

Case Study

Network Rail & Colas

Background

An ambitious project led by Network Rail and Colas Rail used innovative solar lighting and power generation to prove the viability of a sustainable 'Site of the Future', achieving 97% diesel-free operation in support of a major rail renewal project at Llanwern, South Wales.

The joint Network Rail and Colas Rail initiative used solar and battery technologies from Prolectric instead of diesel generators to save 6,000 litres of fuel, and more than 15-tonnes of CO₂e during a 14-day project centred around a 72-hour possession over the May Day Bank Holiday weekend.

Challenge

Network Rail and Colas wanted to achieve near emissions free 'Site of the Future'. Our clean, silent solar lighting and power generation technologies were used across the site covering more than 21-acres.

This included access roads, the welfare cabin area, car parking and the track working area itself, where the London to Cardiff main line meets the Llanwern steelworks spur, near Newport. The set up and core works spanned a period of around 14-days leading up to and following 72-hour possession, with more than 70 rail staff employed onsite.

A 97% diesel reduction at the first attempt is a great achievement. Saving close to 6,000 litres of diesel is the same as driving a family car at 40 mpg twice around the circumference of the world. It's also clear where we have learnt the lessons from Llanwern so we can aim to close that small gap. We really want to get to that 100% fuel-free figure by the time of our next challenge, planned for a rail renewal project later in the summer. There's no doubt these technologies are going to be a complete gamechanger and we need to push on to get to a place where using this type of technology is just business as usual.

Ryan Ballinger
Production Manager
for Colas Rail



The Solution

Two solar generators replaced conventional diesel generators providing light and heat for seven welfare cabins, including site offices, a canteen, toilets and a drying room.

A total of 21 ProLight solar tower lights illuminated the site compound, car park and work preparation areas, as well as being deployed on trackside, where 200m of ProTrack battery-powered link lighting was also used. Our

ProTemp column street lights were positioned along the access road to the site.

It was just as important to explore and extend the range of renewable applications, including a new solar-powered Gate Guardian camera security system.

It was also possible to demonstrate the versatility of using portable lithium battery packs, recharged as

necessary from the solar generators to power dust suppression systems, water cooler stations and point motors.

Using diesel generators to support rail renewal work has been the only option for reliable off-grid power.

Now viable solar technologies are being seen as a vital contribution to non-traction carbon targets, as well as to reduce the noise, smell and air pollution from diesel exhausts, especially next to residential areas.

The first thing that staff and visitors noticed at the Llanwern compound was how quiet it was, compared to

the usual continual background hum of diesel generators.

“The environmental impact of running diesel generators all day on a major work-site like Llanwern is absolutely huge,” explains Ballinger. “It’s not just about carbon emissions; our lineside neighbours are very important to us. By using solar harvesting, we’re not polluting their environment with unwelcome fumes and noise.”

The Llanwern ‘Site of the Future’ project is the culmination of determined development work driven by Network Rail and the Colas Rail team to adapt and refine

solar and renewable technologies for the rail industry, with an aspiration to achieve diesel-free operation as standard.

Ryan Ballinger, explains: “We have worked closely to drive the development of suitable onsite solar tower lights and walking lights.

The Llanwern project not only provided feedback to help refine the solar and battery technologies, but also identified energy-efficiency initiatives that can contribute to 100% diesel-free operation”.

The results are being viewed as a significant achievement that marks an environmental milestone towards clean, carbon-free off-grid working, in support of Network Rail’s CP6 target to reduce non-traction energy consumption by almost 20% and carbon emissions by 25%.

Why choose Prolectric?



No Emissions
No fumes or greenhouse gas emissions.



No Noise
Ideal for urban, residential or night time projects.



No Refuelling
No fuel costs, spills or refuelling labour costs.



Minimal Maintenance
Setup and forget technology.



Advanced technology
Remote control, monitoring and reporting capabilities.