

# **Welcome to Vestas Capital Markets Day 2014**

**Lars Villadsen, SVP, Investor Relations** 

Aarhus, 12 June 2014

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This presentation contains forward-looking statements concerning Vestas' financial condition, results of operations and business. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management's current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements.

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# **Safety First**

If the fire alarm starts you MUST leave the building following the EXIT signs and go to the assembly point at the parking lot.



### **Practical information**

Coffee/tea and lunch will be served in the basement. Food and beverages except water are not allowed in the auditorium.

No photos.

**Rest rooms** are also located in the basement.

**Drinks and dinner** will take place in the canteen at 5.45 pm.



# **Agenda for Vestas Capital Markets Day 2014**

Time	Торіс	Speakers		
09.30-10.00	Introduction	Anders Runevad, Group President & CEO Marika Fredriksson, Executive VP & CFO		
10.00-11.00	Grow profitably in mature and emerging markets	Juan Araluce, Executive VP & CSO		
11.00-11.30	Break			
11.30-12.30	Capture full potential of the service business	Christian Venderby, Group SVP and Head of Service		
12.30-13.30	Lunch			
13.30-15.30	Reduce Levelised Cost of Energy	Anders Vedel, Executive VP & CTO Jorge Magalhaes, SVP, Engineering Solutions Johnny Thomsen, SVP, Product Management		
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16.00-17.30	Improve operational excellence	Jean-Marc Lechêne, Executive VP & COO Albie Van Buel, Group SVP, Global Sourcing		
17.30-17.45	Closing remarks	Anders Runevad, Group President & CEO		
17.45-18.00	Drinks at Vestas' Headquarters			
18.00-20.00	Dinner at Vestas' Headquarters			



# Introduction

Anders Runevad, Group President & CEO Marika Fredriksson, Executive VP & CFO

Aarhus, 12 June 2014

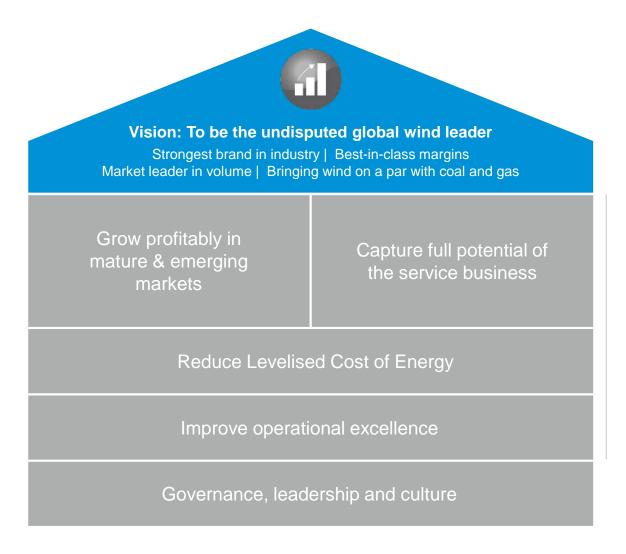
# **Agenda**



- 1. Profitable Growth for Vestas
- 2. Capital structure and net working capital

### **Profitable Growth for Vestas**

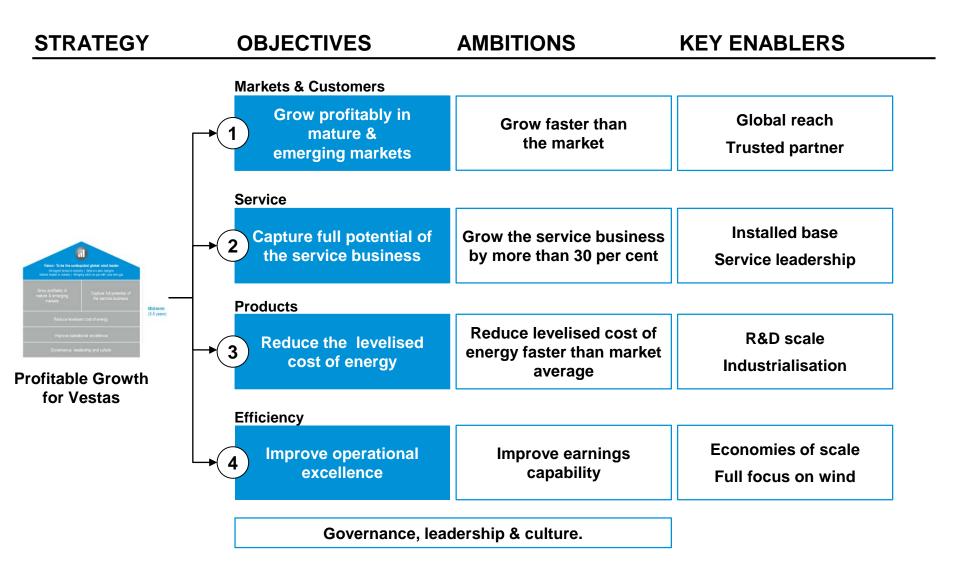
From paper to implementation and execution mode



