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From: Mike Bergey <mbergey@b...>
Date: Tue Mar 18, 2003 2:03 am
Subject: Re: [a-w-h] Oh Boy Another Squirrel-Cage Rotor

James,

I understand your hope for a breakthrough in residential wind power economics. It sounds so good.

But, let's take a quick look at what WindTree is saying in craftily constructed statements that give them "plausible deniability". I have pasted in, at the end of this post, their talking points newsletter from about September 2002. EcoQuest/WindTree's statements are carefully written to imply specifications and metrics while maintaining their ability to deny the very metrics that have their M-L-M network energized. Read it. It's very slippery language.

Here's what they imply:

A 6 ft. x 6 ft. wind turbine weighing less than 225 lbs that will produce 2 kW in a 10-12 mph wind if placed on your roof.

Now here's the physics:

6 ft. x 6 ft = 1.83m x 1.83m = 3.35 m2 (square meters) of rotor area

For 10-12 mph, use 11 mph = 4.92 m/s (meters/second)

Total Kinetic Energy in the 6' x 6' area = 1/2 x 1.225 kg/m3 x (4.92 m/s)^3
x 3.35 m2 = 244 Watts

Maximum Possible Power Available at the Rotor (Betz Limit) = 244 W x 0.593
= 145 Watts

Realistic Net Power Output = 244 W x 30% rotor efficiency x 85% generator
efficiency x 90% inverter efficiency = 56 Watts

Therefore, the 2,000 Watts at ~ 11 mph implied is 36 times the realistic
net power output, 14 times the maximum possible rotor power, and 8 times
the total kinetic energy in the wind.

It just isn't physically possible. It's not even close. The math says it
would take thirty-six 6' x 6' WindTree's on your roof to produce the
performance they target. At the estimated cost of $8,000 each, that's
$288,000 worth.

After several years of development I believe that EcoQuest International,
Alpine Technologies, and Bill Converse have had plenty of time to do the
math or run a good test. But, the story hasn't changed, has it?

110 units produced in February. That's great news. The bubble is that
much closer to bursting.

My prediction is that WindTree will fairly soon join the following fine,
vastly hyped, products in the dustbin of wind power history:

Windmule
Wind Jennie
Windmill Electric
American Wholesale Windmills
Air Track
Wind Flow
American Energy Savers
Herrmann Rotor

It's kind of sad, actually.

Mike Bergey

From EcoQuest:

"WindTree is not yet a product. WindTree is a product under development.
WindTree is a concept. But what a magnificent concept!

Specific WindTree Information

When a product isn't in its final form yet there are no exact specifications. There are goals, estimates, projections, and suppositions.

1. We are developing a unit that will weigh less than 225 pounds that can
be installed on a residential roof.

2. The current prototype has a profile of about six by six feet. The final
dimensions may NOT be six by six but it's the best we can say for now.

3. It must withstand gale force winds and all normal weather conditions.

4. A national installation service is envisioned. The cost of installation
may be built into the retail price. Or maybe we will require each customer
to pay this himself. We just don't know yet.

5. Our plan is to build units that will tie easily into the public energy
network-referred to as "the grid". Customers may have a second meter
installed: one for buying electricity, the second for selling electricity
back to the power company when your WindTree produces more than your home
needs.

6. We do not envision the need for batteries. But batteries may be offered
as an option for rural customers who are not connected to the grid.

7. WindTree differs from traditional windmills in that it is a "turbine"
system rather than a propeller system. WindTree will rotate on a vertical
axis-similar to the turbines we use to vent hot air from our southern attics.

8. If you know about electrical systems your guess as to how many phases we
will have will be correct. The intent is to serve the 110 volt and 220 volt
needs of a typical American home.

9. How much power? The goal is to get at least 2 kilowatts per hour in a 10 to 12 mile per hour wind environment. That level of productivity will make WindTree viable in about half of the United States and in all of Canada.

10. A lot has been said about how WindTree will begin harvesting energy at low wind speeds (propeller systems usually require 7 to 10 miles per hour). Understand, however, that only a tiny amount of power can be harvested at under 5 or 6 miles per hour. But if 100,000 Trees collect "just a little," that's still significant in the overall scheme of things. And if the wind is quiet in one area, it's sure to be blowing somewhere else.

11. How much will it cost? Our first estimates were pegged at $10,000. One advantage of our rooftop system is that the customer does not need to build a support tower. Later estimates have been as low as $5,000. For planning purposes, we are saying that a finished Tree (with installation included) may be $8,000.

12. If I have a WindTree and a storm knocks out the power in my area, will my house have power while the rest of the block is blacked out? Maybe yes, maybe no. If your Tree is tied into the grid your circuit will be interrupted. But if you have a manual disconnect switch, maybe you can go out to the garage and convert to self-sufficiency. But there may be reasons (brownout effect) why this will not be good for some appliances. In other words, we don't have that answer yet.

13. When will more answers be available? We have WindTree update calls every month on the first Thursday. Check with the person who gave you this newsletter for the conference number and code. You will never be more than 30 days behind in learning the latest developments.

14. The chief design engineer Bill Converse says we will probably have only one size-a home size-for about two years. Then we may offer larger commercial units and smaller special case units.

