



Our Business

On these platform pages, innovators and small companies open their workplace(s) exclusively to Elektor Business Edition readers. Here are their views, tools, gear, products in the making, and, importantly, the people active at any phase of the Innovation → Start-up → Trade progression. In this edition, the platform is given to: MOWEA, a small company from the big city of Berlin.

The Biggest in the Smallest

Wind turbines that you might not necessarily notice will do the trick



Dr. Till Naumann (l.) and Andreas Amberger, cofounders of MOWEA (which in German stands for "MOdulare WindenErgieAnlagen," or, in English, for "Modular Wind-Energy Systems")

Mowea: winner — eelectronica Fast Forward Start-up Award 2016, powered by Elektor



In 2016, MOWEA was the winner of the eelectronica Fast Forward Start-up Award. During its pitch at eelectronica 2016, it became perfectly clear that MOWEA had a very convincing story to tell. The first prize of the eelectronica Fast Forward Start-up Award competition consists not only of a free exhibition stand during the next edition of eelectronica in Munich. It also consists of a marketing package worth €75,000, donated by Elektor. A jury consisting of Elektor specialists will evaluate the contributions for the eelectronica Fast Forward 2018, just as they did in 2016. Talking of 2016: Elektor wants to evaluate where the 2016 winner stands at this very moment...

MOWEA from Berlin wants to be the biggest in the smallest of wind turbines. This may sound like a marketing statement. But cofounders Dr. Till Naumann and Andreas Amberger do not consider themselves to be marketing managers. They consider themselves to be engineers. That is why they like to think in terms of a detailed roadmap: first, focus on sound technology and then look for the right sales people. Their roadmap highlights the coming three years as crucial. What is the plan? The plan is to design and test small wind turbines, which, in the words of Naumann, could be placed on any family home, on an office building roof, or on a telecom provider's pole. The turbines' rotors are only 1.5 metres in diameter, a far cry from the 8 or 10 metres you find on larger conventional wind turbines. MOWEA wants to make its system completely scalable: depending on any local need, two turbines could be connected to each other — or 20, thus provid-

ing a range anywhere between 400 W and 50 kW. This implies that the turbines could work completely off-grid, or they could supply power to any existing grid. Naumann and Amberger intend to go one step further. Their turbines are ideal for supplying power to newly established microgrids in areas where energy supply is still completely absent.

Weak winds optimized

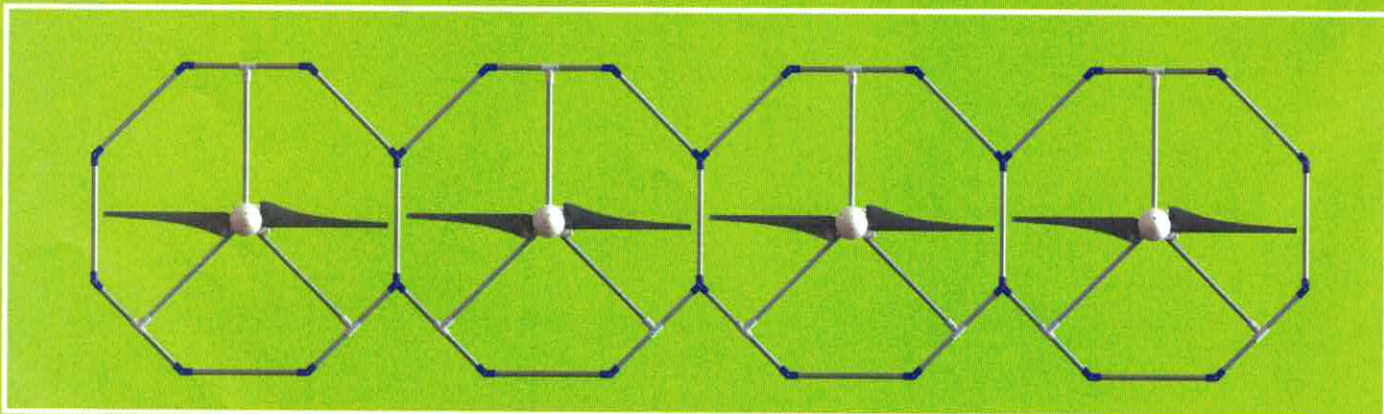
OK, this is the plan. But to be honest, this plan is not that unique. Similar plans for small turbines have been around, but they've remained just that — plans. Granted, one could pinpoint some examples of what could be dubbed as "promising prototypes." But for some reason or another, the prototypes didn't make it to the worldwide market, which is the market MOWEA is targeting. What makes Naumann and Amberger think that they and their three colleagues can turn things around (not only in the literal sense)?

