

Renewable Energy Fun Facts:

- A 100MW wind farm, over the course of its life, will displace nearly 1.4 billion cubic meters of natural gas used to generate electricity.
- To generate the same amount of electricity as a single 1MW wind turbine for 20yrs would require burning 29,000 tons of coal or 92,000 barrels of oil and withdrawing 60 million gallons of water per year from a stream or river.
- At its apex, the blade of a 1.5MW wind turbine reaches about the same height as a 30-story building – more than 75 feet taller than the

GE Power & Water

GE Energy

NREL – BLM WEATS

August, 2010



GE imaginat

GE Energy Infrastructure

Employees: 65,000 • '07 revenue: \$38.6B • Operating in 140 countries

Power & Water



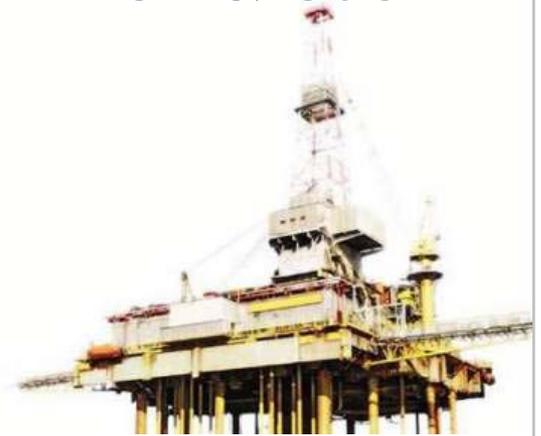
- Power generation
- Renewables
- Gas Engines
- Nuclear
- Gasification
- Water treatment
- Process chemicals

Energy Services



- Contractual agreements
- Smart Grid
- Field services
- Parts & repairs
- Optimization technologies
- Plant management

Oil & Gas



- Drilling & completion
- Subsea, offshore & onshore
- LNG & Pipelines
- Pipeline integrity
- Refining
- Processing



GE imagination at work

GE's Renewable Energy Business

- Nearly one out of every two wind turbines in the U.S. is a GE wind turbine
- GE's wind turbines have been installed in 19 countries world-wide.
- GE's 1.5 megawatt wind turbine is the best selling turbine in North America, leading the U.S. industry in annual installed capacity for 7 straight years.

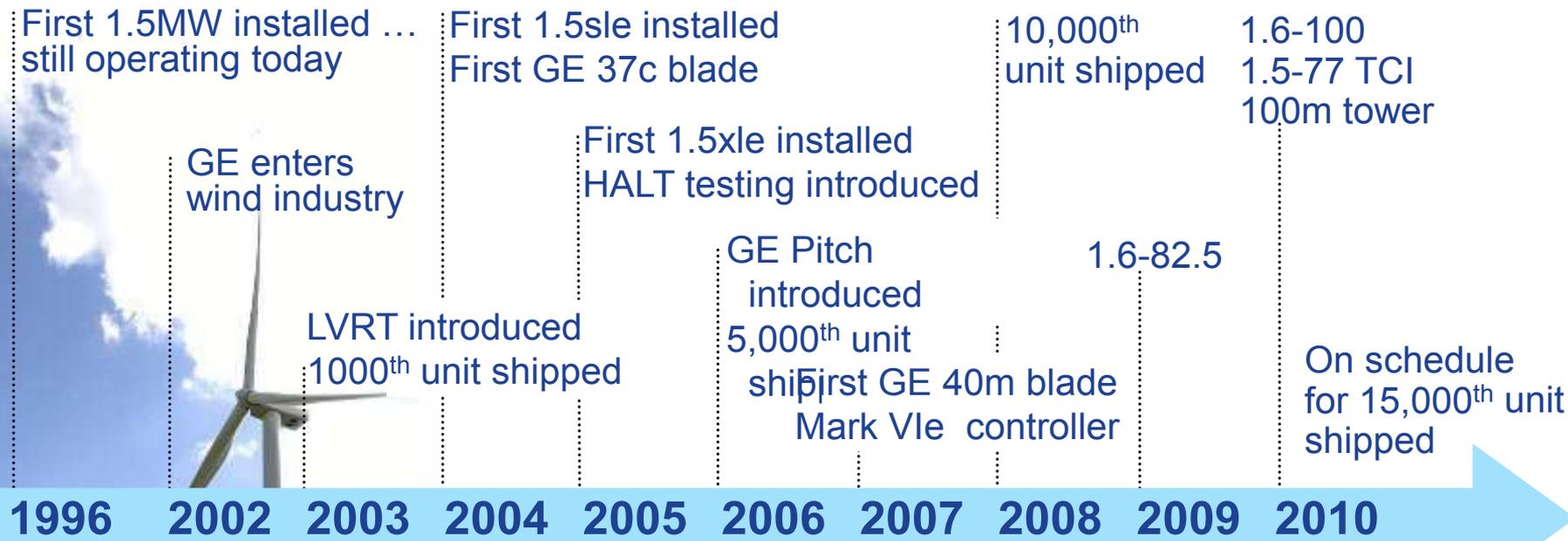


GE onshore technology strategy

- **Continual investment ...**
focused on increasing customer value
- **Evolution strategy ...**
world's best running fleet
- **Provide portfolio flexibility ...**
value where you need it