15. Can I put a WindTree on the roof of my car and make enough energy to

power my car? If you are thinking that the wind the car makes by its movement would make free energy, you are wrong. You'd spend more on gasoline to "push" your Tree through the wind than you could make. You are asking if a "perpetual energy system" is possible and it definitely is not possible.

16. Mr. Converse expects the collection vanes to be made of carbon fiber material. But it's still too early to be certain. The goal of staying at or near 200 pounds dictates that a lightweight material would be used.

17. This writer expects to paint leaves on his WindTree to attract attention and improve the look of his installation .

18. The actual generator will not be built by our company. Many good generators are available. Our manufacturing concern is the turbine itself, the wind collection vanes, and the controlling electronics. And, of course, we own the marketing rights.

19. How long will a WindTree last? We can't know this answer when our unit isn't even built yet. But generators tend to be long-lasting devices. A WindTree could conceivably operate for 20 years with only minor maintenance.

20. How much money will I save? That will depend on how efficient our finished product turns out to be. When we know that answer we will be shouting it from the rooftops. Savings will also depend on your area. What is your average wind speed? How much do you pay per kilowatt hour? Do trees shelter your home? Is your roof shaped in such a way that it might increase the wind speed?

21. Where are these answers coming from? Well, much of what is written here is based on the project's goals. But a lot is also just common sense. At best, these are all estimates.

22. Will financing be available? EcoQuest already has financing for business kits and for retail customers. I assume WindTree financing will be

similar. Some buyers will get home improvement loans, refinancing deals, or signature loans from their local lender. Some power companies are likely to finance WindTrees as well. The need for inexpensive, environmentally-friendly energy is known; consequently, the power industry and the lenders are totally friendly toward this idea -so there are lots of possibilities.

23. What about subdivision restrictions? Well, we won't sell WindTrees in areas where they are prohibited. It's that simple. There are over 100 million private homes in the US. Let's start with the ones that have no restrictions.

24. What if my home is sheltered with trees or what if we have rooftop restrictions? Can I set up a WindTree out by my lake? Yes, you can use a different location. But the cost of your tower may be prohibitive. Some homeowners will simply not have the right windflow patterns. We probably will not sell those people.

25. Will we become so focused on WindTree that our air and water purification sales will suffer? Absolutely not. By attracting more attention to our company, WindTree will serve to increase our business in other areas. Additionally, some people live in areas where the wind speeds are low. They may keep their focus on our other product lines. There is also the likelihood that we will sell package deals to buyers as they arrange to finance their WindTree. "For just a little more," Mr. Jones, "we can include two Classic air purifiers and a Spring House whole home water system. Your monthly payments will only go up by $45 if we add those other products. What do you think?"

26. What will the commission be on a WindTree? This writer has looked into his crystal ball and come up with this guess: "I think a new Dealer will make about $1,500 on a WindTree system. And for planning purposes I am estimating that the PV (the "Point Value" on which bonuses are computed) will be 2,000 per sale. Those numbers sound plenty exciting to me."

27. Can I make a deposit now and get on a waiting list? A plan exists for doing this but the time is not right yet. We may-and I emphasize the word may-eventually allow customers to make deposits to secure their WindTree priority number. Pick a number. It could be $500... with the balance due 30 days in advance of your WindTree ship date.

28. What if unforeseen problems come up? Is there a chance that we'll never see a WindTree? Mr. Converse has said, "We may miss some of our targets and we may be slower than I would like, but we will definitely have a Tree... and as it stands now I don't see anyone else racing with us to the finish line."

29. What about local regulations? How will I know about such things? When the product is further along the company will begin tracking local, state, and national regulations that would govern the use and sale of this product. For now we are in pre-marketing and those kinds of things are unimportant.

30. What if I run into a potential customer or Dealer who wants to know more? Give him this newsletter. This is everything as of March 2002. Anyone who pushes for more will probably be a pest a year from now, too. The high tech guys can probably make even better guesses than the author of this newsletter has made. When the product is ready, the specs will be published.

31. What is the potential for this product? Well, it's probably not as great as the automobile or the telephone or the digital computer... but it is VERY GREAT. If we sell 100,000 Trees in the first year it will amount to $800 million in sales (plus whatever we do in our other product lines).

32. What is the potential for an individual Dealer? Anyone can do the math. If you sell two per week and make $1,500 per sale it would amount to $12,000 per month. The potential becomes greater as you move up in rank. A Manager who moves 50 Trees a month through his Dealer network

will be doing
$400,000 in raw sales and 100,000 PV. He would get a $25,000 bonus check,
car qualification, and perhaps a bunch of Travel Dollars. The BMW bonuses
(an extra monthly and annual bonus that is based on recruiting) will go up
because they are based on 2% of the national PV (the "Point Value" on which
bonuses are computed).

33. Will Mike Jackson and Bill Converse get their photos on the cover of
Time magazine? I think they will.

34. Did this newsletter quench your hunger for more details or did it
increase your appetite? I sure hope you will "stay cool" at this point...
because for now there are no more details!

This is the time for dreaming and recruiting, not for detailing. For the
next 10 months we want ambitious entrepreneurs, not curious engineers, not
installers, not governmental regulation specialists."

[Non-text portions of this message have been removed]

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