Here is where both feel an urge to tell their story, and not just because they want investors to contribute to their cause. First of all, they managed to make their wind turbines 10% more efficient than similar or previous turbines. Every percentage point counts in the wind energy business. "We can offer 10 of them," Naumann and Amberger state unequivocally. How did they "pull this one off"? In three ways: by improving the rotor (with airplane like winglets for example), by improving the generator, and, last but not least, by improving the electronics. All three make the MOWEA wind turbine, among other things, "weak winds optimized." Naumann and Amberger persistently avoid going into further detail here, wanting to protect their IP as much as possible.

In sync with solar

Naumann and Amberger want to talk about other technological features of their wind turbines. Any MOWEA wind turbine can work in sync with a photovoltaic system, meaning that wind and solar energy can be combined in one integrated product. This makes the total system much more attractive, not only because of the increased availability of real-time energy (even to 100% in some places), but also because this solution reduces the needed battery capacity and thus battery costs.

Finally, there is another point both men don't want to leave untouched. The turbines are designed in such a way that people, as well as animals, are kept at a safe distance from the rotor(s). A special



In case you do not recognise these four items as wind turbines, you can find the rotors in the middle.

kind of net makes the turbines as safe as they can be. "Something which also makes our solution unique," Naumann said.

Crucial year

2018 is a crucial year from MOWEA. Several prototypes have been tested to back up the claims the cofounders made: modularity and scalability, 10% more efficiency, working in sync with photovoltaic systems, and being safe for both people and animals. But now it is time to put the turbine to the test in the outside world "as is." A German telecom provider will place four turbines on one of its poles in the eastern region of Brandenburg. The idea is: if wind turbines can be profitable in a region where wind conditions are less favourable, well, then they will be profitable everywhere.