**Focused on delivering proven performance and
reliability**

Evolution of the 1.5MW series



1.5MW Series	'02	'10
Rotor size (m)	70	100
Cap. factor (%)	39	52

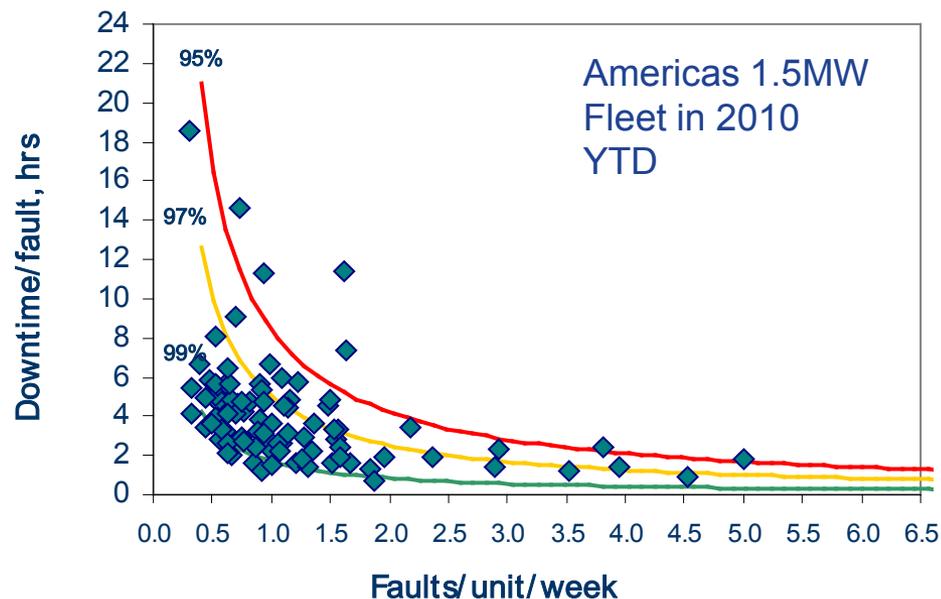
+104%

+13pts

Continual 1.5MW series investment

“World’s best running fleet” ...

- Availability defined as the customer does
- Designed for Quality ... component testing
- GE’s 13,900+ fleet (as of 2Q 2010) ... insight for improvements
- Operational rigor ... weekly fleet review
- Organizational focus ... 300+ technical resources added since 2006
- Faster Return to Service ... diagnostics, parts fulfillment, technical resources committed to product service



GE's Americas Fleet		Operating year				
		2005	2006	2007	2008	2009
Model year	2005	93.2%	95.6%	94.2%	95.2%	96.4%
	2006		95.8%	97.0%	96.9%	97.2%
	2007			95.6%	97.1%	97.6%
	2008				97.0%	98.1%
	2009 1.5-82.5					98.7%



1.5MW Series

		TC III			TC II		TC I
		1.6-77	1.6-82.5	1.6-100	1.5-77	1.6-82.5	1.5-77
Rotor Diameter	m	77	82.5	100	77	82.5	77
Noise	dBA	106	106	106	106	106	106
Hub Heights	m	80	80/100	80/100	65/80	80	65/80
Frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60
	Vavg; m/s	8.0	8.0	8.0	8.5	8.5	10.0
	Vref; m/s	39.1	40.0	37.5	39.1	40.0	45.0
	Ve50; m/s	55.0	56.0	52.5	55.0	56.0	63.0
	Cut-In; m/s	3.5	3.5	3.5	3.5	3.5	3.5
	Cut-Out; m/s	25	25	25	25	25	25
	IEC Wind Class	IEC TC IIIs	IEC TC IIIs	IEC TC IIIs	IEC TC IIa	IEC TC IIb	IEC TC Ib
Wind Conditions (CWE) (T operation > -30°C T survival > -40°C)	Vavg; m/s	8.0	8.0	8.0	8.5	8.5	10.0
	TI; % @ 15m/s	16	16	16	18	16	16

1.5/1.6-82.5 ... advancing *The Industry*

Workhorse

1.5/1.6-82.5 ... built on proven platform experience

Main Bearing: Existing 1.5MW Design

Hub: Existing 1.5MW Design

Pitch: 25% more pitch torque

Pitch System: Existing 1.5MW Design

Advanced Loads Blade: Designed for 1.5/1.6-82.5 (40m) Control

Gearbox: Improved Life

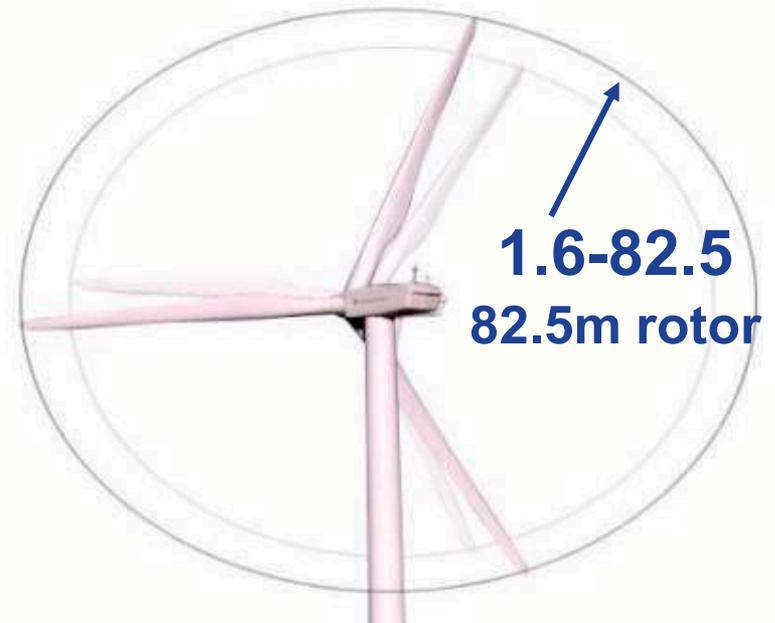
Generator: Existing 1.5MW Design

Reinforced Gen Frame

Yaw Bearing: Existing 1.5MW Design

Tower & Electrical System: Existing 1.5MW Design

15% larger swept area than 1.5-77 ... 15% more AEP @ 8.5m/s



- 772 1.5-82.5 units installed* with additional 1,000+ on order in 2010
- Operating experience ... >3.7MM+ operating hours* >2,300+ GWh produced*
- Availability ... exceeding 1.5MW high level performance