Mid-term (3-5 years)

# **Recap: Focus on Profitable Growth for Vestas**

Profitable growth strategy to strengthen global leadership



# **Everything ties together**

Collaboration, simplicity and accountability unite Vestas in order to reach its mid-term ambitions

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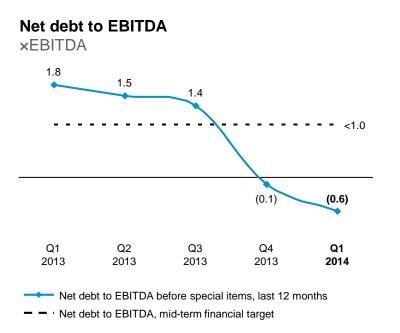
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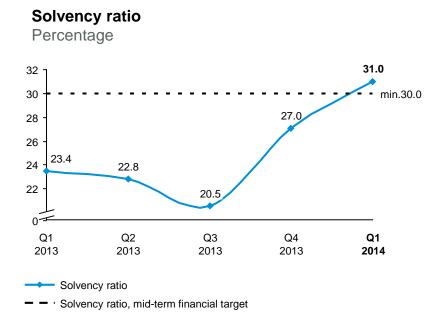


- 1. Profitable Growth for Vestas
- 2. Capital structure and net working capital

### Stronger and more resistant capital structure

Significant improvement in net debt to EBITDA and solvency ratio

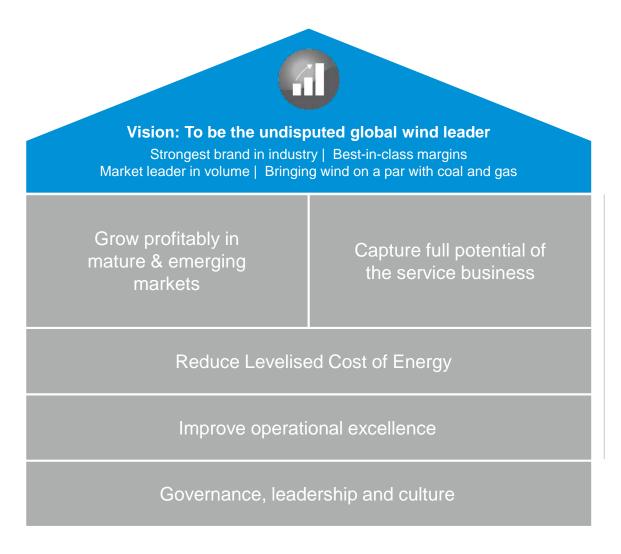




# ... but why is that so important?

### **Profitable Growth for Vestas**

The current capital structure supports the strategy



Mid-term (3-5 years)

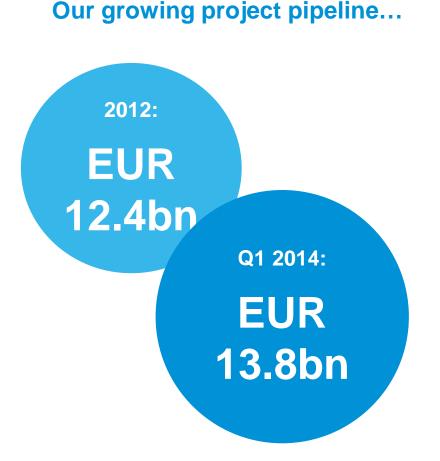
# Vestas – a global project-driven organisation

Last year, we had an order intake of 6 GW from 37 countries



### **Backlog: Wind turbines and service**

Market development calls for a strong balance sheet and access to bonding lines



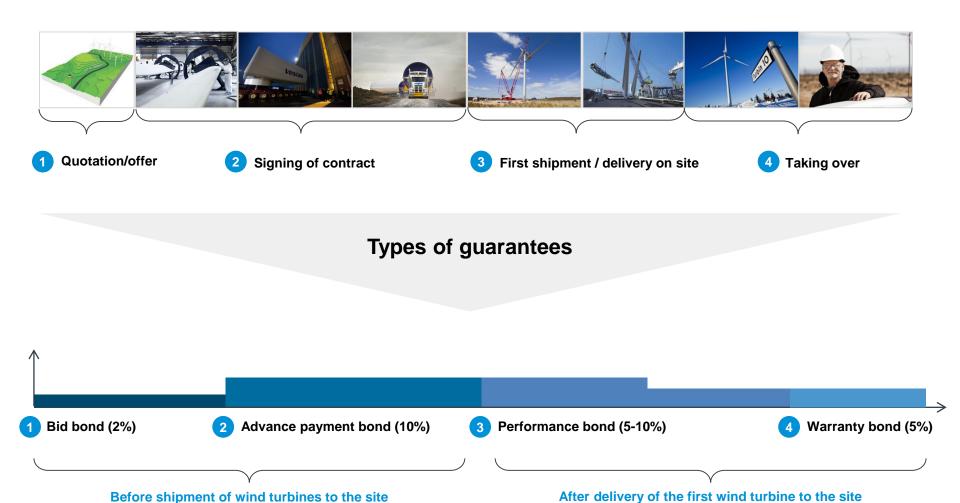
# ... is a main driver for increasing our bonding lines

