ECO CABLE PROTECT UK

Award-winning innovation in cable protection

An innovative, award-winning cable protection and installation technology delivering significant time, cost and CO_2 savings to the UK onshore energy sector.



ecocableprotect.co.uk

More efficient.
More effective.
More environmentally friendly.



The Eco alternative

Low-carbon cable innovation

Eco Cable Protect UK is an award-winning, new low carbon high voltage cable protection and installation technology which maximises the use of a patented cable wrapping system and trenchless technology to dramatically reduce CO_2 emissions, time and cost on major onshore energy cabling projects.

In addition to the significant time and cost savings for clients, this patented system negates the need for fine fill sand on cabling projects, helping to safeguard local habitats by reducing the need for imported quarry products, minimising reinstatement, mitigating sand washout, and the contamination of local watercourses and vital native ecosystems.

Disruptive technology

Until now, on a typical underground utility installation project the production, transportation and placing of the surround material contributed a significant proportion of the project cost - and brings with it significant environmental impact. For example, a typical direct buried, continuously rated, 33kV underground cable circuit in the UK requires around 700-800 tonnes of processed sand per kilometre of circuit. In terms of road haulage alone, this is the equivalent of 40 HGV tipper journeys for every kilometre of circuit installed.

At McGowan Infrastructure we pride ourselves on being 'Naturally Different' and knew that there had to be a better way to do things. The result is our exclusive **Eco Cable Protect UK** technology, a pioneering and proven alternative protection solution to the traditional fine fill sand surround, which is already significantly reducing the cost and environmental impact of utility cable and pipe installations across the UK.





How it works

Eco Cable Protect UK's proprietary cable wrap technology can be applied on or off site to standard cables or pipes on major energy or utility projects. The essence of the system is the application of a protective wrap in a continuous process using a bespoke wrapping machine. Two types of wrap are available: Rockshield (a PE mesh) or Dafigaine HTA 1000 (a woven fibre geotextile).

On site, the process works alongside existing trenching or trenchless processes with no other specialist equipment required other than the wrapping machine. Indeed, a single HGV load of Rockshield is sufficient to wrap 17km of 33kV circuit.

The mesh structure of Rockshield protective wrap allows only fine materials to pass through during backfilling, thus protecting the buried cable from sharp-edge rocks but at the same time letting the cable be in direct contact with the ground for optimal heat dissipation - making it ideal for high voltage power cable protection.

Testing at Strathclyde University's Advanced Materials Research Laboratory demonstrated that the thermal resistivity of Rockshield is less than 0.1 (m2- K) W-1, which is significantly below the ENATS maximum values allowed for sand surrounds for HV cables.

At a glance

- The wrapping machine can be adjusted to meet specific project requirements for wrapping single or multiple cable bundles up to 180mm diameter
- The machine is remote controlled with variable speed settings
- The protective cable wrap is made of either Geotextile (Dafigaine) or Polyethylene (Rockshield)
- Cable wrappings are available in different sizes and colours
- Compact and lightweight design makes it easy for handling and transportation



Proven benefits

The benefits of **Eco Cable Protect UK** include:

SAVES time & money

- It is more time-efficient, cost-effective and results in more streamlined cable laying operation than traditional methods
- Requires less labour, materials, handling, vehicles, machinery, equipment, movements and fuel than traditional fine fill methods
- Avoids the use of sand which is traditionally quarried, shipped and transported to site
- Allows full reuse of excavated soil, eliminating waste and the need for disposal



IMPROVES performance

- Makes challenging locations and difficult ground conditions more easily accessible
- Wrapping provides higher quality protection, improving performance and the operational life of cables and pipes
- Allows for optimal electrical transit through efficient heat dissipation
- In trefoil formation the cables are continuously secured in position without the requirement for additional banding/ties



