GE Power & Water
Renewable Energy

Wind Power

Increased customer value...
through product evolution








a product of
ecomagination

imagination at work

Evolution of GE Onshore Wind Products

1996
First 1.5 MW installed

2002
GE enters wind industry

2003
LVRT introduced; 1,000th unit shipped

2004
First 2.5s installed; First 1.5sle GE 37c blade

2005
GE designed pitch system introduced; 5,000th unit shipped

GE Onshore Wind Products	2002	2011	
AEP (GWh/yr)*	6.0	11.6	**+94%**
Capacity Factor†	45	52	**+16%**
Availability (%)	85	98	**+15%**

† @8.5m/s AMWS

1.5 MW wind turbines, Pyron Wind Farm, Rosco, Texas, U.S.A.

2006
First 1.5xle installed;
First 2.5xl installed

2007
First GE designed 40 meter blade;
GE launches Mark* VIe controller for wind

2008
WindBOOST introduced;
10,000th unit shipped

2009
First 1.6-82.5 installed;
First 2.75-100 installed

2010
First 2.75-103 installed

2011
First 1.6-100 installed;
15,000th unit shipped

GE Onshore Wind Products ...
Proven Performance and Reliability

Global Footprint

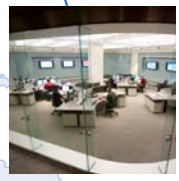
GE Energy is one of the world's leading suppliers of power generation and energy delivery technologies—providing comprehensive solutions for coal, oil, natural gas and nuclear energy; renewable resources such as wind, solar and biogas, and other alternative fuels. As a part of GE Energy—which includes the Power & Water, Oil & Gas, and Energy Services businesses—we have the worldwide resources and experience to help customers meet their needs for cleaner, more reliable and efficient energy.

GE has 11 global locations specifically devoted to wind technology. Our facilities are registered to ISO 9001:2000 and our Quality Management System, which incorporates our rigorous Six Sigma methodologies, provides our customers with quality assurance backed by the strength of GE. We believe wind power will be an integral part of the world energy mix throughout the 21st century and we are committed to helping our customers design and implement energy solutions for their unique energy needs.

Manufacturing/ Assembly
Tehachapi, CA

Global Research Center
Niskayuna, NY

Energy Learning Center
Niskayuna, NY



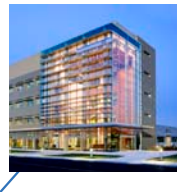
Remote Operation Center
Schenectady,

Customer Service Center
Sweetwater, TX

Wind Parts Operations Center
Memphis, TN

Manufacturing/ Assembly
Pensacola, FL

Manufacturing/ Assembly and Engineering
Greenville, SC



Renewable Energy Global Headquarters
Schenectady, NY

Prototype Manufacturing, Design and Engineering
Oslo and Verdal, Norway
Karlstad, Sweden

Renewable Energy European Headquarters
Manufacturing/Assembly and Support
Energy Learning Center
Salzbergen, Germany

