

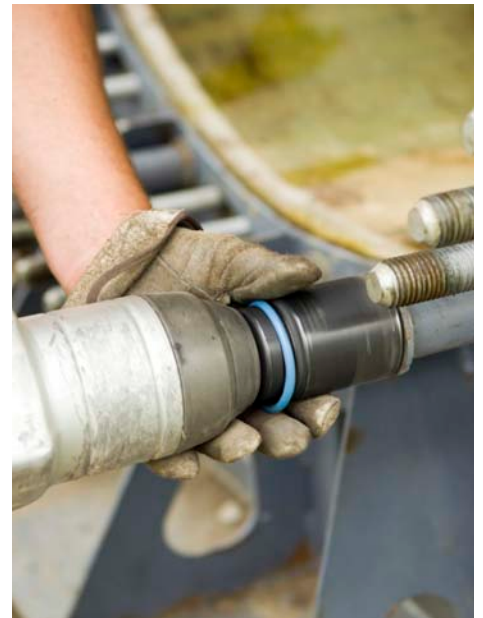


The Wind Energy Supply Chain in Iowa

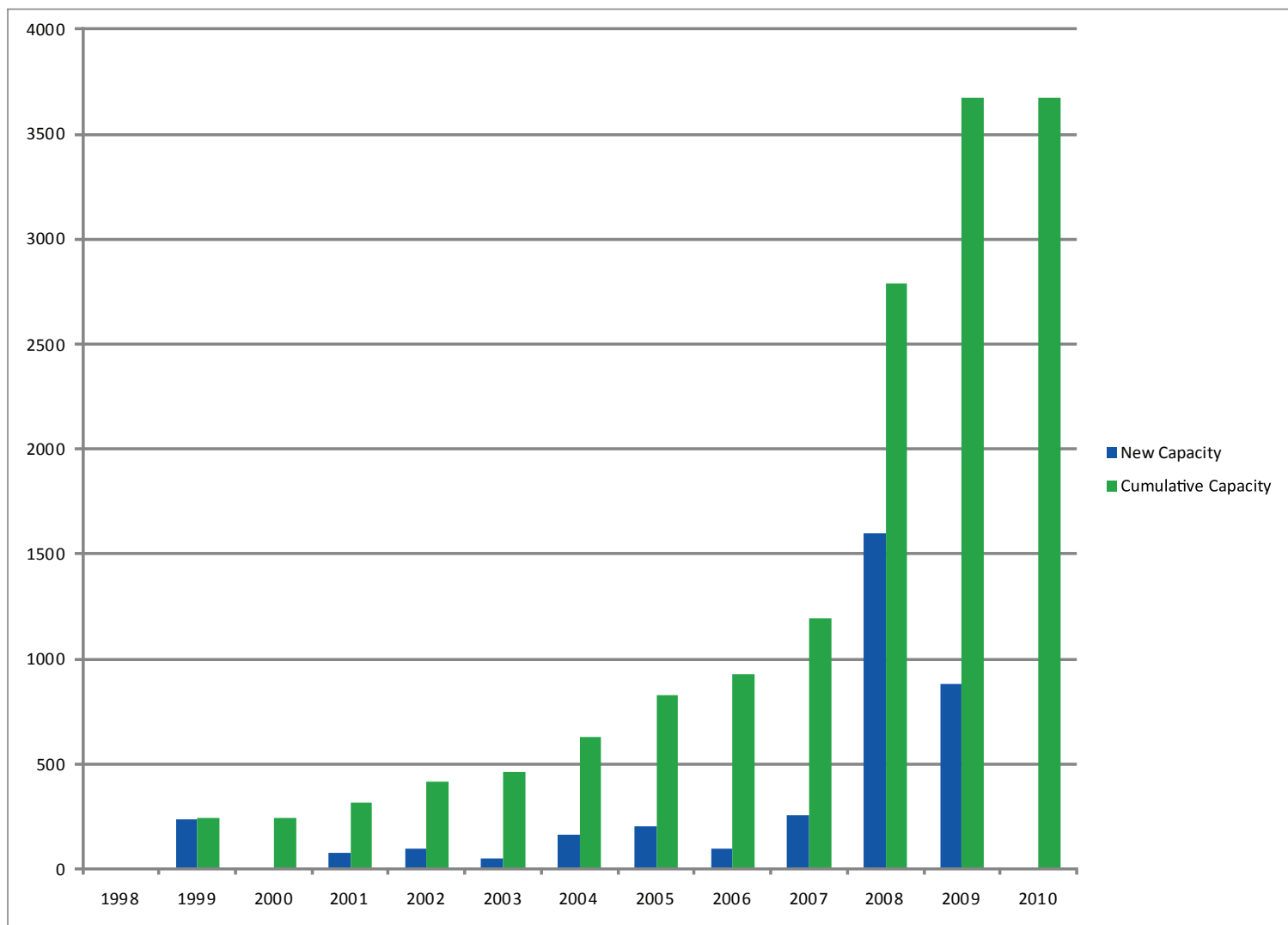
Good for Manufacturing Jobs • Good for Economic Growth
Good for Our Environment



