

Money-saving small wind turbines—myth or reality?

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Credit: Hugh Piggot

Small wind turbines promise a decentralised and clean energy source, but what can be done to make them more cost effective? At the moment, better use of feed-in tariffs is recognised as a potentially effective tool

for boosting the small wind turbine industry beyond subsidies. Ultimately though, it will be innovation in design that makes small turbines more competitive

Getting clean [energy](#) through your own turbine without relying on a central grid sounds great, but with subsidies being cut across Europe, is it too good to be true? Those with plenty of experience with wind turbines are quick to concede the financial challenges of this green technology.

Indeed, Hugh Piggott, credited by the Guardian as one of the pioneers of small wind turbine tech, does not go in for equivocations. "Don't make a wind turbine to save money!," he writes on his website, referring to his pioneering work with wind turbines in his home in Scoraig, north-west Scotland. Piggott acknowledges advances in the industry, but still says that installing a wind turbine should be done out of interest and a desire to use [clean energy](#), rather than a simple financial calculation. "I never thought it was about the money and I still don't," he says.

The small wind turbine industry also needs to deal with competition from increasingly affordable photovoltaics (PV), points out expert David Wood, NSERC/ENMAX Industrial research chair in renewable energy at the University of Calgary, Canada. He suggests small wind turbines may be most effectively used in conjunction with PVs. "A mix of PV and wind helps deal with the intermittency of renewable energy generation," says Wood.

However, small turbines are trying to win customers with the promise of improving energy production and reducing costs. "One of the biggest challenges is the negative image from the past," says Gosse Hiemstra, from Van der Meer & van Tilburg, in the Netherlands, an independent consultancy firm specialised in innovation, which is collaborating with the European project SWIP. "Small wind turbines were not delivering what they promised. In many cases they were technically poor and the

yield of the energy was lower than promised. But now it is much improved and so we have to fight that battle."

The project is working on tools to improve siting, and reduce maintenance requirements, so that once a turbine is installed consumers can be ensured of maximum productivity. "If you put a small wind turbine on a roof in the wrong place, then it can be in a site where you have no wind, so you have no energy. That can be caused by another building, or a tree," says Hiemstra. "So we have software where we can find the right place on the roof."

Likewise, he says that innovations in design can help make turbines more effective in lieu of subsidies. "We improve the performance, so there is more electricity production – and we reduce the cost – and this has to do with the design," he says.

Wind power subsidies offered by the British government were ended in 2016. Several countries including Sweden and Iceland still offer subsidies for renewable power, often in combination with other funding mechanisms, according to RES Legal.

One alternative to subsidies is feed-in tariffs (FIT), contracts that set a price to be paid for energy produced through clean sources. While only a few countries offer them at this time, experts believe this could be an effective tool for boosting the small wind turbine industry.

In 2015, Denmark announced plans to introduce FITs for small wind turbines. With 40% of its power coming from wind power, the country already has the highest share of wind power of any country in the world. Most of this power comes from large wind farms, though this new policy is seen as recognition of the complementary role that small [wind turbines](#) could play.

Hiemstra argues that better use of feed-in tariffs could incentivize adoption of [small wind turbines](#). "When you produce energy by solar or by wind for yourself, you can deliver that to the grid for the amount of yearly use of your home," he explains. "And that way you get a good price, the same amount you pay to the energy seller, but when you go above that the price is very low."

While subsidies may be drying up, Hiemstra is hopeful that a renewed interest in generating energy independently will help drive the small wind turbine industry forward.

Provided by Youris.com

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