

Scottish Dairy Fights Rising Energy Prices with Wind

Stewart Tower Dairy

Location

Stanley, Perthshire, Scotland

Project

Ice cream parlour and dairy farm

Model

NPS 100-21, 37 metre tower

Average wind speed

5.6 m/s (12.5 mph/20 kph)

Annual Energy Production

160,000 kWh

Wind Incentive

Feed-in-Tariff

Annual Carbon Offset

120 tons

Stewart Tower Dairy produces high quality milk which they use to create a range of award winning Italian gelato ice creams. With energy prices constantly increasing, owner Neil Butler realised they needed to make changes in order to maintain a profitable business.

In 2010 Stewart Tower Dairy paid over £1,300 per month for electricity. By the end of 2012, their monthly bills had risen to about £2,000. Neil started investigating his options and decided a wind turbine was required to keep control of his energy costs.

After investigating all the possible options the NPS 100 from Northern Power Systems was chosen. The overriding factor for his decision was that

the 100kw turbine produces a high annual energy production (AEP) that maximises the benefit from the Feed-in-Tariff (FiT) programme.

Another advantage of the NPS 100 is that it features the patented Permanent Magnetic Direct Drive (PMDD) rather than a traditional gear box. Neil comes from an engineering background and understands that gearboxes are points of breakdown and can increase maintenance costs. A gearbox driven turbine nearby to him reports they are servicing theirs every 800 hours (roughly every three months) compared to only once a year with the NPS 100.

“The NPS 100 has a very good reputation as a tried and tested product.”

- Neil Butler, Owner, Stewart Tower Dairy

Case Study - APPLICATION: DAIRY



The Wind Turbine for Stewart Tower Dairy: NPS 100-21

Neil Butler wanted a wind turbine that would take advantage of the UK Feed-in-Tariff (FiT) and guarantee payment for the electricity they generate. He also needed a turbine that was robust and reliable; Stewart Tower Dairy chose the NPS 100-21.

Transforming power costs to revenue

After obtaining finance and planning Neil ordered his unit in July 2012. Once installed, Stewart Tower Dairy's NPS 100-21 began generating electricity in January 2013. The economic benefits were immediate and after one year of operation the turbine has already made several thousand pounds of extra income. Over the next few years, the NPS 100 is expected to generate 60% of the farm's electricity needs.



Stewart Tower Dairy NPS 100-21 Income Generation 2013							
Electricity generated by NPS100-21	160000 kwh						
Electricity consumed	130000 kwh						
No turbine	kwh	Rate per kwh	Costs	Savings	Income	Total	
Electricity purchased (imported)	130,000	£0.12	£15,600.00	£0.00	£0.00	£-15,600.00	
						Total income	£-15,600.00
						Total savings	£0.00
With NPS100-21	kwh	Rate per kwh	Costs	Savings	Income	Total	
FiT Tariff	160,000	£0.21	£0.00	£0.00	£33,600.00	£33,600.00	
Electricity purchased (imported)	65,000	£0.12	£7,800.00	£0.00	£0.00	£-7,800.00	
Electricity used (offset)	65,000	£0.12	£0.00	£7,800.00	£0.00	£7,800.00	
Electricity sold (exported)	95,000	£0.05	£0.00	£0.00	£4,750.00	£4,750.00	
						Total income	£30,550.00
						Total savings	£7,800.00

EARNING REVENUE In addition to offsetting £7,800 worth of electricity, Stewart Tower Dairy's wind turbine has generated £30,550 in extra income. Through wind, their power expenditure will be stable for the 20+ year lifetime of the turbine. This safeguards their business against the volatile and escalating costs of energy.

RELIABLE, PROVEN TECHNOLOGY The turbine's innovative low-maintenance, gearless design allows Neil's family to stay focused on what's important—their business. The NPS 100-21 is designed for reliability, so there is no need to hire a team of full-time professionals to reap the benefits of wind power.

MARKETING POTENTIAL Stewart Tower Dairy is a growing ice cream business supplying Sainsbury's and other retailers as well as running a farm shop and cafe. "What makes our ice cream different is that we make our own milk right here on the farm; we offer gelato style ice cream and now we make our own "Green" electricity," said Neil Butler. The NPS 100 is an environmentally positive step and lowers their carbon offset which they can leverage their products with on the high street.



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