

# The Generator Company

## Back-up Generator System Upgrade for Prestigious Motor Co.



Since 2010 The Generator Company have been working alongside one of the most established and well recognised automotive giants in the World. Its origin dates back to the late 1800's with production commencing in the early 1900's.

This brand is known for luxury automobiles, buses, coaches, and trucks as well as sports cars and environmentally friendly vehicles, and over the decades has maintained a reputation for its quality, durability and diversity.

The Generator Company have been designing, supplying and installing back-up generators to support their Head Offices in the UK for almost a decade.

### Client

Prestigious Motor Co.

### Project Specifications

Design, installation and integration of existing and new equipment to upgrade the back-up generator system at their Head Offices.

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The site has been developed over the years with the supply of new back-up generators to support the critical services of the site as they have expanded with the success of this client, subsequently there have been many alterations and upgrades to the power distribution network to ensure the most effective use of these units. It was finally decided that in 2015 a major overhaul and modernisation was required to consolidate the back-up generators and control system.



With more modern applications being used throughout the business and greater technologies and IT infrastructure in operation they felt it necessary to move away from their current manual system to a more reliable, automated solution to sit more in line with current and future business processes. Therefore, The Generator Company were once again called into action to provide the best possible back-up generator system solution to meet the client's latest requirements.

In a nutshell the client wanted to utilise 3 existing generators configured with 4 utility transformer feeds to supply 6 separate critical building loads and needed a generator solution with digital mains paralleling, thus providing a no break return system in a scenario of a loss of generator back up or a utility transformer supply.

This type of back-up generator set up would provide the client with greater functionality, reduced risk of critical power supply, and more digitalised control in the event of a mains failure, guaranteeing automated generator start-up as well as the ability to synchronise all the back-up generator sets with the utility with no-break in power transitions. It would also allow for sophisticated diagnostics, remote monitoring and networkability for future use.

Following numerous site visits to assess site conditions, site constraints and existing generator services as well as client liaisons by our dedicated Project Manager and Technical Managers, The Generator Company designed a new and improved back-up generator system which would consolidate and upgrade their existing set up to achieve the clients desired results, both technically and commercially.

Once the client agreed the principle of the new system designs and The Generator Company were asked to proceed with their solution, the client was furnished with all the necessary Health & Safety documentation, risk assessments and method statements together with the scope of works for a the dual system design. At the end of October 2015 the client's site was set up in preparation for the two new and improved back-up generator systems, hiab cranes organised and scaffolding erected. The works were then carried out in accordance with all previously agreed documentation and design specifications over the subsequent five months.

**The very first stage for the existing building back-up generator system was the decommissioning of an existing redundant 300kVA generator and its removal from site together with any remaining diesel fuel or lubricant from within the set and associated tanks. We then upgraded the clients most recently supplied 700kVA generator control panel to enable it to achieve mains paralleling and system logic control and this was then repositioned to its new location and installed.**



Within this same system the repositioning of an existing 220kVA generator was also required, however due to its condition it was necessary for us to remove it from site and undertake extensive remedial works. The overhaul included our technicians re spraying the canopy and giving it a face lift to its original condition. Once we delivered it back to site we positioned it into the desired location as per the design drawing specification.

We also supplied a new LV switch panel which was housed within the existing building near the 700KVA generator and transformers. This enables communication between transformers and generators with the mains power switchboard in a power failure to initiate the standby generator power to support the data centre, building 2, the training building and the warehouse.

Each generator within this system, once repositioned, was commissioned separately with a load bank test which comprised of 3 hours running at 100% load and 1 hour running at 110% load. The back-up generator system in its entirety was also tested to ensure each back-up generator automatically started as specified, as the 220kVA was required to start up independently. This would ensure the client's data centre would have a second back-up generator power source as part of the client's contingency planning.

The critical system testing and commissioning was carried out during a weekend to minimise disruption at agreed and allocated time slots with the client.

For the new back-up generator system set up in a new GRP enclosure an existing 550kVA generator set required repositioning and once again we upgraded its control panel to achieve mains paralleling and system logic control.

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**A new LV switch panel was supplied and positioned in the new GRP enclosure as well as a new change over panel mounted inside the roof's switch room. This enables reconfiguration of the power distribution and communication between existing utility transformers and generator with the mains power switchboard in a power failure to initiate the standby generator power to support the Link Building and Building 1.**



Once again following its repositioning the 550kVA was commissioned with a load bank test which comprised of 3 hours running at 100% load and 1 hour running at 110% load. The testing and commissioning of this upgraded back-up generator system was also carried out during a weekend on a separate occasion to the existing building generator system. Again, this ensured minimal disruption for the client.

All new LV switch panels supplied and generator panels The Generator Company upgraded across both back-up generator systems are all G59,

compliant ensuring that when the generators are synchronised with the mains the correct level of protection is available should either supply fail to meet their required standards.

On completion of the satisfactory commissioning of the new back-up generator systems, The Generator Company left the client with a set of standard manufacturers technical manuals for each generator, including technical literature for the engine, alternator, and generator control system as well as a full set of electrical and mechanical wiring diagrams.

The client also renewed their maintenance support contract giving them 24 hours access to our team of highly qualified service engineers.



**Generator: System Design Supply Install Hire Service Maintenance**

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