Diversification: Making the Transition to Wind Power Manufacturing Without Getting Blown Off Course

For many automotive parts suppliers, expansion into the wind power component sector offers a unique opportunity to diversify into a growing value added market. However, despite the billions of Federal and State dollars available, firms still find the transition to be a difficult one. Terminology, standards, and customer expectations of quality and service levels are quite different from automotive. An emerging business model and non-specialized supply chain add to the complexity of serving this market.

This article provides a baseline overview of the wind power industry, and offers insights into market, product, and service that all manufacturers should consider before making an investment in supplying customers in the wind power systems industry. Research was completed between July 1 and September 11, 2009.

Executive Summary

Key Findings at a Glance

1. Wind power manufacturers are segmented into two main industry sub-segments. Large-scale wind builds and installs power systems for customers in the municipal and utility markets, while small-scale wind offers products to the business and consumer segments of the market.
2. Challenges in supplying the large-scale segment of the market include lower volumes, very large equipment, and significant access to capital.
3. Small-scale wind power is a more natural fit for manufacturers of automotive parts and assemblies due to the common approach in higher volume production runs, standardized management of operations, and relative levels of quality.
4. Once a company has determined the appropriate market segment, successful entry into the industry will require a tightly defined product and service offering, long term investment in thought leadership, and a specialized approach to sales and customer service.

Key Questions for Executives

1. Does your business plan provide you with a well qualified determination of which market segment to enter?
2. Can you ensure that your wind power customers will receive truly exceptional service from the initial order?
3. How will your organization develop innovative solutions to wind power customer needs?

Diversification is usually a good thing. But when diversification is a hurried response to lower volumes or rough market conditions, a lack of planning can turn today's solutions into tomorrow's problems. Even when a company is pressed, there is no good reason for a ready-shoot-aim approach to commercial repositioning. Taking just a few days—to collect relevant information, assess competitive strengths, and make a plan for tactical implementation—will yield large dividends in the long term!

Bringing Business Results

Setting the Stage for a Move to Wind

One of the oft-heard mantras being tossed about today is that the over 8,000 parts in a wind turbine will provide abundant opportunity for suppliers to create good paying, secure jobs. The most logical industry to provide those components is thought to be the automotive industry, as it has traditionally been one of high technology, low-defect manufacturing. It also has excess capacity due to adverse economic impact from the current recession and global automotive slowdown.

While at first glance it may appear to be an easy choice for automotive suppliers to switch from making high-volume transportation widgets to high-volume alternative energy widgets, further examination and due diligence is required to make smart decisions about this commercial repositioning exercise. Though it may seem self-evident, the wind industry is not the automotive industry, and there are significant differences in product and process that need to be taken into consideration before a company makes the move to enter this new market.

The automotive supply base is a mature industry focused around a relatively small number of well established and sophisticated customers. Although exceptions can be found, for the most part the emphasis in the automotive supplier-customer relationship has been on optimizing quality, cost, and delivery to reduce or maintain final assembled product cost. Emphasis on innovation or technology has often been subjugated to cost as the automotive market has contracted and manufacturers have scrambled to build market share.

This emphasis on cost has been sustained for nearly two decades now, with suppliers competing on ever slimmer margins, often taking new business at a loss and hoping to cost-reduce their way to profitability while giving back annual concessions. With raw material and energy costs once again increasing, and the number of pieces available to spread overhead decreasing, many suppliers find themselves locked into a race to the bottom. This process accelerated drastically in 2008 as automotive demand first slowed before crashing in 2009.

Understanding the Dynamics of the Wind Power Industry

The wind industry supply chain is in an early stage in its evolution. A relatively young sector, a wind power manufacturer could be a garage based startup or a mature public firm. Some firms focus on local or regional distribution, while others compete on a global scale. Suppliers to these companies are equally diverse, as high levels of fragmentation in the industry allow small firms to compete with their larger counterparts.

The industry is divided into two major market segments: large-scale wind and small-scale wind. Large-scale wind is generally categorized turbines larger than 50 kW operating alone or clustered into groups of turbines known as “wind farms.” Small-scale wind turbines are generally smaller single turbines supplying residential or small commercial applications.