Manufacturing/ Assembly
Shenyang, China

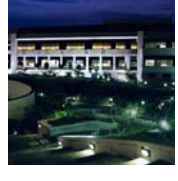
Global Research Center
Shanghai, China

s
NY

Customer Support Center
Noblejas, Spain

Manufacturing/ Assembly
Chennai Wind Facility
Chennai, India

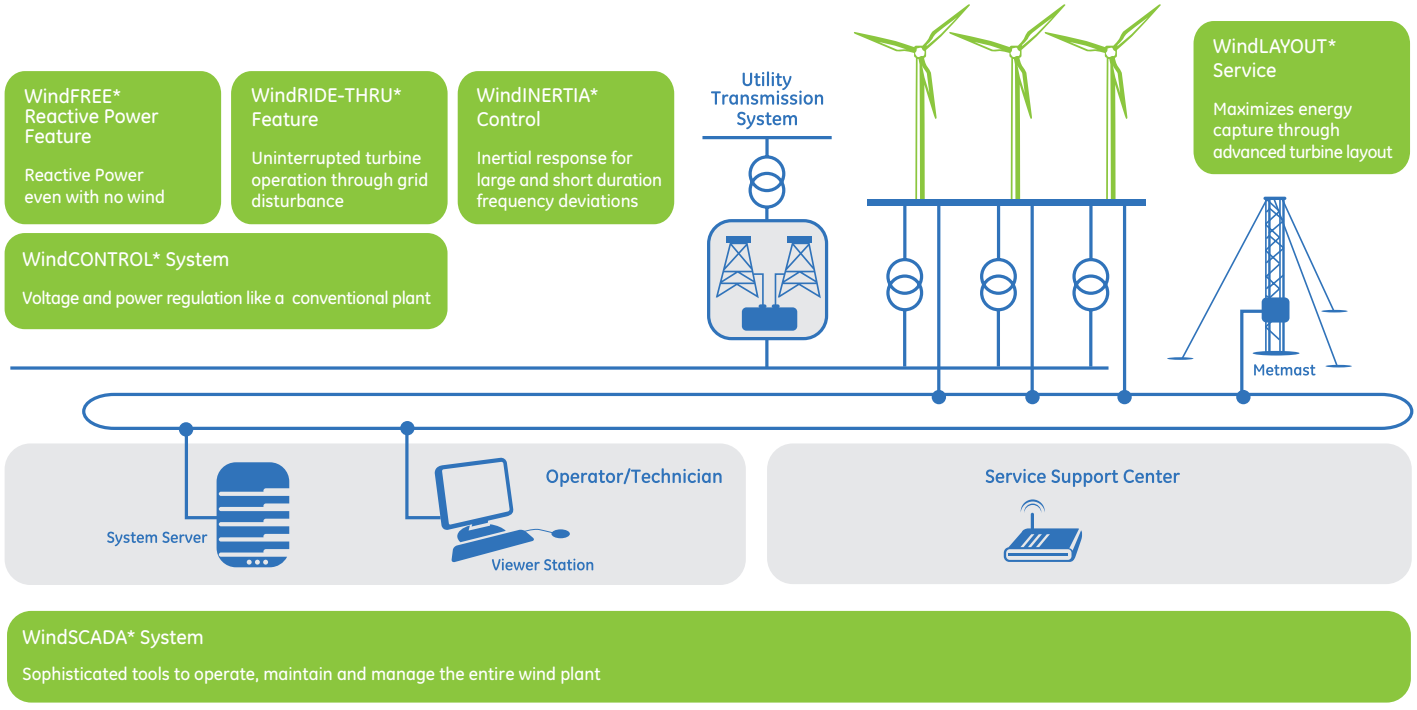
Global Research Center
Munich, Germany



Global Research Center
Bangalore, India

Optimized Wind Power Plant Performance

Wind turbine performance is a critical issue in light of increasingly stringent grid requirements. Our unrivaled experience in power generation makes us the industry leader in grid connection. By providing a sophisticated set of grid-friendly offerings similar to conventional power plants, GE's patented integrated suite of controls and electronics take your wind power plant to the frontline of performance and seamless grid integration.



Feature	Description	Benefits
WindCONTROL* System	Voltage and power regulation like a conventional power plant	Ability to supply and regulate reactive and active power to the grid Additional features include power frequency droop, power ramp rate limiters and integrated capacitor/reactor bank control
WindFREE* Reactive Power Feature	Provides reactive power even with no wind	Provides smooth fast voltage regulation by delivering controlled reactive power through all operatingconditions Eliminates the need for grid reinforcements specifically designed for no-wind conditions
WindRIDE-THRU* Feature	Low voltage, zero voltage and high voltage ride-through of grid disturbances	Uninterrupted turbine operation through grid disturbances Meets present and emerging transmission reliability standards
WindINERTIA* Control	Provides temporary boost in power for under-frequency grid events	Provides inertial response capability to wind turbines that is similar to conventional synchronous generators without additional hardware
WindLAYOUT* Service	Service to optimize turbine layout for a site	Opportunity to increase annual energy production for a site
WindSCADA System	Tools to operate, maintain and manage wind power plant	Real-time data visualization, reporting on historical data, alarm management and secure user access

