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Morphic Awarded Patent on Method for CO₂ Capture and Liquid Fuel Production

Morphic has been granted a patent on a method and system for absorbing atmospheric carbon dioxide using wind turbines, and then combining the CO₂ with water and excess electricity to produce liquid biofuels. The technology for CO₂ absorption has been verified in a laboratory environment, and the company is now looking for partnerships with a view to evaluating a potential commercialization of the concept.

Since 2004 Morphic has been conducting intensive research and development into energy conversion, covering processes as well as technical systems, with the aim of finding ways to convert and store renewable energy in various forms, and to adapt it for later use in fuel cells for a range of different applications.

The basic idea behind the patent is to absorb carbon dioxide using an enzyme, carbonic anhydrase, which is used to coat the blades of the wind turbine. The function is the same biochemical process that removes carbon dioxide from the blood in a human. An application for a patent on an “energy converter” for producing methanol from electricity, carbon dioxide and water was submitted as far back as 2004. The invention that has now been patented is a more advanced version of the same energy converter, where Morphic believes it has solved the problem of how to extract the CO₂ from the air.

“The actual method and arrangement have been verified on a very small scale, with encouraging results. One of the big challenges in our R&D work now will be to find an economical way to release the captured carbon dioxide. There are several well known methods and processes for converting CO₂ into methanol and other liquid fuels, and we are now working on analyzing and optimizing these”, Dan Borgström, Senior Advisor at Morphic Technologies AB, says.

“The invention could in time become a pioneering product in our product development portfolio. There’s a lot of development that remains to be done, of course, and many problems that we still need to solve, but now that we have secured our rights we can at last start to make contacts both in the research community and with industrial partners to find the most cost-effective way to evaluate and optimize the technology. Since carbon dioxide capture is now high on the global agenda, we believe the best approach to a future commercialization is through licensed sales,” Martin Valfridsson, Morphic Technologies’ President and CEO, says.

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This is Morphic

Morphic is a Swedish engineering group operating in the areas of fuels cells, wind power, fuel cell energy systems and engineering technology. The Group has about 230 employees and conducts operations in six countries – Sweden, Norway, Japan, Greece, Italy and Switzerland. Morphic Technologies' B shares have been listed on the OMX Nordic Exchange since March 4, 2008, and the number of shareholders is about 28,800.