ENVIRONMENTAL LAW & POLICY CENTER



Growth in Iowa Wind Power Capacity (Megawatts)



source: <http://www.awea.org>

AUTHORS: **ASHLEY CRAIG**, ENVIRONMENTAL BUSINESS SPECIALIST
HOWARD LEARNER, EXECUTIVE DIRECTOR
CAROLINE PAKENHAM, LEGAL ASSISTANT

Photos courtesy of: Clipper Windpower (front cover, p.4, p.7 back cover), National Renewable Energy Laboratory (back cover), Sabre Tower (p.6), United Equipment Accessories (p8).



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Protecting the Midwest's Environment and Natural Heritage
ELPC.org

November 2010

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Powering Manufacturing Jobs and Economic Growth in Iowa

Iowa is a leading wind energy producer, with the highest percentage of electricity generated by wind (close to 20%) of any state. Iowa has almost 80 wind installations with over 2,500 turbines capable of producing 3,670 megawatts of power, ranking it second among the 50 states in total generation. The Iowa wind industry supports over 2,300 manufacturing jobs, which may be the most of any state in the nation.

Iowa manufacturing accounted for 20% of the state's GDP in 2008 and includes over 6,000 firms. Large manufacturing firms (more than 500 employees) account for 5% of the firms, but employ 68% of the workers. Iowa's wind energy supply chain is dominated by several large original equipment manufacturers.

The Environmental Law and Policy Center's (ELPC) analysis shows 80 companies that are part of the Iowa wind industry supply chain, and Iowa is now home to seven international manufacturing companies. Several factors have helped Iowa become a leading wind energy generator and component manufacturer.

- **Business development resources.** Iowa has made a significant commitment to developing and retaining renewable energy jobs through the Office of Energy Independence and its \$100 million Iowa Power Fund, which is designed to encourage research and development and innovation. The Iowa Values Fund is a funding source for projects focused on job creation or retention within the state.

“Iowa’s wind industry supports over 2,300 manufacturing jobs, which may be the most of any state in the nation.”

- **Tax Incentives.** Iowa has been aggressive in offering tax credits to encourage business retention and development within the state, including the New Jobs Tax Credit, the High Quality Jobs Program and Investor Tax Credits.

- **Excellent multimodal transportation system.** Iowa's central location and transport infrastructure make the state a good location for manufacturers to ship and receive wind components. The Iowa Department of Transportation works closely with the Iowa Department of Economic Development to attract businesses by streamlining permitting, overcoming transportation constraints, and making staff available to discuss freight movements and logistics.

- **Educational institutions and skilled workforce.** Iowa has high-ranking public schools, colleges and universities. Iowa provides state-sponsored employee training programs for some businesses and is recognized for its skilled workforce.

The wind industry means real jobs and real economic opportunity for Iowa.