* As of 2Q 2010

2.5MW Series

2.5MW Series		TC III	TC II
		2.5-103	2.5-100
Rotor Diameter	m	103	100
Noise	dBA	105	105
Hub Heights	m	85/ 100	75*/85
Frequency	Hz	50/60	50/60
Wind Conditions (IECs, Standard Climate)	Vavg; m/s	7.5	8.5
	Vref; m/s	37.5	42.5
	Ve50; m/s	52.5	59.5
	Cut-In; m/s	3.0	3.0
	Cut-Out; m/s	25	25
	IEC Wind Class	IEC TC IIIa	IEC TC IIb
Wind Conditions (CWE) (T operation > -30°C T survival > -40°C)	Vavg; m/s	7.5	8.5
	TI; % @ 15m/s	18	16

* = 50Hz only



GE 2.5 platform ... increasing customer value through product evolution



Increased swept area ... 2.5-103

- Increased customer value ... 6% more swept area for greater AEP in TCIII
- Proven technology ... operating since January 2010

Increased output ... 2.75-100

- Building on uprate experience of 1.5 platform

Looking ahead ... 2.75-112

- Utilizing GE's proven aero-elastically tailored (AT) blades ... product evolution from proven technology
- Optimized for TCIII with ~20% more AEP ... developers package available

Looking at Projects & Working with Developers

Initial Project Review

- ✓ **Developer:** Track record? Plan? Funding?
- ✓ **Site:** Wind data? Access to land? Suitable?
- ✓ **Plan:** MW? Permits? Transmission? PPA?
- ✓ **Other:** Key players... Good Neighbor...
Timeline



Project Assessment – Bare Basics

- **Average Wind Speed**
- **K Factor (distribution)**
- **Air Density (or site height & avg. temp)**
- **Shear Factor**



Project Assessment – Example

- Wind Speed: 7.76 m/s
- K Factor: ?, assume 2.0
- Air Density: 1.17
- Shear Factor: ? assume .2

Site Information	Value for Year
K Factor	2.00
Wind speed (m/s)	7.76
Air density (Kg/m ³)	1.170
Shear Factor	0.2
Project Size MW	100

GE Turbines	GE 1.6 - 82.5	GE 1.6 - 82.5	GE 1.6 - 100
Hub Height	80	100	80
Energy Output per WTG			
Net Capacity Factor	42.2%	44.5%	48.3%
Net AEP (MWh)	5,911	6,242	6,772
Gross AEP (MWh)	6,955	7,343	7,967
Total Project Net AEP (MWh)	738,918	780,191	846,443

Working with Developers

GE Value Chain

“GDSI”

- Early Development
- Capital
- Feasibility

GE WIND

- Equipment
- Site optimization
- Grid Integration
- Monitoring
- Operations & Maintenance

Energy Financial Services (EFS)

- Project Equity
- Debt Financing
- Monetize incentives

GD&SI

Supporting the development of 4,000MW wind projects in the U.S.

- Project feasibility studies
- Economic modeling
- Permitting
- Regulatory initiatives
- Community relations
- Transmission studies
- Land resources
- Financial start-up support
- Facilitating/arranging debt & equity placement
- Carbon monetization
- Project sell down



Wrap Up



Working with BLM

- Initial feasibility assessment
- GDSI group can assist BLM or Developers in early stage
- Siting: flexible arrays and flexible rotors & hub heights

Working with GE

- Reliability & Availability leader
- Integrated offering

Thank you



GDSI

Highlighted co-development deals



Deal	Country	Equipment	MW	Structure
Wind Site Acquisition	US	1.5 SLE / XLE	1,800	Land Options for Easement
Rattlesnake Den	US	1.5 SLE	240	Joint Development Agreement
Wind Power Agreement	Australia	2.5 XL	~1,000	Joint Development
Storm	Belgium	2.5 XL	200	Joint Development Agreement
Galetech	Ireland	2.5 XL	162.5	Joint Development Agreement
Thermal Site Acquisition	US	207FA, LMS100	3,000	Land Options for Purchase
Radback (PG&E RFO)	US	107FA / 207FA	1,300	Bid agreement for PG&E RFO
Entergy	US	4 x 7FB IGCC	1,000	Paid development + Fee
Acorn	UK	2 x 109FB	900	Joint Development Agreement
RTIP	Saudi	14 x 7EA	1,100	Co-development in negotiation
Botswana CBM	Botswana	8 X LM6000	240+	Co-development in negotiation
Dandenong negotiation	Australia	2 X LMS100	200	Co-development in
High River negotiation	Canada	2 X LMS100	200	Co-development in
Hawaii Biofuels	US	2 X LM6000/LMS100	100	Possible Co-development
Wandoan	Australia	209FB	750	Joint Development Agreement
Wyoming IGCC R&D	US	Gasification	~5	GEG 50/50 with WY
Duke Fayette	US	2x7FB	630	Joint development Agreement
Sonhoe	UK	109E	200	Co-development in negotiation
Solantis	Spain	Solar	13	Joint Development Agreement
Sunfactory	Spain	Solar	17	Joint Development Agreement
Sunvie	France	Solar	14	Joint Development Agreement
ITE-Flare Gas negotiation	Russia	Jenbacher	50	Co-development in
Vinasse Biogas	Brazil	Jenbacher	TBD	Possible Co-

