

Inventor hopes to make it big on renewable energy

By EHUD ZION WALDOKS

Leviathan Energy founder Dr. Daniel Farb arrived in Israel just three years ago, and he believes he can make his mark on the country's renewable energy market in about the same amount of time.



Daniel Farb with one of his turbines, which he claims are the most efficient in the world in their class. **Photo: Courtesy**

Farb told *The Jerusalem Post* recently that since making aliya he has invented small wind and water turbines which, he says, are the most efficient in the world in their class.

Farb, 53, of Beit Shemesh, founded the company in 2006 and employs eight people full time - a mix of immigrants and native Israelis. He also employs a number of people on a part-time or contract basis both in Israel and abroad. He told the *Post* his team had obtained brand new data from their testing site at the Rotem Industrial Park in the Negev which backed up his claims.

Wind and water turbines have generated some controversy as to their potential for large outputs of electricity.

Small wind turbines are intended to be erected on homeowners' roofs to provide a portion of the house's electrical needs. Larger wind farms exist around the world to produce higher amounts of electricity.

"The cut-in speed [on the Wind Lotus wind turbine] was two meters per second. That means the wind speed at which the turbine starts to rotate. It tells you indirectly how aerodynamically efficient the turbine is. The equivalent turbines on the market start at three meters per second.

"This is a highly significant improvement and makes it the most efficient in its class in the world by a significant percentage. We expect that the next, commercial version will be even better, as we still have not finished our optimization and our data collection. Farb's success has not only come from inventing new types of turbines, but from structuring the flow into the turbines. "By structuring the

input of the wind or water we can make them hit the blades better and greatly increase their efficiency," he said.

"We are starting to take orders for our first mass production run, which should be in a few months, and will offer a reduced price to Israelis who place an order for that first run.

"One meaning of our testing is that the Wind Lotus without subsidies is more cost-effective than solar panels with subsidies," he told the *Post*.

Farb, an ophthalmologist by profession, who has also been the CEO of an e-learning company and has authored many books, has invented several types of wind and water turbines to produce renewable electricity. His inventions harness the power of the wind, the waves and the underwater currents. He has even invented a turbine which fits into pipes and uses their natural flow to generate electricity.

Farb had his first breakthrough moment at the Weizmann Science Park, appropriately enough.

"Two or three weeks after I moved to Israel [in 2005], the summer camp my children were attending needed some parent chaperones for a trip to the Weizmann Science Park. They have a wave pool and I started watching the waves carefully, and then I had a Eureka moment," he reminisced.

His medical training gave him a good grounding in physics, he said. The Beit Shemesh resident started working in Israel for a biotech patent law firm and it wasn't long before he was filing his own.

"All [of my inventions] have been covered by international patent treaty. I have filed over 50 patents since I came to Israel," he said.

A check of international patent listings confirmed that Farb had requested patents for his devices. In addition to renewable energy devices, he has filed patents on a system to protect computer networks and a new type of eye chart.

Farb attributed much of his startling productivity to his aliya.

"I got inspired by coming to Israel, maybe. Things here sometimes happen in a way that we realize that we are not always controlling. There are lots of innovators too. It's a very entrepreneurial environment.

"I've had great help, wonderful engineers. We've assembled a wonderful team of Anglo olim and native Israelis," he said.

At present, only about 350 MW are generated in Israel from wind turbines, Eddie Bet-Hazavdi, standards coordinator at the Department of Energy Resources of the National Infrastructures Ministry told the *Post* Monday.

"There might be room for some dozens of more kilowatts, but it's not a promising market. You can't base an energy market around it," he opined.

He was also similarly dismissive of turbines which harness the power of water.

"They are premature technologies. They are not financially feasible and have not proven themselves yet," he said. He suggested Israel focus on solar energy because the country gets a lot of sun.

Obviously, Farb would disagree.

"Most wind turbines only start turning at three meters per second. 5-6 meters gets good energy. The UK has very good winds at 8-10 meters. Israel is much milder with 3-4 meters per second, sometimes slower. One of my small wind turbines starts producing at less than one meter per second. That is an exceptional figure.

"The same kinds of principles apply to underwater systems. If we can get more energy from slower flow we can get much more energy from faster flow," he explained.

"The Israeli government is behind other industrialized countries in setting goals and subsidies for renewable energy," Farb claimed.

Some Scandinavian countries already produce as much as 10 percent of their electricity through renewable sources. Israel hovers at around 1%.

"They are working now at catching up and should be encouraged. My point is that the country should be a leader, not a follower. In addition, I believe that with no regulatory barriers to the implementation of my inventions, I could make a significant contribution to enabling Israel to have much more than 20% of its electricity from renewables within five years," he declared.