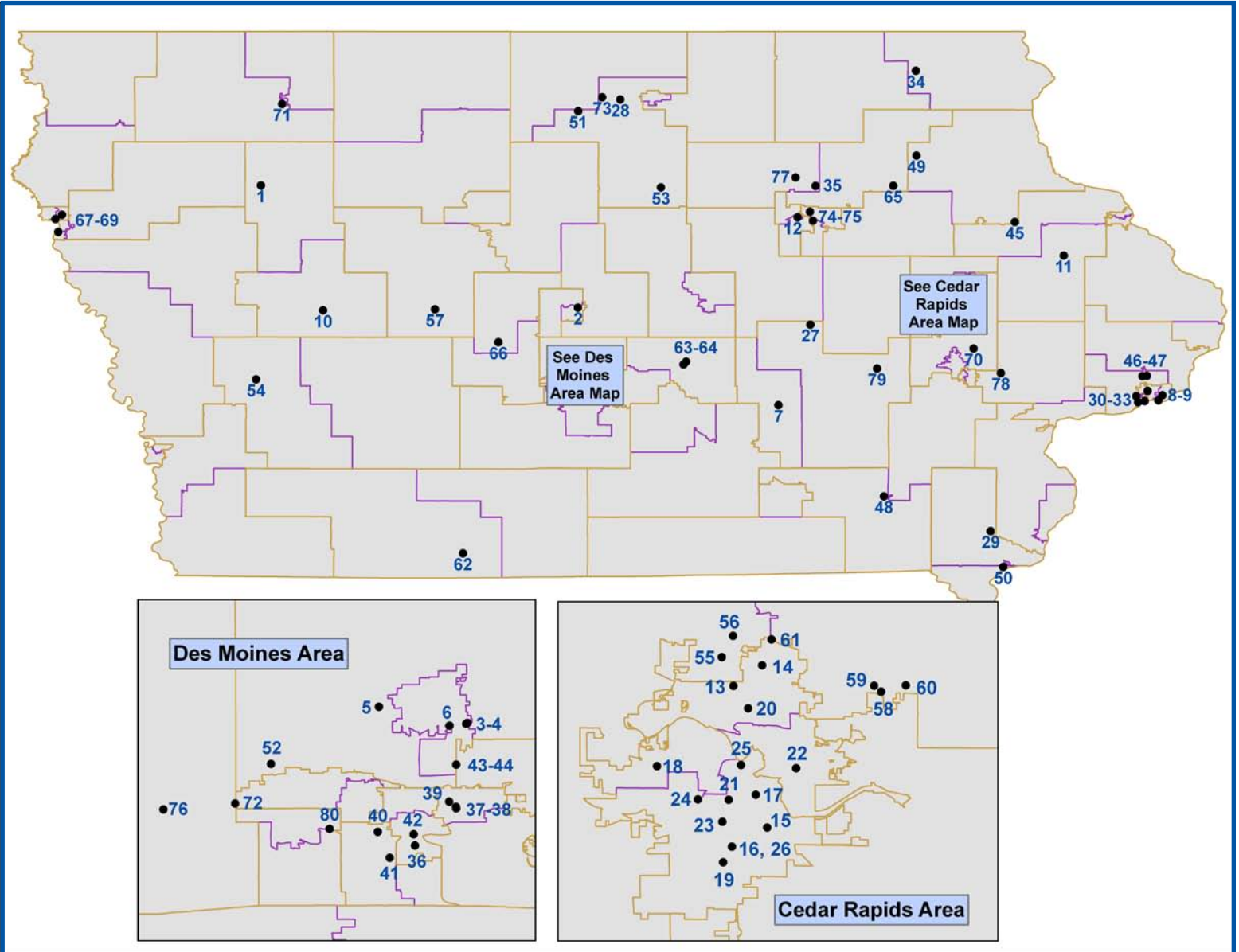
Iowa's Wind Industry Supply Chain

Company Name	City	Company Name	City
1. Anemometry Specialists (S)	Alta	41. Keystone Electrical Mfg. (C)	Des Moines
2. Custom Steel Service (C)	Ames	42. MidAmerican Energy (D)	Des Moines
3. Goian North America (B)	Ankeny	43. Rising Sun (C)	Des Moines
4. Ingersoll-Rand (C)	Ankeny	44. Rasmussen Group (D)	Des Moines
5. Motion Industries (C)	Ankeny	45. EIP Manufacturing (C)	Earlville
6. Snyder & Associates (S)	Ankeny	46. Gerdau Ameristeel (C)	Eldridge
7. Iowa Energy Alternatives (MW)	Barnes City	47. Mehta Tech (S)	Eldridge
8. Alter Barge Line (S)	Bettendorf	48. Schaus-Vorhies Manufacturing (C)	Fairfield
9. Rogan Incorporated (S)	Bettendorf	49. DBA Blessing Industries (C)	Fayette
10. IES (S)	Carroll	50. Siemens Wind Power (B)	Fort Madison
11. Webber Metal Products (C)	Cascade	51. NextEra Energy Resources (D)	Garner
12. Natural Solutions (MW)	Cedar Falls	52. Availon (S)	Grimes
13. Acro Manufacturing Corp. (C)	Cedar Rapids	53. IPL (Alliant Energy) (D)	Hampton
14. Allied Electronics (C)	Cedar Rapids	54. Conductix-Wampfler (C)	Harlan
15. AMTek (C)	Cedar Rapids	55. DAD Manufacturing (C)	Hiawatha
16. Applied Industrial Technologies (C)	Cedar Rapids	56. Dowding Industries (C)	Hiawatha
17. Clipper Windpower (T)	Cedar Rapids	57. Wind Utility Consulting (S)	Jefferson
18. Coonrod Wrecker and Crane Service (C)	Cedar Rapids	58. Acterra Group (MW)	Marion
19. Custom Hose & Supplies (C)	Cedar Rapids	59. Barnes Manufacturing Services(C)	Marion
20. Green Transitions (MW)	Cedar Rapids	60. P&D Welding (C)	Marion
21. Hupp Electric Motors (S)	Cedar Rapids	61. Timberline Manufacturing (C)	Marion
22. Kieck's Career Apparel (S)	Cedar Rapids	62. Heartland Energy Solutions (MW)	Mount Ayr
23. Mid Iowa Tools (C)	Cedar Rapids	63. TPI Composites (B)	Newton
24. Sadler Machine Company (C)	Cedar Rapids	64. Trinity Structural Towers (B)	Newton
25. Shuttleworth & Ingersoll (S)	Cedar Rapids	65. Sector5 Technologies (C)	Oelwein
26. Williams Fastener & Supply (C)	Cedar Rapids	66. Van Wall Energy (MW)	Perry
27. C-Fab (C)	Chelsea	67. Triview Steel & Supply (C)	Sioux City
28. WinndSunn (MW)	Clear Lake	68. Prince Manufacturing (C)	Sioux City