Wind Plant

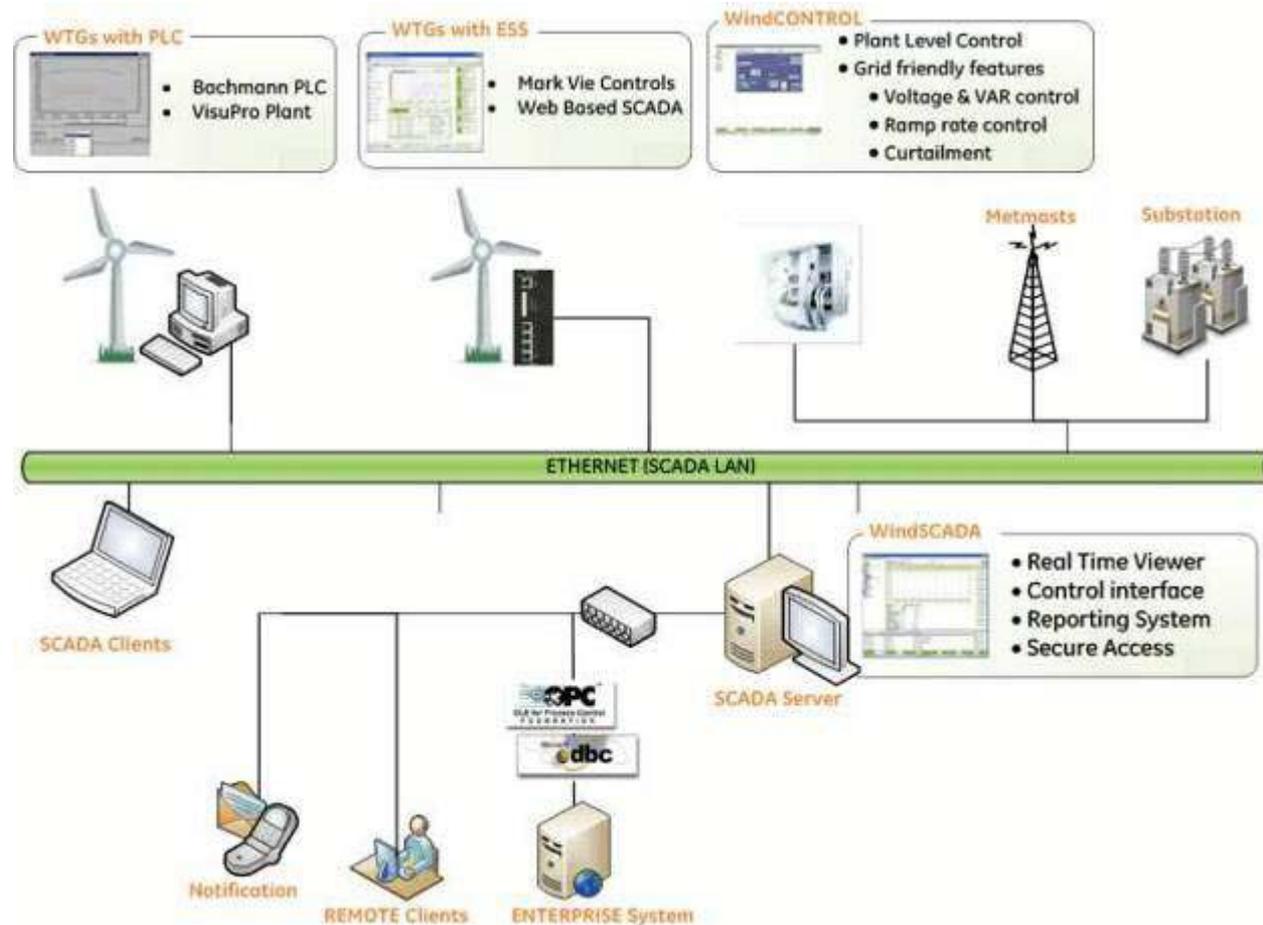
Key components of plant systems

WindCONTROL

- Provide functions similar to conventional power plant
- Coordinated control of all WTG
- Integration with substation equipment
- 200+ systems in operation controlling 8000+ turbines

WindSCAD

- Utility grade SCADA system
- Integrated monitoring & control of WTG, substation
- Tools for O&M operations
- Robust remote and local access
- Industry accepted protocols for data transfer



WindSCADA 2010 ... focus on wind farm analytics



Reporting – identify trends

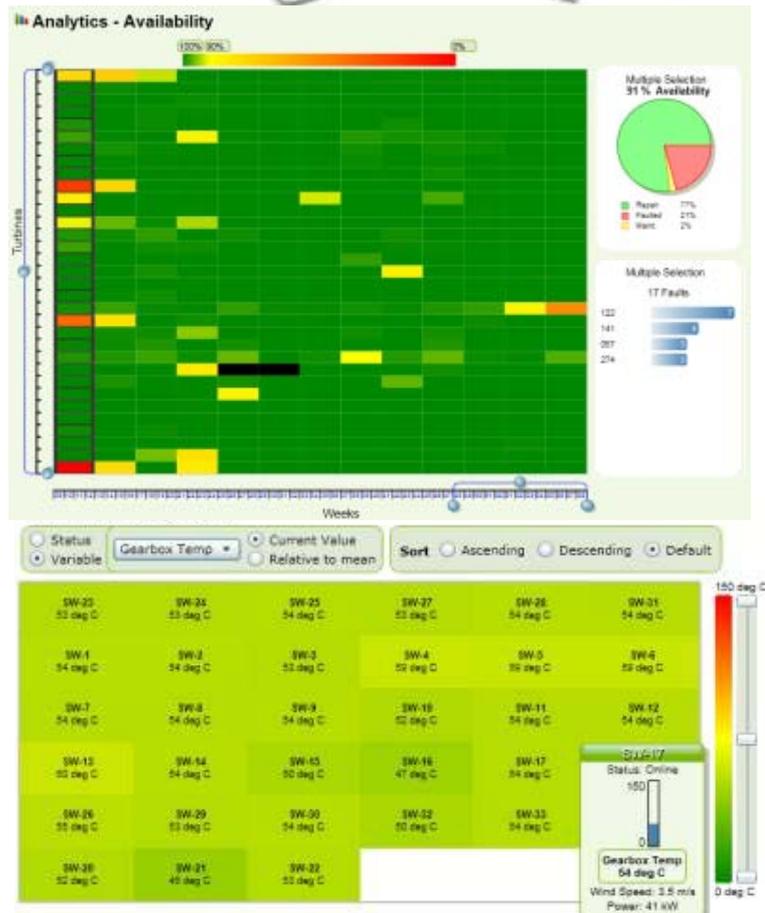
- Novel data visualization
- Interactive data analysis versus static reports

