

Norway opens world's first osmotic power plant

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TOFTE, Norway (Reuters) - Norway opened on Tuesday the world's first osmotic power plant, which produces emissions-free electricity by mixing fresh water and sea water through a special membrane.

State-owned utility Statkraft's prototype plant, which for now will produce a tiny 2-4 kilowatts of power or enough to run a coffee machine, will enable Statkraft to test and develop the technology needed to drive down production costs.

The plant is driven by osmosis that naturally draws fresh water across a membrane and toward the seawater side. This creates higher pressure on the sea water side, driving a turbine and producing electricity.

"While salt might not save the world alone, we believe osmotic power will be an interesting part of the renewable energy mix of the future," Statkraft Chief Executive Baard Mikkelsen told reporters.

Statkraft, Europe's largest producer of renewable energy with experience in hydropower that provides nearly all of Norway's electricity, aims to begin building commercial osmotic power plants by 2015.

The main issue is to improve the efficiency of the membrane from around 1 watt per square meter now to some 5 watts, which Statkraft says would make osmotic power costs comparable to those from other renewable sources.

The prototype, on the Oslo fjord and about 60 km (40 miles) south of the Norwegian capital, has about 2,000 square meters of membrane.

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Future full-scale plants producing 25 MW of electricity, enough to provide power for 30,000 European households, would be as large as a football stadium and require some 5 million square meters of membrane, Statkraft said.

Once new membrane "architecture" is solved, Statkraft believes the global production capacity for osmotic energy could amount to 1,600-1,700 TWh annually, or about half of the European Union's total electricity demand.

Europe's osmotic power potential is seen at 180 TWh, or about 5 percent of total consumption -- which could help the bloc reach renewable energy goals set to curb emissions of heat-trapping gases and limit global warming.

Osmotic power, which can be located anywhere where clean fresh water runs into the sea, is seen as more reliable than more variable wind or solar energy.

A summit in Copenhagen next month is due to agree on a U.N. pact to combat climate change by promoting clean energies and a shift from fossil fuels that a U.N. scientific panel blames for stoking heatwaves, floods, droughts and rising seas.

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