29. Geode Energy (C)	Danville	69. Sabre Towers & Poles (B)	Sioux City
30. Howard Steel (C)	Davenport	70. Foundry Equipment Co. (C)	Solon
31. Quad City Safety (S)	Davenport	71. Rekow Renewables (S)	Spencer
32. Ryan Companies US (D)	Davenport	72. Harness Nature (MW)	Urbandale
33. Treiber Construction Co. (C)	Davenport	73. Vestas (C)	Ventura
34. Infastech Decorah (C)	Decorah	74. Hellman (S)	Waterloo
35. Seegers Truck Line (S)	Denver	75. Power Engineering and Manufacturing (C)	Waterloo
36. Acme Tools (C)	Des Moines	76. Majona Steel Corp. (C)	Waukee
37. Air-Mach (C)	Des Moines	77. United Equipment Accessories (C)	Waverly
38. DMB Supply(C)	Des Moines	78. Acciona (T)	West Branch
39. Electrical Power Products (C)	Des Moines	79. Hummer Of Iowa (C)	Williamsburg
40. Innovative Kinetics (MW)	Des Moines	80. Electrical Engineering and Equipment Company (C)	Windsor Heights

Key

B Blades & Towers	MW Mid-scale Wind
C Components	S Services
D Developers	T Turbine Assembly

Wind Supply Companies Across Iowa



Iowa: A Leading Player in Large Wind Power Components

Iowa is home to 80 wind installations and has more than 50 manufacturers in the wind supply chain, including two large turbine assemblers and two blade and three tower and lift manufacturers. Professional service businesses throughout the state have also expanded to meet the demand from the wind industry.

Manufacturing Jobs:

Acciona Windpower is part of a global sustainability-focused company. In 2007, Acciona opened a \$30 million wind turbine generator assembly plant in West Branch. Site selection was driven by the state's favorable business climate and support for the wind industry, in addition to optimal proximity to wind resources and good access to inbound and outbound logistics for transportation options. The build-out of a domestic supply chain remains a top priority for Acciona Windpower, which has contributed to the creation of over 1,000 direct and indirect jobs with the company and its suppliers.

Acro Manufacturing has 46 employees in Cedar Rapids and is a CNC machine shop for wind turbine components. Like the rest of the wind industry, Acro has felt the negative effects of a drop in demand, but is preparing for a resurgence.

