

# HS2 unveils eco-friendly vegetable oil fuel innovation

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HS2 has announced a pioneering project to use Hydro-treated Vegetable Oil (HVO) for the first time in the UK in a piling rig on an HS2 site in London, the largest engine ever to trial its use. HS2's contractor Skanska Costain STRABAG joint venture (SCS JV), through Cementation Skanska, has been undertaking a three-week trial to find more eco-friendly fuels to use on construction sites for piling activities.

HS2 is committed to reducing carbon emissions in construction and has challenged all its contractors to reduce emissions by 50 percent against construction baselines. The trial will use low emission, high performance fuel "Green D+", a HVO fuel, to power all site plant and equipment.

HS2 has introduced innovations to decarbonise construction across its HS2's London sites since construction work began in 2017, with early works contractor Costain Skanska JV (CSJV) using solar and LPG powered cabins, low emissions innovations, electric machinery and alternative bio-fuels. This is now ramping up with Main Works Civils contractor SCS JV using a whole range of innovations, including Earth Friendly Concrete (EFC), hybrid and fully electric machinery, battery powered lighting, hydrogen power and renewable energy as a replacement for diesel power generation, which all cut carbon and improve local air quality on and surrounding HS2 sites.

The three-week HVO trial, which is still underway, started on 15th June in collaboration with Green Biofuels Ltd. The rig, currently on the HS2 site near Euston, is being monitored every two days, with HVO gradually being added to red diesel – the fuel traditionally used in the equipment. By the end of the trial the rig will be running purely on HVO fuel for two weeks with continuous monitoring. If there is no loss of power to the rig, or any other damage, the rig will then be designated for use solely with the biofuel.

Malcolm Codling, Project Client, for HS2 Ltd, said: “We are pleased to be at the forefront of environmental innovations in construction, and be able to take steps to reduce carbon emissions in this way. This trial isn’t just important for the site it is being done on, or for the HS2 project as a whole – it is critical for the whole construction industry in the UK who will be able to adopt more environmentally friendly fuels in the future.”

Following the trial period using HVO in the piling rig, the findings will be analysed, and a report will be produced by Brighton University. The telematics on the engine will be then monitored for a year after the trial. HVO hasn’t been trialled on a piling rig with a 350kw engine or above before. Cementation Skanska, working on HS2, is conducting the trial on the Liebherr LB36 piling rig with an 390kw engine.

The fuel used in the trial is verified by the Renewable Fuels Assurance Scheme (RFAS), an initiative designed and managed by Zemo Partnership. The scheme aims to verify claims made by companies supplying renewable fuels for construction, assessing the product’s greenhouse gas emission savings and provenance of raw material feedstocks, ensuring sustainability credentials.

Deon Louw, Project Director for Cementation Skanska said: “We’re really pleased to be working with our partners in delivering this trial that could have significant benefits for the entire construction industry. If successful on our Liebherr LB36 piling rig, we will undertake similar trials on other plant in our fleet, which will provide us with a broader understanding of how HVO fuels perform. We will learn a lot from these activities, which will support industry efforts as we work towards net-zero carbon emissions.”

This trial follows the adoption and testing of other green construction methods by SCS JV on HS2. They have also used new low carbon concrete in parts of construction, and are introducing hydrogen, renewable, hybrid and 100% electric plant on site.

James Richardson, Managing Director for Skanska Costain STRABAG JV said: “We are proud to have been successfully using this bio-fuel technology on our site in Euston for a year now. We are hoping that the trial proves a success so we can roll it out across larger equipment on all our sites, supporting us on our decarbonisation journey, starting with our ambition to be Diesel free by 2023.”

*Photo credit: HS2 Ltd*