The Telegraph

Iceland's volcanic heat may be the perfect solution to Britain's energy crunch

Iceland is drilling close to earth's magma where molten rock generates supercritical steam of vast power

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5 JANUARY 2017 • 6:00AM

Iceland is the answer to our prayers. The country has a surfeit of cheap electricity from volcanoes and melting glaciers that is either sold for a pittance, or goes to waste.

The Icelanders would dearly love to sell this power to us at global prices to pay down the banking debts of 2008. Britain would dearly love to buy it from them as our coal plants and ageing nuclear reactors are shut down, with little to replace them beyond the variable winds of the North Sea.

Advances in high voltage technology make it possible to transmit Iceland's low-carbon power to the industrial hubs of northern England by underwater cables with an energy leakage of just 5pc, and probably at lower costs per megawatt hour (MWh) than the nuclear power from Hinkley Point. And unlike nuclear, the electricity is 'dispatchable'.

“We can turn it on and off in fifteen minutes to half an hour. It is the only battery that is really available today for green energy,” said Hordur Arnarson, head of Iceland’s national utility Landsvirkjun.

It is hard to imagine a more elegant back-up for the UK's vast experiment in off-shore wind, the backbone of British electricity by the late 2020s.

Combined with interconnectors from Holland and France - and soon Norway - it could plug much of the intermittency gap through the dog days of a windless anticyclone. The power can flow both ways: surges in North Sea wind could be stored in Nordic reservoirs.

Roughly 70pc of Iceland's electricity comes from hydropower through glacial run-off. This is mostly sold to aluminium smelters for a derisory price. Water washes over the top of the dams for parts of the year because the island has no way of selling the excess energy.

Hydro could probably provide the UK with one gigawatt of stable baseload, but then there is the tantalising potential of geothermal power from the island's 350 volcanoes as well.

The advances in drilling are breath-taking. An Icelandic projectbacked by the US National Science Foundation is currently boring the deepest hole ever attempted into the fluids of the inner earth at Reykjanes on the Mid-Atlantic Ridge. As of late December it had reached a depth of 4.626 kilometres, approaching temperatures of 500C.

The team aims to stop just short of the magma, at 200 times atmospheric pressure, where hot rock mixed with sea water releases ‘supercritical steam’ with enormous energy. This is the Holy Grail of geothermal power, if it can be extracted safely in a thermal mining cycle.

Mr Arnarson said each borehole promises 50 megawatts, ten times the normal geothermal yield. "There are a lot of unanswered questions. We don't know whether we can manage such force because it has never been done before. But we think it may be possible to build the first plant within four to five years," he said.

If it succeeds, the fossil fuel industry may face an even bigger threat to its long-term survival, for this technology could equally be used in the tectonic hotspots of Italy, Kenya, Indonesia, Japan, Mexico, or California, and possibly on a large scale.

London and Reykjavik having been talking on and off for sixty years about the dream of an 800 mile IceLink cable, the world's longest marine interconnector dug into the North Atlantic seabed.

The costs were always prohibitive but the calculus has changed as high voltage direct current (HVDC) comes of age, and the UK Climate Change Act mandates an 80pc cut in CO2 emissions from 1990 levels by mid-century.

British taxpayers may not have to put up a penny in investment. Private investors have already spotted the prize. Germany's Siemens is mulling a future bid. Icelandic officials say they have several eligible suitors with deep pockets.

Britain's Edi Truell is trying to beat them to the starting line. The flamboyant Duke Street founder, now at Disruptive Capital, never pulled off his rescue of Tata Steel but this venture looks more promising.

He is eyeing £3.5bn from pension funds and sovereign wealth funds to build a 1.2 gigawatt cable, what he hopes will be the first of a vast 6 gigawatt enterprise.“Foreign investors are beating a path to our door from Singapore, the

Middle East, and Canada. They can see a superb project with a 40-50 year return," he said.

With buccaneering optimism, Mr Truell thinks the project could be up and running by 2023, long before Hinkley Point. "Our assumption is that we will have to put up all the money. All we want from the Government today is a go-ahead in principle, and we'll get on with it," he said.

The condition is that IceLink has access to the the same contracts for difference (CfD) available to nuclear power and renewables. He thinks costs could come in below £80 per MWh, dropping to into the sixties as further cables deliver economies of scale.

Iceland's Askja Energy thinks £100 is more realistic. But even that roughly matches the indexed strike price for Hinkley, with the critical difference that the IceLink power can be dialled up and down to complement renewables.

David Cameron set up a joint task force with the Icelandic authorities last year in a flurry of enthusiasm. Andrea Leadsom, then energy minister, was so captivated by the idea that she asked only half in jest why we could not have four IceLink cables, and solve our intermittency problems once and for all.

Brexit has sapped momentum, though you might have thought that deeper ties to an Atlantic friend outside the EU should be an urgent priority. Iceland has since lost its government. Everything has been on hold since the Panama Papers felled the last prime minister, and the Pirate Party shook up the old order in October's elections.

Not all Icelanders relish the idea of becoming Britain's offshore power plant. Ecologists deplore drilling holes into the bowels of the earth, and they do not want the spoliation of Vatnajökull and their pristine highlands with more plants and transmission lines. "Iceland is not at all an endless source of green power," said Askja Energy.

The trade unions have the opposite objection. Whole communities live off the three aluminium smelters that gobble up 75pc of Iceland's power. Alcoa, Rio Tinto, and Century all have long-term contracts in any case. "No politician can shut down a plant just like that," said one official.

The project must be nursed through the fiercely independent Althingi, the world's oldest parliament. One thing can console us at least: the islanders seem to have forgiven Britain for invoking anti-terror legislation against them over the IceSave affair at the worst moment of the 2008 crisis, a shabby way to treat a Nato ally in dire straits.

Iceland's central bank governor later showed me the document listing his institution alongside Al Qaeda on the terror list. The result of London's financial warfare was to greatly complicate the import of basic food and supplies through those terrifying winter weeks. "It was 18th Century gunboat diplomacy," he said.

We are friends again now. This time we may need the Icelanders even more than they need us.