Anomaly detection – be proactive

- User defined rules for alarming
- Statistical analysis of real-time data

User defined I/O – integrate new info

- Ability to add additional monitoring sensors
- Tools for user configuration of SCADA screen & alarming



WindCONTROL system

Platform change

- Shift to MarkVIe control platform
 - Reliability – 2x improvement in MTBF
 - Scalability – 400 turbine support

Range of plant level control functions

- Voltage & power factor regulation at point of interconnect
- Line Drop compensation
- Power curtailment
- Capacitor and/or reactor bank control
- Ramp rate/power fluctuation control
- Controlled start-up, shutdown
- Voltage droop control
- Frequency droop control

Platform for meeting evolving grid requirements.

Support

Proven Results ... Reliability is our Brand



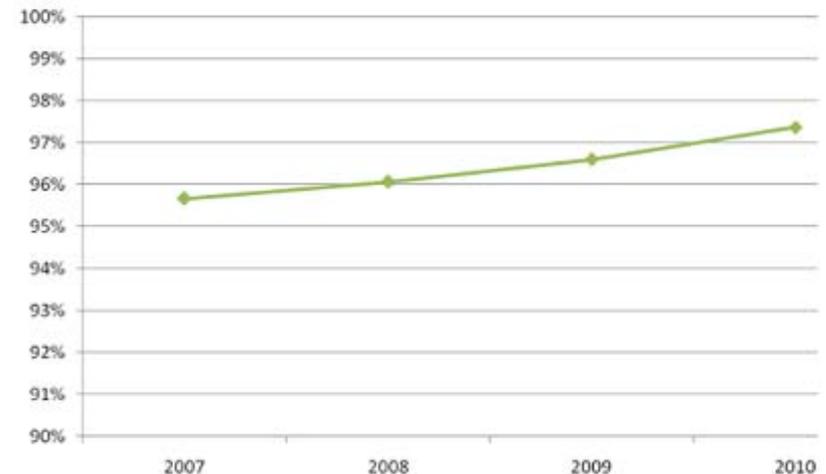
- Remote Operation Centers in Germany and USA
- Monitoring and resetting approximately 6,100 units 24/7
- Process feeds into engineering for weekly performance reviews and upgrade projects



GE's Global fleet

Year	Global Availability
2007	95.7%
2008	96.1%
2009	96.6%
2010	97.4%

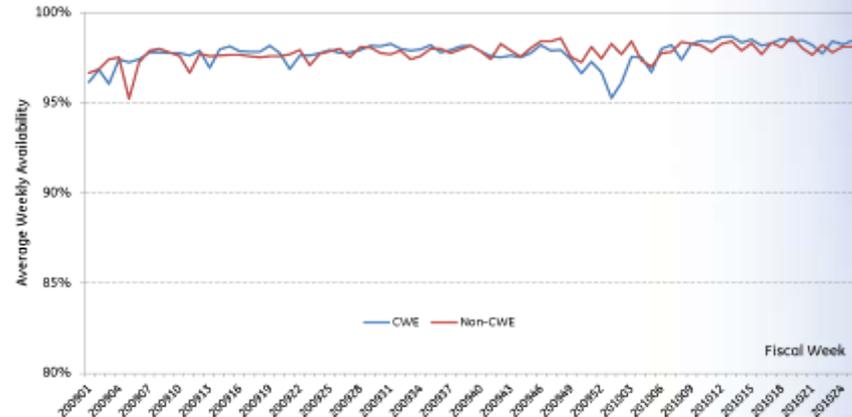
GE Wind Global Availability



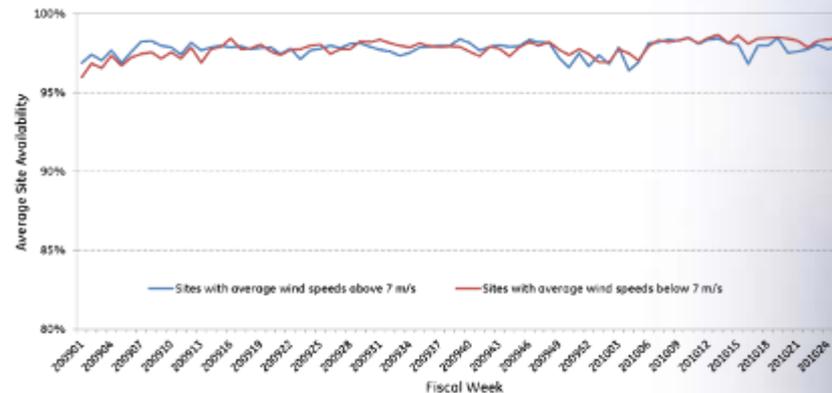
Fleet availability – excellent across the spectrum

- Consistent results ... regardless of geography/climate or wind regime
- Includes entire Americas fleet in warranty ... >5,000 units from January 2009 to present

