



Southern Shield

Good/ Best Practice feedback

Nature of works

Railway Embankment Stabilisation

Date of good practice note

March 2018

Solatainer Onsite Power System



Description of the good practice

The Solatainer has been developed by Gaia Renewables to provide an autonomous off-grid power supply; integrating renewable solar power, battery storage and a diesel backup. It prioritises the generation of energy from 12 Photo Voltaic (PV) panels, with excess energy stored in on-board lithium battery storage. The in-built diesel generator is only activated upon the batteries falling below a critical limit (i.e during brief periods of peak demand). The unit has full telematics capability, thereby allowing the site team to access power consumption data online and undertake trend analysis.

What are the benefits?

- Significant reduction in diesel fuel consumption and associated noxious emissions.
- Reduces the carbon footprint of the construction site.
- Zero noise emissions when utilising the solar panels and in-built battery storage.

Costain utilised the Solatainer for powering their Churchsettle Scheme, near Wadhurst. Power was required for a small office and welfare, toilets, drying room and security systems.

During the 23 week (nearly six months) hire period, the Solatainer generated a total of 4907 KWh. During August 2017 the site achieved a 10 day period where the facilities were powered entirely from solar power (i.e. zero emissions and no fuel use).

Are there any drawbacks?

Due to the size of the Solatainer, the unit is suited to sites which are not space constrained. Additionally, shading of the unit by adjacent buildings or structures should be avoided.

Consideration should be given if the Solatainer is used over the winter months, due to the shorter daylight hours. This would result in greater use of the in-built diesel generator, with associated noise and combustion emissions.

Supporting Information

Comparison of Solatainer versus Conventional Diesel Generator

	Diesel Generator	Solatainer
Duration	23 weeks	
Hire Charge	£135/wk (£3105) (45 kVa and tank)	£230/wk
Fuel Used	6210L, £3,105 total	1792L, £897 total
Total £	£270/wk, £6210 total	£269/wk, £6187 total
Silent hrs	108 hrs	1131 hrs
Total CO ₂ Eq	18319 kg	5287 kg

Supplier Details:

Mike Robbins

Sales Director, Gaia Group

michael@gaiagroupuk.com

07415 527 079