400V 50Hz 3Ø output
- GSM Remote monitoring
- Up to 90kWhrs stored energy
- Deep cycle Gel battery
- 100A pass-through capacity
- Automatic generator start/stop
- 7 day Programmable timer
- Maintenance free
- Zero emissions, zero noise

[PRODUCT SHEET](#)

BATTERY OPTIONS				
Battery Type	Sealed Lead Acid	Gel OPzV	Sealed Lead Acid	Gel OPzV
Battery design life	3000 cycles to 60%		3000 cycles to 60%	
Battery Capacity (Ahrs @ C10)	745		1000	
Useable stored energy (to 80% DoD)	40kWhrs		60kWhrs	
Autonomy @ 3kVA average load	10h		15h	
Autonomy @ 7.5kVA average load	4h		5h	
Autonomy @ 15kVA average load	1.5h		2h	
Recharge to 80%/100% SoC	4h/7h		5h/8h	
Weight (of complete GtG unit)	2200kG		2600kG	
Unit Part Number:	GTG750G-30-A*		GTG1000G-30-A*	

*Specifications may change without prior notice.
E&OE*



Improvement

We improved the system on another project by incorporating this with a main system, which enables the batteries to run during periods of low demand and save grid energy usage. We believe this system can be implemented on most of our schemes going forward and provide overall benefits.

*Based on UK diesel car mileage being 8000 miles (DoT 2015). At an average of 61.2mpg (RAC Foundation) this equates to 130Gal pa, equating to 590L and 1.6T CO2 per year