Virginia Offshore Wind – Supply Chain Educational Forum

GAMESA OVERVIEW

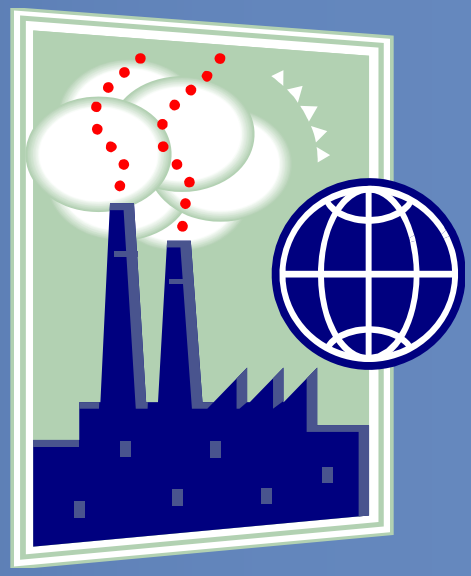
December 7, 2010

Gamesa Overview
Gamesa Corporation Scope

- **Public company**
  - **Headquartered in Bilbao, Spain**
- **2009 Worldwide Revenue: $4.5B USD**
- **29 Manufacturing Locations in 4 countries:**
  - **Spain / USA / China / India**
- **Vertically integrated manufacturing**
- **7,000 employees worldwide**
- **19,000 MW of installed Wind Turbines in 26 countries**
- **21,000 MW in Wind Farm developments**
  - **EU / US / China**

Gamesa Overview
Gamesa US

- **US division of Gamesa Corporation Technology**
  Headquarters in Langhorne, PA
- **Design, manufacture, erect and development of wind turbines and farms**
- **2 manufacturing locations in Pennsylvania**
  Fairless Hills and Ebensburg, PA
- **800+ employees**
- **2165 MW installed and under management**
- **$200 M invested since 2005 in PA**



Gamesa Overview
Gamesa US

CHRONOLOGY of GAMESA US:

2002 Decision by Board of Directors to enter the N.A. market
Q1 2003 Began R&D on G8X product for N.A. market
Q3 2003 First Gamesa wind farm constructed in Compton, IL – 63 units G52
Q4 2003 Gamesa Wind US division established
2004 Pennsylvania selected as the site for Gamesa US headquarters
Q1 2005 Philadelphia sales office opened
Q4 2005 Site preparation began in Fairless Hills, PA for a manufacturing plant
Q1 2006 Boulevard, CA wind farm was constructed – 25 units G87
Q3 2006 Manufacturing of nacelles, blades & towers began in Fairless Hills, PA
Q4 2006 Manufacturing of blades began in Ebensburg, PA
Q4 2007 1000MW installed in N.A.
Q1 2008 Construction of 2nd Gamesa Wind Farm in Portage, PA 35 units G87
Q3 2008 Opened Gamesa headquarters in Oxford Valley, PA
Q3 2009 2000 MW installed in N.A.
Q4 2009 Dirk Matthys named Chairman and CEO of Gamesa U.S.

Gamesa has over 2,000 MW installed in the US

2005

# of Turbines	Type	Windfarm
12	G87	Bear Creek
63	G52	Mendota Hills
25	G87	Kumeyaay

2006

# of Turbines	Type	Windfarm
40	G87	Allegheny I
40	G87	GSG
13	G87	Locust Ridge
12	G87	Mesquite
88	G83	Mesquite
45	G87	Sand Bluff

2007

# of Turbines	Type	Windfarm
60	G87	Barton Chapel
100	G87	Post Oak
36	G87	P. Heights
40	G87	Top of Iowa

2008

# of Turbines	Type	Windfarm
[illegible]	G87	[illegible]rfield
34	G87	Allegheny II
14	G83	Barton
66	G87	
73	G87	Farmer City
12	G87	Lempster
51	G83	Locust Ridge
132	G80	Mt Storm
10	G87	Winnebago

2009

# of Turbines	Type	Windfarm
34	G87	Crescent Ridge
50	G87	Cayuga Ridge

Gamesa

BIG HORN
BUFFALO RIDGE II
WINNEBAGO
TOP OF IOWA & BARTON
AIRFORCE
MENDOTA HILLS & GSG
CAYUGA RIDGE
P.HEIGHTS
FARMER CITY
HARDSCRABBLE
LEMPSTER
BEAR CREEK
EBENSBURG
LOCUST RIDGE
FAIRLESS HILLS
ALLEGHENY RIDGE
CHESTNUT FLATS
FIRST MARINE
MT. STORM
KUMEYAAY
SANDBLUFF
BARTON CHAPEL
MESQUITE & POST OAK

