

Development of the Mid-Atlantic Region's Supply Chain

Kevin Rackstraw
Development Leader, Eastern Region
Clipper Windpower, Inc.
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Clipper Overview



- Formed in 2000
- Headquarters:
 - Carpinteria, California, USA
 - London, United Kingdom (Europe)
- Employees: 850
- Wind Turbine Assembly: Cedar Rapids, Iowa, USA
- Publicly traded on the London AIM market
- Liberty 2.5 MW turbine series
 - C-89
 - C-93
 - C-96
 - C-100

Clipper Product Line



Liberty Onshore

- 2.5 MW
- Onshore
- Clipper's First Commercial Onshore Wind Turbine
- In Operation

Britannia Offshore

- 7.5-10 MW
- Offshore
- Clipper's First Commercial Offshore Wind Turbine
- In Development



Continuing Innovation is Key

Cedar Rapids, Iowa Manufacturing Plant

Plant Manager – Bob Loyd PE

- 32 years of heavy equipment manufacturing experience

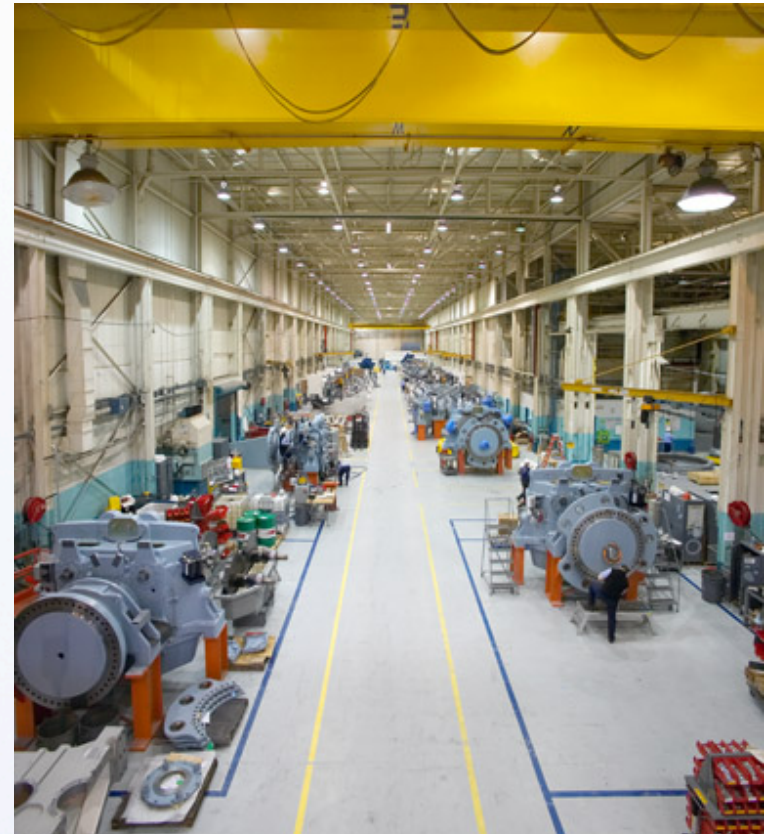
Facility

- 330,000 square feet of working space
- Capacity of 500 units per year
- Location central to major road and rail services
- Significant investments made to ensure state of the art operations

On-Site Manufacturing Engineering Team

On-Site Planning and Production Coordination

Service Parts Support



Procurement Strategy



- Multiple sources: domestic and international
- Supplier contracts tie in warranty and spare part commitments
- Company owned designs, tools, fixtures, and patterns
- Certification of Suppliers through coordination with Quality Department

Attracting Wind Manufacturing

US Manufacturing

- Largest US turbine supplier is GE, which has ~30% of market
- Dominant suppliers are European (Vestas, Enercon, Gamesa etc)
- Strong US market
 - 45% + annual growth
 - Potential for 350,000 MW of wind in US by 2030 with 20% goal
 - equal to building one coal plant per week over next 20 years
 - 10,000 MW per year would create tens of thousands of jobs

BUT

- Many inputs to US wind turbines likely to come from overseas

Why Wind Jobs May be Overseas

- Stronger US dollar makes imports more attractive
- Unstable US policy
 - Stability of wind market now generated largely from states
 - Federal PTC is notoriously unreliable w/ 1-2 year extensions
 - All wind supporters should lobby for long-term extension
 - Minimum 5 years
 - No federal cheerleading from the top
 - Administration resources going toward coal, nuclear
 - Wonderful mix of rural America, wind and jobs is possible but not being driven consistently or with passion

Why Wind Jobs May Be Overseas

- Wind industry is global business with global supply chain
 - Not sufficient capacity in critical areas (castings, bearings, forgings, etc.) and policy does not allow investments in new capacity that allow industry ramp-up
 - Requires huge foundries, sophisticated forgings, precision machining
 - New capacity doesn't appear overnight
 - Banks don't like lending into uncertain markets
 - Fortunately, European banks are actively lending to wind companies and vendors
 - US banks behind the curve
 - Most difficult for small businesses
 - Long-term PTC will expand the supply chain
 - Credit unavailability dramatically slows expansion of supply chain

Attracting Wind Manufacturing

- IA, CO and PA have attracted new wind turbine plants
 - CO and PA have RPS, IA has renewables target
 - IA also has state-wide government commitment with very organized and wind-focused biz dev group
- MI and OH have sophisticated and aggressive efforts to match vendors with wind companies
- Clipper experience with first plant
 - 3 years ago, Clipper analyzed key factors in many states
 - Labor force, cost of living, taxes, transportation access, etc.
 - Looked at 36 states, narrowed to 9, seriously looked at 2 states (CO, IA) and at NY for a second plant
 - Many states offered incentives, some quite substantial (NY)
 - Very competitive—many states want wind jobs

Attracting Wind Manufacturing

- In final analysis decision driven by:
 - Proximity to markets: IA did well, partly because of proximity to other “hot” markets
 - Compatibility of existing skillsets
 - Auto components, shipbuilding, electronics, forgings, castings, precision machining, steel production and fabrication
 - Clipper plant was high-speed printing press mfg
 - State commitment to wind and to Clipper:
 - Iowa had strong historical and future commitment to wind
 - Straightforward place to build a plant as well as projects
 - Very strong political commitment at highest levels: Sen Grassley/Harkin & Gov Vilsack personally recruited CEO

Attracting Wind Manufacturing

- Utility leadership matters:
 - Alliant and Mid-American were two progressive companies willing to take a leadership position in the industry and provided a foundation for the market
 - John Deere stepped into the market in a major way
 - helped Iowa take over third place in US wind capacity
- Role of state economic development policies and staff
- Regional transmission expansion helped enable growth
- Transparent regulatory process

Summary

- Starts with markets, which in turn start with political commitment
 - Energy sector is so distorted with subsidies to incumbents and newcomers that markets are inherently political
 - No such thing as a free market in energy
- Windpowering America is a powerful tool for education of political leaders at all levels, as well as for developing the in-state capability and tools to build grassroots support for wind and understanding of job benefits
- Manufacturing incentives do matter
- Consistent policy that can help to smooth out the gaps in federal policy:
 - RPS
 - State tax incentives, particularly those that backstop federal PTC
 - Transparent and efficient siting regulation
- Top state officials need to be invested in the effort

Windpower:

JOB, SECURITY, ENVIRONMENT

Pass it on

Questions?