

Transcription of Wefunder Investor Panel interview of Kevin Wolf, co-founder and president of Wind Harvest International

Kevin Wolf: Hello.

Kieran Ryan: Hey Kevin.

Wolf: Hi, how're you?

Ryan: Doing well. I'm Kieran, from the Wefunder team. We have Luke Iseman and Ali Ahmed on the Investor Panel today asking questions about your business today. Before we get started, can you give us a quick 30-second overview of Wind Harvest, and then they'll jump in with their questions afterward.

Wolf: We make an H-type wind turbine that can go into the understory of existing wind farms and make use of very energetic near-ground wind that's presently not used.

Ali Ahmed: That's a great, short elevator pitch, I love it. Can you talk a little bit about the advantages of your product? I don't know much about the space but it'd be interesting to learn how much more electricity can it generate and what the advantages are versus regular turbines.

Wolf: First, no existing technology can use near-ground wind because it's too turbulent for traditional turbines, so there it is, sitting there, highly energetic no technology to use it. Once you're able to use it, if you go into existing wind farms, the roads are already built, the land is already purchased, everything is set up. You just add in a second story either at a percentage or a full buildout of an existing windfarm with good near-ground winds.

Luke Iseman: How many existing windfarms have good near-ground winds?

Wolf: We used UL's Wind Navigator to evaluate all the wind farms you could find in the world, and there's about 10 to 20 percent of the wind farms have a profitable near-ground winds above 6.5 m/s (14-1/2 mph) It's about 50,000 to 100,000 megawatts of existing windfarms.

Iseman: And then will you need to change the power capacity coming out of these wind farms to match that increase . . . ?

Wolf: Depends on if you build out a full understory or if you only build out what's called a capacity factor enhancement project. Leave the substation the same, leave the transmission lines the same, add 10-25 percent of our turbines, maybe with some batteries, and even out that power, make it more reliable, and produce, make a better use of the existing transmission substation. And then you don't have to put in that kind of infrastructure.

Ahmed: Can you talk about your business model? Who are you charging? Who is your customer and what do you charge them?

Wolf: Our customers are wind farm developers who want to buy our turbines. So we make a margin on the sale of the turbines. The problem we face is that bringing turbines to the level where they can be bank financed as traditional collateral on loans requires dozens of them to be operating probably for at least a year. So the trick for companies like ours is, how do you get from, you know, you're at a pilot project phase, and how do you get to full commercialization when there's no income, and it's only your own capital pretty much that you're able to use.

Iseman: So how far along are you in this process? Do you have a pilot project identified, or . . . ?

Wolf: Oh yeah. That is . . . We came to crowdfunding because we couldn't get VCs and others to help us with the pilot project phase. Many renewable technologies fail at this part of the development process because it's a very, it's full commercial scale. So it's a half a million dollars for us just to get these turbines built and installed. And we are going to be doing this at the national testing center in Denmark. Everything is lined up, it's been lined up for quite a while. That is where our version 3.0 was installed and passed through technology readiness level 6. Pilot project phase is technology readiness level 7, next is 8, that is the full certification, that will also be done in Denmark, and then 9 is full commercialization; can you get, you know, bank financing for your product.

Iseman: You need 500K to get you through TRL 7, then what about full verification? How much more will that take?

Wolf: Probably about another \$750,000. And then another \$250,000 for a lidar to measure wake downwind of these turbines to prove to the wind farm owners that these turbines can actually increase the wind speeds realized by their existing turbines.

Ahmed: So 250,000 for lidar for each of your . . .

Wolf: No, just one lidar. It's just used for each set of experiments. You put the lidar around 400 meters downwind, point it upstream, collect all this data, and you can prove it. But you've got to do it in different topographies, then you have to do it among the wind farms itself, among the turbines, and then after about a year or so of this it'll be proven that these, our turbines can be placed to synergistically help the tall turbines.

Ahmed: So when you mention the \$250,000, you're not mentioning the cost, you're talking about the overall operational expenditure of running the experiments, etc.

Wolf: That lidar itself is a \$250,000 piece of equipment.

Ahmed: Really?

Wolf: Yes. It's really a super high-tech piece of equipment.

Iseman: You said that your turbines will increase the actual, not just from the effect of your turbines running but the existing wind turbines will run more efficiently?

Wolf: They will get more wind speed. They'll get an increased wind speed through their rotors. This study's come out of Cal Tech and Stanford using smaller H-type turbines and field testing to prove what is called planform kinetic flux, the faster moving wind here is drawn down here and into the turbines here and they should realize faster moving wind speed. And the energy of wind is the cube of the wind speed. So a small increase in wind speed is a significant increase in energy output.

Iseman: So, are you far enough along to tell a, like a wind developer, here's the ROI you would gain from installing our turbines on your existing land versus expanding your farm to adjoining land or building a new farm?

Wolf: Yes, we are. We know those numbers. We can tell them what production costs will be, our cost of goods sold, our margin, what the installation costs will be, what the foundation costs will be. We just applied for a two megawatt hybrid solar wind project with Valley Clean Energy that is here in Yolo County. It's a community choice aggregator, they're looking for more deliverable renewable energy and we can give a pretty good shot at getting that two megawatt project with a power purchase agreement.

Iseman: What are you worried about? Why might this not work?

