



Installation of the wind turbine foundation.



Work in progress on the hub assembly.

HARNESSING WIND ENERGY

"We are also talking to a number of clients here in the Province about the benefits of harnessing wind energy," continued Peter. "As a company we are capable of handling a wide range of contracts, from the individual home owner and farmer right up to large industrial companies, education authorities, Universities and Hospital Trusts".

Amongst its clients TCI is currently in negotiation with a large manufacturing

company based in County Tyrone.

"This particular company is hoping to produce power from a wind turbine on land in County Antrim and have the power generation from it 'wheeled' across the NI grid for consumption at their Co. Tyrone premises to help reduce and fix its own costs of Mains power consumption whilst progressing the values of its BS EN ISO 14001 Environmental accreditation," he added. "Of course as well as these tangible benefits there are the more

intangible benefits to the greater environment."

"The electricity grid in Northern Ireland has a carbon intensity of 0.56 kg/kWh, compared with ~0.43 kg/kWh for Great Britain, which reflects the higher proportion of generation from coal fired power stations than GB, so each and every wind turbine project which becomes established in Northern Ireland can assist in the displacement of fossil fuelled emissions to the earths atmosphere."

"Typically for a 660kW wind turbine such as that installed at Antrim Area Hospital prevents emissions of 1235 tonnes of CO₂, 22 tonnes of SO₂ and 15.15 tonnes of NO_x to the atmosphere each year," he concluded.

TCI as a company prides itself on providing "Intelligent Solutions" in all sectors of its operations.

"A high performance culture is very much in existence here at TCI," explained Peter Craig, "We encourage ingenuity at every juncture and strive to take ideas beyond the familiar. We have a passion for what we do and are always ready to embrace the varying needs of our clients and the industry's we serve."



"We are pleased to have been involved at the Wind Turbine Contract, Antrim Area Hospital."

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Peter Craig, project manager TCI with colleague, Dom Kimber.

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are
pleased to have been
entrusted with the
civils work for
T.C.I.

on the erection of the wind
turbine at Antrim Hospital

COMMISSIONING PHASE

Upon erection of the turbine the contract entered into an operational commissioning phase followed by a 120 hour test period.

"With this the turbine has to run without fault of any kind for a continuous 120 hour period," explained Peter. "It's all part of the commissioning process."

Prior studies carried out have shown that the average wind speeds at the Antrim Hospital site are in excess of 7.5 metres per second which was deemed suitable to extract wind energy via a wind turbine generator, for transformation to electrical power via the turbine blades, gear-box and generator.

"These are good averages which could yield the Hospital savings of up to £90,000 a year said Peter. "The turbine has an expectant 20 year lifespan and from an environmental perspective you're talking about an annual saving of some 1200 tonnes of Carbon Dioxide (CO2) from entering the atmosphere!"

"Commenting on the installation, Alistair Donaldson from the United Hospitals Trust said,

"The Trust is delighted with the quality of the installation of the wind turbine by TCI. Antrim Area Hospital is a modern acute hospital complex with modern engineering systems. We think the wind turbine sits very well with the 21st Century. The Trust takes its environmental responsibilities very seriously. In the same week of the installation the hospital received reaccreditation to the international environmental standard, ISO14001:1996."



Installation success - TCI engineer Peter Craig hands over to Alistair Donaldson from the United Hospitals Trust.

TCI – Providing Intelligent Solutions™

The Antrim Hospital project marks the completion of TCI's first Turnkey wind turbine project in Northern Ireland with other projects at various stages of assessment, design and planning. The company's current expertise stemmed from its specialist background in telecommunications infrastructure work comprising tailored acquisition, design and build services to all of the UK's leading mobile telecommunications companies such as Vodafone, Orange, 3 etc.

The Belfast based company, which has its

headquarters in Oxford, seen the move into the alternative energy sector as something of a 'natural progression'. "There are core similarities," explained Peter Craig. "We already retain a vast skill set of experience and expertise in site acquisition, design and more physically the capabilities of erecting tall structures, reinforced concrete base construction, power procurement and the logistical aspects of overcoming difficult access." "As such we as a company identified the wind industry as a natural field of diversification to provide an intelligent, closely managed interface to bridge the

complex gap between the renewables prospector/developer and the physical connection of his project to the grid, and as such have spent the last three years developing the specialist knowledge needed to take the business forward in this regard."

The investment is already beginning to pay dividends. The company has just taken award of a £70 million design & build contract with Anglian Water that will involve the assessment of 400 water service sites across East Anglia, England as candidates for renewable wind power generation.



The wind turbine selected and installed by TCI within the service yard area at the Hospital was a Vestas V47/660kW Wind Turbine Generator standing approx 64.5 metres in height from base to tip of blade. Each of the three blades are 23.5 metres in length and the installation phase of the turbine itself was completed within one week, followed by 120 hours of successful testing & commissioning. Peter Craig, TCI's engineer with responsibility for managing the project is delighted that their 'value engineering' and 'client focused' ethos has lead to the timely supply of power to the Hospital's grid some 11 weeks ahead of programme. It's the company's first Public Sector project here in the Province since its Environmental accreditation against ISO 14001 which completes TCI's comprehensive ISO 9001 (Quality) and ISO 18001 (Operational Health & Safety) accredited management system.

LOGISTICAL EXERCISE
The wind turbine arrived in the Province

on January 24 having taken five days to be shipped from Denmark to Ingham in England and then across to Larne. TCI was also responsible for what was a considerable logistical feat considering the size of the component parts. The 40 metre tower arrived in two sections – one 25 metre (83ft) section, the other 15 metres (50ft) in length. The other major component parts are the Nacelle weighing in at 27.6 tonnes which comprises the housing for the rotor, gear-box and generator and then of course there's the 23.5 metre (78ft) long blades at 5.5 tonnes each. On site two cranes were used in the erection process – a 300 tonne crane assisted by a 60 tonne crane. Vestas engineers were also on-site throughout the installation and commissioning phase of the turbine. There was also a considerable 'civils' aspect to the work, centred around the wind turbine's vast reinforced concrete foundation and as one would expect a major electrical input involving high voltage interconnection and alteration works between the Mains grid supply, the turbine generator and the Hospital's grid.

AEM

"We are pleased to have been associated with TCI Ltd. on the electrical installation at the new wind turbine at Antrim Area Hospital."

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