Average Weekly Availability:
Availability CWE vs. Non-CWE



Average Weekly Availability:
High-Wind Sites vs. Low-Wind Sites



1.6-100 ... Class II performance with Class III Fuel

Built on proven technology & performance ... combines strengths of GE 1.5MW and 2.5MW WTGs

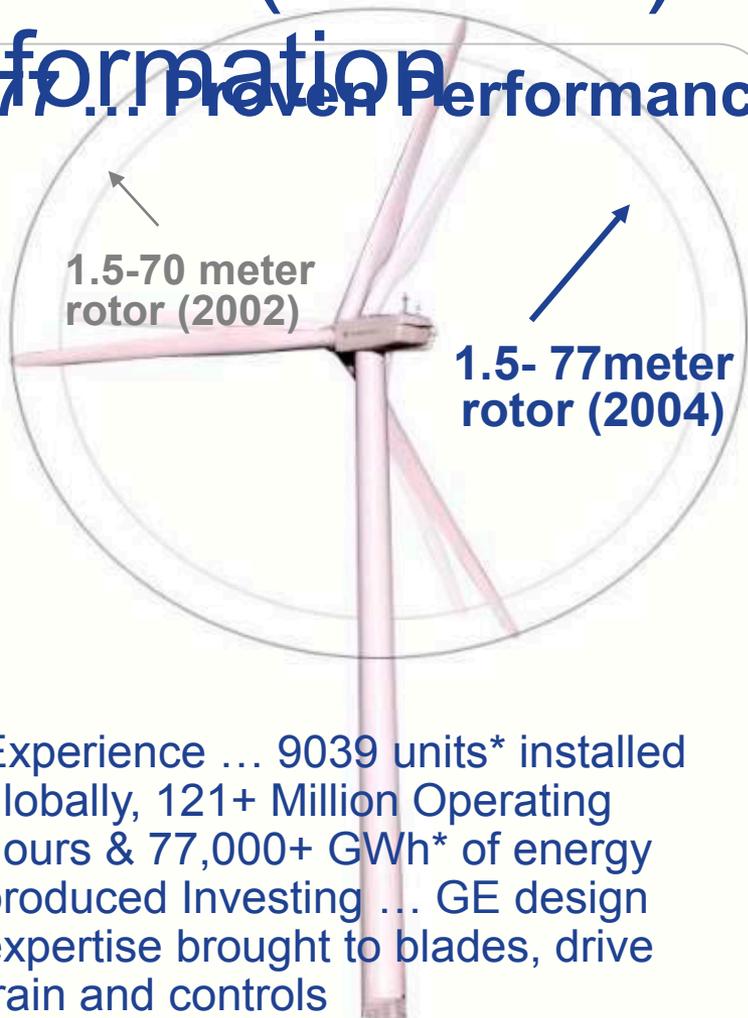
- Capacity Factor of 52% @ 7.5 m/s ... TCII CF in TCIII wind regime
- Greater energy capture ... 47%+ more swept area over 1.6-82.5
- Product evolution strategy ensures proven performance and reliability ... integrates technology from 1.5MW and 2.5MW series



Evolutionary design drives greater customer value while maintaining availability

1.5-77 (Class II) Technical Information

1.5-77... Proven Performance



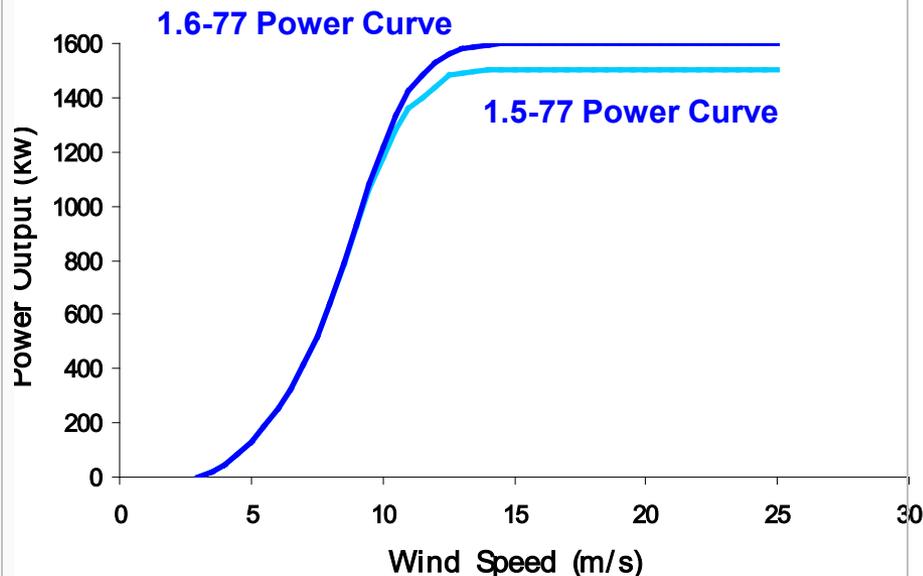
- Experience ... 9039 units* installed globally, 121+ Million Operating hours & 77,000+ GWh* of energy produced Investing ... GE design expertise brought to blades, drive train and controls

Continual Investment ...