2010

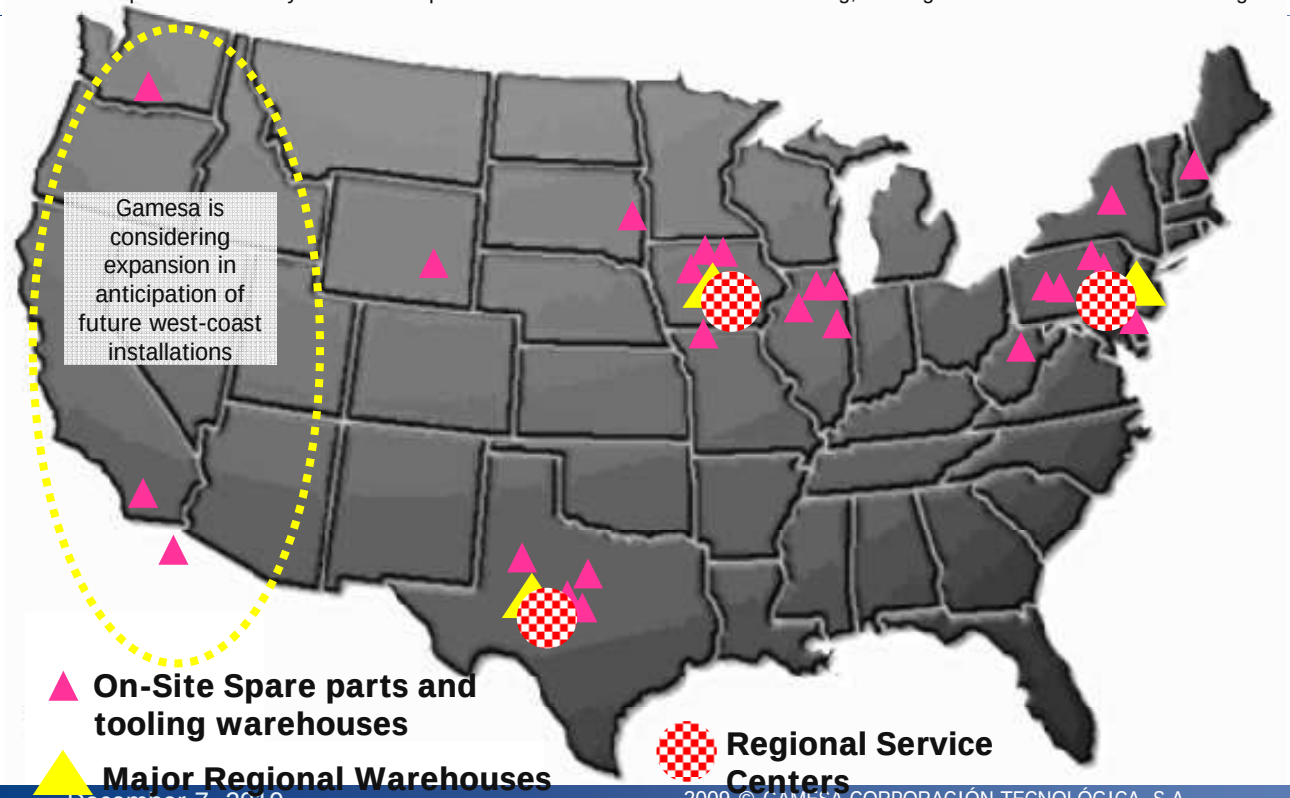
# Of Turbines	Type	Windfarm
1	G90	First Marine
37	G90	Hardscrabble
25	G90	Big Horn
105	G87	Buffalo Ridge

Under Construction

Gamesa has 25 on-site spare part & tooling warehouses, 3 major regional warehouses and 3 Service Centers

Service Centers

- Provides centralized management of Project Managers, Site Supervisors and O&M technicians
- Each Regional Office also serves as a warehouse for tooling & spare parts
- Regional structure ensures fast deployment of technicians and spare parts
- Locations provide the ability to draw in experts from numerous wind farms for training, management functions & client meetings



25 On-Site Warehouses

- Eliminates down-time due to waiting for tooling or spare parts
- Ensures accountability between OEM and subcontractors for tooling
- Asset Security
- Centralized management of tooling calibration

3 Regional Warehouses

- Long-established in Bristol PA, Des Moines IA, and Dallas TX
- Storage of critical components (generators and transformers) in addition to standard parts to maintain the highest levels of availability

Wind industry is transforming rapidly

THE SLOWDOWN OF 2009 AND 2010 HAS TRANSFORMED THE WIND INDUSTRY

1 MARKET:

- Regulatory uncertainty in US
- Growth in Asia and other emerging markets
- Offshore growth will accelerate after 2013
- Wind technology close to grid parity/acceptance as established generation technology in relevant markets

2 CLIENTS:

- Transition to professional operators–utilities and large IPPs- seeking reliable, long term WTM partners
- Wind power internationalization requires WTM global support
- Competition based on offering the lowest CoE and availability over the wind farm's life

3 SUPPLIERS

- Large industrial conglomerates increasing their market share
- Smaller, local players are reducing their presence

Games is Responding to the Changing Market

Gamesa Value Proposition:

- Competitive CoE
- Superior reliability and service offering
- The right products with superior technology
- Extensive geographical presence
- Flexible response times

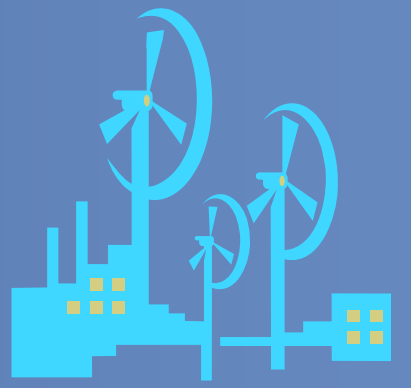
Gamesa Overview
Gamesa US

Gamesa

Introduction of New Products:

2010:

- 100 Meter Tower
- Introduction of 90 meter rotor – Class IIIA winds
- Seismic towers
- High altitude package designed for 2000 meters (6000 ft)
- Cold weather package designed for -40C
- Gamesa NRS (Noise Reduction System)
- Shadow control for blades
- O&M Services - Improvements and expanded coverage
- WOSS System – WF optimization sequencing system (Lean)