Clipper Windpower began production at its Cedar Rapids wind turbine assembly operation in late 2006. Close to 500 turbines have been assembled thus far at the plant. "Cedar Rapids offers a centralized location



within the United States and major north-south and east-west highway and rail service," said plant manager Bob Lloyd. "In addition, Cedar Rapids historically has been a community with numerous heavy industries, resulting in a readily available trained workforce."

Conductix-Wampfler is a French company with its U.S. headquarters in Omaha, Nebraska and a manufacturing location in Harlan. Conductix supplies two components to the wind industry: slip ring assemblies, designed to provide rotor pitch control; and Tower Buss, a rigid conductor alternative to copper cable for feeding power down the tower. The company has 70 Iowa employees and received its first wind industry order in 2004. Conductix has also felt the impact of the overall economic downturn and is facing declining orders for wind turbine components.

Electrical Power Products, in Des Moines, has 80 employees, and the wind sector comprises about 40% of its business. Electrical Power Products provides relay panels and complete control buildings to wind farm facilities. The company also supplies equipment for medium voltage collector stations and for interconnection facilities.

Goian North America, in Ankeny, manufacturers lifts for people and equipment inside wind turbine towers and support systems. Goian is a Spanish company that selected Iowa for its U.S. manufacturing facility due, in part, to the Iowa Department of Economic Development's responsiveness to the company's questions about suppliers and professional support services.

Heartland Energy Solutions, in Mount Ayr, designs and builds wind turbines for the moderate-wind-speed market. Heartland's "Freedom" wind turbine is designed to be easier to repair, more economical and more efficient, while creating electricity at wind speeds as low as 6 miles per hour versus the more typical 8 to 10 miles per hour. Heartland's management team is committed to source all of its turbine components from U.S. suppliers.

Keystone Electrical Manufacturing, in Des Moines, has been in business for 46 years and manufactures control and relay panels and turnkey control centers for the wind industry. The company has 60 employees, and approximately 20% of its business comes from the wind sector.

Mid-Iowa Tools, in Cedar Rapids, was founded in 1974 to help customers reduce inefficiencies and redundancies in their supply chains and provide technical service and application support to manufacturers in the Upper Midwest. Mid-Iowa Tools provides assembly tools, cutting and abrasive tooling, gauges and calibrations both to original equipment manufacturers and to wind farm operators.

“Sabre has learned through customer feedback that the most critical factor in completing wind projects is the availability of federal funding and/or tax incentives.”

Sabre Towers & Poles is one of the largest tower manufacturers in the world and has the highest volume manufacturing capacity in the tower industry. Sabre's Sioux City manufacturing plant has 296 employees.

“Sabre has learned through customer feedback that the most critical factor in completing wind projects is the availability of federal funding and/or tax incentives,” said Byron Kuehl, Renewable Energy Sales Manager. “A number of tower purchases have been cancelled, decreased, or put on hold indefinitely as a result of the unpredictability of legislative policies that govern these incentives.”

Iowa: A Leading Player in Large Wind Power Components (continued)

Sector 5, in Oelwein, provides custom fabrication and construction services to wind industry companies. Sector 5 has completed projects including the installation of overhead cranes and jib cranes, as well as manufacturing and installing test stands for gear box vibration testing.

Siemens Wind operates a 600,000 square foot wind turbine blade manufacturing plant in Fort Madison. It has nearly 600 employees, 65% of whom previously worked at companies in the area that closed or downsized. Siemens has made an effort to transport its blades on rail, which the company estimates has resulted in an 80% reduction in its carbon footprint.



Trinity Structural Towers has 140 employees in Newton and was opened in 2008 in a former Maytag plant. Trinity Towers fabricates tubular wind towers and, through its parent and affiliated companies, provides steel turbine components, concrete and aggregates, product transportation and specialized coatings.

“TPI’s Newton plant opened in 2008 and has more than 450 employees, making it one of Iowa’s largest employers.”

TPI Composites, is a leading global supplier of composite wind turbine blades. TPI’s Newton plant opened in November 2008 and has more than 450 employees, making it one of Iowa’s largest employers.

United Equipment Accessories (UEA), in Waverly, manufactures slip rings, which are used in wind turbine pitch control systems or towers-to-ground power transfer. UEA has 90 employees and the wind sector is a significant part of the company’s customer base. UEA has grown significantly since 2003, largely due to supplying the wind industry.