* As of 2Q 2010



Improving the 1.5-77... 1.6-77



- Improved turbine designed to deliver greater output utilizing increased rotational speed... CM&U Option ... WindBOOST for existing turbines in operation.
 - Dynamic VAR control ... matches grid requirement to maximize output
- ... up to 4% greater AEP @ 8.0 m/s avg. wind speed**

1.5-77 ... Class I (IEC TC1b)

When:

Available now for 2Q 2011 delivery

Value:

+4% AEP (+300 MWh) ... 58% CF @ 10 m/s as compared to the 1.5-70.5

Features:

Advanced load controls, redesigned root for GE 37m blade, reinforced hub and tower

How it works:

Advanced load controls provides load mitigation for greater blade length while the reinforced hub and tower accommodate the extreme loads of Class I winds

Application:

50 & 60Hz, Std & CWE in IEC I (>10m/s)

Testing and validation:

All components from existing technology



100m tubular steel tower

When:

Available now

Value:

4%-9% AEP increase depending on site conditions

Features:

Tubular steel, 5 sections

Takes advantage of increased average wind speed at higher hub height

Application:

IEC TC IIIs (V_{avg} 8.0 m/s)



Evolution of the 2.5MW series ... the industry's MMW workhorse

+ 2.5 GW customer commitments in 14 countries

250+ units installed, >2,000,000 operating hours

GE enters wind industry

First 2.5s turbine installed in May 2004

First 2.5xl technology demo unit installed

Fantanello (250 units)

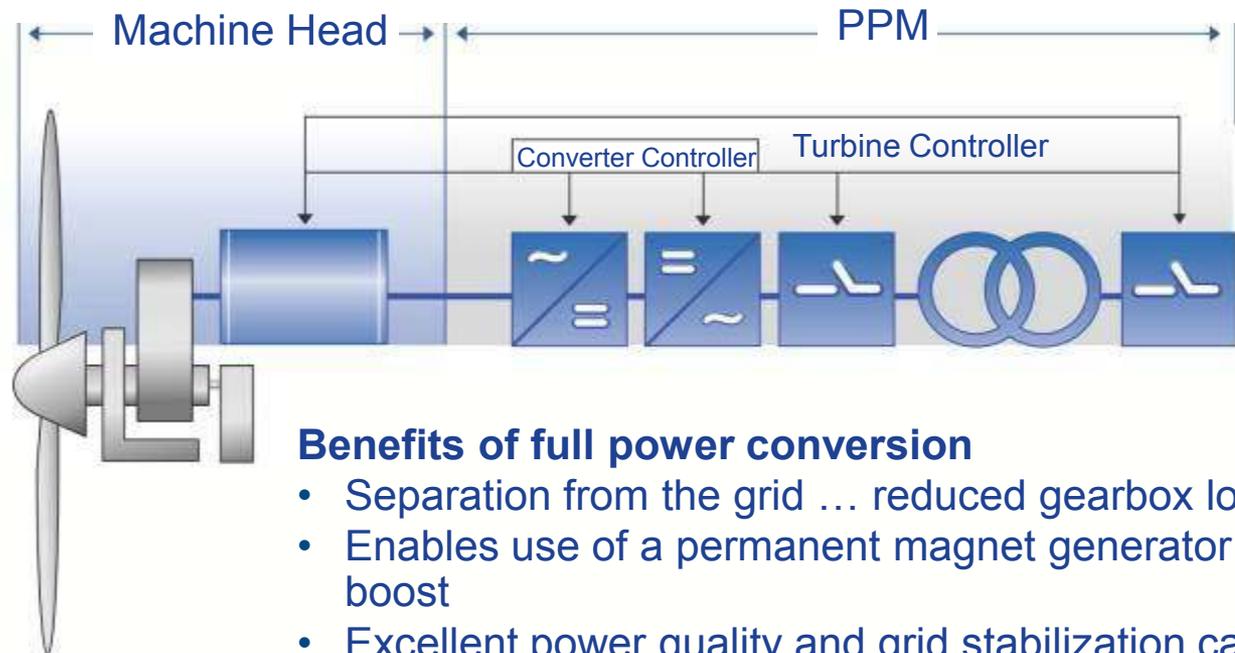
Shepherd's Flat (338 units)

2.5-103 TCIII

2002 2003 2004 2005 2006 2007 2008 2009 2010

2.5MW Series	'04	'10	
Rotor size (m)	88	103	+37%
Cap. factor (%) 7.5m/s	34.7	41.9	+7 Pts
Cap. factor (%) 8.5m/s	39.5	47.7	+9 Pts

Full power conversion system design



Benefits of full power conversion

- Separation from the grid ... reduced gearbox loading
- Enables use of a permanent magnet generator ... efficiency boost
- Excellent power quality and grid stabilization capability

Doubly-fed system

- The stator of the generator is directly connected to the grid
- Only ~30% of the power flows through the power converter

Full power conversion

- No direct connection between the generator and the grid
- 100% of the power flows through the power converter

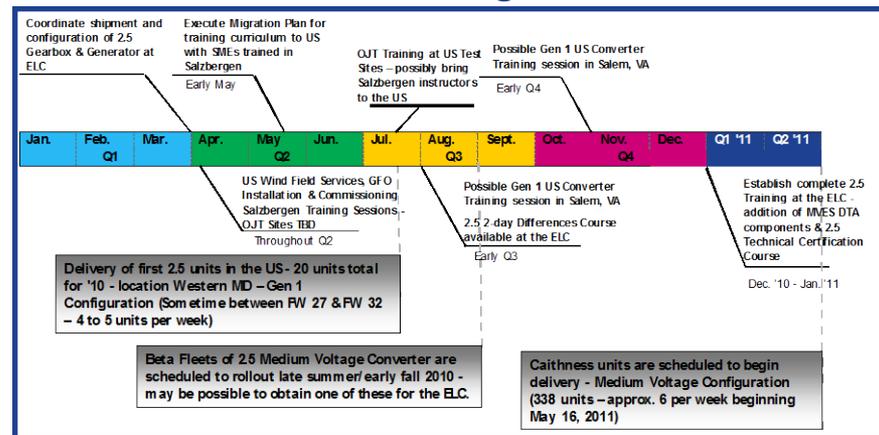
FPC for efficient, reliable, quality power

