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SMALL TURBINE COLUMN:

Problem Wind Systems Hit North America

--Mick Sagrillo, Sagrillo Power & Light

Over the past year or so, there has been an explosion of wind turbines imported—from China, in particular, but a few other countries as well—that are offered by various North American “importers.” As is evident when checking a number of importer and Chinese wind equipment Web sites, these turbines, sold under a variety of names and manufactured by a number of companies with different names bear a remarkable similarity to one another. In some cases, the same picture of the same wind turbine is used over and over by various “manufacturers” as well as “importers.” Several serious problems have arisen with this equipment.

The first problem is that several of the “models” offered are obvious knock-offs of wind turbines designed by U.S. wind companies. Two in particular that appear all too frequently are knock-offs of Bergey Windpower’s x11 and Southwest Windpower’s AIR wind module. The only difference that can be noted, and not even in all cases, is that the turbines are painted different colors from the U.S. products.

Caveat emptor

A second even more serious problem (at least if you are not the U.S. wind company whose turbine has been copied) is that folks who have purchased this equipment cannot get the wind turbines to generate electricity, according to all reports I have received. And after they have made their purchase and the equipment has been delivered, the “importer” is of little to no help troubleshooting or getting the system to operate. In most cases, the “importer” does not answer a customer’s phone call or return e-mails after the sale.

I don’t know any of these systems that qualify in any state for the public benefits renewable energy programs. Undaunted, the importers’ sale pitches includes such claims as that they can actually sell the equipment for less than that which is included on renewable funding program lists of acceptable wind equipment. Unfortunately, many people are biting on such claims. But if the system cannot be made to work at all, then “such a deal” is no longer such a deal. The end results are burned customers, a decline in

sales by bona fide North American manufacturers, and a very bad reputation that is starting to develop about small wind turbines: “Oh, those things don’t work.” I’m beginning to get phone calls from very concerned U.S. wind dealers and installers of legitimate equipment reflecting experiences similar to my own.

Public benefit program standards

I serve as the wind technology specialist for Focus on Energy, Wisconsin’s renewable energy public benefits program. Once or twice a week, I will get a call from someone asking why Focus on Energy does not fund “such and such” a turbine. After determining that the wind turbine in question is indeed one of the offending Chinese models, I’ll explain exactly what the situation is. Often, this gets back to the importer, who promptly gives me a call to either challenge me, or to ask how their equipment can be listed for funding. My response is that two very simple criteria need to be met to fund their products.

First of all, performance data is required for the wind turbine in question. By this I mean kilowatt-hour output versus wind speed data, is actually monitored at at least one site in North America. The importer counters by citing the power curve, which in reality is meaningless, as most are really calculated and not derived from testing. Sometimes the importer will quote performance claims that are truly stunning, putting to shame the most highly engineered and successful U.S. small wind technology, which cannot come close to the quoted production. This is not what I am after, but rather performance output based on an actual site at measured wind speeds telling me that the wind turbine will actually generate electricity. Occasionally the importer will offer to send me to an owner in Hohhot, Inner Mongolia, or some other remote place on the planet that has no telephone or Internet service, and no way of connecting with a real person. Sometimes a shell has been set up to answer my questions, the implication being that I should be satisfied with their rosy testimonial.

This obviously will not do. I am not looking for rigorous testing data from an independent engineering firm who specializes in such work. Any data will do, even from a high school science class, as long as I can confirm the owner, site, and production numbers from any site in North America. Since I have been asking for such data over the past several years, not one importer nor one manufacturer of these Chinese turbines has been able to fill this simple request.

The second thing I’m looking for is a satisfied customer or two from North America, someone, anyone, who can tell me that they installed the wind turbine, that the importer or manufacturer provided all the technical support the customer requested, and that the wind turbine is actually generating electricity. To date, I have only been able to unearth people who have bought some of this equipment, only to discover that the importer or manufacturer no longer answers their phone calls or e-mails. In a few cases, the customer actually managed to install the wind turbine, but the equipment did not work or generate electricity. I have yet to find such a satisfied customer.

Andy Kruse of Southwest Windpower has seen some of this equipment, and has commented that the “Chinese knock-offs of U.S.-made wind turbines are very poorly designed,” and that he could “not recommend them regardless” of the fact that he is in the business of manufacturing small wind turbines. Mike Bergey of Bergey Windpower points out that many bona fide U.S. companies “source major components from China”; however, the issue is not the quality of Chinese components and equipment supplied to these manufacturers, but the increasing number of “poorly engineered small turbines that have gained a foothold in the U.S. market.”

One of the biggest problems is that the Chinese manufacturers and North American importers in question are matching the poorly engineered and manufactured wind turbines with inverters from respectable companies that are used with other wind systems. One inverter often used with this questionable equipment is the Windy Boy inverter, made by SMA, a UL listed inverter utilized by several U.S. manufacturers. Problems include a complete mismatch between pieces of equipment simply thrown together to look good in a sales pitch. This adds further confusion to the buying public, further damaging small wind in the marketplace. The naïve and unsuspecting customer sees this and bites, only to be stung with useless equipment.

A telling tale

Robert Preus of Abundant Renewable Energy (ARE) has an interesting tale. Preus knows of one person who bought two container loads of Chinese wind turbines, then tried to get them working and sold. ARE ended up talking to the importer because he wanted to hook them up to the Windy Boy inverters, which ARE uses with the wind turbines they manufacture in the U.S. ARE was to build voltage clamps to function as interfaces between the Chinese wind generators and the Windy Boy inverters, but needed information on the volts per rpm, and rpm versus wind speed data. Not knowing the answer, the importer asked the manufacturer but got no response. ARE asked for an alternator to test so it could determine if the alternator would work with the voltage clamp and inverter combination, a prudent thing to do before selling the controls. What ARE found was that the Chinese alternators did not have a suitable voltage per rpm range for the Windy Boy inverters. But at least the importer in this case was trying to get things sorted out.

ARE mentioned that it has heard of other importers selling Windy Boy inverters with imported turbines that do not even come close to the operating voltage of the inverters. Preus has seen pictures of alternators that were supposed to be the same but were dramatically different on the inside, and pictures of armatures that were not attached solidly to their shafts. The importer was trying to figure out how to make this equipment work because he purchased two containers of it, a considerable investment.

Preus concludes that there are two problems here. One is that the Chinese manufacturers of this equipment do not understand wind generators, electronics, or manufacturing. The

other problem is that the importers do not understand wind generators or electricity and have never flown the equipment that they are selling. Preus concludes, "I know that there is some good equipment made in China, but I have not seen any of it coming here." Nor have I.

Do the research

The upshot? I would suggest that anyone interested in buying a small wind turbine proceed very cautiously with such imports and their U.S. or Canadian importers. I'm not including the U.S. small turbine manufacturers who source components from China in this warning, of course. Those wind turbines have been properly engineered, are matched to suitable electronic controls and inverters, and actually generate electricity. They have a track record of monthly energy production as a function of average wind speed, something the importers or Chinese manufacturers have yet to come up with. They are funded by state public benefit renewable energy programs, and they have many satisfied customers, all quantifiable data.

If you are pondering purchasing any of these imports, ask for references, then call all of those references. Ask for production data from any disinterested and unrelated party for verification. Ask whether the equipment is funded by any public benefits renewable energy program. If all of the above cannot be provided to you, then either wait until it can be, or look for a different wind turbine manufacturer or supplier. A "great deal" is worthless if it does not do what it is supposed to do, or worse, nothing at all.

If it sounds too good to be true.... Buyer beware!

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