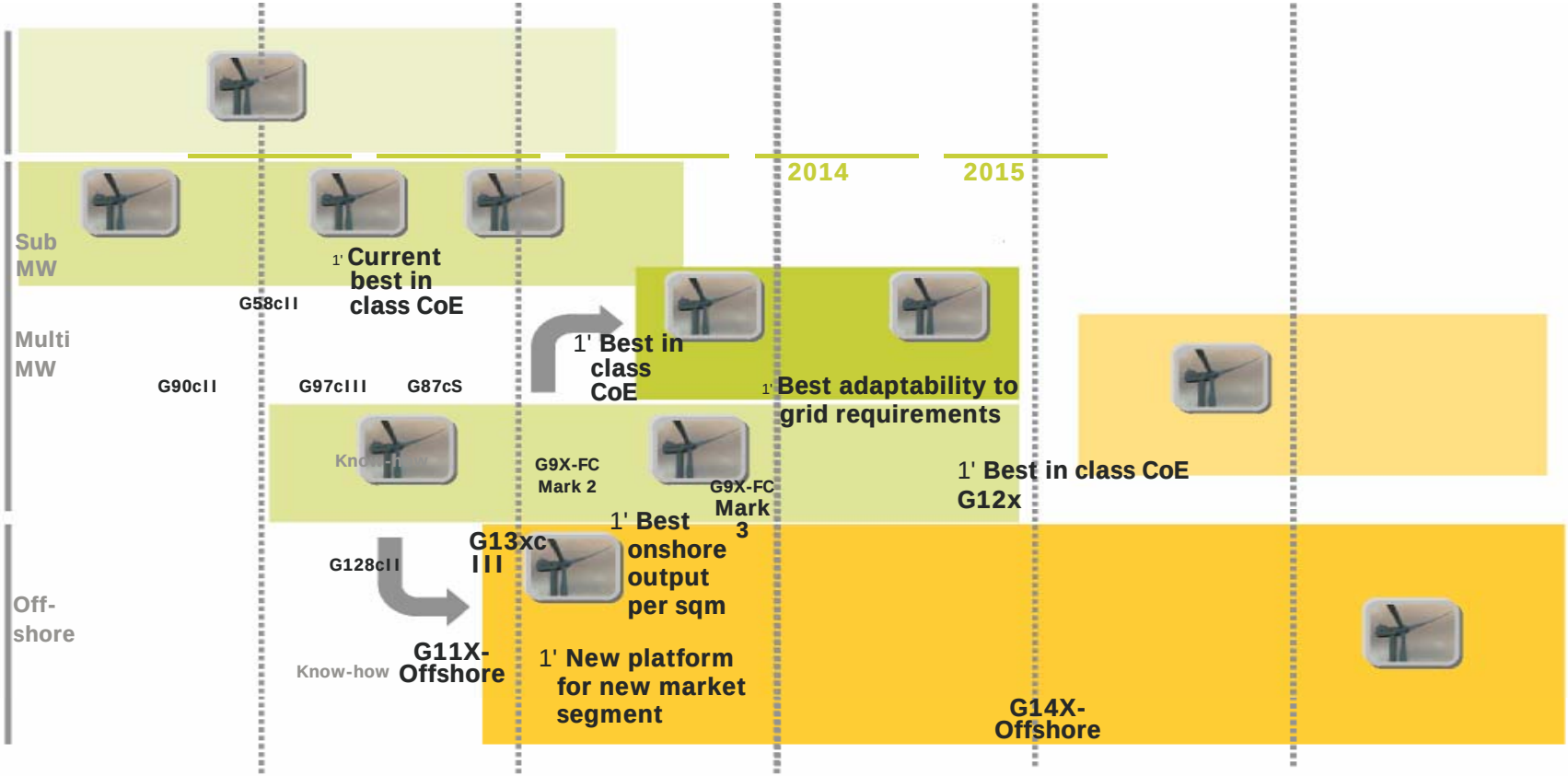
2011:

- G9X 2.0 MW wind turbine – Designed for Class IIA & IIIA winds
- Prototype of G10X – 4.5 MW wind turbine

- Gamesa participates and is a leader in several organizations that are working on improving Wind Turbine design and efficiency

Ambitious product innovation roadmap... until 2015

Innovation roadmap –5 new product families in 5 years

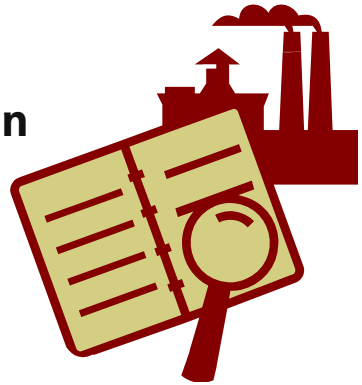


"Gamesa and Northrop Grumman Shipbuilding join forces in offshore wind technology" – October 6, 2010

- **Gamesa US and the Newport News Shipbuilding operations of Northrop Grumman Corp signed an agreement to work together on offshore wind technology**
  - **Installation of two prototype Gamesa G11X-5.0 MW turbines in Q4, 2012**

- **Cooperate on launch of Gamesa's first G11X -5.0 MW offshore US prototype**
  - **Gamesa's multi-megawatt Wind Turbine technology**
  - **Northrop Grumman Shipbuilding's experience in challenging marine environments.**

- **Northrop Grumman Shipbuilding-Newport News proven expertise in**
  - **Heavy load logistics**
  - **Systems performance and reliability**
  - **Development of new technologies in marine applications**



Gamesa Overview:
Gamesa Worldwide Industrial Footprint Capacity

Production centers in Europe, America, India and Asia

Nacelles

8 FACTORIES >4400 MW

Blades

7 FACTORIES >3.500 MW

Root joints

1 FACTORY 5.000 un.

Blade moulds

1 FACTORY

Electrical equipment (Generators & Cabinets)

