

# **Wind Energy Industry Opportunities Assessment Final Report**

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Grant Name:

**USDA Rural Development, Rural Business Enterprise Grant**

Project Applicant:

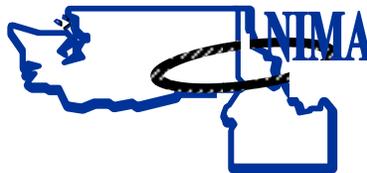
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## **General Information**

This project, the North Central Idaho Wind Industry Opportunities Assessment, received funding from USDA Rural Development, Rural Business Enterprise Grant through Clearwater Economic Development Association (CEDA). CEDA signed a Letter of Intent to Meet Conditions on May 21, 2009 and entered a contract with Northwest Intermountain Manufacturers Association on June 12, 2009.

## **Description of Proposed Project**

Clearwater Economic Development Association's (CEDA) planned to assist regional manufacturers in expanding marketing opportunities through the Wind Industry. This wind industry needs and manufacturing opportunities assessment project was designed as the first step toward this goal. CEDA partnered with Northwest Intermountain Manufacturers Association (NIMA) to do this assessment. NIMA is a 501(c)(6) non-profit, trade organization that represents the manufacturers in the Idaho counties of Lewis, Latah, Nez Perce, Idaho, and Clearwater as well as the Washington state counties of Asotin, Whitman, Garfield, and Columbia.

The Wind Industry is an industry in which North Central Idaho manufacturers can meet the region's supply needs. It was the vision of CEDA and NIMA that the information collected through this project could be used to develop a foundation where local manufacturers could be "paired" with wind energy developers in order to meet developers' manufacturing and supply needs.

CEDA used a \$10,000 USDA Rural Business Enterprise Grant and \$5,000 cash from Northwest Intermountain Manufacturers Association to gather data and to complete this assessment. The project involved a:

- the identification of local manufacturer preliminary capabilities that could support the wind energy industry;
- the identification of wind industry suppliers and their purchasing agents that may have an interest and need for local manufacturer capabilities;
- the establishment of communication with wind industry manufacturers and purchasing agents; and,
- the identification of wind industry manufacturers needs and supply need projections.

As a result of this project, NIMA and CEDA will be equipped with relevant information that will facilitate the ability to respond to identified Wind Industry needs. This assessment will lead to regional business growth, increased local production and sales, and increased employment opportunities for the regional labor force to meet increased production demand.

### **Community Need**

North Central Idaho is comprised of 28 incorporated communities within the five counties of Idaho, Lewis, Latah, Nez Perce, and Clearwater Counties. Decline in the timber industry has had a serious negative impact on employment and business growth. The explosion of technology has resulted in large acreage farms that financially support fewer people. Historically reliant on these industries, the region has a promising future resulting from an emerging and diverse manufacturing industry. Clearwater Economic Development Association sees to assist manufacturers in developing new and innovative activities that will result in direct job creation that can support the regional economy.

NIMA's purpose is to form informal partnerships to continuously improve manufacturing operations, address manufacturing issues and concerns; foster employee development; modernize technology; and support industry, higher education vocational technical schools, public schools, and localized communities in a cooperative effort to recruit and to cultivate quality students for the future manufacturing workforce. The association has a six-member, Board of Directors ; enjoys a manufacturing business membership of 201 with roughly 5000 employees; has an adopted set of bylaws; and holds regular meetings. Since 2006, NIMA has contracted with Bonfield Consulting to provide direction to the organization. NIMA's background and experience provided the necessary backdrop for this project.

### **Project Benefits**

The direct benefits of this project include:

1. Increased revenue for North Central Idaho manufacturers;
2. Continued and increased employment.

When the contracts have been made and local manufacturers/supplies have been paired with an industry need, North Central Idaho manufacturers will be ramped up to meet the local, wind industry demands predicted for 2010 and beyond.

In addition, wind industry developers working on the wind farms currently being developed between the nearby communities of Pomeroy and Dayton, Washington indicated that for every seven wind turbines, there is one job created through maintenance of the structures. There are 725 anticipated wind turbines. At one direct job for every seven turbines, this equals 103.5 direct jobs created. Many of the workforce will come from North Central Idaho. (This projection does not include indirect jobs.)

## **Activities/Deliverables**

The deliverables identified in the scope of work for this project included:

- The development of a list of Wind Energy Manufacturers and key contacts;
- Contacting and interviewing four to five Wind Energy Manufacturers to identify supply-chain needs; and,
- Developing a final report.

This document constitutes the report of findings.

