

Modular Wind Energy Appliance

Battling darkness with modular 500–1500 watt wind systems

By **Tessel Renzenbrink** — Elektor Business Magazine Correspondent



The modular pico-wind-energy system from the Berlin based company MOWEA was the overall winner of the **electronica** Fast Forward Award 2016 staged by Elektor. The wind turbines are designed to plug into existing off-grid solar systems to provide additional electricity. MOWEA's system differentiates itself from competitors in three ways: low cost, easy installation and scalability. The modular system can scale from 500 watts to 1.5 kilowatts by installing up to three turbines.

MOWEA's cofounders CEO Till Naumann (PhD, Ing) and CMO Laura Obst (MSc) entered their project in the Prototype category defined for the award. Having convinced the Jury with their promising technology, the sound business model and an outstanding pitch they were awarded the grand prize: a media campaign worth \$75,000 and a booth at the 2018 edition of **electronica** Munich

Darkness

Obst kicked off the pitch with a dim picture that barely showed anything. "What do you see here?" she asked the audience. Looking closer you could make out a vast starry sky looming over a mountainous landscape clad in darkness. Dotted here and there were a few sources of light. "This is an area in India where people live with limited access to grid electricity", said Obst. "It is hard for us to imagine, but this is the reality for nearly a quarter of the world population."

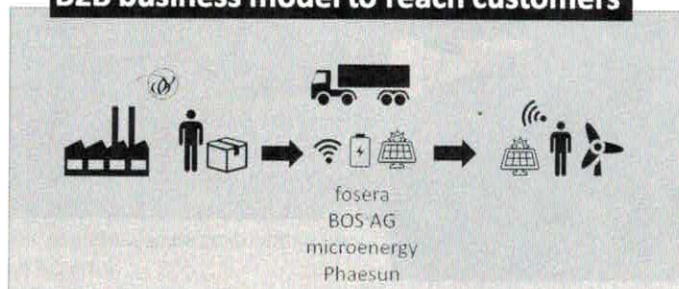
Lack of a grid connection forces people to use fossil fuelled alternatives like kerosene lamps. These form a health hazard, are bad for the environment and forces people to spend what

little money they have on fossil fuels and battery charging services, explains Obst.

The answer comes from the renewable energy revolution. Leapfrogging 20th-century centralized grid technology, many in remote areas jump straight to decentralized renewable tech. The market for micro solar home systems is expected to grow 60% annually, said Obst.

The function of the MOWEA (Modular Wind Energy Appliance)

B2B business model to reach customers

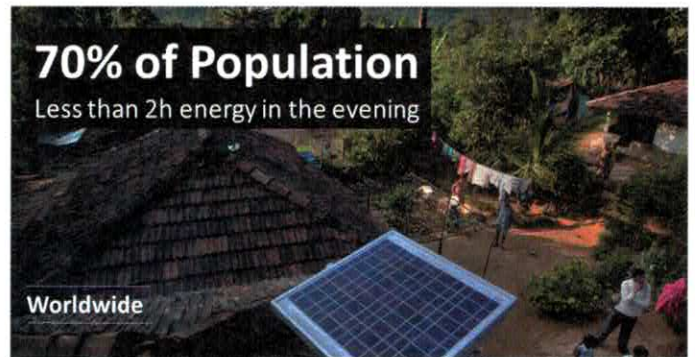


system is to boost the amount of electricity home systems can supply. The turbines are built to plug into most of the micro solar systems on the market today, exploiting the controller and battery system of the original system to keep costs low. They can complement solar energy during the night and in the rainy season.

New aerodynamic concept

The turbines are optimized for low wind speeds. This is accomplished by the rotor diameter which is larger than those of similar wind systems. The turbines are also more efficient than their brethren. CEO Naumann based their design on a new aerodynamic concept he developed during his PhD studies. Using a novel way to calculate the geometry of the blades he was able to improve the aerodynamic efficiency substantially.

