

Launch of UK's biggest renewable generation platform

Following formal renewable accreditation by Ofgem, 2OC today launched a 1GigaWatt (GW) geo-pressure business with its first site in Teeside. Implementation of the £1.6 million facility at BOC's hydrogen generation plant is due to begin in April 2007 and is expected to start generating carbon-neutral electricity later in the year.

2OC's innovative power platform solution uses new technology to exploit a clean energy source, known as geo-pressure energy. The company harnesses the energy currently lost when gas pressure is reduced to a more usable level as it reaches consumers, and uses that energy to drive turbines that generate electricity.

More than 1GW of electricity could be generated in the UK from geo-pressure, which would go a long way towards meeting the UK's forecast shortfall in the next decade. 1GW represents the generating capacity of an average, large sized fossil fuel or nuclear power station servicing on average 2.5 million UK households. Additionally, for every 1GW of electricity generated in this way, the UK could save one million tonnes of carbon - the equivalent to taking nearly one million cars off the road for a year.

Former chairman of Royal Dutch Shell plc, Lord Oxburgh, who recently took up the position of 2OC chairman said: "For many years I've believed that an important weapon in the climate change battle is our ability to make better use of our existing energy sources and infrastructure. By awarding preliminary accreditation to 2OC's innovative, geo-pressure energy based, power platform, Ofgem has demonstrated its own commitment towards achieving this goal."

On current forecasts, 2OC believes that the first 300 MegaWatts of generating capacity could be available by 2010, with up to 1GW on stream potentially as early as 2015. Providing 1GW of clean energy would require an investment of around £1.4 billion.

At the first site, 2OC will install two geo-pressure units into the pipeline which supplies the natural gas feedstock for the production of hydrogen at BOC's facility in North Tees, the largest hydrogen plant in England. The units will be capable of generating around 500-700 kilowatts of power - enough to satisfy all of BOC's requirements on site.

Geo-pressure is an intrinsic earth process, similar to the better-known geothermal, and like geothermal is a major source of natural energy. Pressures at the Earth's core are four million times greater than they are on the Earth's surface and there is evidence of this extreme geo-pressure, whenever we drill for liquids and gases (including water and hot air). The application of this new generating technology in the UK will enhance security of electricity supply: a vital consideration for the electricity supply industry.

Well-head pressure in the North Sea can be as high as 800 bar, although the more usual pressure is around 300 bar. Gas companies pipe the gas on-shore to arrive at around 80 bar. Pipe diameter, processing and the distance from the wellhead to the on-shore terminal cause this big reduction of pressure. This geo-pressure is used to support the transportation of gas around the pipeline networks and without this naturally occurring pressure, the process of transporting gas to consumers would require much greater amounts of energy. When the gas reaches industrial, large or domestic consumers, the pressure is reduced to a more useable level, at sites commonly referred to as pressure reduction stations, using valves. During this process some of the intrinsic energy is lost. Using 2OC's geo-pressure energy based power platform, this lost intrinsic energy from the pressure reduction process can be harnessed and used to generate clean electricity. This is done by installing a turbine generation system at these pressure reduction stations.

Steve Howard, CEO of the Climate Group said: "This is a great example of exactly what we need - creative ways to deliver energy efficiency and renewable energy. 2OC and geo-pressure offer a solution that should be good for business and good for the climate. This is the time to leave no potential renewable energy source untapped."

2OC was the brainchild of Bath based entrepreneur and environmentalist, Michael Edge, who has funded the company since its inception in 2004. Edge's co-founder, and the start-up's CEO, is fellow Bath based entrepreneur, Andrew Mercer.

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