

Renewable Energy

A ScotAsh product case study

QUEEN'S AWARD FOR ENTERPRISE WINNER 2005

Laying the foundations for renewable projects

Renewable energy projects across Scotland have become even more environmentally friendly, as a result of using PFA-based Trojan cements from ScotAsh.

In the last few years, the company has supplied nearly 17,000 tonnes of Trojan cements to seven windfarm projects and to Scottish & Southern Energy's Kingairloch Hydroelectric Scheme.

PFA-based cement from ScotAsh is used extensively in windfarms for the turbine bases as it provides a lower heat of hydration for large concrete bases and long-term durability for the exposed cement.

We have supplied products to the following windfarm projects:

- Beinn an Tuirc (ScottishPower)
- Deucheran Hill (Powergen Renewables)
- Bowbeat Hill (Powergen Renewables)
- Causey Mire (np Renewables)
- Crystal Rigg (Natural Power Consultants)
- Cruach Mhor (ScottishPower)
- Black Law (ScottishPower)

In hydroelectric schemes and other projects, involving water-bearing structures, PFA-based cement offers the performance benefits over conventional Portland Cement of increasing strength over time and increased resistance to chemical attack.

In addition, the use of PFA-based cements, such as the Trojan range from ScotAsh provides strong environmental benefits. Using PFA displaces primary aggregates, helping to conserve valuable natural resources. Due to its low density, re-using ash in this way saves a greater weight of natural aggregates and reduces transportation impacts and costs.

The re-use of ash also saves energy (and CO₂ emissions) that is required to crush, grind and heat raw materials.



Cruach Mhor windfarm, Argyll, top left, laying a turbine base at Cruach Mhor and top right, Kingairloch Dam

The manufacture of traditional Portland cement, widely used in construction, is one of the most energy intensive production processes – only materials such as aluminium and steel require more.

Making one tonne of Portland cement requires about 4Gj of energy. This makes the process a significant contributor of the greenhouse gas CO₂.

Each tonne of Portland cement results in emissions of 0.89 to 1.1 tonnes of CO₂ depending on the type of process used. Each tonne of PFA re-used in cementitious products saves around 900kg of CO₂ emissions. In addition,

using processed PFA as an addition to concrete lowers the water demand, which in turn saves energy.

Processing a by-product into construction products avoids the need to landfill substantial quantities of ash, either to ash lagoons or landfill sites.

Trojan cements contain between 27% and 55% PFA and can be blended to the customer's requirements.

Our cements comply with the requirements of BS EN 197-1 for CEM II A/B-V and CEMIV A/B cements. See our product sheets for more details or log on to www.scotash.com

To contact ScotAsh please telephone, fax or visit our website

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