

ULTIMATE EXPERIENCE

WINDFARM POWERS AHEAD WITH LAFARGE TARMAC CEMENT

 LAFARGE
TARMAC

CEMENT

Product: PHOENIX® – PORTLAND FLY ASH CEMENT CEM II/B-V 42,5N

Client: SCOTTISHPOWER

Main Contractor: MORRISON BALFOUR KILPATRICK

Location: WHITELEE WIND FARM

Completion: 2013 - INCLUDING A 75 TURBINE EXTENSION

“We had the choice of using several ordinary Portland cements for this project – but Phoenix® cement stood out, for ticking both technical and environmental considerations. Most importantly, a wind farm is a sustainable development, within a sensitive habitat – so using a sustainable building product like Phoenix® was an obvious choice.”

Ian Smart, managing materials engineer, Morrison Construction

SUMMARY

Lafarge Tarmac Cement has played a vital role in the construction of Europe’s largest onshore wind farm – which can provide enough green energy to power nearly 300,000 homes.

THE CHALLENGE

Whitelee wind farm, near Glasgow, was developed by ScottishPower through principal contractors Morrison Balfour Kilpatrick. The objective was to find a locally sourced cementitious solution and a sustainable product with lower embodied CO₂ for a construction project focused on providing renewable energy. The product also had to be suitable for large concrete pours required for the foundations and bases of 215 wind turbines on the 5,300 hectare site, an area roughly the size of Aberdeen.

OUR SOLUTION

Lafarge Tarmac Phoenix® cement is made using low carbon fly ash. Lafarge Tarmac’s joint venture with ScottishPower, ScotAsh, manufactures the fly ash with cementitious properties required for Phoenix® at its site in Longannet using the by-products from coal-fired power generation. Phoenix® cement is made at Lafarge Tarmac’s Scottish plant in Dunbar by replacing some of the clinker with fly ash, which reduces the amount of primary aggregate used to make clinker and therefore CO₂ emitted during cement production – making it a greener alternative to ordinary Portland cements.

RESULTS AND BENEFITS

Lafarge Tarmac has been working with ScottishPower for many years, using fly ash in cement to produce greener alternatives for the construction industry, which require lower energy in production. Specifying Phoenix®, an environmentally-friendly material, to produce a renewable energy source was an obvious partnership. On the Whitelee wind farm project, Phoenix’s lower heat of hydration generation also provided considerable benefits, as it kept heat levels in the concrete turbine bases low during the concrete pours, reducing the risk of early-age thermal cracking.



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It's what Britain's built on.