

## Resource Stock Update - V15 #16.4 – Wind , WWPW , FDC, GBN - Oct. 28, 2009

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### Wind Energy – Dramatic Technological Advancement

When I last talked about the technology advancements with wind energy in my August 31 issue, it was quite simplistic and conservative when I compared wind turbines and the energy output had advanced, increasing 15 times (1,500%). It is actually a lot higher and there is a good article on the American Wind Association web site that gives all the facts and numbers at this link

<http://www.awea.org/pubs/factsheets/EconomicsOfWind-Feb2005.pdf>

#### **Actually in the past 20 years the cost of wind power has fallen approx. 90%**

Wind speed is important and is a big factor in the value of one wind farm project over another

“The energy that can be tapped from the wind is proportional to the cube of the wind speed, so a slight increase in wind speed results in a large increase in electricity generation. Consider two sites, one with an average wind speed of 14 miles per hour (mph) and the other with average winds of 16 mph. All other things being equal, a wind turbine at the second site will generate **nearly 50% more electricity** than it would at the first location.”

The key element of technology advancement is the tower height (wind is stronger higher above ground level) and the wind swept area of the turbine blades (larger turbines) - basic but important.

“The taller the turbine tower and the larger the area swept by the blades, the more powerful and productive the turbine. The swept area of a turbine rotor (a circle) is a function of the square of the blade length (the circle’s radius). Therefore, a fivefold increase in rotor diameter (from 10 meters on a 25-kW turbine like those built in the 1980s to 50 meters on a 750-kW turbine common today) yields a 55-fold increase in yearly electricity output, partly because the swept area is 25 times larger and partly because the tower height has increased substantially, and wind speeds increase with distance from the ground. “

So you can see from this that the advancement is much greater than I talked about. An increase of 55 times or 5,500% from the 1980s to early 2000s

There has been advancements in electrical control, blade design and other features that have also helped lower costs. The article shows a table comparing a modern wind turbine to one of 20 years ago. The modern 1.65-MW turbine generates 120 times the electricity at one-sixth the cost of an older 25-kW turbine:

A larger wind farm also has economies of scale

“Assuming the same average wind speed of 18 mph and identical wind turbine sizes, a 3-MW wind

project delivers electricity at a cost of \$0.059 per kWh and a 51-MW project delivers electricity at \$0.036 per kWh—a **drop in costs of \$0.023, or nearly 40%**. Any project has transaction costs that can be spread over more kilowatt-hours with a larger project. Similarly, a larger project has lower O&M (operations and maintenance) costs per kilowatt-hour because of the efficiencies of managing a larger wind farm. “

There is one factor that has not improved and that is financing costs. Wind farms are a capital intensive project so finance costs are an important factor to the equation of costs. For a variety of reasons the cost to finance wind farms in North America is higher than conventional energy. I believe the main reasons – it is new in North America so perceived to have higher risks, the majority of wind farms have been developed privately so finance costs would be higher. It is believed and I would say obvious as large electrical utilities and companies become more engaged in wind farm development their access to capital is much cheaper and those costs will decrease.

“The Lawrence Berkeley Laboratory study found that a 50-MW wind farm delivering power at just under 5 cents per kWh would, if using typical natural gas project financing terms, generate electricity for 3.69 cents per kWh.”

The article from the American Wind Association is dated in 2005 but the technology advancement is still very relative and has continued to improve as the 2MW turbine has become the most popular. The article talks about cost of just \$0.04 or \$0.05 per Kwh which is a very competitive cost. Capital Costs have gone up since then, but so has the efficiency of wind mills. Electricity prices have also increased. All factors considered, wind energy is very cost effective, especially with the government incentives now in place.

**My whole point about costs and technology advancement is your advantage over the vast amount of investors. Knowledge is an investors edge.** The majority still have a perception that wind energy is not a lucrative business, it needs government incentive to survive. By the time the majority figure out how good of an investment wind energy is, whether next year, 3 or 5 years from now the valuation of wind companies will be a lot higher than they are today and investors will be paying a lot higher prices for the stocks while we are pulling out profits. The big Investment Banks have it figured out and are pouring money into wind companies. Once they are all in you can be sure they will starting pumping the wind story in the main stream media.

**And on top of this it is the fastest grow sector in North Amerca, hands down**

Today Wind Works announced news that changes the company completely and paves the way for the company to be a major wind energy company and the wind will blow a lot higher valuations their way.

I am going to get into how the valuations work for wind projects

**Wind Works OTC:WWPW, Frankfurt R5E1.F Recent Price US\$1.15  
Entry Price \$0.70 Opinion – Strong Buy**

Although the stock price is higher, I have still rated as a buy because today's news adds way

more value to the company. Wind Works announced the acquisition of private company called Zero Emission People, which includes 10 wind energy development projects totaling 375 megawatts (MW). Also included is an option on 3 projects in Europe for another 85MW.