Currently, large-scale wind is composed of low-volume, batch produced turbines and supporting components to meet demand that fluctuates irregularly based on government incentives, economic conditions, and approval of large projects. On the up side, large-scale wind provides ample opportunity for domestic component suppliers for several reasons. The components tend to be bulky and specialized, and OEM's have avoided offshore production due to freight costs, complexity, and logistical concerns.

Additionally, the batch nature of the production process lends itself to ordering and receiving components more frequently in small runs to keep inventory turns higher and production schedules more nimble as orders ebb and flow. This requires OEM's to seek suppliers that are fast, focused, and flexible – and also local – due to the short lead times and freight expense.

However, the large nature of these difficult-to-outsource components also presents challenges to those suppliers looking to offset decreased automotive production with large-scale wind related product production.

1. Low volumes do not create the economies of scale needed to amortize part-specific tooling over a higher number of pieces, and consequently make it difficult for smaller firms to find or divert the needed capital.
2. The machinery used to produce these components must hold large work pieces at very tight tolerances compared to automotive requirements, increasing the ongoing cost of maintenance and operation for this work.
3. A shortage of capital: few buyers in the large-scale wind related markets will make purchasing agreements unless the potential supplier has made investments in fixed assets, while few lenders will support such projects without commitments from potential customers.

For these reasons—scale, cost, and availability of capital—small wind may provide the best chance for suppliers looking to diversify outside of the automotive sector. Small-scale wind power production offers significant opportunity for current automotive suppliers:

1. Higher volume production centered on home and business purchases. With price tags in the thousands of dollars, unit sales range in orders of magnitude higher than large-scale wind power systems, improving part amortization costs.
2. Though tolerances for small-scale wind power systems remain high, the relative ease of repairs and maintenance for installed systems reduces the absolute standards of large-scale systems. This in turn reduces quality, maintenance, and operating costs.
3. Smaller levels of investment capital are needed to make the shift to small-scale wind power. The relative inter-operability of production equipment tends to push up front costs of tooling development and procurement to levels comparable with existing lines of automotive demand.

Implications for Manufacturers

While small wind provides a more accessible entry point to the market, it still holds several inherent challenges. In order to compete with low-cost countries, suppliers will have to offer competitive pricing while offering things that LCC's have traditionally had difficulty offering such as quality, value-added services, and design and innovation capabilities.

In the plastics realm, this will mean offering composite technology for blade and nacelle production, as well as weight and material reduction technologies such as gas-assist and two-shot molding. For metal suppliers, opportunities exist in the repositioning of current capabilities such as weight reduction through application of high strength formable products, motor laminates, and dead flat products. In both metal and plastics manufacturing settings, suppliers will have to plan for increased competition by building an ongoing system of cost reductions through increased productivity or automation in assembly, molding, fabrication, and painting operations. The difficulty, as previously mentioned for large-wind applications, will be to find the 'sweet spot' between specialized and flexible tooling that justifies the maximum amount of efficiency while retaining the flexibility the volume dictates.

In both cases, innovation will be what differentiates suppliers from their peers as well as overseas competition. Designs for large and small wind turbines will begin to evolve to more sophisticated manufacturing techniques as OEM's begin to look to reduce product cost and increase product lifecycle to become more competitive on project bids or in the marketplace. Suppliers able to work in partnership with OEM design teams to drive out cost while retaining function will be relied on most heavily as partners in this process. Suppliers lacking sophistication in manufacturing and design will be weeded out as more mature nimble competitors take the lead managing programs and sourcing smaller components and subassemblies to hand-picked second tier suppliers.

Tactical Planning for Industry Penetration

When building a business plan to support entry into the wind power manufacturing sector, companies must understand how best they fit into the new space, and must also update their approach to marketing and customer service. To do this, firms should:

1. Determine the appropriate position for market entry
2. Tightly define the product and service offering
3. Invest in knowledge and innovation
4. Segment the delivery system to serve the needs of non-automotive clients

Determine the Appropriate Position for Market Entry

The first decision a firm must make is to focus on supporting the manufacturing of large or small-scale wind power systems. This choice should be based in large part upon a company's current production systems and the quality of its workforce.

