

Successful hydrogen generator trial results revealed by HS2

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An HS2 construction site in London has held successful trials for two zero-emissions hydrogen fuel cell-based electricity generators – cutting carbon and improving air quality for workers and the local community.

The two GeoPura 250kVA hydrogen power units (HPUs) were trialled over the last year at HS2's Victoria Road Crossover Box in Ealing, as a direct replacement for diesel generators to power machinery on the site.

Tested and commissioned on site in August 2021 by HS2's mains work civils contractor Skanska Costain STRABAG (SCS JV), the trial shows that the products are capable of producing the required energy to power equipment required for site operations.

Andrea Davidson, HS2's Air Quality Manager said: "This is another example of how HS2 is driving change in the industry by trialling alternative fuel innovations, which will help us develop a thriving low carbon hydrogen sector in the UK and work towards a cleaner, greener energy system.

“With no harmful pollutants, the technology brings major air quality benefits to the workforce and local communities around construction sites, something which is vitally important to HS2 across the whole project.”

The hydrogen power units provide 100% renewable and emission free power derived from a hydrogen fuel cell, with power capabilities ranging from 20kW through to 2MW. They use 100% green hydrogen produced from renewable energy, and data from the trial showed that running the units for 400 hours eliminated around 51 tonnes of carbon compared to using standard diesel generators.

They are also quieter than standard diesel generators and the only emission is water which is so clean it's drinkable. A hydrogen tube trailer and hydrogen cannisters were used to fuel the generator.

The trial, supported by HS2's innovation programme, has already gained industry recognition, picking up the 'Best Use of Technology Award' at this year's Construction News Awards.

James Richardson, MD of SCS JV said: “SCS JV is committed to reducing our environmental footprint by identifying innovations to power our site operations, such as trialling this hydrogen fuel cell at our Victoria Road crossover box site. We are striving to be diesel-free across all our sites by 2023 and recently announced our first diesel-free site at Canterbury Road.”

Andrew Cunningham, Managing Director of GeoPura, said: “This initial trial at HS2 successfully demonstrates the capability of our Hydrogen Power Units in such challenging applications. The units are particularly valuable in inner city sites such as this, as they not only reduce the CO2 impact of the works but also eliminate harmful NOx, particulate, and noise emissions, making the site a better neighbour in the local community.

“It's great to be working with such innovative, forward-thinking companies who are taking action to reduce their environmental impact by setting bold diesel-free targets. We look forward to continuing to work with SCS JV and HS2 to help them achieve these goals.”

Watch a video about the innovation here: <https://youtu.be/Mpvyw-PavvY>