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A welcome addition

It's not just with environmentalists that the Airdolphin has become popular. Staff at the YMCA are never short of a good word to say about the way it's changed their lives for the better.

Emma Le Saux, Chief Executive at YMCA Cornwall, is one of those happy to welcome the Airdolphin into her life.

“Paying for heat and light can be a real struggle for many people, especially in Cornwall where incomes can be lower and fuel bills are high,” she commented. “With 30 homeless young people living in on-site accommodation, the arrival of this renewable energy technology will serve the YMCA well for educational purposes.”



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Energy360[®] and YMCA Business Overview

Energy360[®] is a complete suite of products and services from British Gas Business designed to help organisations improve their energy efficiency.

As a leading provider of clean technology solutions in the UK, the Energy360 portfolio offers consulting, design and systems integration to help businesses reduce their energy usage, and invest in clean generation to achieve commercially viable CO2 reduction.

Energy360[®]



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Finding the energy for a worthy cause

With 140 sites across the UK, the YMCA offers a wide range of high quality services and activities for local communities, including housing, sporting activities, education and parenting services.

The Penzance site of YMCA Cornwall provides support for young people with housing issues and organises a range of diverse and positive activities for their residents that can even include parachute jumping.

The organisation seeks to offer a supportive community to young people so that they can live productive, successful lives. But putting so much time and effort into setting up and offering these services needs a lot of energy – and not just from the YMCA staff.

In August 2007, the YMCA in Penzance was feeling the effects of rising day-to-day operational costs.

They knew they needed to proactively educate their visitors on the environmental impact of their behaviour, lower their carbon

emissions and support the running costs of the facility. They just weren't sure how. So they decided to seek help from the experts.

Energy360 in action

The YMCA approached Energy360 in August 2007 and it wasn't long before Energy360 specialists went to work at Penzance.

In September 2007, a team of engineers performed a site survey to identify the most appropriate energy-saving technologies for the site from a technical, practical and aesthetic perspective. Immediately, wind turbines were identified as a solution for clean energy generation due to the coastal location of the site.

But to make sure the area was suitable for wind turbines, Energy360 conducted tests on the direction, accessibility and strength of the wind, combining the findings with the average wind speed data for the area. Other factors were also taken into account – such as the location of the turbine on the site (including the ideal height), obstructions from other buildings and trees, plus directional flow around buildings.

Due to the length of time required for planning permission and the size of the Penzance site, micro wind generation was considered the best option. Given the location, the selected turbine also needed to be capable of generating power at both low and extremely high wind speeds, while remaining at an acceptable audible level to prevent noise pollution, especially near the patrons' sleeping quarters.

After completing the survey, the Energy360 team were able to select the most appropriate technology from their extensive CleanGen Solutions portfolio. The Airdolphin micro wind turbine, coupled with Energy360's patented Essence Connect high efficiency grid tie system fitted all the criteria.

The Airdolphin, a third-generation turbine rated as a 1kW unit, possesses the performance of a much larger traditional turbine. Designed to respond quickly to changing wind conditions, it can operate from wind speeds as low as 2.5m/s to very high wind speeds of 50m/s.

Weighing only 17.5kg, it incorporates many state-of-the-art technologies including a unique swing rudder tail

designed for improved tracking of the wind.

It also has a power-assist function for when the turbine is stationary, which takes advantage of previously generated power to spin the rotor for ten seconds every minute, allowing the turbine to capture the wind more effectively at low speeds.

More than just an energy saver

The Airdolphin has been a great success in decreasing CO2 emissions at the Penzance site – and it's also helped reduce the impact of CO2 emissions through clean energy generation.

For example, at an average wind speed of 7m/s, the Airdolphin would save over 1,000kgs of CO2. That's equivalent to driving a 500cc motorbike for more than 100 miles every week for a year. Not bad for a piece of technology that took just one day to install.

But it wasn't just in energy saving where the Airdolphin really worked wonders. Just the physical presence of this brand new technology created an immediate visual impact and enhanced the YMCA's reputation as a forward-thinking, environmentally aware organisation.

Soon after it was installed, news coverage and events talking about the YMCA's clean generation project further bolstered its reputation as being committed to the local community and the environment.

For all the attention the Airdolphin received, however, it remains understated. The size and design helps to ensure that it blends discretely into its surroundings. A number of unique features, designed to mimic systems found in nature, caused particular interest in the local community. The Airdolphin's flexible swing rudder system is modelled on a dolphin's tail, enabling it to respond to sudden changes of wind direction, while the turbine blades are grooved like an owl's wing to reduce airflow noise. Residents benefited not just from the clean energy generation and CO2 emission reduction, but also from a turbine that is aesthetically pleasing to both ear and eye.



At an average wind speed of 7m/s, the Airdolphin will save over 1,000kgs of CO2



Energy360 helps businesses reduce their energy usage, and save costs



The visual impact of the wind turbines has enhanced YMCA's reputation



Residents have benefited from the clean energy generation and CO2 emission reduction