Hybrid Power Systems

What are hybrid power systems?

Hybrid power systems use combinations of different technologies to produce power. When applied to diesel power generators, hybrid power systems are comprised of an Energy Storage System (ESS) used in conjunction with a diesel generator. The systems can detect when power loads are low and respond by turning off the diesel generator and seamlessly transferring the load to an ESS. Energy is stored in the ESS and is used to power the site during periods of low energy (such as at night and during weekends), and the generator runs when the load is high and/ or when the battery needs charging. Batteries can also add power to the generator during periods of peak demand.

Hybrid power systems are particularly useful in environments where the load is reduced at certain times, such as construction sites. As a result of requiring substantially less fuel than traditional generator-only power solutions, hybrid power systems offer a number of significant environmental and cost benefits.

What are the key benefits of hybrid power systems?

- Reduced fuel consumption, resulting in lower refuelling costs
- Lower polluting emissions and improved air quality
- Reduced carbon emissions – save 2.65kg of CO_2 with every litre of fuel saved
- Noise reduction – long periods without noise when the generator isn't running, ideal for meeting noise restrictions on site
- Less generator run-time, resulting in lower weekly rental costs and less servicing downtime.

What hybrid power systems are available at Woodlands Power?

Our modular Energy Storage Systems are available from 5kVA to 1000kVA. They can also be combined to create large-scale energy storage solutions. They can be used as standalone solutions, or alongside our power generation equipment as a hybrid power source.

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Case study: HS2 at London Euston

As part of HS2 Phase 1, London Euston rail station is being developed to accommodate extra capacity and facilitate better journeys for the millions of people who use the station every year.

We were approached by a tier 1 HS2 construction partner to provide power to support the preliminary stage of sub-surface works at Euston. They were looking for a full power solution for their team's site activity, combined with battery charging to ensure silent-running power at night and during weekends.

The Energy Storage Systems (ESS) were requested to enable the site power to run 24/7, while also meeting strict noise restrictions during silent periods. They also ensured the site complied with NRMM (Non-Road Mobile Machinery) emission regulations in central London.

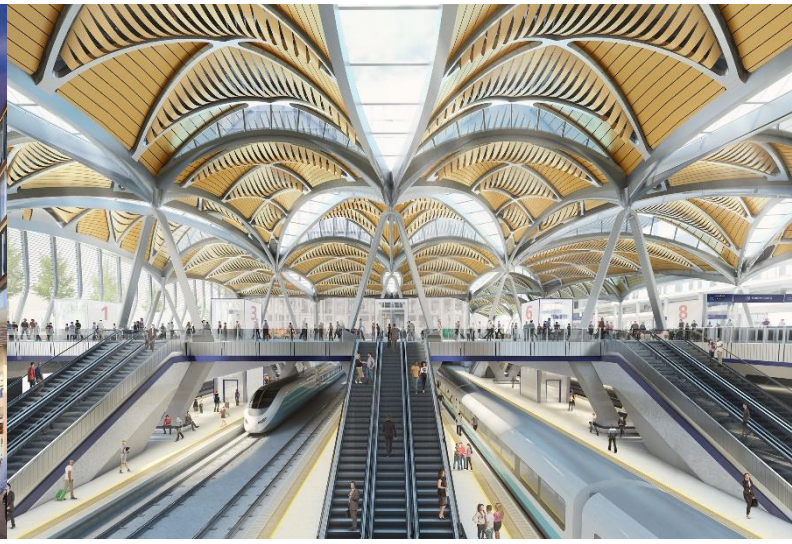
We supplied a 100kVA generator matched with a remotely-monitored 45kVA/90kwh ESS for this landmark project, creating a hybrid power solution to support the development. The solution was delivered and installed by our engineering team using dedicated FORS (Fleet Operator Recognition Scheme) Gold transport, and was set up and programmed to ensure the equipment operated within strict site parameters. The solution was deployed for a period of 15 weeks.

There were significant benefits of this hybrid power solution. As a result of using the ESS, the generator's run time was reduced by 55% for the project's duration and consequently fuel consumption was significantly reduced by 13,820L, with an estimated cost saving of £7,244* for the customer. CO_2 production was also reduced by 38.14 tonnes.

*Based on AHDB price index for the hire period.

Run time: 100kVA Generator 45%/ 45kVA/90kwh Energy Storage System 55%

Time	105	Days
Generator Size	100	kVA
Reduction in generator run time (noise saving)	1382	Hours
Fuel saving	£7244.44	Pounds
CO2 saving	38.1432	Tonne



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