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## Island looks to hydrogen to solve job woes

Treeless Unst seen as ideal spot for economy based on using gas to power generators and providing fuel

**Paul Brown and Hans Marter****Thursday August 11, 2005**[The Guardian](#)

Unst, in Shetland, Britain's most northerly inhabited island, is hoping to lead the country by developing an economy based entirely on hydrogen.

The community of 700 which has just been dealt a blow with the announcement of the closure of the RAF Saxa Vord early warning station, a relic of the cold war, hopes to recover by using hydrogen exports to safeguard its future.

The island, two and a half hours and two ferry crossings north of the Shetland capital, Lerwick, is a perfect spot for generating electricity with wind power. The wind blows so strongly and regularly that the island is treeless.

Wind power could be used to separate hydrogen from water to power electricity generators and provide fuel for the island's vehicles at around 15p a gallon. More importantly for the economy, it could be liquified and exported.

The plan is designed to prevent the depopulation of Unst, 12 by 5 miles. Its 700 population is expected to drop to around 500 when the 70 RAF personnel and their families leave next April.

There is already a pilot hydrogen project on the island whose other income is from breeding Shetland ponies, crofting, sheep, fish farming and tourism.

The island is the breeding ground of 25,000 pairs of puffins and 100,000 other seabirds including gannets and attracts tourists as a result. However, the RAF station is largest employer and provides the best paid 40 civilian jobs on the island.

The idea to replace these jobs by generating large quantities of hydrogen using the virtually unlimited wind power and copious fresh water from the high rainfall is

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being considered by the island's leaders. It has been proposed by hydrogen pioneer, Tony Marmont, from Loughborough University, who said that the imminent changes pose a huge opportunity for Unst.

Hydrogen is often quoted as a fuel of the future and can be used to power fuel cells for generating electricity and cars. Its huge advantage is that when it burns the only waste product is pure water, but producing it is expensive without an abundant form of cheap energy. Professor Marmont believes wind power on Unst provides the answer.

He was visiting Unst's £300,000 Pure (Promoting Unst Renewable Energy) project, which uses wind energy to transform water into hydrogen when he suggested a huge expansion of the scheme. The idea is to produce power without any connection to the grid.

He said that in the light of oil reserves drying up and becoming far more expensive, the community had a potential world market for hydrogen which would become a far more competitively priced fuel. Unst could cheaply produce hydrogen gas, which he believed would be an energy source in "huge demand" within the next few years.

He said: "This island is unique. It has a lot of wind and could produce a lot of energy. It has rainfall in abundance which could be converted into hydrogen and has the sea around it which means it could export the hydrogen in tankers to rest of the world.

"We would need to set up one or two large wind turbines in the island, not to feed into the grid, but to feed into its own internal network which would be connected to an electrolyser. This electrolyser would make hydrogen from water that runs off the roofs of buildings. We would then turn that hydrogen gas into liquid hydrogen

"We have now a world market on our finger tips. Unst could be the world's first example of a complete hydrogen economy. Cars and trucks on the island would burn hydrogen without pollution, which would be available to islanders for about 15p a gallon."

Local councillor for Unst Brian Gregson is keen on the idea of developing the hydrogen economy for the island but was sceptical about how quickly the island could go "large scale". He favoured first developing micro-hydrogen engines that could generate electricity and be exported round the world to similar islands to provide power.

Around 200 people who attended a meeting to discuss the island's future, after closure of the early warning system, have asked for more time and financial support from the Ministry to adapt.

Gordon Thomson, chairman of the Unst community council, said: 'We don't dispute that the radar has to go. There is no Russian bear any more. But we need more time

to adapt to the changes."

Alistair Carmichael, Lib Dem MP for Orkney and Shetland, and Mr Gregson are meeting the armed forces minister Adam Ingram in London later this month to ask for financial support to develop the island's economy, and hydrogen will be on the agenda.

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