1. Firms with a history of small batch or job-shop production flow are better suited to

participation in large-scale wind power. Those with a higher volume history or continuous production-type flow will have higher rates of success in small-scale wind power.

In this instance, companies will need to look less specifically at the current skills of their workforce and instead focus on the strength of their quality and educational systems. Manufacturers with a robust quality system and easily deployed workforce training will find opportunities in both market segments. A company such as this, capable of delivering repeatable world class quality in small batch production runs, with extraordinarily efficient inventory and procurement protocols functioning on a just-in-time basis, are candidates for large-scale wind power.

Those without a methodical approach to continuous improvement, or those with a long term history of large volume production and cost effectiveness through economies of scale, should focus on small-scale wind power, or plan to make targeted investment in specific skills and capability upgrades to compete for specific large-wind products.

Tightly Define the Product and Service Offering

Once you have selected your market position, work to familiarize your team with every aspect of products that are likely to be important to those customers. It is important to make tactical choices that support the long term strategy of profitable sales. Generalists will require overall price leadership, while specialists will need to maintain pricing power by addressing both of the following positioning issues:

1. Tailor your product to specific customer needs. With a large number of potential entrants into the supply markets, potential customers need a compelling reason to purchase from a given vendor. Leadership in product quality, cost, weight, tolerances, or other specific attributes will drive sales – and create a defensible position.
2. Focus on specific services. Early stage companies may require assistance in installation, product launch, or even in grant writing. Larger customers may benefit from integrated systems and fully visible supply chain controls. A tailored service offering gives vendors the opportunity to become a critical link in the supply chain.
3. Be the lowest cost provider, regardless of position. This isn't to say that firms should plan to lower pricing, but instead recognizes that the wind power manufacturing sector will perform like most other industrial sectors. Firms with tightly defined products and services can position themselves, through effective cost controls, to remain profitable in all competitive areas.

Invest in Knowledge and Innovation

1 Create a customer advisory group[1]. This can be comprised of both current clients, potential clients, and those unlikely to ever purchase from you. Their feedback on market needs and trends will inform your product and service design at minimal cost.

[1] David Thompson, "Blueprint to a Billion" Wiley, December 2007

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2 Develop a culture of learning inside your own company. You are no longer in automotive: the specific assumptions, market behaviors, and product cycles are different. This investment must be made by senior level leaders, and then focused into training for the broader organization. Firms who do not create a suitable knowledge base will be relegated to commodity status in two to three product cycles.

3 Reinforce the culture of learning with hard dollars. By tying compensation and incentives to innovation and higher-level outcomes, you will be able to more easily manage innovation and customer satisfaction. Your team will make better decisions, not out of the goodness of their hearts but instead out of recognition of their own vested interests.

4 Make an investment in your customers' products. Placing a wind turbine on your factory roof will not only engender goodwill amongst your customer base, you will also garner an insider's view of the relative strengths and weaknesses of their offering. This will allow you to help customer

Segment the Delivery System

No one likes to be second choice. Likewise, wind manufacturers don't want to be thought of as "volume filler" while a company waits for the automotive sector to recover. Showing wind customers that you are making a conscientious, long-term move into their market requires more than just a new marketing focus. It requires a fully segmented sales and customer service organization.

1. Delivery truly best in class marketing, not just a new "spin" on current sales and customer support. Specialized training is a necessary foundation, but a company needs to create either a dedicated or virtual internal team to support outside sales efforts.
2. To fully reposition, build a distinct and separate sales management system. This can mimic a firm's current model, but should incorporate a different set of measures and time management. Your Ford Business Unit Program Manager probably can't run automotive and wind programs at the same time. You are going to have to demonstrate that you have the confidence to dedicate resources to serving your new customers while maintaining your old customers.

For support in developing your own approach to diversification into the wind power industry, please contact your Simplicity Tactics practitioner.

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About The Firm

Simplicity Tactics provides hands-on problem solving and support to manufacturing companies, governmental and non-governmental entities, and service firms. Bringing expertise in areas as varied as commercial development, operational effectiveness and efficiency, and labor relations, the firm offers discrete counsel and business plan implementation for firms in transition.

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