



## FPS/EFFC Low Carbon Equipment Webinar- Q&A

**Question regarding Oslo Project: Did you do all the drilling with the Liebherr Unplugged, incl oscillator and rock-footing?**

All drilling was done with the LB30; For the longer piles the oscillator with external power pack was used in addition to get the casing down.

**Did you find that the electric piling rigs were similar to conventional rigs in regards to the rig loadings and the working platform design?**

Yes, the LB30 unplugged is similar to the diesel driven machine. For both sites the working platform was "not an issue" since there was about 3-4m with compacted filling before starting the works. The electric LB30 is identical to the diesel driven machine.

**Does Keller Norway achieve the same utilisation of the electric rig that would be expected with a diesel machine? What happens on project sites without a grid connection?**

Since bored and secant piles are not a common product in Norway, a full utilization of the rig is hard to achieve. Regarding sites with poor or no grid connection, large sized power packs are used, acting as a power buffer.

**Are there hydrogen fuelled generators available or planned for production to deal with sites without grid connections?**

Hydrogen generators are already available and working.

**Is there a difference in the amount of maintenance required on an EV rig?**

An EV rig does not have an engine, hence no engine service.

**For the 14,000l of diesel/year saving do you know what usage that is based on? For example is that based on the machine being used 40 hours per week?**

This is difficult to answer without knowing the type of rig and utilisation to get to this 14,000l per year factor. Definitely not based on 40 hours per week, 52 weeks per year, the l/h consumption would be very low. Perhaps based on ~50% of 260 working days per year.

**I ask again to Hercules how the hammer was powered.**

They commented and said it was hydraulic.



**Question for Matt - Was there any damage to the cable from abrasion on the platform in time? Did it need much maintenance?**

No notable damage, however, some issues with the cable twisting were encountered. The cable was used for much of the project and will be used again.

**Question for Matt - the CO2 savings are great - what about the £££s of extra costs (cable, transformers, capacitors, reduced productivity to shift cables, plugs etc)? Are the charge rates to the customer the same as a diesel rig?**

Cable comes with the hire cost of the rig. Transformer is a cost per week, as is the diesel bowser. No productivity was lost, I believe that Matt commented on this. In this case the client paid for the electricity supply directly. Of course, there is a cost to install the sub-station and necessary infrastructure, at Euston, the justification was that the sub-station would have been needed in any case to power the tower cranes and sky lab. Other projects, particularly city centre locations, sub-stations may already be there, they just need to be repurposed.