To keep costs low the design favours simplicity. There are no complicated mechanics such as gearboxes or cooling systems. Thus improving the system's robustness MOWEA can guarantee a long life span. Almost all the parts can be manufactured with injection moulding to allow for cheap mass production. The MOWEA team has a working prototype that is currently in pre-testing phase. In a future iteration of the device they aim to add IoT capabilities. "We want to develop an energy and communication hotspot and prepare those micro-energy-

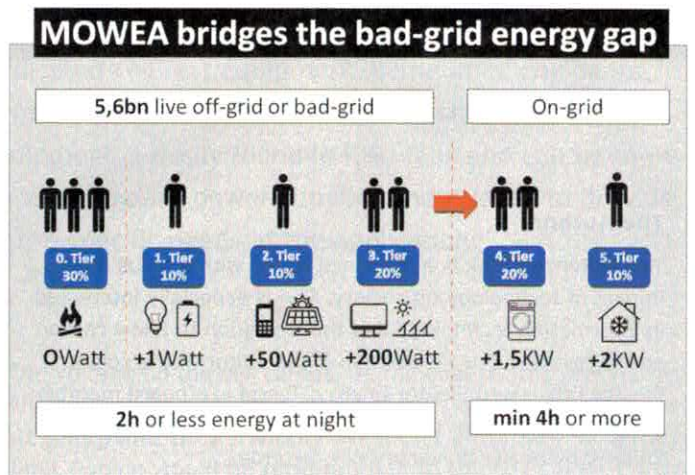


“ Almost all the parts can be manufactured with injection moulding to allow for cheap mass production. ”

systems for integration into micro grids”, said Naumann during the pitch.

Tesla strategy

MOWEA plans to get their wind system on the market through resellers. These partners will offer energy services on a pay-to-go basis to end users. But first the team must produce a system that is market ready. To get there they apply the *Tesla strategy*: start out with a high-tech high-cost product, use to proceeds of sales to slash costs and end up with a high-tech low-cost product. The first Mowea systems will be sold on the German market to green tech aficionados who can afford them. That money will be used to start mass production and lower cost. By 2020 they aim to have reduced costs enough to enter their true target markets: people with limited grid access.



Level: Intermediate	Company Status: Start-Up	Approach: Practical
Subject: Product	Advice: Technology	Website: www.mowea.world
EBM ARTICLE TAGGING		

Seventy-five thousand dollars!

When asked what MOWEA would do with the first prize €75K media campaign budget Naumann answered: "Being a start-up, we need marketing in every direction you can imagine: corporate design, a better looking homepage, testimonial videos of our prototypes and of our field tests, content for B2B partners, presentation opportunities at relevant trade shows and especially community building, on Facebook and other media. We are planning a crowdfunding campaign, tentatively at the end of 2017." ◀

Caught on video!

You can watch the MOWEA pitch on Elektor-TV's Youtube channel: www.youtube.com/watch?v=xtYaJ0mFmuQ



The Author

Tessel Renzenbrink is a freelance writer with a focus on the impact of technology on society. She is especially interested in information technology and the transition to a low carbon energy system. For Elektor she is the editor of the columns Elektor Ethics and Elektor Energy. Tessel is a board member of the Dutch chapter of the Internet Society and studied Philosophy at the University of Amsterdam.



Questions & Answers

Ranking

What do you need the most to make your project a success? Rank the options below from 1 to 4 where 1 is the most important.

1. Finance
2. Operational support
3. Technological support
4. Marketing

Tell us a little bit more about option 1. What do you need?

1. Finance / BA-Investment: 150K to reach the proof of concept in 2017 (paying customers, first pre-series).
2. Operational support / partners from the off-grid renewables field: wind and micro-grid experts would be best.
3. Technology- and supply-chain co-development, to establish the production process and the channels to reach the end customer in remote off-grid areas
4. Marketing: publish content in magazines / social media about our idea & team, visibility on fairs (especially in B2B areas)

Markets

What are your primary markets? And what are your secondary markets?

Primary market:

West India, East-South Africa, South America.

Secondary market:

Europe, Australia, Russia, USA – RV, boating and leisure markets.

Target groups

Who are your primary target groups? And what are your secondary target groups?

- primary target group: SMEs, small industries and farmers who want to replace expansive fossil fuel diesel generators as back up for their energy supply.
- Secondary target group: RV, caravan, yacht, boat owners

Channels

Which channels are you using, or would you like to use, to bring your product to market?

In the beginning, we focus on the social care market. First we will address nursing homes and hospitals, then we will also address private care. But we have also applications for smart home, industry 4.0, laboratories and prisons on our mind.

Investment

How much financial investment are you aiming for?

150K will allow us to successfully develop in 2017 the first pre-series of our product and have the first paying customers. Moreover, with this money we can hire two more people (IoT, software and business development), focusing on growth.