

**EMGT 835 FIELD PROJECT:
Responding to a Changing Energy Industry
2007 Wind Energy Business Plan**

By

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1.0 Executive Summary

This EMGT 835 project is a wind energy business plan for Midwest Engineering, an engineering and construction company active in the energy sector. This plan was created to develop a roadmap for the company to increase its market share in wind energy, and begin to offer new services to its clients. The need for the plan was because the company does not have a focused plan for wind energy (nor any other renewable technology) and the market for wind energy is expected to continue to be very large over the coming years.

Key findings and aspects of the plan are:

- The amount of revenue and profit potential from wind energy can grow by more than fifty times the current level on three years.
- The investment requirements are very modest.
- The more critical and immediate need is to select an “executive champion” for wind energy to lead the effort.

In this report, Sections 1 through 9 are based on the EMGT 835 format, and are brief and qualitative. Appendix A is the business plan itself, in which all the critical information and details are contained. As this plan is confidential in nature, many details and figures have been changed or removed.

The biggest lesson I learned from creating this business plan is that the business potential is larger than expected, and the investment needs are lower. The largest challenge will likely be addressing internal attitudes and inertia in the company, and working hard to make certain the first few projects are a success.

2.0 Introduction

The electric power industry in the U.S. is in a state of change. There is a major need for new generation in the U.S. in the coming years to keep up with growing demand and to address the aging existing plants. Power generation technologies based on fossil fuels (coal and natural gas, primarily) face increasing opposition, fuel price volatility, and uncertain permitting challenges. There are also increasing numbers of states requiring utilities to buy more renewable energy. As such, much of the power generation built in the U.S. in the coming years will be renewable energy projects, and for many areas of the country the most mature and cost effective renewable energy technology is wind.

The market for wind energy has changed a great deal in recent years. Traditional energy developers and utilities have become the dominant purchasers of engineering and construction services, and many of these companies are familiar with Midwest Engineering. About half of the states in the U.S. are mandating renewable energy development over the next several years, and some estimates total the amount of new renewable generation required at 50,000 MW (most of it wind energy). To date much of the engineering and construction of wind projects have been done by smaller companies that do not offer the level of experience or quality of Midwest Engineering. The existing companies are also unable to keep up with all the demand for new projects.

Midwest Engineering is an engineering and construction company that regularly designs and builds fossil power plants. Midwest currently provides technical consulting support for wind energy projects, but on a very limited basis. At present there is no particular emphasis placed on wind energy at Midwest, and the company does not offer complete engineering packages nor project construction. This business plan is designed

to information on the wind energy market, and provide a roadmap for significantly increasing the company's market share in wind. It is needed because, to be successful, support will be needed at the executive level and across business areas. The ultimate goal of the plan is to create a new business area for wind that is in line with the company's vision for future growth and operations.

It is important to note that the business plan developed for this project was done so that it could be directly applied. As such, the business plan that was developed and presented is confidential and cannot be published. A redacted version of the plan has been included in this report. Also, all names and figures have been altered in the plan to protect the confidential information. The name of the company for which this plan was developed has been changed to Midwest Engineering, and all other company names altered.

3.0 Literature Review

The area of wind energy is a very dynamic and fast-growing area. Because of this it was difficult to obtain a lot of information from books, because most of those reviewed had dated information. However, some very good information was obtained from the books reviewed on energy policy, and the potential impacts of global warming (which often drive energy policy decisions).

As a member of the wind energy industry, I commonly track news releases and industry journals. The information gathered from these sources, and project experience, over my 10 year career to date have shaped much of the information provided in the business plan. The sources for this information include *Windpower Monthly*, *North American Wind Power*, and the American Wind Energy Association newsletter *Wind Energy Weekly*.

Because the demand for renewable energy is known to the company (even if there is not yet an organized plan for addressing the demand), the company's market analysts often provide market intelligence updates. One such update was provided as part of the Market section of the business plan.

What was really found to not be useful was a review of typical journals available through the University's library system. This was because the information needed was so specific to the wind power industry that the information available through the library was too general, especially in comparison to the information from the sources discussed above. This isn't a criticism of the University's library services, but rather a commentary on the requirements for this specific business plan.

