

ALTHOUGH A STANDBY GENERATOR'S USUAL STATE IS 'IDLE', IT MUST NEVERTHELESS START IMMEDIATELY ON DEMAND IN THE EVENT OF A MAINS FAILURE. TO GUARANTEE THIS, IT IS ESSENTIAL TO RUN A SUITABLE MAINTENANCE REGIME THAT COVERS NOT ONLY SCHEDULED TESTING, INSPECTION AND REPAIR BUT ALSO EMERGENCY CALL OUT AND SPARES HOLDING SUPPORT APPROPRIATE TO THE INSTALLATION. UNINTERRUPTIBLE POWER SUPPLIES LIMITED'S KEVIN ASHTON EXPLAINS HOW TO PROVIDE THIS MAINTENANCE COVER EFFECTIVELY.

THE FIRST PART OF THIS ARTICLE CAN BE FOUND IN ELECTRICAL REVIEW SEPTEMBER 2010 OR AT WWW.ELECTRICALREVIEW.CO.UK

Standby GENERATORS ready when called upon

A standby generator typically spends nearly all of its life in preparation to supply power in the event of a power cut. The site's uninterruptible power supply (UPS) system can handle short term mains failures or power outages. A failure that exceeds the UPS battery autonomy will not offer support to the critical load. Therefore when it is unexpectedly called upon, the generator must respond as it's designed to, delivering the time critical power protection when needed, thus ensuring power continuity.

Generators, like all engines, will suffer from natural wear and tear and can potentially fail. So this failure is identified when the generator is most needed, i.e. during a power failure, it is vital the generator set is covered by a maintenance plan that closely matches the needs of the generator and its applications. This maintenance plan should not only cover maintenance visits, but should include appropriate call out cover and ensure that good spares are available.

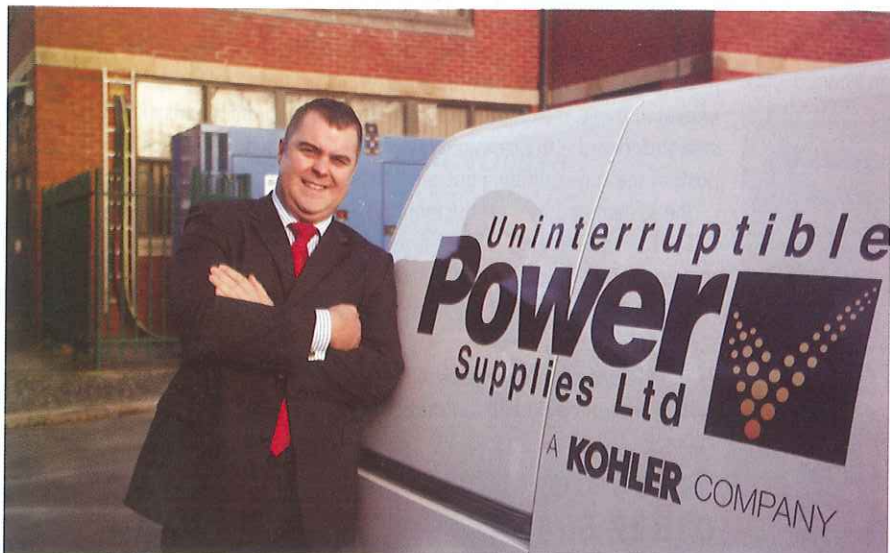
Fundamental to any maintenance regime is to ensure

the generator's engine coolant heaters, or jacket heaters, are keeping the engine block warm and the mains trickle charger is charging the starter battery. The generator is started and stopped from a signal from the Automated Mains Failure (AMF) panel. This should also be checked in a maintenance regime to ensure it is working correctly. The generator on receipt of this signal will typically take 2-10 seconds to provide the power to supply the critical load. The UPS system should, using its batteries, support the load during this interim period.

The cooling system has active elements including a fan, water pump and thermostats as well as a radiator/heat exchanger, hoses and connections that should be checked for leaks. The fan drive pulley and belts should be checked for wear. The fuel system has fuel lines, connections and filters requiring checking, as well as the air and exhaust system components. The lubrication oil system, the starting system and the generator mechanics all have components needing checking for wear, and fluids that must be replenished or changed. Additionally, a load test, typically of two to four hours duration on full load, is recommended.

Onsite visits, though indispensable, cost time and money, so the maintenance plan should meet the clients needs without being excessive and more costly than necessary. During these visits, technicians can perform mechanical and electrical inspection and testing, replacing worn parts, replenishing and changing fluids as required. They can also spot critical component degradation and advise accordingly to arrange for a replacement or repair of the affected part. If required and permissible, the maintenance technicians can test the power protection system's reaction to a simulated mains failure.

These scheduled maintenance activities are often combined in a maintenance contract with emergency call-out cover, where service levels and response times are set to match the client's needs and the site's



UPS



criticality. Remote 24/7 generator monitoring and testing is another complementary and highly efficient maintenance plan component. Alarms, faults and valuable operational status information are relayed to the maintenance provider's service centre. An appropriate response is then initiated, with improved 'first-fix' rates during site visits. This remote monitoring can have scheduled as well as emergency features. The generator can be automatically started at a pre-set time every week, and run off-load for 10 minutes while checking vital operating parameters including voltage, frequency, battery charge condition, oil pressure, water temperature, emergency stop button and fuel level.

With the UK power station population ageing, extended blackouts appear to be increasingly likely. A generator can effectively offer the required extra protection, above the UPS battery autonomy, ensuring increased power protection for your critical loads.