6 FACTORIES >1.900 MW

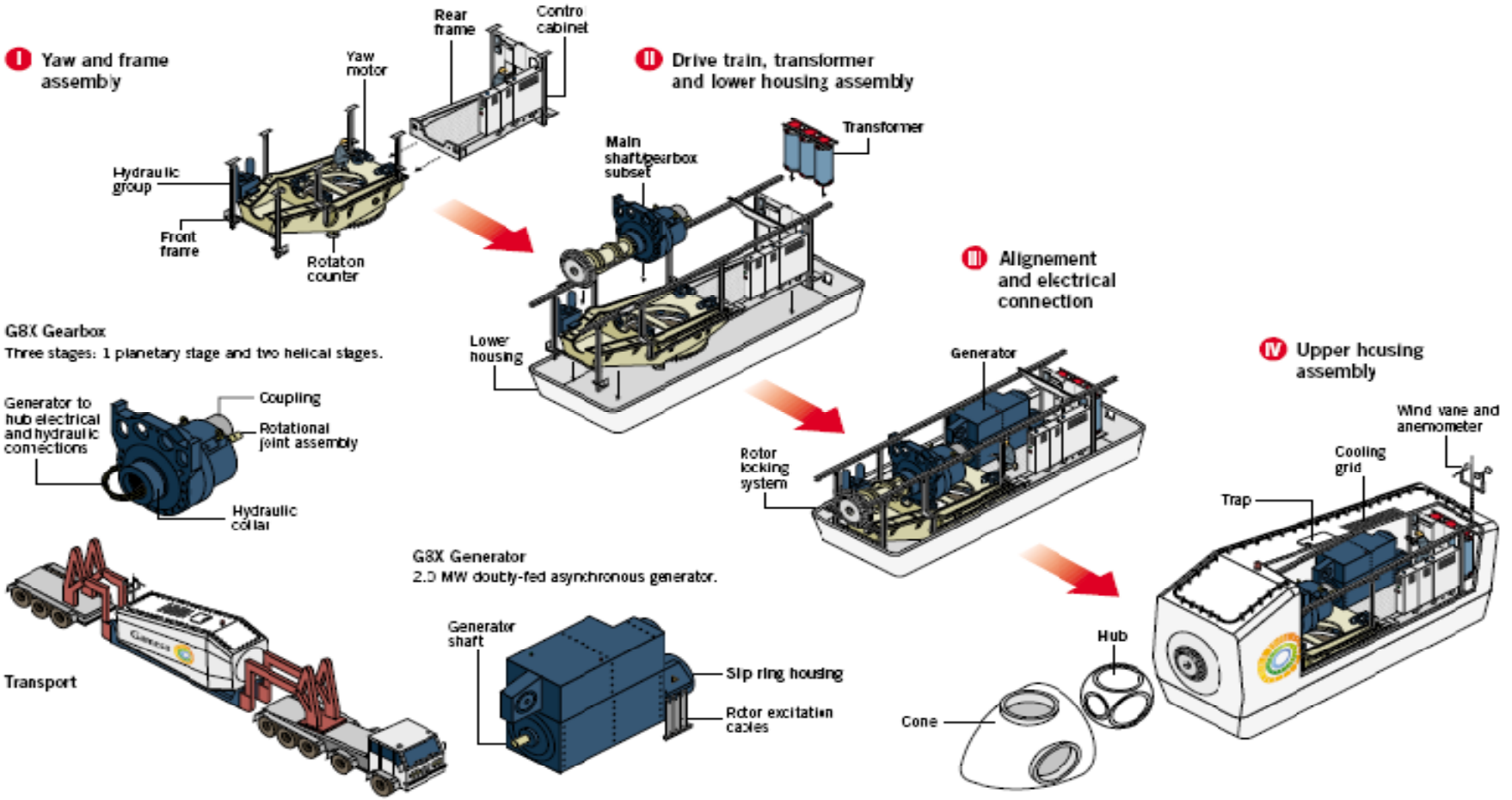
Gearboxes

6 FACTORIES >2.300 MW

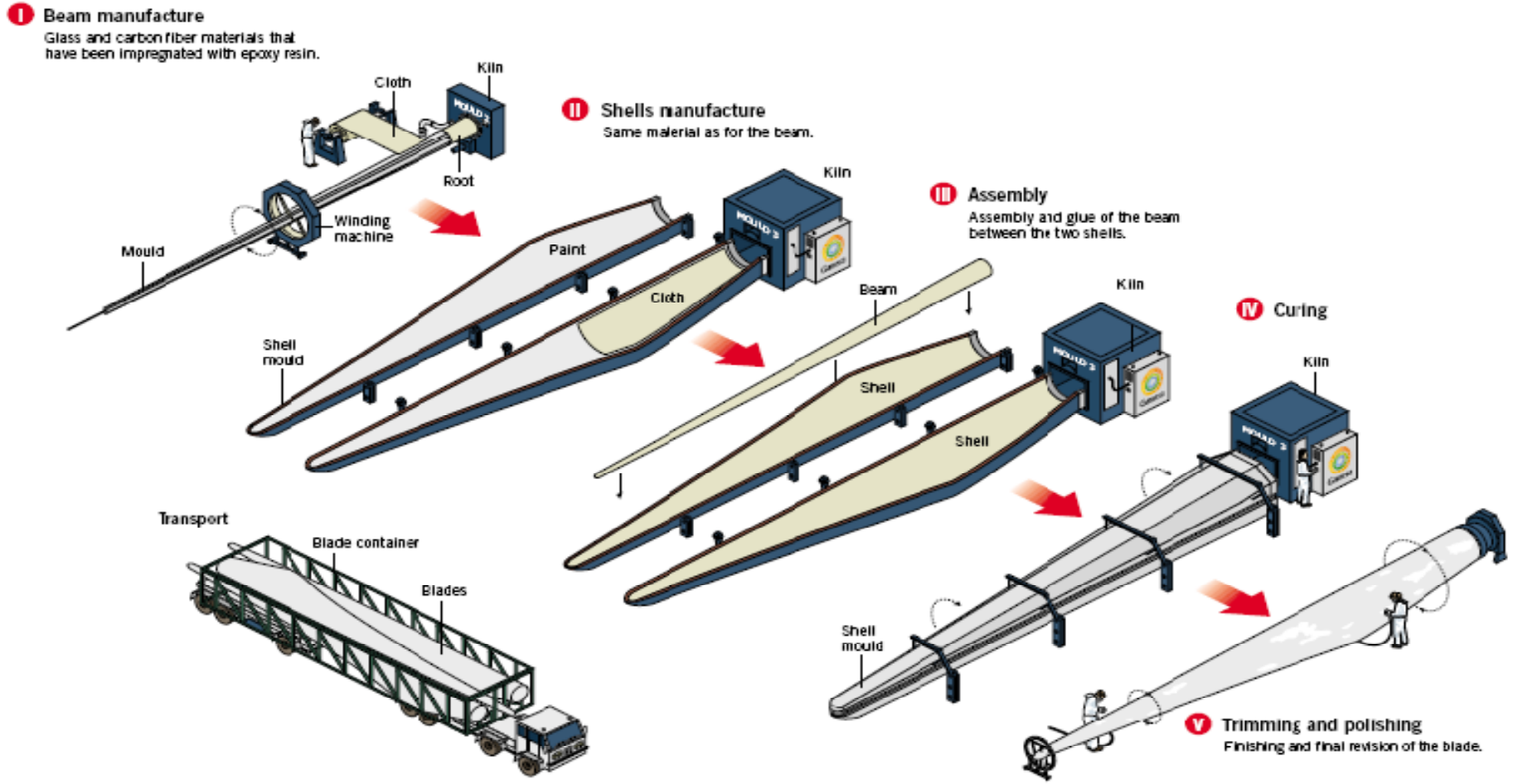
Large industrial capacity. 29 sites globally

