Challenges for Vestas = challenges for suppliers

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What does the market expect from Vestas
Wind Energy Market Evolution: Then and Now…

Seller’s Market to Buyer’s Market:

• More competition in all markets, global competition is replacing regional competition
• More price pressure across the industry, at all levels
• More customer demands, more conditions
• More bigger, cheaper turbines
• More complexity overall
What the market needs Vestas to Deliver

More intelligent IT-solutions, electronics and controllers to reduce Cost of Energy.

Robust and reliable products and processes to reduce **Cost of Energy** and improve **Business Case Certainty**.

Market and customer focus to understand the implications of driving the business **from wind turbines to wind power plants** and secure **Easy to Work with**.
Vestas also face rough climate conditions

Temperature range
  • Extremely cold
  • Extremely warm
High vibration level in nacelle & tower
High humidity
Electromagnetic noise environment
Life span of electronics, app. 20 years
Robustness optimizes maintenance needs

A wind turbine has to be 10 times more robust than a car!

A Vestas turbine operates app. 8760 hours* per year with only two scheduled visits each year

A standard car drives app. 500 hours* per year and needs two scheduled visits per year

* 24/7/365

* 40,000 km at 80 km/hour
Competition has toughened up…and will only get tougher….

Chinese low cost players dominating their home market

Ambitious Korean entrants with extensive heavy industry experience

Offshore targeted by GE, REpower and Asian players

Advanced wind power plant offerings

… and 20-30 others
But competition also comes from..

Solar

Coal Power

Gas Power

Nuclear Power
“Is Vestas doing well in the market?”

“Is Vestas really able to withstand the pressure from its HUGE competitors?”

“Is Vestas at all here to stay…?”
Our income and our profits have improved
- but our free cash flow can still be better - Why is that?

• We have more activity this year due to last years’ strong order intake. That is good for earnings.

• Quarterly earnings are also impacted by the nature of projects we deliver to our customers. Contrary to Q1 this year, the mix of turbines handed over to customers are the profitable ones.

• The negative free cash flow is mainly due to our investments in new platforms. We are investing in our future growth.

• Going forward, Vestas will involve our suppliers much more when entering an emerging market, meaning we will need less investments as Vestas continues to grow.
Reducing our inventories plays an important part in improving our free cash flow.

When our products are in stock, we have spent money producing but not received the large part of the payment yet. That will not happen until the turbines are being handed over to our customers on site.

Therefore, we need to reduce inventories to set cash free, and the global initiative Vestas Make-to-Order is key in making this happen.

Make-to-Order is looking into all operational activities that are directly linked to bringing turbines on site for a customer order.

The implementation is progressing in SBUs, PBUs and Spare Parts & Repair.
Warranty provisions have steadily gone DOWN
- meaning that Quality and Reliability has gone UP

Quality and Reliability
Safety First!

Safety first
Industrial injuries per one million working hours

but our goal remains ZERO!
Global presence is starting to kick in......
We are a strong player in the market
- with 21,220 turbines demonstrating good performance in the field

- The lower the Lost Production Factor, the more power – and cash flow – the customer receives.

- A solid Lost Production Factor comes from careful design, careful production and effective construction and service.

- Our turbines’ stable performance – with less than 2,5% Lost Production Factor – makes us a strong player in the market.
Having been appointed supplier to Vestas equals competence and quality-consciousness.

Do keep this in mind!
Safety and Quality are Top priorities
Quality Management …

between Vestas and supplier
„How do WE control quality?“

at the supplier:
„How do YOU control your quality?“

... in all steps of the value chain
### VESTAS Customer base their decisions on:

<table>
<thead>
<tr>
<th>Cost of Energy</th>
<th>Q Development Quality</th>
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</thead>
<tbody>
<tr>
<td>• Price (Cost)</td>
<td>Q Cost of poor quality</td>
</tr>
<tr>
<td>• Performance to Specifications</td>
<td>Q Product performance - LPF</td>
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<table>
<thead>
<tr>
<th>Business Case Certainty</th>
<th>Q Product performance - LPF</th>
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</thead>
<tbody>
<tr>
<td>• Revenue Predictability</td>
<td>Q Product reliability</td>
</tr>
<tr>
<td>• Cost Predictability</td>
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### VESTAS Product Quality is based on:

<table>
<thead>
<tr>
<th>Design to meet reliability targets</th>
<th>Q: Development quality</th>
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</thead>
<tbody>
<tr>
<td>• Design Margins</td>
<td>Q: Advanced quality planning</td>
</tr>
<tr>
<td>• Test to PROVE fulfillment of expectations</td>
<td></td>
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<tr>
<td>• Validation in Prototypes</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Control in Supply Chain</th>
<th>Q Preventive Quality</th>
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<tbody>
<tr>
<td>• Safe Launch - New Products</td>
<td>Q Quality Assurance/Control</td>
</tr>
<tr>
<td>• Series Production</td>
<td>Q Process Improvements</td>
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### Key Success Factor:

**Leadership**

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*It means the world to us.*
Our Customers are your Customers too! How were WE performing?

Warranty provision per cent of revenue

Lost Production Factor per cent

Root Cause 2011
- Vestas 30%
- Supplier: 70%

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Quality Alphabet Soup – How does it fit together?

