

## Morphic tests tomorrow's wind turbines on Öland

**As part of the continued development of Morphic's fuel cell-based energy systems, the company will be testing a proprietary 20 kW wind turbine this fall in the toughest possible conditions on the island of Öland off the coast of Sweden. All components in Morphic's energy system are developed for large-scale production and Morphic is involved in discussions with various players in all applications areas regarding the introduction of the Company's energy system.**

"The markets we are targeting will have very high quality and performance requirements, so we intend to test our products based on international standards. Technical quality and high performance will be characteristic of the wind turbine as well as for other components in our energy systems," Jonas Eklind, Morphic Technologies' President and CEO, says.

The energy system offers continuous electricity production with the help of fuel cell technology. The system is suitable for small-scale facilities as an alternative to, for example, diesel units, but is also suitable for larger facilities for the purpose of storing energy and offering continuous electricity production from individual or larger groups of wind turbines.

"We will also be testing the wind turbine in applications, for instance as part of local energy supply solutions for telecom base stations, in agriculture and for electrification of villages in developing countries – all for the purpose of being able to offer a product that meets the customers' stringent requirements," Jonas Eklind adds.

The test environment venture on Öland became possible through a positive dialogue with the municipality of Mörbylånga, the research leaders at Station Linné and the owner of Parboäng farm.

"We are very pleased with Morphic's decision and with their product development, which will create many opportunities to show why Öland has the best possible conditions for this type of industrial development," Kent Ingvarson, municipal commissioner at Mörbylånga municipality, says.

"Parboäng farm grows organic produce and produces organic meat with an emphasis on local production, so having our own production of electricity from renewal energy is a natural next step for us," the farm's owner, Johan Parboäng, says.

## Morphic's energy system in brief

Morphic's energy system represents an entirely new way of converting, storing and using energy from renewable sources. The system converts energy from a wind turbine or other power generator into hydrogen, or other energy bearer through a chemical process. This fuel can then be stored and converted back into electrical energy at a later time using fuel cells.

The purpose of Morphic's energy system is partly to enable local production of electricity at a predefined cost and partly to increase the share of energy produced from existing renewable sources of energy. In local electricity production the market for the system is divided into two categories: areas with infrastructure for electricity production and areas without infrastructure for electricity production. In the first category Morphic's system can be used for generating electricity from biogas energy, e.g. from treatment works, recycling facilities and agriculture. In the second category Morphic's system can replace diesel generators. This includes systems for powering telecom base stations.

## A three-stage market launch

The market launch of Morphic's fuel cell-based energy system will take place in three stages.

The *first stage* is in the market for non-grid-connected solutions, a majority of which are currently powered by diesel generators. The dominant application for Morphic's products is the powering of telecom base stations but there are also other markets, e.g. local energy supply in isolated locations, such as islands or deserts or isolated border control stations with radar equipment. However, the initial focus will be on telecom, where there is significant market potential in countries with poorly developed electricity grids, particularly in Asia and Africa. In India, for instance, a single operator will be building 18,000 new base stations in 2009 and of these about half are not expected to be connected to the grid.

The *second stage* of the market launch will take place when the energy system can be connected to the grid but the investment can be covered by the need for standby power. The goal is that the variable costs for the energy system, taking account of any subsidies, should be lower than the price of grid electricity. The market can consist of businesses with access to biogas and/or wind that have a need for continuous operation, such as big farms, industries, waste management facilities and sewage treatment plants.

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The *third stage* will take place when the cost optimization of the energy system has reached the stage where it is able to produce electricity and heat that compete directly with electricity from the grid and costs for heating. This would open up the market to end users. A modular energy system can then be marketed as a cost-effective alternative for household electricity and heating. The market for combined heating and power (CHP) solutions is expected to expand rapidly in the next few years in line with the rollout of biogas.

### About MBD

Morphic Business Development (MBD), a Morhic subsidiary, was established in 2007 and currently owns, following a series of acquisitions in 2007, development and expertise in all parts of a fuel cell-based energy system for renewable energy.

The goal is to establish Morhic as a leading supplier of high-efficiency energy systems for local production of electricity using renewable energy sources.

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#### *This is Morhic*

*Morphic Technologies is a growing Swedish industrial group with operations in fuel cells, wind power, energy systems and production technology. It has operations in Sweden, Japan, Greece, Italy and Switzerland, and employs around 170 people. Morhic's B shares have been listed on the OMX Nordic Exchange since March 4, 2008. The number of shareholders is about 22,000. The company's fiscal year runs from May 1 to April 30.*