

## What's happening?

### Hybrid Power Pod Case Study Siemens Rail Automation

#### Background:

SRA has previously investigated the option of supplying electrical power to trackside equipment using a Hybrid Power Pod (HPP) unit, supplied by Power Saving Solutions, instead of conventional diesel generators.

More recently, Power Saving Solutions have supplied alternative units, called 'Hush Pod Connect', which have been used on London Underground. These new product options are picked up at the end of this document.

This case study covers a review of the HPP units which was undertaken in 2014, and also updates sought in 2017.

#### HPP units available

Any pod can be charged by either diesel or renewables, such as solar, wind or hydro power. In 2014, there were several different 'pods' and 'systems' which were reviewed in this study:

#### Mini Pod



Pic.2 HPP mini pod unit

The mini pod is the best portable type of HPP – it has a set of wheels and weighs 36kgs. Although it's lighter and smaller in size, it just functions as a battery and does not offer power generation capability. The stored power can be provided at an output ranging up to 940W at 110V or 240V. The mini pod powered can light a 100W led set of flood lights constantly for up to 10 hours and a paddle mixer for an hour before requiring a charge.

#### Solar trailer

The Solar trailers are made up of three solar panels with (lithium ion) battery pods built in. Although it has a set of wheels, its total weight of 52kg makes it difficult to move over great distances on track. It can provide an 1840W output at 110V or 240V, enabling it to power a 100W led set of flood lights for 20 hours and a paddle mixer for 2 hours. The small number of solar panels can recharge the battery rank without the use of a generator but this will be over a long period of time, depending on solar hours during that time.



Pic.3 HPP solar trailer unit



## **Solar Panel**

Power Saving Solutions can also provide solar panels to provide electrical power. These will need to be plugged into a battery pod to charge it. These are very dependent on the weather conditions. To fully charge the battery in a small period of time you will require a lot of solar panels; this is why it makes it unsuitable for use in narrow trackside areas.



Pic 4: Solar panel array used to charge HPP

## **Evaluation of HPPs as an alternative power source for signalling works**

In 2014, the potential application of these systems were evaluated, taking into account their requirements and limitations. It was concluded that their use for trackside signalling work was not recommended at that time. The transportation and space needs, in particular, eliminated any benefits that the systems could offer.

- **Mini Pod:** All handheld equipment used within the organisation comes with an inbuilt battery capacity and do not require an external power source. They are fully charged before any trackside work takes place and they pose no need for a consecutive charge before shift changes. In extreme circumstances a replacement battery can be considered that could be used in case the clipped one is totally discharged. Therefore, the mini pod would not be of use in this scenario.
- **Solar trailer:** Its weight and size cause difficulties for track-side transportation and increase the overall work-time, which may also result in increasing the possession time. The high demand in power from trackside equipment that do not have a battery already included make it insufficient: either a second HPP would need to be supplied or an inbuilt generator must be designed, which would end up eliminating any ensuing benefits from the use of HPP.
- **Solar Panel:** This system is not designed to be mobile. It is suitable for works taking place over a long period of time in the same area rather than minor work in different trackside locations. Its major disadvantage is its inability to be a reliable power source mainly due to the total sun hours in UK, especially during the winter period.

## **New options available**

As this initial review took place in 2014, it is important to note that Power Saving Solutions now offer a different range of pods, such as the 'Hussh Pod 1/2'. More details can be found on their website:

<http://powersavingsolutions.co.uk/hybrid-generator-hire/#hire>

## **Meeting TLP Sustainability Objectives & Targets:**

This initiative aligns with a TLP Sustainability Strategy Objective 15, and more specifically target 15a "To deliver energy and carbon reductions in line with project targets and to monitor and report progress in line with the TLP Carbon Policy".