



WASATCH WIND

Tower Systems and Wind Development

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Emerging Opportunities for Customers and the Competitive Strategy for the Company

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ABSTRACT

Wasatch Wind, Inc. has developed an innovative utility-scale wind turbine tower and associated Lifting Systems for utility scale, megawatt+ turbines. The Company's products solve the problems of excessive cost, transport & erection logistics, height scalability, and supply-chain flexibility that are limiting factors to wind development today. Initially funded (in 2002) by \$850K of grants from the Low Wind Speed Technology Program of the US Department of Energy (DOE), Wasatch Wind created a patent-pending damped, modular tower that delivers a 20%-35% reduction in installed cost for the tower, foundation, and installation services.

The tower features present multiple business opportunities for the Company. The towers' 40% reduced weight, modularity, and height scalability reduces wind COE by 5% to 12%. A self-erection Lifting System eliminates the requirement for expensive track cranes, changing the economics of turbine/tower erection and maintenance. Finally the transport and crane-less erection features together make wind development on islands, third-world countries, and in remote locales feasible for the first time. The Company will exploit these opportunities with three lines of business: Tower LOB which designs towers and sells "Tower Packages", comprising all components except the steel; Lifting System LOB which franchises the Wasatch Wind tower-specific Lifting System to wind farm constructors; and Development LOB, which will develop wind projects in remote/third world locales that are uniquely enabled by the Company's products.

Global Wind Market

Wind energy has become a highly favored electricity generation source because it is non-polluting, has a (relatively) short time-to-install, has predictable long-term costs, and does not rely on imported fuel. The market is projected to grow over 17%/year for the foreseeable future.

Turbine manufacturers are working hard to meet the increased volume demand, and working to reduce cost of energy (COE) concurrently. The wind turbine supply chain has proven difficult to scale due to the large investments required, with turbine lead-times



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now approaching an undesirable 2 years. To reduce COE, turbine manufacturers are scaling turbine size to 2+ MW, enough for > 2,000 homes at full output.

Tower size and transport logistics have become the limiting factor to the turbine manufacturers' upsizing strategy. Today's towers are massive steel tubular designs that require highly capital-intensive steel rolling and welding equipment. The towers are manufactured either in-house or at subcontracted steel fabrication shops (worldwide), and then shipped to the wind farm site. Due to their size, tubular towers are overweight, over length, over width, and over height for shipping purposes. Land transport can cost \$125K at 1,000 miles, with overseas shipping adding an additional \$75K/tower.

Capital costs to setup a green-field tubular tower fabrication facility are \$7 million for 150 towers/year capacity. Independent tower fabrication shops require volume commitments before making the capital investment, making tower lead-times the longest of all components.

A final problem is the cost and availability of the massive track cranes required to erect and service today's turbines. The 350ton to 600ton track cranes needed for 1.5MW to 3.0MW turbine and tower installations are expensive to mobilize and rent, require expensive roadwork, and are simply not available in many countries/locations. The US and Europe \$150K-\$250K cost to deploy a track crane makes many small wind farms uneconomic, and makes repair operations for a single rotor, blade, gearbox, or generator problematic. Some island projects are faced with costs exceeding \$1 million for mob/demob. Even if these remote projects can absorb the costs, a failure of a generator, gearbox, or blade means the turbine can't be repaired until multiple failures can amortize the crane costs thus putting the projects at financial and performance risk.

Wasatch Wind Solutions

Wasatch Wind has developed an innovative damped, "Space Frame" tower. The Company's tower combines a patent-pending damping system in combination with an internal steel strut support structure that together lower tower weight by approx. 40% and installed-costs by up to 35%. The Space Frame's modular design solves the transportation and installation expense and size problems that limit the number of developable wind farm sites. The Space Frame tower scales linearly in cost/height, which enables turbines to economically reach higher elevations and increase power output up to 30%. *The combination of lower tower costs and increased power output lowers wind COE by 5% to 12%.*

The Space Frame tower can be fabricated in any competent steel fabrication shop with certified welders. Required capital costs are \$150K for jigs & fixtures, a 95% reduction from tubular towers. Lower capital costs enable supply chain volume and location flexibility. Investment of up to \$500K for automated welding is not required, but a decision based on anticipated labor savings.



