



# Innovative Wind Power

## The Difference

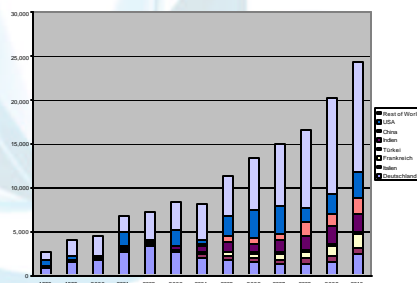


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Karachi, March 2007



### Market Situation 2007 - 2012

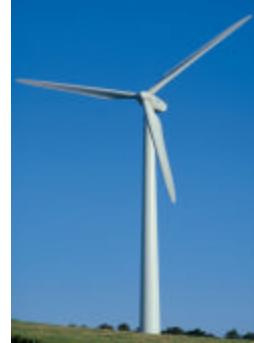
- Demand higher than supply of WTG
- Further increase of equipment demand predicted
- Energy demand further increasing
- Rapid growth of Wind Energy Sector
- Shortage in component supply
- Supply only for AAA markets
- Poor after sales support





## Technology Situation

- Adapted to existing markets
- Adapted to European supply chain
- Reliability below customers expectation
- Project performance under expectation
- Adapted to knowledge level of AAA markets
- Strong IP protection tendency



## Contracting Situation

- Long lead times to WTG deliveries
  - Long capital lock up
  - No product adaptation possibility
  - Strict pricing policy
  - No negotiation possibilities
- ✍ Commercial boundaries allow AAA markets development only





## Market Response

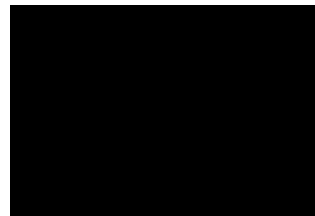
- Reanimation of outdated technology
- Failure of many trials to step in market
- Increasing interest and pressure to take part in the market
- Increase in used WTG sales numbers
- Increase in used WTG equipment cost
- Increase in independent after sales service business activities



## INNOVATIVE Wind Power – The Different Approach

### Team

- Visioners that want a difference
  - Financial structuring
  - Project development
  - Manufacturing development
  - Supply chain management
  - O&M Management
- High level experienced engineers (ME,EE,CE)
- Experienced business characters



**We envision the change of the situation, a superior support for emerging markets and being the best choice for ROI of our customers projects.**



## Innovative Task List

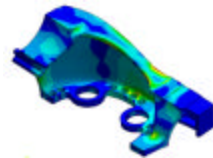
- Market adaptation
- Modular Design
- High local content
- Logistics optimization
- Low maintenance cost
- Low cost of energy
- High reliability
- Packaged technology



## IWP - the Difference

### Reliability from the initial thought

- Independent design support team
  - Insurance brokers
  - Leading technology center of insurance
  - Certification body DEWI - OCC
  - Gearbox expert
  - 2<sup>nd</sup> view on process
  - Logistics expert





## IWP – the Difference

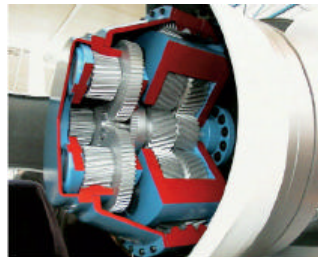
### Automated Field Feedback System (AFS)

- ✍ WEB based paperless solution
- ✍ All lifecycle component data made transparent
- ✍ Support local team build up for field activities
- ✍ Decentral and central storage of data
- ✍ 24/7 field team support system



## IWP - the Difference

- **Gearbox Concept**
  - ITGS™
  - 2 planetary stages
  - Functional condensation concept
  - Compact design
  - Outstanding safety factors
  - Cartridge solution
  - High maintainability

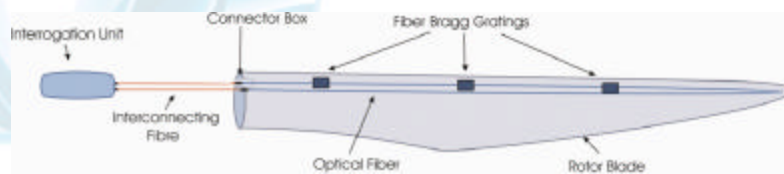
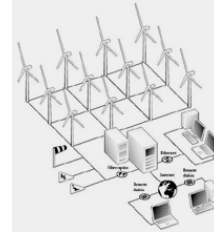




## IWP - the Difference

### Controls Concept

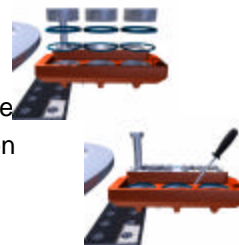
- ✍ Load feedback system
- ✍ Adaptive turbine controls
- ✍ CMS comparative approach
- ✍ Individual WTG lab to field correlation
- ✍ WEB SCADA



## IWP - the Difference

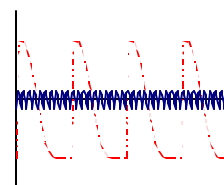
### Global team building strategy

- ✍ Multicultural team hired
- ✍ Employee training initiated during concept phase
- ✍ Continuous design reviews for flexible adaptation



### Autonomous wind turbine

- ✍ On board service crane
- ✍ Predictive maintenance schedules
- ✍ Low maintenance requirement
- ✍ VR based, interactive documentation



Continuous Lubrication



**Thank you for your attention!**



**Presentation available at:**

Exhibition booth Hall 1  
[www.innovative-windpower.com](http://www.innovative-windpower.com)