4.0 Area To Be Investigated

Prior to developing a wind energy business plan, I posed the following questions to determine if the market warranted the effort:

- How strong was the market for renewable energy? How long is this market likely to be strong?
- Is wind energy a long-term viable option?
- Does wind energy fit at Midwest Engineering?

As summarized in Section 5, I was able to determine that indeed the demand for wind energy was likely to remain strong, and that it would be a good fit for the company. I then posed the following questions to determine if a business plan for wind energy at Midwest Engineering was needed:

- What is Midwest Engineering's current wind energy market share, and is it comparable with other business areas?
- How large could the market share in wind energy for Midwest Engineering feasibly be?
- Is there an existing business strategy for wind at Midwest Engineering?

From the review of these questions, it was found that a business plan was needed, and that success required coordination of the plan at the executive level (as many business areas were impacted).

The business plan was developed using a 2003 renewable energy consulting business plan as a template. As the wind energy plan ended up being a completely new plan that only used the format of the 2003 plan, and as the 2003 plan is confidential, it has not been included in this report.

5.0 Findings

From the questions described in Section 4, I was able to determine the market for wind energy easily warranted a business plan for obtaining greater market share for Midwest Engineering. Section 2 of the plan (Appendix A) provides the details on the wind energy market, but some highlights include:

- Approximately 3,000 MW per year of new wind energy projects are being constructed each year. That number is likely to grow above 4,000 MW in 2007. The cumulative total amount in the U.S. is about 13,000 MW
- Based just on current mandates, at least 35,000 MW of new wind energy projects will be required over the next 10 to 15 years.
- New state mandates are expected to continue to be enacted, and a national mandate continues to become more likely.
- A significant amount of wind energy is being built in areas where no mandates exist. The reasons for these projects being developed include customer demand, wind being an economical option, and utilities wanting to develop renewable energy ahead of mandates (in an attempt to avoid them).
- Most or all of the skills needed to design and build wind energy projects already exist at Midwest Engineering.

The primary products that Midwest Engineering is currently offering in wind energy are Renewable Energy Evaluation Services (pre-project), owner's engineering, and independent engineering. To grow and better align with services performed on other power generation technologies, Midwest Engineering will need to begin performing

complete engineering and construction services for wind. Based on the fulfillment plan discussed in Section 5 of the plan, by 2010 it is possible for Midwest Engineering to grow from a very small market share to about a quarter of the total engineering and construction services performed.

To accomplish the fulfillment plan and achieve the market share estimated, the key success factors were found to be:

- An executive champion is needed that can oversee the plan and organize cooperation between the different business areas.
- The company needs to target specific clients that have been identified as those which value the company's services and have a higher interest in overall project quality and longevity.
- The time for the execution of the plan is now. The market conditions and clients in the market make it the best time to begin work in this area.

6.0 Summary and Conclusions

Based on all the factors evaluated, Midwest Engineering could develop a strong business area, significantly increase market share, and achieve high revenues and profit from wind energy by executing the attached business plan. The plan provides an approach that works within the existing company structure to the extent possible, and with minimal investments. The biggest need is for an executive champion for wind energy, and for the company to have the vision to commit to offer the same level of services in renewable energy that it does in fossil energy.

7.0 Suggestions for Additional Work

The work performed for this project is focused on one renewable energy technology, that of wind energy. Similar plans should be developed for the other renewable energy technologies Midwest Engineering is interested in working with, and it would also be beneficial for an overall renewable energy strategy to be developed. There should also be further work done to see what companies may be available for acquisition that could “jump start” this business plan. It would also be wise to perform some client interviews to verify that level of interest in the market, especially in the area of construction.

Even if this plan is executed exactly as prepared, it is likely that changes will occur both within the market and within the company. An update to this plan should be prepared at least annually. The time horizon of future plans should also be expanded, so that the plan always looks out at least 3 years.

8.0 References

These sources were used directly for the development of the business plan.

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Appendix A. 2007 Wind Energy Business Plan

Attached is the wind energy business plan developed for this project. Because this plan was developed specifically for Midwest Engineering, it contains confidential information that cannot be published. Therefore the version of the business plan that is attached to this report has been redacted, and all names, figures, and confidential information changed or omitted.