Professional & Support Services Jobs:

Anemometry Specialists, in Alta, employs 25 staff and has over 55 years of experience installing and maintaining wind assessment meteorological (“met”) towers. Anemometry’s technicians have installed more than 1,700 met towers in 35 states and five international locations. Anemometry Specialists also provides data collection, data analysis, site assessment, tower repair and maintenance, tower relocation and project management services.

Hellman, in Waterloo, is a full-service advertising, marketing and PR agency. Its marketing services division is focused on leading and growing business development for the evolving renewable energy sector. Over the last 11 years, Hellman has developed many wind-related communications and PR programs for wind developers, manufacturers and utilities. “Our focus on helping wind-related companies has helped support our growth at our Iowa office, allowing us to increase our staff by 22 people over the last 6 years,” commented Phil Akin, CEO of Hellman.

Kieck’s Career Apparel, in Cedar Rapids, provides uniforms to wind farm operators. Due to the weather conditions and industrial hazards associated with constructing wind farms, uniforms need to be flame resistant. Kieck’s has seen significant demand for its product from Iowa wind farms during the past decade. Nina Brundell, Kieck’s President, noted, “Kieck’s is proud to support the wind power industry in their attempts to keep their workers safe.”

Shuttleworth & Ingersoll PLC is a national law firm located in Cedar Rapids that employs 45 lawyers and five legal assistants in providing legal services to companies operating in the wind industry.

Wind Utility Consulting provides consulting services for small-to-medium-scale wind development projects. These services include wind resource assessments, construction cost estimates, environmental



impact assessments and economic feasibility analyses. These consultants have been involved in the wind industry in Iowa for 20 years. “Iowa is a great and easy place to develop wind generation,” commented Thomas Wind, the group’s principal. “The municipal agencies make it easy to get the necessary permitting and paperwork completed, saving valuable time during the development stage of small wind projects.”

Untapped Potential for Job Growth

In addition to the 80 Iowa companies currently in the wind energy supply chain, others are positioned to supply the wind industry and see a prospective new market. ELPC identified more than 30 Iowa companies that could also supply the industry if demand increased, including:

Ameritec Machining is a registered machine shop in New Hampton with 36 employees. Ameritec has quoted work for wind manufacturers in the past and has the machining capabilities that would allow it to service the industry as demand increases. The company currently supplies the agriculture industry.

Central Western Fabricators is a 70,000 square foot steel fabrication facility that has been in business (through its predecessor business Venetian Iron Works) since 1922. In the past 20 years, this company has completed over 275 projects in the industrial, educational, recreational and medical sectors. Central Western has the capability to supply the wind industry.

MG Machining is a tool and die machine job shop and production shop located in Bedford. MG Machining has 12 employees and has been in business since 1988.

New Tech Ceramics, in Boone, manufactures a hard, resilient lubricious ceramic material that can be coated onto components to prevent wear and extend their life. The coating allows mechanical systems to operate with greater energy efficiency.

Power Engineering & Manufacturing, in Waterloo, is a 35-year-old company that designs and manufactures custom gear boxes and component parts. The company has 60 employees and is targeting the wind industry as a potential sector for growth. Power Engineering can also reverse engineer gear boxes, allowing it to repair and rebuild machines.



Policy Makes the Difference

Federal and state policies are key to encouraging investment that can grow the wind industry. Iowa has used tax, job development, and transportation-related incentives to attract and retain wind industry jobs in the state. While Iowa was among the first states to require utilities to initially purchase 105 megawatts of wind power resources, more policy action should support wind power development.

Federal Policies

Federal Renewable Electricity Standard:

This proposed federal legislation would require all electric utilities, which act as collective power purchasing agents for consumers, to buy a growing percentage of their electricity from renewable energy resources. Creating a federal renewable electricity standard floor - which states like Iowa can exceed - would drive more national demand for wind generated electricity. That would increase export opportunities for Iowa wind power and spur the market for Iowa-manufactured wind turbines, components, and professional services. Iowa would benefit through more job creation and economic growth.

Production Tax Credit (PTC) and Investment Tax Credit (ITC): The federal PTC provides a credit of 2.1 cents per kilowatt hour. In February 2009, Congress extended the PTC for three years through 2012. Wind developers can also opt to take a 30% ITC in lieu of the PTC for facilities placed into service before 2013, so long as construction begins before the end of 2010. The ITC can be converted to a grant that helps developers who do not have a substantial enough tax liability to effectively utilize the tax credit.