Wolf: Always it's a shortage of capital. But I think that once people hear this story and know how far along we are, that shortage problem will hopefully be overcome.

Ahmed: Can you talk about competition? What's your defensibility and do you have a patent behind your turbines?

Wolf: Yeah, we have an existing patent, though that's running out here in a few years. Then we have a whole bunch of new patents that we'll be bringing in to this next version, version 3.2, the final commercial version. Version 3.1 is the pilot project phase, and then we have a slew of patents that we are putting in that are quite, quite producing low cost, makes our turbines much lower cost than the competition. There is no real competition that is anywhere near our scale nor has our aeroelastic modeling, so it'll take probably two years for anybody to catch up. So we probably have a two-year head start.

Ahmed: Can you talk about your background? And how long have you been doing this?

Wolf: I got my degree in evolution and ecology, by B.S., from UC Davis. I worked for Friends of the River as an environmental organizer, another 10-15 years as a consultant for environmental groups, and watershed portals and things like that, and then I started consulting and then

finally got hired to work for this company full time in 2006. And I've been pretty much working full time for Wind Harvest since then.

Ahmed: So what's your role? You're not one of the founders?

Wolf: I am a founder. I am the president. I act as the CEO. The CEO position is going to be filled with our Series B round. So we do not have that position or the CFO positions filled yet.

Ahmed: Are you full time on the company?

Wolf: Yes.

Ahmed: Okay.

Iseman: Who's the rest of your team?

Wolf: Peter Hansen, out of Omaha, Nebraska, is our chief engineer, 25 years' experience, Danish background; David Malcolm, Dr. Dave Malcolm, up in Spokane Washington, Seattle, Washington, is our senior engineer. Then we have my daughter Kelsey, down in Chile, is the main graphics and web person, then we have Cornelius Fitzgerald, he is the other executive representing the preferred shareholders who's in the project development portion of the business,

Ahmed: You seem like you have a good team, Kevin. Why do you say you will hire a full time CEO. . . .

Wolf: We are looking for 30 to 50 million dollars in our Series B round. We don't have experience showing that we can properly move that amount of money through to completion. Anybody putting that amount of money is going to want to have that amount of experience in the executive team.

Iseman: So you said that 10 to 20 percent by the wind navigator numbers of the existing wind farms work for you. What happens in a decade? What's the next phase?

Wolf: Well, every year, 10 to 20 percent of new wind farms have good near ground wind speeds. So the resource continues to grow the more wind farms are added.

Iseman: Does it ever make sense to view these as independent of existing wind farms in the future?

Wolf: Oh, yes. For example, in Barbados, they are suffering from drought they could use 100 megawatts of wind, they can't put the tall ones in, they need a massive desalinization because of climate change for their water, and they're looking to bring 100 megawatts of our turbines into the island to solve this problem They have a lot of tourists, they can't get these tall ones

on, but here's a great wind resource that can only use turbines the height of palm trees. There's lots of other examples if you want them.

Iseman: So, can you, before getting funding, could you move any of these, like Barbados or any of the other projects, to like a letter of intent phase, or something more to make it solid for potential investors?

Wolf: Yes. We already have a letter of intent. We have a letter of intent from the Mountain High project near Wrightwood, California. We have a power purchase agreement RFO in to the Clean Valley Energy and of course a letter of intent for leasing land for the ranch, we have projects advancing and a letter of intent for permits going in in Simpson Ridge, in Wyoming. So all these projects are lining up for 2021. And the plan is, get through in the next 12 months technology readiness levels 7 and 8, then trigger that B round for 30 to 50 million dollars and then that funds about 5 MW of projects at the end of 2021.

Ahmed: I mean, again, I think what you're doing is interesting. But when I asked about your background, I didn't really get a sense of why you're doing this. Can you talk a bit about why this is something you're passionate about?

Wolf: Oh, gosh. I was a river guide and an organizer trying to save rivers from dams when I first heard about wind energy. And the only clean energy back then was dam every river. And we knew back then in the 80s about global warming and coal and fossil fuels and nuclear, all those things, and yet, what was the answer? Solar was so expensive, but there was wind. So I've been always interested in finding a way to stop damming rivers, stop the pollution, stop the destruction of our nature by these fossil fuels and reservoirs and nuclear power. And wind and solar, it was like, wow, that is such an interesting. Don't just try to stop the dams, find a way to make up so they don't have to be dammed because there's plenty of renewable energy.

Iseman: And then, following up on that, what are the environmental impacts of these turbines compared to normal ones and other potential energy sources?

Wolf: Well, when they go into existing wind farms, of course, they don't have to have so many wind farms going to raw land. So it's just the reduction in habitat loss. Birds should see our turbines, because they're three dimensional, and they rotate much slower and they're the size of trees, and for all kinds of evolutionary reasons, the ornithologists think birds and bats will see and avoid our turbines. Therefore, they can go on places that the tall turbines can't. Their foundations are underground; there is no runoff problems from these turbines. They can graze underneath them. They're short, they can be out of the way of airplanes and drones and radar, and they can be seen, they're not actually seen from very far. So there's a number of those very positive environmental benefits that come with these very tightly placed, one meter apart H-type turbines.

Ryan: I'm going to jump in, just because we're out of time. But thank you so much for sharing, Kevin. I think this video will be really helpful to investors that are looking at your Wefunder profile

Wolf: Great. Well, thank you, guys.