## **Wind Industry Information**

At the onset of this project, Northwest Intermountain Manufacturers Association Executive Director, Dave Bonfield, scheduled meetings with three (3) Wind Industry Manufacturers. Identification of Wind Industry Manufacturers was made by contacting the local utilities land acquisitions specialists working on the wind farm projects in Pomeroy and Dayton, Washington. Meetings were scheduled with Renewable Energy Systems Americas Inc. (RES) Jack Platt, Land Acquisition Specialist and GAY Electric Northwest, Mark Haugen, P.E. Technical Director. During these meetings with RES and GAY Electric Northwest, discussion was focused on the type of wind turbines to be installed in southeast Washington. Mr. Platt and Mr. Haugen identified several wind turbine manufacturers that could be contacted. *See attachment A for a listing of the Wind Industry Manufacturers and their purchasing/contact agent.*

Dave Bonfield contacted the following companies:

- Vestas Americas, a company out of Denmark, with corporate offices in Portland, Oregon and Phoenix, Arizona;
- GAMESA Wind Turbines Company out of Spain;
- GE Air an American based company, with corporate offices in Pensicola, Florida; and,
- Sky Steam Air a Middletown, Delaware Company, with a corporate office in Twin Falls, Idaho.

A face-to-face meeting was held with Vestas Americas in Portland, Oregon. Due to distance or the availability of their contact people, the other wind turbine manufacturers were interviewed through a telephone conferencing system.

A list of area manufacturers that are interested in or have the potential to provide components for the Wind Energy Industry was developed prior to the interviews. Each manufacturer completed a capabilities matrix and a portfolio was presented to the Wind Industry Developers that were interviewed. *See attachment Wind Farm Potential Supply Chain Manufacturers.*

## **Vestas Americas**

Vestas Americas provided a great deal of information about the wind industry. Vestas has the largest presence in the Pacific Northwest with a large project being developed in southeastern Washington and central Oregon. Currently, Vestas does not make any turbines in the United States; however, it plans to make turbines using four factories in Colorado. One factory was completed last year and three more factories are expected to be producing by early 2010.

In Mr. Bonfield's conversation with Vestas, the largest builder of wind turbines in the world, they indicated that there are 8000 parts in a single wind turbine. Of those components, Vietnam has 100 companies that provide parts, China has 300 companies that provide components, and the remainder is shipped from Denmark. These parts are container shipped to six United States locations. The only remanufactured components that are currently made in the United States are only for emergency purchases; these parts are supplied by two manufacturers in Portland, Oregon and one manufacturer in Seattle, Washington.

During Bonfield's visit with Vestas Americas, a conference call was placed to the Pueblo Colorado office. The purpose of the telephone discussion was to determine when and if some of our manufacturers could be inserted in their supply chain. During this visit, Vestas was presented with a copy of each North Central Idaho's manufacturer's capability matrix. *See attached potential supply chain manufacturers.*

## **GAMESA Wind Turbines**

Gamesa, a wind turbine company out of Spain is one of the main wind turbine manufacturers worldwide and leader in Spain in the sector of the manufacturing, sale and installation of wind turbines.

Gamesa designs and manufactures its own blades, root joints and manufacturing molds for blades and towers in addition to assembly. Gamesa has wind turbines in 24 countries including the United States with manufacturing facilities in several countries. They have manufacturing plants in the Pittsburgh and Philadelphia area as well and have invested more than \$200 million and they sustain 1000 well-paid, career-track, green jobs in that state despite market swings due to the recent global credit crisis. Pennsylvania's state policy requires 18 percent of the state's electricity to come from renewable sources by 2021 this is major factor in creating a favorable economic environment for the wind turbines that Gamesa produces.

Gamesa has provided turbines for two wind farms in Pennsylvania, one in Texas and one in Illinois. They also have Gamesa turbines on one of the Dayton wind farms. They expect to obtain a very large portion of the U. S. market, they boast their wind turbines are the most efficient in the industry and are able to produce energy with a very low wind rate.

## **GE Air**

GE is the largest supplier of wind turbines in the United States; they make and sell turbines around the world. In 2008, it supplied one of every two turbines installed in the United States—all of them in states with policies that require that a percentage of electricity come from renewable sources such as wind or solar. During the interviewing process, Bonfield discovered that GE Air turbines are made in several locations around the world. In the United States, they have manufacturing facilities in Pensacola, Florida; Greenville, South Carolina; and Tehachapi, California. GE imports some parts to include blades and some material (ie: steel). The company has an extensive U.S. supply chain that includes companies in Iowa, Texas, North Dakota, and South Dakota. GE increased imports of parts because the United States did not create a stable climate for investment.

