Ole Borup Jakobsen
President Vestas Blades

Joined Vestas in 1995

Educational background as a
Production Engineer

President of Vestas Blades since 2003
One of four production business units in Vestas
Global production

8 blade factories in 6 countries
Vestas Blades

- Production of blades for Vestas wind turbines
- Vestas core technology – 100% in-house production
From 25 to 55 meter blades

- 25 m for the V52-850 kW
- 29 m spar for the V60-850 kW
- 39 m for the V80-2.0 MW
- 40 m for the V82-1.65 MW
- 44 m for the V90-1.8/2.0 MW and V90-3.0 MW
- 49 m for the V100-1.8 MW
- 55 m for the V112-3.0 MW
In the region for the region

**Logistics** – we are closer to our customers and their projects

**Local supply chain** – we build up a network of local suppliers

**Costs** – we reduce transportation costs

**Environment** – we cut down on CO2 emissions
Why Colorado?

• Easy access to railroad and highway infrastructure
• Available land
• Large pool of competent people
• Several universities located close by
• Colorado’s strong support for renewable energy
Vestas Blades in Colorado

- Aug 2006: Search process began
- June 2007: Windsor ground-breaking ceremony
- Jan 2008: Windsor first blade produced
- March 2008: Windsor grand opening
- Aug 2008: Brighton announced
- March 2009: Brighton ground-breaking ceremony
- Early 2011: Brighton scheduled start-up
Building size: 410,000 sq ft
Manufacturing capacity: 1,800 MW/yr
Jobs: 650+
Blade types: 40 m (V82), 44 m (V90) and 49 m (V100)
Building size: 440,000 sq ft
Manufacturing capacity: 1,200 MW/yr
Jobs: 650+
Planned production start-up: Early 2011
Fully operational: 2011
Blade types: 55 m (V112)
Supporting Triple15
Key Performance Indicators (KPIs) for Vestas Blades

**Employees**
- Industrial injuries per one million working hours
- Absence due to illness
- Employee turnover
- Employee loyalty
- Employee satisfaction and motivation

**Quality**
- CTQ (Critical to Quality) Sigma target
- CTQs above Sigma target – Manufacturing
- CTQs above Sigma target – Sourcing

**Cost**
- Cost per output index
- Landed material cost index
- Cost price index
- Quick stock turn

12 Capital Markets Day 2010, Colorado, USA
Strategic focus areas secure KPIs
From 2010-2012

• Health and Care
• Quality
• Waste and Environment
• Supply Chain Performance
• Production Performance
Health and Care
Focus area

Create a safe and attractive work place resulting in:

- Low frequency of industrial injuries
- Low absence due to illness
- High employee loyalty
- High employee satisfaction and motivation
- Low employee turnover

![Industrial injuries per one million working hours (Vestas Blades globally as of July 2010)](chart.png)
Secure high-quality blades through:

- Dialogue and cooperation with internal stakeholders and customers to secure our blades live up to customer quality expectations
- In-house production process capabilities
- The quality of supplied materials
- Training and support to drive quality improvements

Sigma target
- Manufacturing and sourcing:
  - 5 Sigma in 2010
  - 6 Sigma in 2012
Reduce waste quantity, cost and environmental impact by:

- Optimizing design and processes
- Securing green energy and reducing energy consumption

Target, renewable energy:
- 55% in 2010

Target, renewable electricity:
- 90% in 2010

Target, reduction of energy consumption* (2009 = index 100):
- 90 in 2010
- 70 in 2012

* KWh per kg produced blades
Supply Chain Performance
Focus area

Secure competitive global supply chain and optimize stock turn while avoiding components constraints (short- and long-term):

- Strong local and global supplier network
- Just-in-time delivery of materials to factory
- Minimize transport costs and cut down on CO2 emissions
- Always more than one supplier for the same materials

Regional Sourcing Target 2010

USA
- Asia 1%
- Europe 14%
- Americas 85%

China
- Japan 21%
- Others 5%
- China 74%

Europe
- Asia 7%
- Europe 93%

17 Capital Markets Day 2010, Colorado, USA
Production Performance
Focus area

Increase flexibility and throughput in order to support “Make to Order” production and reduced blade cycle time:

• Optimizing and aligning process capabilities using Value Stream Mapping, Standard Work, “Lighthouse” concept, Kaizen, etc.
• Developing employee skills
Focus Area reporting and follow-up

- Key Performance Indicators (KPIs) defined via strategy paper
- Process Indicators (PIs) defined via Focus Areas
- Each defined PI must link into a KPI
- Policy Deployment
Wind. It means the world to us.™

- Make the customer the focus of our efforts
- Deliver high-quality products
- In a safe and environmentally friendly way
Thank you for your attention