

#### **Siemens Wind Power USA Overview**

The U.S. is one of the most important wind power markets in the world. With a five-year average growth rate of 39 percent and nearly 37 GW of installed wind power capacity, the U.S. is currently ranked number one globally in terms of installed capacity. Since 2005, Siemens has installed wind turbines with a combined capacity of more than 3,600 MW in the U.S., which is enough to supply power to more than one million homes.

#### **Fast facts**

- Siemens is the global leader in offshore wind and #3 in onshore wind in the U.S.
- We have invested more than \$100 million in wind turbine manufacturing facilities in the U.S.
- Siemens Wind Power will have grown from one employee in Dec. 2004 to approx. 1,500 by the end of 2010.
- Siemens' U.S. wind power operations include the 300,000-square-foot Hutchinson nacelle assembly factory, a Houston-based wind turbine service operation, a 600,000-square-foot wind turbine blade manufacturing facility in Fort Madison, Iowa, an R&D center in Boulder, Colorado, 2 gearbox manufacturing sites in Elgin, Illinois, and our Americas headquarters in Orlando, Florida.
- We've been operating our wind turbine blade manufacturing plant in Fort Madison, Iowa, for three years, and we've already doubled the facility there. We are the largest employer in Fort Madison with more than 600 people.
- Siemens Industry Sector is the largest producer of wind turbine gear drives in the world, with 2 factories in Elgin, Illinois, currently employing 150 people, with another 300 new jobs expected over the next few years.
- Siemens Energy provides power systems that generate more than one-third of the electricity in the U.S. Siemens employs approximately 12,000 people in the energy sector and 64,000 people overall in the U.S. covering the energy, healthcare and industry sectors

## **U.S. product portfolio**

The SWT-2.3-101 wind turbine has quickly become the best-selling turbine in the U.S. since its market introduction in 2009. This 2.3-MW wind turbine with a rotor diameter of 101 meters can increase returns by up to 10 percent in sites with moderate wind conditions. We also continue to offer the SWT-2.3-93 wind turbine with a 93-meter rotor, which was the company's workhorse for many years and continues to operate reliably all over the world. Recently, Siemens also introduced a new 3-MW direct drive wind turbine for both onshore and offshore applications, which marks the start of the next generation of wind turbines. Of particular interest is the fact that it is manufactured with 50 percent fewer components than the traditional geared turbine. The new machines are lighter in weight and more compact. The reduction of components inside the nacelle offers ease and improved serviceability when servicing may be required.

Siemens received its second order for 15 direct drive wind turbines for the Bison 1B wind farm near Center, North Dakota, in November.

## **Growth strategy**

Siemens is already #3 and intends to become #2 in terms of installed capacity in the U.S. We are also actively growing our presence in other important markets in the Americas, including Canada (specifically Ontario), Brazil, Mexico, and Chile.

The offshore market is also beginning to materialize in the U.S. Because of our industry-leading position in offshore wind power development, Siemens was selected by Cape Wind to provide turbine equipment for its offshore wind project off the coast of Nantucket in Massachusetts. It will be the first one of its kind in the U.S.

## **U.S. facilities**

### **Wind Turbine Nacelle Assembly Facility - Hutchinson, Kansas**

#### **Size of facility:**

- 300,000 square feet, equivalent to more than five American football fields in size
- The site consists of warehousing, quality assurance, assembly, moving line and a rail yard.

#### **Location:**

- 108 acres in the Salt City Business Park in Hutchinson, Kansas – an excellent location with good highway and rail access in the heart of the wind belt. Barge transportation is

**Production:**

- Assembly of nacelles and hubs for 2.3-MW and 3.0-MW wind turbines
- The nacelle is the structure atop of a wind turbine tower that holds the electricity generating components.
- The first 90-ton wind turbine nacelles are going to Puget Sound Energy's 343-MW Lower Snake River project in Washington State.

**Workforce:**

- More than 400 jobs at full capacity (2012)
- Currently there are 130 employees from the region around Hutchinson (Dec. 2010).