To help understand valuation I will relate some to what we are accustomed with in mining companies. Wind companies are valued a lot like other resource type companies, but instead of say ounces of gold in the ground it is a value per Megawatt (MW). However the MW value is a lot less risky and better and easily quantified. You know the average wind speed, your land holdings and the number of turbines to build, so it is a pretty solid quantity that never depletes and in fact will go higher as technology advances. Imagine a mine that never ran out of ore!, but produces more ore! The power purchase contracts are usually 20 years, so the price of your product is guaranteed for 20 years but will also have inflation price protection. What few realize - your leverage comes with technology and your land holding. Say you have a bunch of 2MW wind mills, after recouping some or all of your capital costs, maybe 8 years down the road you upgrade the 2MW turbines with 5MW ones (they have these in development now). Now your same land holdings with the same wind are producing 2.5 times more power.

**Fully developed wind farms are valued around \$2.5 million per MW, the valuation will depend on location, wind speed, costs and electricity prices etc. A BMO Research Report dated August 24<sup>th</sup> 2009 showed an average value among public wind companies of \$2.767 million/MW. Canadian Hydro Developers TSX:KHD and currently has the largest installed MW base in Ontario is being bought out by TransAlta at \$2.4 million per installed MW. TransAlta just increased their takeover bid this month to a \$1.6 billion deal so that is a very current valuation.**

Now development projects are valued much lower. **They have a wide range between \$100,000 to \$800,000 per MW.** It depends on the projects size, location, costs and wind speeds etc. **and most important how far along the development is.** For example, is the wind study complete? environmental studies and permits? Power purchase contracts secured?

I spoke with Wind Works management about these projects just announced and most of them are well advanced, many at least 50% to 75% developed. Eight of the projects will be submitting an application for the FIT Power Purchase Contract fixed at C\$135.00/MWh over a 20-year term on or before the November 30, 2009. The acquisition of the Power Contract is one of the final developments - wind studies, environment, transmission all have to be in place first for a project and having this contract greatly increases the value of the project.

We can use a conservative number of just \$200,000/MW for their 407 MW which is the current interest they have in the North American projects plus the 3 European ones. **This gives a value of \$81.4 million. Wind Works currently has about 27 million shares out, so this would put a value on the stock of \$3.01.**

**Or based on WWPW's current price around \$1.25 the value per MW is only \$82,932**

The company has to develop these projects and raise money, so lets look ahead 18 months and assume they issue 10 million shares to raise \$10 M. By that time and with these funds, all the projects will be more advanced and they will have likely acquired more projects, but lets

assume they just exercise their option and increase their interest to 100%. They would then have 470 MW in projects and since they would be advanced further we could conservatively assume a value of \$400,000/MW still only half way in the value range. They would then have 27 (+10 for financing) 37 + 14 M shares issued under the acquisition agreement = 51 M

**The 407MW of projects at \$400,000/MW would have a value of \$162.8 million, divided by 51 million shares out would equate to \$3.19 per share.**

I think we can conservatively put a value and a near to medium target of \$3 on the stock.

With the management team involved here, I would honestly expect they **are going to acquire more projects and they will achieve a valuation probably higher than my conservative assumptions.** I also believe their business model is superior than their peers and will eventually command an above average or possibly a leading valuation. The company is planning to advance their projects to the pre build stage and then sell the projects to the major wind companies and utilities but keep a royalty. This way they can sell the projects for 3 or 4 times the development costs which is very good leverage and further down the road have a revenue stream with no costs.



We can see on the chart that a new uptrend is in place – during the past 2 months the stock has broken out of the Stage 1 base, above the 200 day MA and the 200 MA has turned up. The stock is now at the first resistance area I highlighted on previous updates around \$1.20. We need to see a break above \$1.50 as a signal that this resistance level has been breached. This level should provide better liquidity to buy a position if you have not done so already. Once it breaks this resistance area the chart looks like it will be easier sailing to the \$3.00 target area.

I also wanted to give an update on a couple stocks that I have not touched on in a while

**Forum Uranium TSXV:FDC**  
**Entry Price 0.36**

**Recent Price \$0.10**  
**Opinion - hold**

They just completed a \$900,000 financing mostly done by insiders. They have a lot of excellent projects, Key Lake looks very good that they are working now. They have the JV with Hathor at their Henday project that is next to Hathor's discovery. Their Maurice Point project is adjacent to Cameco's Maurice Bay Deposit containing 1.3 million lbs. U308 grading 0.6% The North Thelon Project has lots of potential including Rare Earths



The chart looks like the stock wants to go higher – it is above the 200 Day MA and has broken above its 2<sup>nd</sup> basing pattern. There is not a lot of resistance until the \$0.40 but we probably need to see a good turn around in the Uranium market. There is a major supply disruption as one of the largest uranium mines in the world, BHP's Olympic Dam in Australia, had an industrial accident that will reduce their uranium output by about 80% for the next six months. This just might be the catalyst the uranium market needs

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**Golden Band TSXV:GBN**  
**Entry Price \$0.28**  
**Stop/loss = \$0.18**

**Recent Price \$0.23**  
**Opinion – hold**

The stock was doing well with a move up to \$0.35 in the summer. They were moving towards production but now have to prove up more reserves and resources before they can qualify for

debt financing. They need \$18 million to get the Jolu mill up and running and the Bingo deposit that is first to be mined to development. They have enough cash to drill for the reserves and considering the strength in the gold market they should be able to succeed with financing and going into production. The stock has good support at \$0.20 so should not drop much further.



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