Design  Supplier  Factory  Site  Operations

Process

VWtM  PPAP  Vestas Audits  Improve- ments QIP  Launch -> Serial Production

Performance

CTQ 2.0  5 sigma

Mindset

Control of Quality

0-defect  QBD  Less reactive  Partnership

Failure is not an option

Wind. It means the world to us.”
CTQ – “Backbone” of OUR quality journey will mature!

What are we working on?

**Today**
- **Learning curve**
  - Are the right CTQs selected?
  - How do CTQs relate to design specifications and VoC?
  - Are there too many CTQ requested?
  - Which CTQs are more important?

  - What are the consequences for supplier and factories?

**- Structured approach**
  - Transparency
    - CTQs based on design characteristics and VoC
  - Levels
    - **Critical CTQs** - high severity
    - **Significant CTQs** – medium severity, high RPN (risk)

  - Defined criteria to manage CTQs at Vestas factory & supplier:
    - Six sigma target?
    - Process capability?

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**Voice of customer**

- **Voice of process**

Wind. It means the world to us.™
PPAP – Backbone of OUR safe launch

WHY:
Ensure Vestas customer requirements are understood and met by supplier

Failure is not an option

How:
Several activities to determine:
• Vestas’ product requirements incl. CTQs have been understood
• The process (including sub suppliers) is capable of producing conforming product
• The product will continuously meet those requirements
• The control plan and the quality management system will prevent non-conforming product reaching Vestas and its customers

WHEN:
Main trigger for PPAP is Change
Do **YOU** agree with the benefits of a PPAP?

- It is about a common sense tool
- All about ensuring good product from the supply chain
- 90% of the PPAP process already exists

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**Critical Characteristics**

- Transparency

**Managing Dialog**

- Supplier

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**Capable Process**

- CTQ: Critical To Quality

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**Documentation**
Shift in Mindset required for many suppliers

“we prevent not fix”:
- Launch Quality
- FMEA/CTQ
- PPAP
- 8D
- ...

“we improve continuously”:
- CTQ Targets
- Quality Improvement Plans
- Six-Sigma Projects
- ...

2011 supplier maturity
- 5% Fully Utilized
- 15% Comply
- 80% Paper Exercise

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Lessons learned
- Aligning better during development phase

Current Situation
- Vestas
- Supplier

Target Situation
- Partner/Strategic Supplier

Time & resources

TODAY +2800 suppliers

10 – 30 suppliers

30 – 150 suppliers

Partner ship

Strategic Relationship

Arms length / Standard Relationship

Simple relationship
- Standard or modified products
- A&B-cost component
- 250 - 550 suppliers

Arm length/stand. relationship
- Standard products
- Commodity
- 550 - 2000 suppliers

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Wind. It means the world to us.
Continue to invest in quality with us.

Mindset  Process  Performance

Historic agreement with EDF has potential for 2,000 MW

EDF deal is all about ‘mutual commitment’

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Further Supply Chain focus
Vestas’ Supply Chain focus

Improving component quality, lead time, delivery performance & cost per MW

• Heading towards supply chain agility

*Agile Supply Chain Planning* is one of two work streams of the Supply Chain Agility. The other work stream is *Vestas Material Process (VMP) Launch*.

• The 4 objectives

  - Secure **component quality** to 5 Sigma
  - Bring down **cost** pr. MW
  - Bring down **customer lead time** to 3 months
  - Strengthen **delivery performance**

• Main project sub streams

  - Supply Chain Agility concepts and awareness
  - Forecasting, planning and transport processes, systems & tools
  - Sourcing processes, systems, tools and Product cost out
  - Lead Time transparency and reduction
  - Agility metrics, SCM Daily Management

Common understanding

**Agility means**
The ability to have the same cost, quality, and customer service given at every level of demand variability.

**Quality is a must**
If our supply chain senses and responds quickly, easily, and predictably, but with poor quality in orders or products, it doesn’t qualify as agile.
What does this mean to you?
Safety is ALWAYS no 1: What does this mean for Suppliers?

Principles of Attention:

• Vision: 0 injuries

• Plan your work and your actions
  - think before you act

• Use things according to their function

• Everything has its own place

• No solution must be temporary

• You are responsible for your own and your colleagues’ safety

• Safety walks performance
Delivery Performance: What does this mean for Suppliers?

Global representation / regional setup

Delivery performance. 2010 target is 99%

Short lead time and initiatives to reduce lead time

MOQ reduction: equal to approximately one week production or less

Pull systems..
- Short lead time with Kanban setup for direct deliveries
- Vendor Managed Inventory (VMI) where relevant

Dual Sourcing:
- Reduces risk
- Increases capacity capabilities
- Enables competition
Cost: What does this mean for Suppliers?

Competitive value proposition (cost & innovation competitiveness)
- Global Key Account Management
- Efficient communication on all levels
- Open mind looking ahead

Price transparency: cost models, index-linked pricing (sharing the risk)
Development and execution of joint total cost reduction
Ideas and challenging the value chain: out of the box ideas.
Opportunities for Danish sub suppliers in the Global market place

Have high focus on safety internally as well as externally

Have a high focus on the quality in everything they do.
- Zero defects must be the mindset.
- The tool box is there, open up and use it!
- It is all about Processes, Performance and MINDSET!

Have a global mindset and a customer oriented approach
- Easy to work with!

Be proactive and bring forward your ideas and challenge the current setup

Differentiate your value proposition and focus on what your company can do e.g. in terms of reliability, speed, flexibility, service and know how

Reduce the Total Cost of Ownership for Vestas, with a high quality performance and an efficient production and logistics setup
Thank you for listening