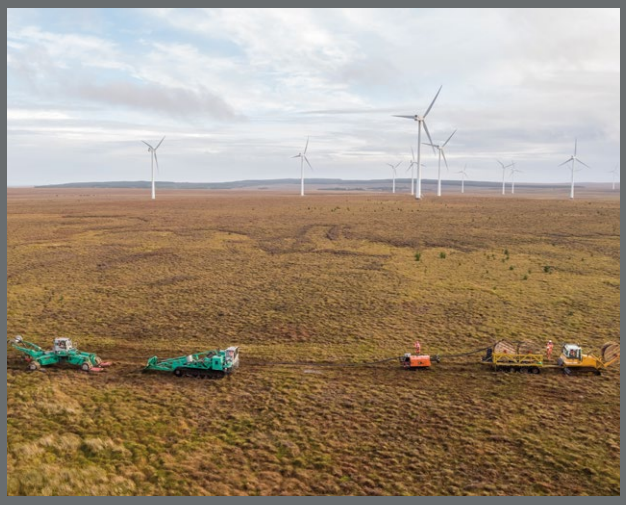
REDUCES environmental impact

- Carbon emissions are greatly reduced with no quarrying and minimal transportation to/from site
- Fewer vehicles & machines required and for less time, with shortened project durations
- A typical single HGV load of Rockshield is sufficient to wrap 17km of 33kV circuit, eliminating around 680 tipper movements to deliver the equivalent amount of sand surround
- The wrapping system is compatible with trenchless technology, which minimises disruption to landscapes and natural habitats helping support positive reinstatement and protecting biodiversity



Case study

Trial project clinches sustainability award





Client: **Scottish & Southern Energy Networks (SSEN) Distribution**
Location: **Burn of Whilk wind farm, Scotland**
Scope of works: **Cable laying & jointing**

Project overview

McGowan Infrastructure was invited by Scottish & Southern Energy Networks (SSEN) Distribution to bid for a major cable remediation project at Burn of Whilk wind farm in Caithness, Scotland. The cable remediation project comprised laying 21km of 33kV circuit in trefoil with sand surround over predominantly unmade ground, including very deep peat.

At tender stage it was determined that this would require tens of thousands of tonnes of sand to be quarried, processed, transported and ultimately distributed along the cable route. Given the ground conditions, this would require extensive - and invasive - temporary haul roads for the sole purpose of placing the sand.

Cable wrapping was identified as an alternative solution, never used in the UK before, and testing was carried out at Strathclyde University's Advanced Materials Research Laboratory, which demonstrated that the thermal resistivity of the Rockshield wrap proposed was less than 0.1 (m2- K) W-1, meaning it has virtually no insulating impact on the cables, which was a key concern of the client.

The mesh structure of the protective Rockshield protective wrap - which is applied in a continuous wrapping process - allows only fine materials to pass through during backfilling. This protects the buried cable from sharp-edge rocks but at the same time letting the cable be in direct contact with the ground for optimal heat dissipation, making it ideal for HV power cable protection.

SSE agreed that the cable wrap system could be used on the project as a trial, but McGowan Infrastructure would carry the design risk for the system.

Rationale

At Burn of Whilk, using traditional fine fill surround to deliver the project would:

- use 13,500 tonnes of sand
- require over 600 HGV tipper movements
- require temporary access roads to be constructed and deconstructed
- generate an estimated 244 tonnes of CO_2 emissions.

Conversely, just one full articulated lorry load of cable wrap would be sufficient to install 17km of trefoil circuit. Further, the cable wrap would be applied by a single cable wrapping machine similar in size to a 3t mini excavator, controlled by just one operator.

Result

Thanks to extensive planning and preparation, the project was delivered seamlessly, maximising trenchless techniques and this new cable wrapping technology. The manufacture, delivery to site and application of the wrap generated a total of just 37 tonnes of CO2e, reducing CO2 emissions on the project - compared to using traditional methods - by an incredible 207 tonnes, or 85%.

Furthermore, the total cost of the project was £250,000, versus a predicted £2.35m for using traditional fine fill methods - a saving of £2.1m, with sheath faults due to cable damage during installation almost entirely eliminated and with no impact on cable performance.

With the potential to deliver huge benefits for the environment and communities going forward, the technology could see the traditionally emissions-heavy energy infrastructure sector move away from using traditional HGV, diesel and sand-reliant cabling methods.

Capable of delivering huge cost and CO_2 emissions savings to clients, ECP also safeguards local habitats. The system is now incorporated into SSEN's standard specification and can be used on any part of the network.

The cost implications of using fine fill methods were staggering. Supplying and placing of sand fill for the Burn of Whilk project was estimated to cost £450,000 approx. with an additional £1.9m for the hire, installation, relocation and removal of temporary roads. Yet, the manufacture, delivery to site and application of the Eco Cable Protect UK wrap would cost almost ten times less.

ECO CABLE PROTECT
UK

Contact us for more information

Eco Cable Protect UK Ltd,
McGowan Group
Unit 16, Dalfaber Industrial Estate,
Aviemore PH22 1ST

01479 812170

info@ecocableprotect.co.uk

ecocableprotect.co.uk