The number of companies assembling nacelles (the big box that sits on the tower containing the gear box and generator) went from one in 2004 to five in 2008. Five foreign firms plan to build additional U.S. plants. At least 11 blade manufacturers and 16 tower manufacturers have plants or plan to open plants in the United States.

The wind turbine companies want to get more domestic parts because up to 20 percent of the cost of a turbine is transportation.

## **Sky Steam Air**

Sky Stream Air is a company with an office in Twin Falls, Idaho. In speaking with Steve Turek it was determined that Sky Steam Air is in fact a company that makes wind turbines not for commercial use but for the residential market. This will be one of the companies that should be on the list to talk to as a potential component market for our manufacturers.

## **Wind Industry Opportunities**

Puget Sound Entergy and Renewable Energy System America formed a new LLC to develop the Lower Snake River Wind Energy Project to deliver 1,250 megawatts of power to the local region. Currently, the project has 204 turbines. In 2010, another 440 turbines are to be added. This project will bring about 170 jobs to this region during construction with a contribution of 1.3 million in additional revenue. Vestas was the turbine of choice for the local project.

The regional economy benefitting from this project is comprised of the five counties of north central Idaho and the four counties of southeastern Washington. A Wind Farm in the Lower Snake River Wind Energy Project is currently being developed within 20 minutes of Clarkston, Washington and Lewiston, Idaho—the central hub of the region. The Wind Farm will cover Columbia and Garfield counties.

The adjoining State of Montana has tremendous wind energy production opportunity. It has been projected that the State of Montana has 4,700 terawatt hours of potential which is 370 times what their current total retail electricity sales are today.

Although Washington and Idaho do not have strong wind potential, the states still have some of the more affordable opportunities with an infrastructure already in place by the Bonneville Power network. By adding efficiency devices and upgrading the capacity of the existing Bonneville network, more jobs will be created to the region. Because of the Bonneville network of hydroelectric, it opens up a huge potential for alternative energy devices because of its reliability and ability to balance the energy load throughout the Pacific Northwest. Wind energy can only be produced when the wind is blowing. Solar energy can be produced only when the sun is shining. Biomass can only produce energy when it is being converted to a heat source. With hydropower, Bonneville has the ability to respond the moment the energy load changes.

Manufacturing of wind turbine parts in the United States grew last year as the market for wind energy boomed, but trade figures show that imports continued at a high rate after years of big growth. Wind turbine imports from Europe and Asia rose from \$60 million in 2004 to \$2.5 billion in 2008. The value of AC generators and towers, for instance, jumped from \$84 million to \$1.6 billion. These numbers suggest that there is potential for U.S manufacturers to seize some opportunities and some of the largest turbine makers say they are looking for U.S. suppliers.

Large manufacturers that have been hit hard by the failure of the auto industry are pounding these companies to use their facilities to manufacture wind turbine components within the United States and particularly in their facilities. These companies are going after the wind industry in an organized fashion. They are setup to produce large quantities of components and are ISO 9000 certified (quality assurance). Wind is positioned to replace some of the manufacturing jobs that have been lost.

### **Barriers to Supply Chain Production**

Vestas is currently developing manufacturing facilities in Pueblo, Colorado. This will be the largest wind turbine plant in the world when it is completed. As mentioned in a previous section of this report, they will have four separate facilities in the complex.

Vestas has the largest presence in the Pacific Northwest with a large project going in southeastern Washington and central Oregon. The opportunities in becoming members of the supply chain for production of components for these wind projects are going to be very difficult, but not impossible.

This reality puts the North Central Idaho manufacturers at a distinct disadvantage. All of the wind turbine manufacturers would require our manufacturers to be ISO 9000 certified. Only two manufacturers in our region are ISO 9000 certified. Most are capable

of providing high quality parts with a short turn-around time; however, they are not capable of providing large quantities of parts.

**Weakness:**

The State of Idaho and the State of Washington have not come together to develop a long term comprehensive clean, technology strategy. The strategy should include the states of Montana, Oregon and Utah. A coordinate plan needs to encourage long term financial commitments by private industry in research and production of all types of alternative energy devices.

Cheap electricity makes it harder for alternative energy devices to compete.

The following is a per kilowatt hour rate comparison:

	Commercial Rate	Industrial Rate
New England States	14.65	12.48
East North Central	8.65	5.78
	Commercial Rate	Industrial Rate
West South Central	7.74	5.71
Mountain – California	11.15	9.95
Washington	6.55	4.72
Idaho	5.13	3.88

Another negative is the lack of grid capacity to handle the potential energy development through wind, solar or biomass.