Gamesa Overview:
Gamesa Worldwide Industrial Footprint Capacity

Manufacturing process: Nacelles Assembly

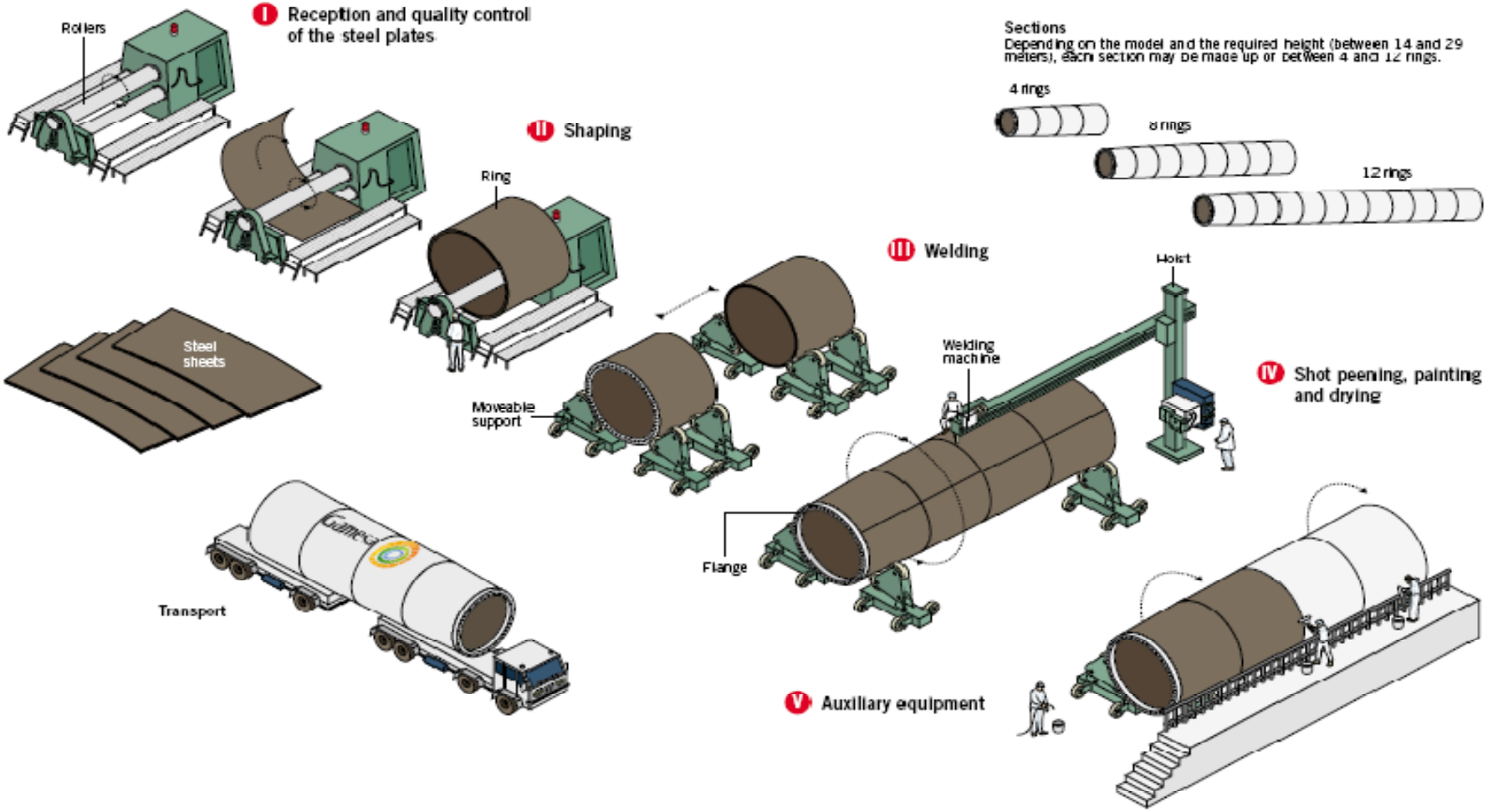


Manufacturing process: Blades



Gamesa Overview:
Gamesa Worldwide Industrial Footprint Capacity

Manufacturing process: Towers



Gamesa Overview
Gamesa Global Purchasing

Global purchasing presence
- **Resources in EU/NA/ASIA/INDIA**

Strategic purchasing approach
- **Total cost of ownership**

Focus on local supply chains
- **Reduce cycle time to meet customer needs**

Optimized logistics patterns

Supplier development program
- **Performance metrics & feedback**

Introduction of lean techniques
- **Improve process & eliminate waste**

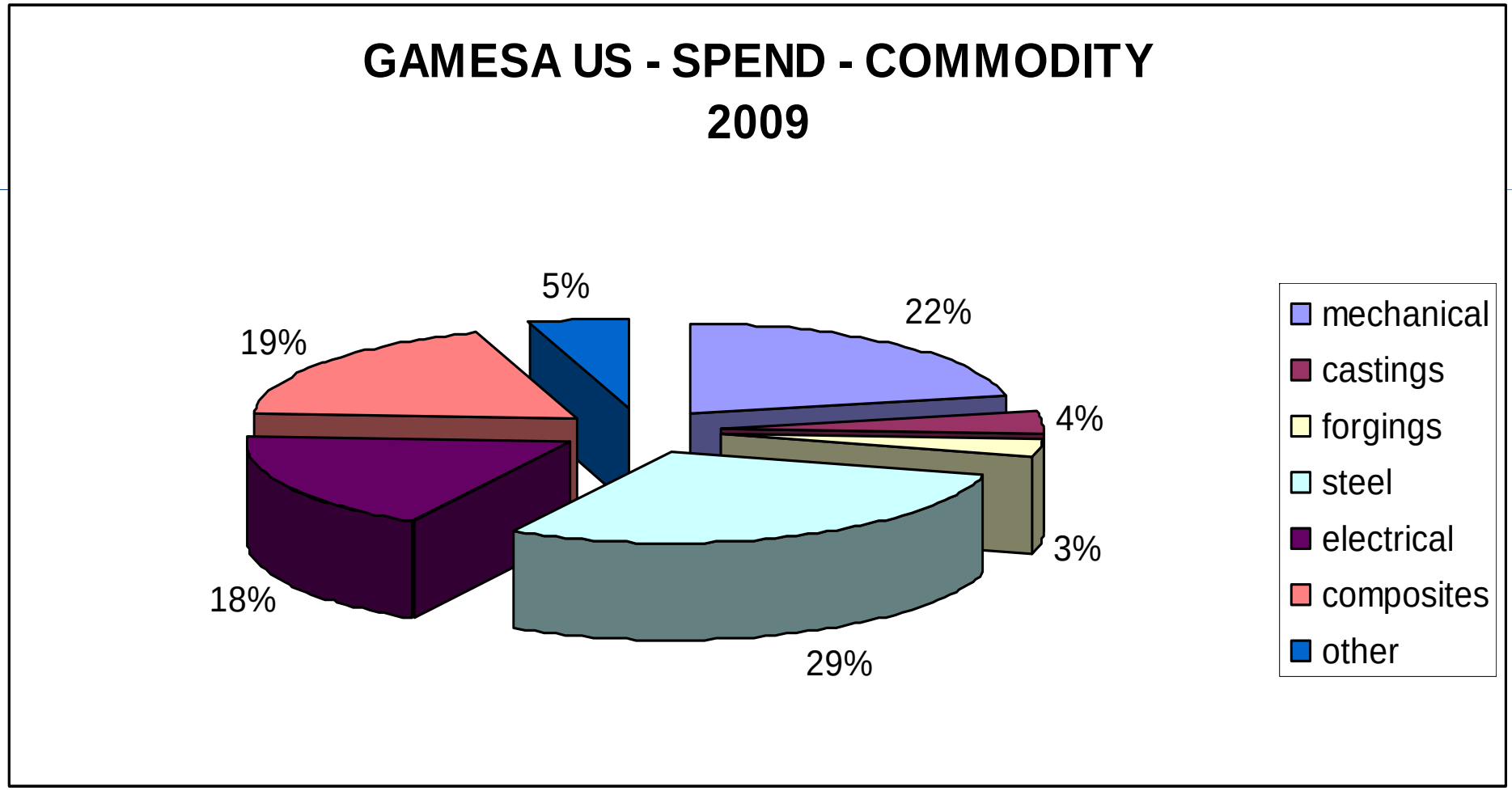
- **Opportunities for NA suppliers exist in several areas:**
  - **Specific quality inspection providers for electrical, electro mechanical and gear box inspection**
  - **Firms that can do Operations & Maintenance work up tower in the wind farms**
    - **This would include preventative maintenance and/or "punch-list" work**
    - **Requires extensive certifications**
  - **Support of blade repair**
  - **Suppliers of large industrial portable generators**
  - **Fabricators of large, machined weldments**

Opportunities for NA suppliers exist in several areas:

- **Electrical cabling**
- **Engineered tools, fixtures and inspection devices for maintenance of wind turbines**
- **Transport of major assemblies to the wind farms**
- **Environmental inspection services**
- **Construction contractors to complete the civil work on the wind farms**
  - **Support the erection of wind turbines**

Gamesa needs suppliers that can bring system/design solutions to improve wind turbine availability!