**Local economic impact:**

- According to Wichita State University's Center for Economic Development and Business Research, the job multiplier is 2.28, and the earnings multiplier is 1.86. Therefore, the 130 Siemens jobs that have already been created will translate into another 296 indirect jobs for the region.

**Supply chain:**

- It is Siemens' goal to procure as many U.S. components as possible. Most operational services, including catering, building maintenance, grounds keeping and office supplies, are also provided by local vendors.
- Draka, a global manufacturer of wire and cable, announced plans recently to locate its first U.S. cable assembly venture for wind power in Hutchinson, Kansas. The announcement made Draka the first supplier to choose Kansas specifically to supply the Siemens facility.

**Government support:**

- Siemens received \$4.33 million in incentives under the U.S. DOE's manufacturing tax credit program (48C) for the new wind turbine nacelle assembly facility in Hutchinson, Kansas. Additionally, Siemens Energy received approximately \$3.4 million in incentives for the facility expansion in Fort Madison, Iowa.

**Other interesting facts:**

- Each Siemens 2.3-MW nacelle weighs 185,000 pounds.
- There are 8,500 individual parts in a fully assembled nacelle.
- A 19-axle truck is needed to transport one fully assembled nacelle.
- Approx. 600 homes can be powered from the electricity produced by a Siemens 2.3-MW wind turbine.
- Kansas ranks second in terms of wind energy potential in the U.S.
- Siemens ranks third in the U.S. in terms of the number of wind turbines installed.

**Wind Turbine Blade Factory - Fort Madison, Iowa****Size of facility:**

- Initially 311,000 square feet (2007); expansion in 2008 to nearly 600,000 square feet
- The site consists of warehousing, manufacturing, machining, rough and fine finishing, painting facilities and a rail yard (added in 2008).

**Production:**

- IntegralBlade<sup>®</sup> wind turbine blades for 2.3-MW wind turbines; average output 16 blades/week in FY 2008; 36 blades/week (April 2010)
- We have shipped a total of 2,163 blades to 18 different projects in North America (status April 2010).

**Workforce:**

- Siemens Energy is the largest employer in Fort Madison with more than 600 employees (top-five employer in Lee County)
- 65 percent were former employees of larger companies in the area that had closed or downsized, including Motorola/Celestica, Bluebird Business Manufacturing, GE and Hon Industries.

**Local economic impact:**

- According to the Lee County Economic Development Chamber, the job multiplier is 1.59. In addition to the 600 Siemens jobs in Fort Madison, more than 350 indirect jobs have been created by our presence in Lee County.

**Supply chain:**

More than 82 percent of the direct materials for the blades are procured in the U.S. (35 percent in the Midwest). Most operational services, including catering, building maintenance, grounds keeping and office supplies, are also provided by local vendors.

**Federal support:**

We received approximately \$3.4 million in incentives under the U.S. DOE's manufacturing tax credit program (48C) for the facility expansion in Fort Madison.

**Wind Turbine R&D Center - Boulder, Colorado**

- Opened in 2008
- Approximately 15 employees
- Aerodynamics and blade efficiency are key focus R&D areas
- Joint research project with U.S. DOE's National Renewable Energy Laboratory in Boulder, Colorado. The Siemens SWT-2.3-101 test turbine was commissioned in October 2009.
- The goal of the center is to lower the cost and increase the value of wind-generated electricity by increasing energy production, lowering turbine cost and improving predictability

**Wind Power Service Center - Houston, Texas**

- Opened in 2006
- More than 400 Houston-based employees, many of whom are deployed over all active project sites in the Americas; Training, service tools and parts storage/distribution.

**Headquarters for Siemens Wind Power Business in Americas – Orlando, Florida**

- Started with one employee in 2005
- Approximately 180 employees today, covering marketing, sales, projects and transportation, supply chain management, engineering, safety and quality for the wind power business in the Americas.

**Other R&D efforts in the U.S.**

Siemens has recently announced a research effort with Lawrence Livermore National Laboratory to conduct research on wind farm output prediction modeling (improved predictability of wind farm output and generation, improved load balancing and reserve requirements for utility grid operators and wind farm owners).