Accelerated Depreciation: Allowing wind generation assets to be depreciated over six years can create additional value. The depreciation credit may be hard for some developers to use unless they can offset it with significant income.

Iowa Programs & Policies

State Renewable Electricity Standard:

Iowa's early adoption of a modest RES helped spur wind industry development in the state. However, Iowa is now ready for a more aggressive standard, which will help the state's wind industry grow and retain its leadership position.

Renewable Energy Production Tax Credit:

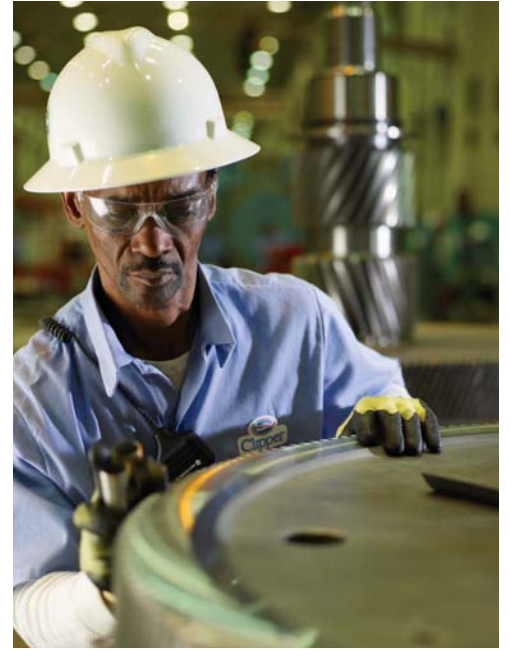
Iowa offers production tax credits of 1.0 cent per kilowatt-hour for energy either sold or generated for on-site consumption (not to exceed 150 mw in generating capacity), or 1.5 cents per kilowatt-hour for energy sold (not to exceed 330 mw). The credit can be applied toward state tax payments.

State Sales Tax Exemption: The total cost of wind energy equipment and all materials used to build wind energy projects are exempt from sales tax.

Iowa New Jobs Tax Credit: Corporate income tax credits are available to companies that enter into New Jobs Training Agreements and expand their Iowa employment base by at least 10%. The amount of the one-time credit depends on the wages paid.

Iowa New Jobs Training Program: Businesses expanding their Iowa workforce can receive funding through the Department of Economic Development to meet related training and development needs.

High Quality Jobs Program: Qualifying companies can receive tax credits for locating, expanding or modernizing an Iowa plant. This assistance is targeted primarily toward manufacturing businesses. The business must meet wage threshold requirements and the award amount is determined based on need, job quality, and the economic impact of the project.



Environmental Law & Policy Center

The Environmental Law & Policy Center is the Midwest's leading public interest environmental legal advocacy and eco-business innovation organization. We develop and lead successful strategic advocacy campaigns to improve environmental quality and protect our natural resources. We are public interest environmental entrepreneurs who engage in creative business dealmaking with diverse interests to put into practice our belief that environmental progress and economic development can be achieved together. ELPC's multidisciplinary staff of talented and experienced public interest attorneys, environmental business specialists, public policy advocates and communications specialists brings a strong and effective combination of skills to solve environmental problems.

ELPC's vision embraces both smart, persuasive advocacy and sustainable development principles to win the most important environmental cases and create positive solutions to protect the environment. ELPC's teamwork approach uses legal, economic, scientific and public policy analysis, and communications advocacy tools to produce successes. ELPC's strategic advocacy and business dealmaking involves proposing solutions when we oppose threats to the Midwest environment. We say "yes" to better solutions; we don't just say "no."

ELPC was founded in 1993 and has achieved a strong track record of successes on national and regional clean energy development and pollution reduction, transportation and land use reform, and natural resources protection issues. ELPC's creative public advocacy effectively links environmental progress and economic development together and improves the quality of life in our Midwestern communities.

HEADQUARTERS

35 East Wacker Drive, Suite 1600
Chicago, Illinois 60601
Tel: 312-673-6500 Fax: 312-795-3730
Web: ELPC.org Email: elpcinfo@elpc.org



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