60Hz 2.5MW Series launch

- 450+ planned installs in 2011
- Minor technical changes from 50Hz... UL & CSA compliant
- TUV Nord IEC 61400-1 Certification A-Design Assessment complete
- Organizational alignment ... training, manufacturing, services, parts, engineering
- Leveraging Europe 2.5MW and Americas 1.5MW experience

Parts and services ready to go

60Hz Training Plan



2.5 XL North American Electrical Certification								
Category	Item	Supplier	Submit Documents (1%)	Construction Report (4%)	Tests Complete (7%)	Technical File Complete (9%)	US Field Evaluation Complete (10%)	Canadian Field Evaluation Complete
	Generator	ABB			FWB (FWB2)		40%	40%
	Gearbox	Winergy		FWB			20%	20%
	Mechanical Brake Caliper	Svendborg					100%	100%
	Mechanical Brake HPU	Svendborg					100%	100%
UL & CSA compliance								
	Wind Sensor	FT Sonic					100%	100%
	Nacelle Crane	RBS					100%	100%
	Top Box	Salem					100%	100%
Hub	Pitch System	Salem					100%	100%
	Pitch Bearing Lubrication Sys.	Lincoln					100%	100%
	GACB	Salem			FWB2		20%	20%
	Moist	Littlet					0%	0%
	Power Cables	Multiple					100%	100%
	Control Cables	Multiple					100%	100%
	Splices	WTEC			2010 FWB		40%	40%
	Down Tower Equipment	Converter	Salem					100%
Converter Thread Fans		EBM Pabst					100%	100%
PCP		Salem					100%	100%
MCC		Salem				FWB	75%	75%
Switchgear		Schneider					100%	100%
Transformer Fan Assembly		JST				FWB2	75%	75%
Transformer Fan Assembly	EBM Pabst					100%	100%	

All hands on deck for successful 2.5MW 60Hz launch

2.5-100 60Hz nearly identical to

50Hz
Major 60Hz
components
unchanged:

- Converter
- Pitch system
- Slipping
- Generator
- Blades
- All mechanical components

Changed Components	Change Description
Sockets	Sockets/outlets changed to 60 Hz 120V designed for UL/CSA
MV Transformer	60 Hz 345KV/ MV transformer - UL/CSA
MV Switchgear 38KV 60hz	60 Hz 38KV/ MV switch gear - UL/CSA
MCC	Updated main control cabinet to match 60 Hz 575V drives - UL/CSA
Power Cables	Power cables updated to DLO cables with 2kv insulation
Lights 120V	Lights changed to 120 60 Hz - UL/CSA
Lights, 90 Min Emergency Backup	Emergency lights changed to 120 60 Hz - UL/CSA
Pumps	Cooling pumps adjusted to 60hz 400V - UL/CSA
Anemometer	FT ultrasonic anemometer
Cooler (Gearbox)	Gearbox cooler with updated 575V 60hz fans - UL/CSA
NAMTS 85m Tower Assy C2/C3	NAMTS tower design with same steel plate thickness but different sizes
Mechanical Tower Internals	Updated tower internals with TufTug cable fall arrest system and updated tie off point design
Electrical Tower Internals	Updated electrical tower internals with UL/CSA 2KV DLO power cables and new auxiliary harness
Winch 85M, 60 Hz Tower	60 Hz 400V winch - UL/CSA
Fall Arrest System 2.5XL	Tuftug fall arrest system
Hydraulic HSS Brake	60 Hz 400V hydraulic brake - UL/CSA
Auxiliary Drive (Gearbox)	60 Hz auxiliary drives for 50 Hz gearbox- UL/CSA
Auxiliary Drive (Generator)	60 Hz auxiliary drives for 50 Hz generator- UL/CSA
Top Box 2.5XL 60 HZ	Updated top box control cabinet to match 60 Hz 575 drives UL/CSA
Nacelle Catwalk	Updated catwalk to fulfill OSHA standards
Onboard Portal Crane 2.X 60 Hz	60 Hz 400V onboard portal crane - UL/CSA
Yaw Hydraulic 2.5XL 60 Hz	60 Hz yaw hydraulic - UL/CSA
Yaw Drive Motor	50hz yaw drives replaced with 60 Hz motors - UL/CSA
Harnesses	Harnesses updated with UL/CSA compliant cables, ferrules, and heat shrink

No major component changes required for transition to 60Hz

2.5MW-The MMW Workhorse

Country	Ordered Units	Total MW
Japan	43	108
Portugal	14	35
Germany	49	115
The Netherlands	2	5
Belgium	16	40
France	15	38
Poland	85	213
Spain	82	205
Turkey	154	385
Sweden	99	248
Romania	120	300
Italy	56	140
Ireland	21	53
United States	338	845
	1,094	2,727



With these sites we have validated

- Operating temperature ... Japan, Spain, Turkey
- Turbulence intensity ... Portugal, Japan, Turkey
- Altitude ... Turkey
- Wind speed ... The Netherlands, Turkey
- Grid ... Turkey, Eastern Europe
- Humidity, seismic, typhoons ... Japan

Diverse site conditions validated design envelope

2.5MW Series: reliability by design

Gearbox

- Designed for reliability
- HALT test to validate design assumptions
- Isolated from unpredictable grid loads

Mainframe

- Robust frame
- Integrated rotor lock

Hub

- Integrally cast web for high stiffness and low deformation
- Integrated GE pitch system with patented load mitigating controls.

Generator

- Permanent magnet generator for higher efficiency at low wind speed
- Brushless excitation for simplified maintenance

Maintenance

- Automatic lubrication system
- 12 month maintenance interval

Blades

- 100 meter/103 meter rotor resulting in high capacity factor
- HALT test to validate design assumptions