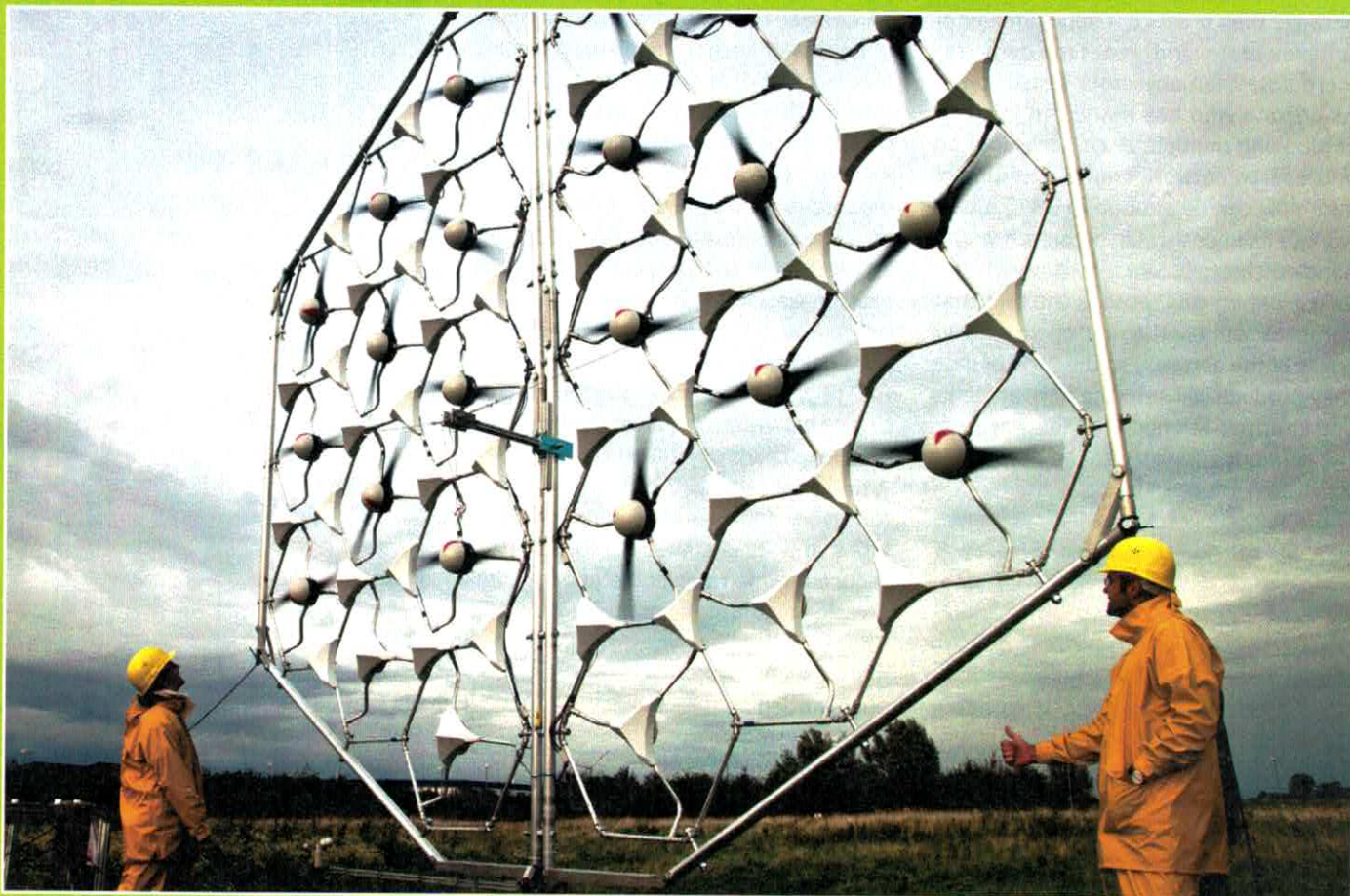
Naumann and Amberger are optimistic that their numbers add up. That is why

they are now concentrating on something else: financing future mass production and taking care of the marketing that goes with it. That does not mean that MOWEA wants to start mass production right away: the company is planning to assemble the first 150 wind turbines itself in order to build up the experience needed to instruct third parties in Eastern Europe, China, or India. Such an internationally-oriented and cost-efficient manufacturer should have a yearly capacity into the thousands from 2020 onwards.

Nothing to be desired?

Technically, then, is there nothing to be desired? Of course there is. Yes, the sensors to track wind directions and wind strength are already present in the latest prototype. What is lacking, though, is an app with which to collect and interpret all these data. By keeping track of all

wind patterns, such an app could suggest realigning the wind turbines in a (slightly?) different direction. This could boost the efficiency of the wind turbines even more. With or without boost: in their Companisto crowdfunding campaign, Naumann and Amberger dare to state that the payback period for a system consisting of eight turbines is 2,2 years for off-grid use. Such a system would be the typical system that resellers would like to sell wherever on the globe. The payback period is based on an equally typical kWh price of 50 euro-cent (after all, this MOWEA system could serve as a substitute for a diesel generator). Naumann and Amberger are talking 2020/2021 here. They must be pretty confident that their technology can withstand the test of time. ◀



Do you want a 10-kW system (depicted here)? MOWEA can go to 50 kW if you want or stay at 400 W just as easily.



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We look forward to hosting the **e-ffwd 2018 edition** and welcome you at the **electronica** trade show in Munich this November.