1.5 MW wind turbines, Pine Tree Wind Farm, California, U.S.A.

1.6 MW wind turbine, Tahachapi, California, U.S.A.

GE's Wind Service Packages

MONITORING AND REMOTE OPERATIONS	EXTENDED PARTS AND SERVICES	FULL SERVICE AGREEMENT	
Remote Monitoring and Troubleshooting: Turbine monitoring and rapid fault response increase equipment availability and reduce downtime.			PLANNED
Routine Services: 6 and 12 month maintenance according to GE's O&M manual and work procedures.			
Preventative Maintenance: Replacement parts and maintenance for both break-in procedures and tasks with periodicities over one year.			
	On-Site Support: On-site operations including troubleshooting and technical advisory services.		
	Parts Package: Forecasting, warehouse stocking and replenishment recommendations, maintenance kits, flow and capital parts.		
	Availability Guarantee: Customers who elect this level of support qualify for an availability guarantee from GE.		
		Unplanned Maintenance Coverage: Unplanned maintenance including uptower inspection and repair options for reducing repair costs and downtime.	UNPLANNED
		Condition Monitoring: Advanced vibration equipment and analysis proactively detects impending drive train issues.	
		Turbine Performance and Life Extension: Fault forecasting, advanced inspection technologies and system upgrades.	

Monitoring and Remote Operations (MRO):

This package brings GE's technical expertise to provide a defined scope of planned maintenance, including routine inspections, consumable parts replacement, and labor required in the replacement of wear and tear parts—as well as improved availability and reliability with remote operation services including 24/7 remote monitoring (with remote reset capability).

Operational Services Agreement (OSA):

Adding coverage for manual resets, initial trouble shooting, competitive parts pricing and inventory management, and a limited availability guarantee together with performance analysis reports, the OSA ensures the highest standards of operation for the project while offering customers competitive solutions to unplanned service events.

Full Service Agreement (FSA):

Maximize turbine operating performance and life by adding predictive Condition Monitoring services, unplanned maintenance with advanced services and uptower repairs, as well as options for turbine performance and life extension enhancement. Under this comprehensive package GE provides the customer with worry-free operation and maintenance with the highest level of performance.

Onshore Products

GE's 1.5 MW Wind Turbine Series

1.5-77

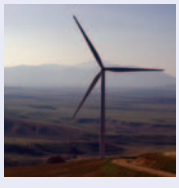
Certified to	IEC Class I
Rotor Diameter	77 meters
Hub Height	65 and 80 meters
Frequency	50/60 Hz
Weather	Standard/Cold Weather Extreme

Available Now

1.6-82.5

Certified to	IEC Class II
Rotor Diameter	82.5 meters
Hub Height	80 and 100 meters
Frequency	50/60 Hz
Weather	Standard/Cold Weather Extreme

Available Now



1.6-100

Certified to	IEC Class III
Rotor Diameter	100 meters
Hub Height	80 and 100 meters
Frequency	50/60 Hz
Weather	Standard/Cold Weather Extreme

Available 2012

GE's 2.5 MW Wind Turbine Series

2.75-100

Certified to	IEC Class II
Rotor Diameter	100 meters
Hub Height	75 (50 Hz), 85, 98.3 (60 Hz) and 100 meters (50 Hz)
Frequency	50/60 Hz
Weather	Standard/Cold Weather Extreme

Available Now

2.75-103

Certified to	IEC Class III
Rotor Diameter	103 meters
Hub Height	75 (50 Hz), 85 and 98.3 meters
Frequency	50/60 Hz
Weather	Standard/Cold Weather Extreme

Available Now

Environmental Health and Safety, a GE Commitment

Maintaining high Environmental Health and Safety (EHS) standards is more than simply a good business practice; it is a fundamental responsibility to our employees, customers, contractors, and the environment we all share. GE is committed to maintaining a safe work environment. We incorporate these values into every product, service and process, driving EHS processes to the highest standards.

Powering the world ... responsibly.

For more information please visit www.ge-energy.com/wind.

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