**Strengths**

The North Central Idaho and Southeastern Washington has an excellent network of seaports; the region has ports that move cargo by sea container to Portland to be shipped throughout the world. The Port of Lewiston ships large containers. The Port of Wilma primarily ships grains and lumber; however, Wilma could be reconfigured to other needs. The Port of Clarkston has a huge shipping crane; but, currently has acquiesced to the Port of Lewiston because there is not enough shipping to benefit both Ports. (The wind turbine companies want to get more parts domestically because up to 20 percent of the cost of a turbine is transportation, so the closer you can have the major components manufactured the better.)

In the educational and human resources arena and with the lack of experience in this new and emerging cluster of green technologies, the Region is in a much better position than other parts of the country because of the region’s four post-secondary schools. The University of Idaho and Washington State University are strong, research institutions. Walla Walla Community College and Lewis Clark State College have the ability to be very responsive in providing technical training.

Our region now has a list of area manufacturers that are interested in or have the potential to provide components for the Wind Energy Industry. Each manufacturer completed a capabilities matrix and a portfolio that can be used market their capabilities. *See attachment Wind Farm Potential Supply Chain Manufacturers.*

### **Conclusion:**

Although Northwest Intermountain Manufacturers Association did not find a very promising avenue for North Central Idaho manufacturers, NIMA was able to get the capability matrix in front of the Vestas group. NIMA was able to get an audience and talk with Vestas, GE Air, Sky Stream Air and GAMESA. All of the people were very helpful and anxious to work with us. The largest hurdle is that each manufacturer requires that their suppliers be ISO certified and supply large volumes of components. The positive result is that NIMA and the local manufacturers are now better informed on the expectations and competition.

With a very strong, well organized manufacturing base and with exceptional know how, it is likely that many of the future wind turbine parts will be made within the North Central Idaho region. Washington State University and the University of Idaho are working on technology to improve the wind turbine efficiency. With NIMA continuing to develop a relationship with both research institutions, it is likely that local manufacturer will be given the opportunity to build prototypes for these newer experimental ideas. More may also be possible with the projected growth in the smaller wind energy systems, solar systems and biomass utilization potential. There should be a large number of opportunities for manufacturers to diversify their product potential.

By adding efficiency devices and upgrading the capacity of the existing Bonneville network, this will bring jobs to this region. Because of the Bonneville network of hydroelectric, it opens up a huge potential for alternative energy devices because of its reliability and ability to balance the energy load through out the Pacific Northwest.

The 2009 American Recovery Act legislation was good for the wind industry because it provided investment credits and grants. Another important boost was the extension of investment tax credits for wind for four years. What the wind industry really needs is a national requirement to get a set percentage of electricity from renewable energy. This allows for stable investment and smaller companies can get into the game.

It appears that the potential market for North Central Idaho manufacturers will be with the smaller wind turbine companies. There are a large number of small wind turbine manufacturers that produce the small turbine for the residential market. This is enticing to people that want to reduce the cost of their power usage in states where the utility companies allows them to use smart meter technology. Idaho, Washington and Oregon allow smart meters to be used.

Although the quality requirement for parts in the small wind industry will stay the same, the volume expectations will be much lower. Smaller numbers allow North Central Idaho manufacturers to absorb these orders into their existing production without additional capital investment.

This grant does not allow us to pursue the small wind turbines; however, NIMA plans to work at developing this arena for local manufacturers if funding can be developed. Smaller runs and high quality parts that do not require manufacturers to be ISO certified are some opportunities for small manufacturers. NIMA needs to find and develop the right source for this type of manufacturing.

In reviewing the American Wind Energy Association (AWEA) Small Wind Turbine Global Market Study the possibilities for this market seem very favorable for North Central Idaho manufacturers. *See attached chart that shows the growth in the AWEA turbines.*

*Attachment A*

**WIND TURBINE MANUFACTURERS**

**VESTAS**

Vestas Americas  
1881 SW Naito Parkway  
Portland, Oregon 97201  
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Head of North American Operations

**VESTAS**

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Plant Manager for Tower Construction

**VESTAS**

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Plant Manager for Nacelles

**GAMESA Wind Turbines**

Spain  
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Phone: 34-94-431-76-00  
In charge of all American Projects

**GE Air**

Contact: Thomas Rumsey

**Sky Stream Air**

Twin Falls, Idaho  
Contact: Steve Turek  
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