Gamesa Overview:
Gamesa Wind US Spend by Commodity



Gamesa Overview:
Gamesa Supplier Requirements

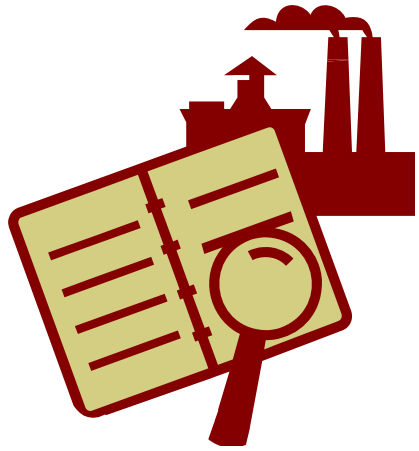
- **Successfully pass initial supplier quality assessment**
- **ISO9000 Certification**
- **Zero defect quality policy & systems**
- **ISO14001 Certification plan to achieve**
- **Strong customer satisfaction policy**
- **Advance technological capabilities**
- **24 hours customer response policy to delivery and/or quality issues**
- **Advance product quality planning (APQP) system implemented**
- **Production part approval process (PPAP) implemented**
- **Lean culture and techniques utilized**
- **Manufacturing & administration**
- **Healthy Financial Status**

Gamesa Overview:
Certification & Homologation Process:

Purpose:

- **Approval of Suppliers Quality and Process Capabilities**
- **Approval of materials and components from a supplier with the goal of achieving zero defects during serial production**
- **Verifies suppliers quality planning processes**
- **Validates the component processes**
- **Ensure components meet specification and latest revision level**

- **Homologation Process Steps:**
  - **Phase 1: Supplier's Qualification Assessment**
  - **Phase 2: Supplier Feasibility (Capability & Capacity)**
  - **Phase 3: Process and Product Design**
  - **Phase 4: Process Validation and Serial Mfg. Approval**
  - **Phase 5: Initial Samples**
  - **Phase 6: PPAP Closing. Start of Mass Production:**



Cost (Purchasing)

Material cost reduction as a % of spend
Acceptance of contract terms
Long Term Agreement in place
Productivity reduction plan in place?
Supplier currently in Gamesa SIP program?

Quality (SQA):

NCR's # at production
NCR's cost percentage
NCR's # at wind farm
Advance quality planning
Lack of notification deduction

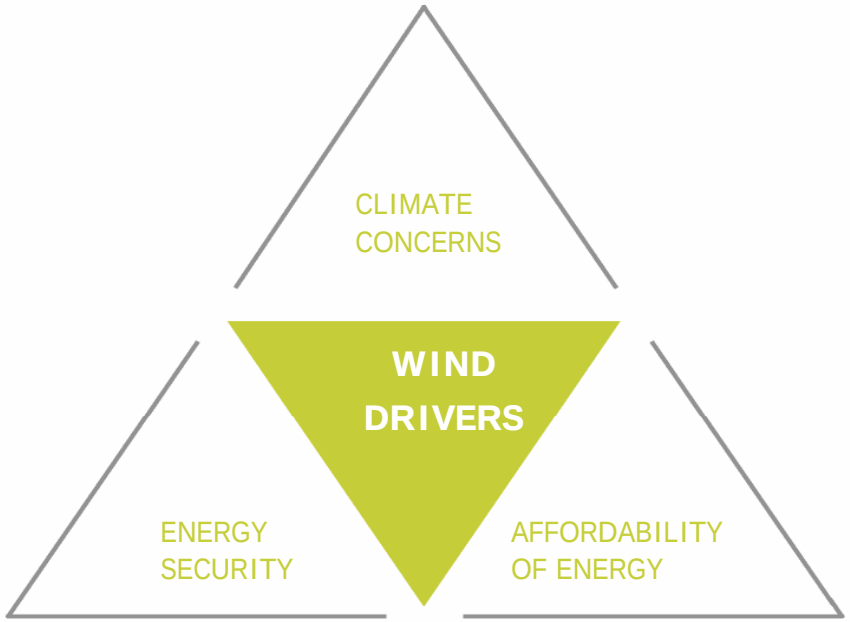
Delivery (Planning):

Delivery performance to due on dock dates
Participation in Gamesa pull system?
Following packaging instructions?
Lead time reduction plan in place?
Line disruption deduction

Technology (Eng.):

Catia/Cad facilities
Bench mark technology
Best practices design
Design capabilities/DFSS
Design failure deduction

Why Wind?

