

Wind Energy Powers Scottish Community Hospital

Girvan Community Hospital

Location

Girvan, Scotland

Project

Community Hospital

Model

NPS 100-21, 37 metre tower

Average wind speed

5 m/s

Annual Energy Production

200,000 kWh

Use of Energy

60% of energy is consumed on site

Annual Carbon Offset

108 tonnes

The fishing port of Girvan in South Ayrshire, Scotland became a municipal 'burgh' incorporated by Charter in 1668. The opening of the Maybole and Girvan Railway in the mid-19th century fostered the development of Girvan as a seaside resort. Complete with beaches and cliffs, its picturesque South West coastal location and proximity to the main ferry port to Northern Ireland continue to sustain its popularity as a tourist destination.

With a population of around 6,700 people the community needs a variety of services other than those directly related to tourism, and good healthcare is one of the most important to residents and visitors alike. In 2007 the National Health Service Ayrshire and Arran looked for the best site for a new community hospital to improve the quality of health services in the

region with environmental factors a key consideration. Their feasibility study pointed to Girvan as a site with strong wind energy potential among other positive factors so the community hospital was built there with a Northern Power Systems turbine.

Girvan Community Hospital opened in 2010 and offers services such as minor injuries service, diagnostic facilities, a rehabilitation suite, 26 beds, elder-care day patient service and outpatient department plus has Scottish Ambulance on site. This vital multi-services hub needs a substantial, reliable, cost effective energy supply: it consumes in excess of 350,000kWh per annum. The NPS 100 wind turbine is makes this possible.

“The NPS 100 wind turbine provides two thirds of the hospital’s energy demand. Our efforts to use more renewable energy on site is supported by the local community”

- Alastair Kay, Energy Manager - NHS Ayrshire and Arran



NPS 100-21 in Girvan, Scotland

Case Study - APPLICATION: HOSPITAL



Commitment to an Environmentally-Healthy Hospital

Girvan Community Hospital opened in 2010 and was purposely built in an environmentally sustainable way. In addition to the NPS 100 wind turbine, the hospital also has a 700kw biomass boiler plant which burns wood pellets to produce additional energy. It also has equipment for collecting rainwater to use for flushing toilets.

There were concerns that the wind turbine could damage the local bat population. During the planning process for the wind turbine, the Royal Society for the Protection of Birds (RSPB) was consulted about this concern. They reported that the impact would be negligible. An in-depth environmental impact assessment, incorporating an ecology study was carried out, and RSPB reported that impact on bats would be negligible. The resulting landscape plan has a planting design that not only attracts bats away from the wind turbine, but also benefits other existing wildlife.

The NPS 100 wind turbine produces high annual energy production (AEP). It is estimated that the turbine at the Girvan site produces an average of 200,000kWh per annum and offsets energy consumption of up to 66%. With the electricity rate set at 11p per kWh, the NPS 100 generates significant savings for the community hospital. This allows Girvan Community Hospital management to increase investments into additional medical facilities and expand services offered at the hospital.

Another advantage of NPS 100 is its core patented technology – Permanent Magnet Direct Drive (PMDD). It has less moving parts than traditional gear box wind turbines, which translates into higher availability time and less maintenance costs over time. On average, NPS 100 wind turbines require service only once a year.

Once installed and commissioned in 2010, the NPS 100 began generating electricity for the Girvan Community Hospitals even on low-wind days. With cut-in wind speeds as low as 3m/s, the wind turbine generates electricity for the hospital to be consumed on-site. Qualified as a low wind site (5m/s at hub height), the project is on course to pay itself off within 6.3 years.

SAVING COSTS In addition to offsetting hospital's energy supply and saving on electricity purchase costs, Girvan Community Hospital will continue to enjoy stable energy supply for years to come. By generating energy from no-cost wind, power expenditure will be stable for the 20+ year lifetime of the turbine and protect the hospital from volatile and ever-escalating power costs.

RELIABLE, PROVEN TECHNOLOGY The wind turbine's gearless design with PMDD core technology ensures low maintenance operation. The NPS 100 is built with reliability in mind, so that turbine owners can focus on what's really important to them. For Girvan Community Hospital that's healthcare, including diagnostics and rehabilitation services.

COMMUNITY ELEMENT The investment in renewable technology is an example of how seriously the NHS and the Girvan community take their commitment to the environment, and to using sustainable resources. In addition to supplying clean, renewable energy, the NPS 100 wind turbine offsets 108 tons of CO2 per year.



Northern Power Systems

29 Pitman Road

Barre, Vermont, 05641 USA

UK Tel: 07761 061 422

northernpower.com



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