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A specialized integrated tower/turbine Lifting System lowers the cost of installation of the turbine nacelle and rotor, and of heavy maintenance on generators, gearboxes, and blades. The patent pending Lifting System eliminates the relationship between turbine height and track-crane capability, removing an obstacle to taller towers gaining access to stronger winds.

After receiving Germanischer Lloyd (GL) certification, the Company's first tower (expected to be with a 2.5 MW turbine) will be installed in the 1st half of 2008. After a 3 to 6 month test period, the tower will be commercially ready for volume sales.

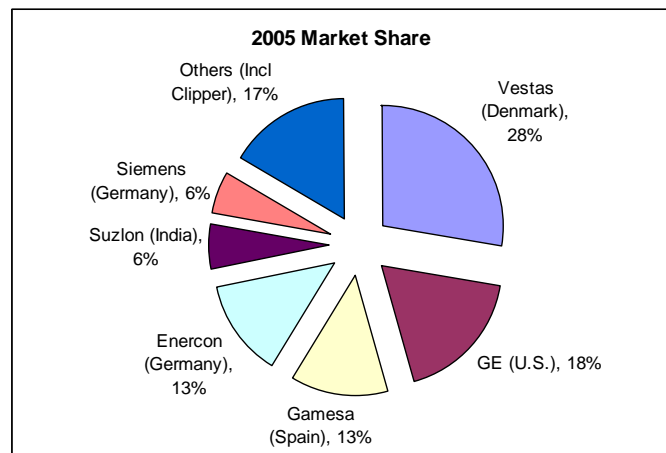
The Space Frame tower has the following benefits compared to tubular steel towers:

1. **Cost savings of \$100K to \$225K, or 20% to 35% per installed 80m/100m tower.**
2. Weight savings of 40% to 55%.
3. A nearly linear (vs. exponential) height/cost ratio that can make wind farm sites which are marginal at lower tower heights feasible at greater heights. Increased power output with height. A 100 meter Space Frame tower costing the same as an 80 meter tubular steel tower produces up to 15% more power.
5. A transportable, modular design which allows exploitation of difficult-to-access wind sites.
6. Lifting System for turbine/tower erection and maintenance that eliminates expensive track cranes.
7. Supply chain flexibility: Industry standard steel members and low fabrication capital requirements provide supply-chain volume and local content flexibility.

The combined Space Frame benefits reduce wind generated Cost of Energy (\$/kWh) by 5% to 12% at easy to access locations with reductions greater than 15% for more difficult site.

The Market

According to MAKE Consult ApS, the 2006 worldwide utility-scale (> 1 MW) wind turbine generator market size was over \$9 billion. US market installed-capacity grew by 36% in 2005 while world wide the increase was 23%. Towers, at 25% of the total turbine cost, are the single most expensive component of a wind turbine, and represented a \$2.1 billion market in 2005. Ten wind turbine manufacturers control 96% of the global market. Wasatch Wind expects to be providing 22% of the tower market in





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license fees and direct manufacturing by 2010.

Wasatch Wind Competitive Strategy

The wind turbine market is controlled by a small number of well-capitalized players. Today's over-demand for turbines has reduced turbine manufacturers' emphasis on cost reduction. The Company has a multi-phase strategy to gain entry and compete in this marketplace. The first priority is to prove the Company's technology by erecting first-article towers in the field, which is occurring with several turbine manufacturers who have strategic reasons to improve their tower technologies. Once proven, the Company will work with wind farm developers to "pull" the Space Frame towers and Lifting Systems into the marketplace. Since approx. 50% of the overall savings (or \$100k/tower) flows to the developers P&L, developers are eager to see Wasatch Wind's products adopted. Wasatch Wind has already formed a Board of Advisors, comprised of leading developers and wind industry experts to set the foundation for customer pull. Developers, who are currently getting squeezed hard between price inflexibility (from utilities) and cost increases (from turbine manufacturers), are extremely eager to see cost saving technologies be introduced. Finally, the Company's Development LOB will seek our projects in remote/third world locales where the Company's tower and Lifting Systems provide unique benefits. Characteristics of these locations include high electricity costs due to use of liquid-fuels for generation, an absence of 350Ton track cranes, and ocean-based (islands) or land-based (Alaska, Canada, South and Central America, SE Asia, Africa) problematic transport logistics. The unmatched tower value proposition, a unique and valuable Lifting System, and wind project development capabilities will allow the Company greater control as we enter the wind market.