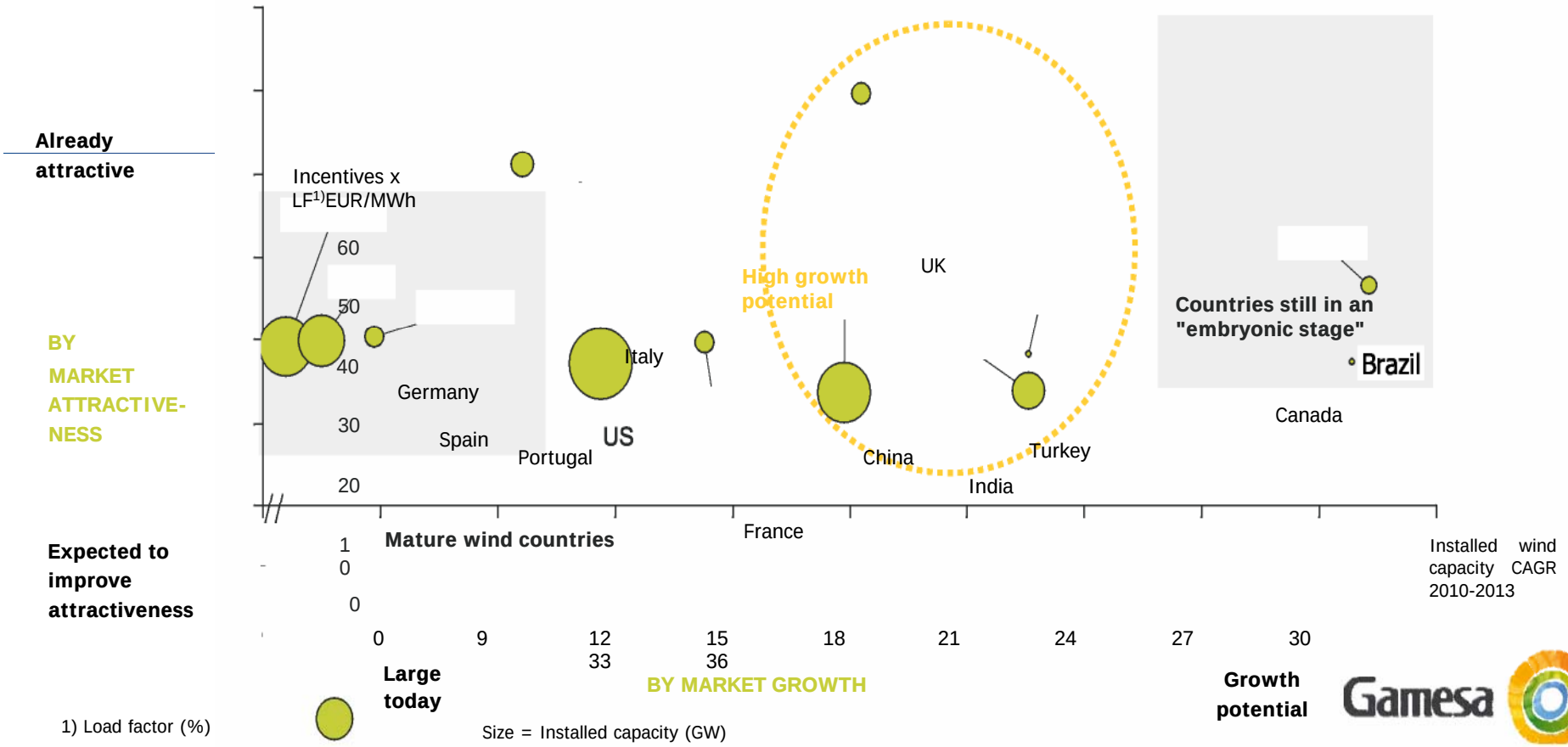


- **Reduces CO_2 emissions**
- **Reduces dependence from fossil resources**
- **Increases energy security**
- **Increases price stability**

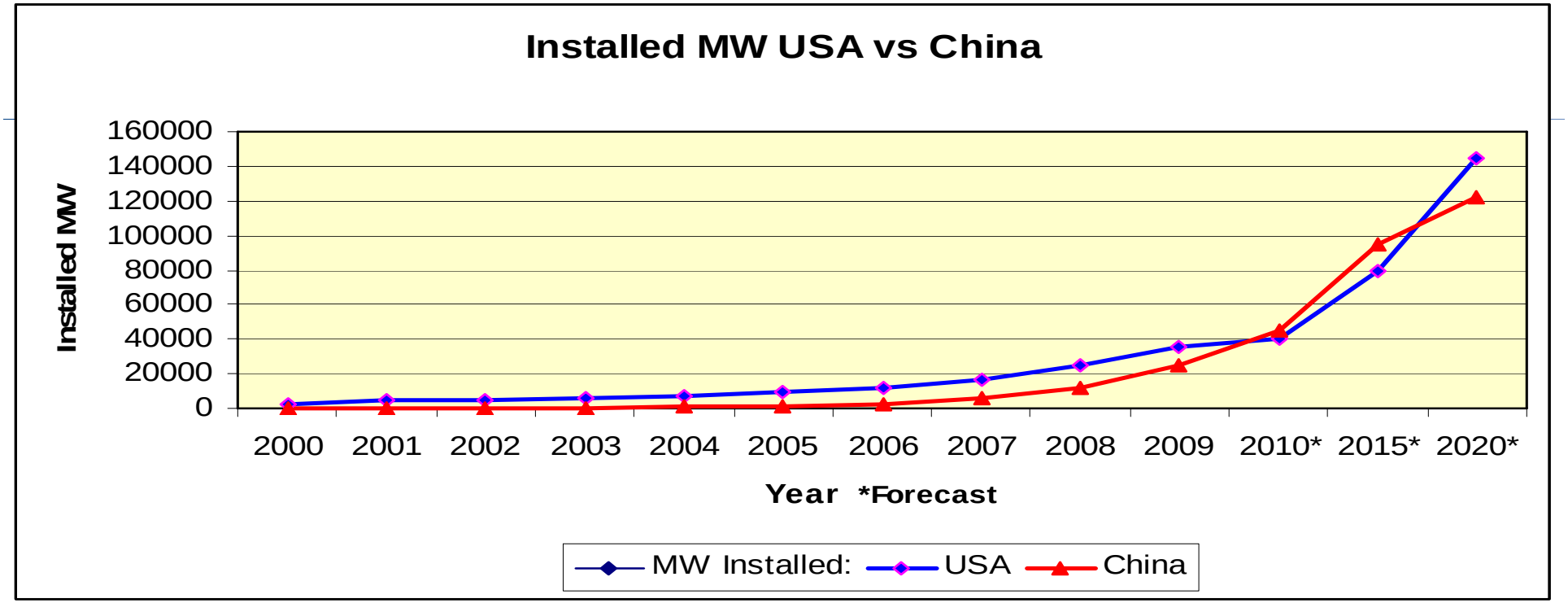
Competitive Cost of Energy (CoE) is key

Attractive opportunities mostly in Emerging markets:

Wind power market attractiveness, 2010-2020



China continues to increase MW rapidly:



China REA projects China will be at 122 GW by 2020!

Sources: AWEA, Global Wind Energy Council, US Dept. of Energy, China Renewable Energy Assoc.

Gamesa:

- **Global Presence, Local Focus**