# New EUR 1bn bank agreement and capital increase in 2014:

- Improved flexibility towards customers.
- Improved terms with suppliers, customers and banks.
- More unsecured bonding lines (committed for 5 years).
- Bilateral uncommitted guarantee facilities with surety providers.

### Project lifecycle and associated guarantees

The complexity and size of a wind project imply high demand on payment and risk mitigations



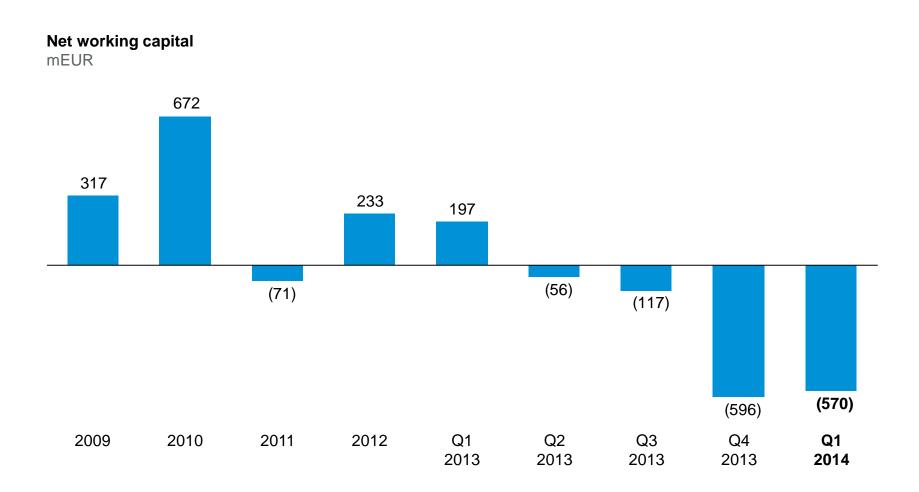
# Importance of operational excellence

Complex and large projects call for careful management, timing and control of cash flows



# Working capital optimisations paying off

Release of more than EUR 1.2bn since peak...



# Continuous working capital management

... mainly driven by better inventory control and cash collection implying improved cash conversion

#### **Inventories**

- Better planning and control.
- Closer cooperation between Sales, Sourcing and Manufacturing.

Lower MW under completion.

# **Contract** management

 Alignment of payment terms and payment milestones.

Better payment terms.

#### Sourcing

Use of standard components.

Reduced lead times and lower inventory.

- Renegotiation of customer payment terms.
- Apply industry best practice.

Improved payment terms.

**Cash collection** 

- Faster installation.
- Improved experience and know-how.
- Standardised processes.

Reduced lead times.

**Construction work** 

 Improved proximity to markets and customers.

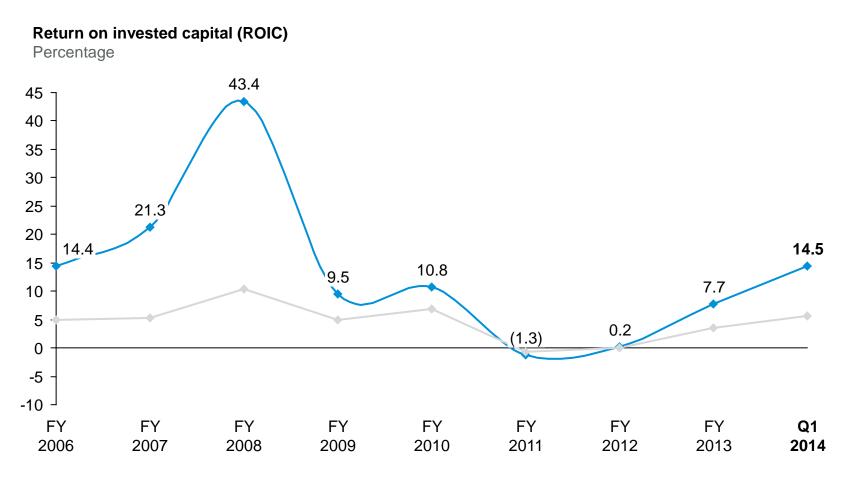
Reduced lead times.

Regionalised manufacturing footprint

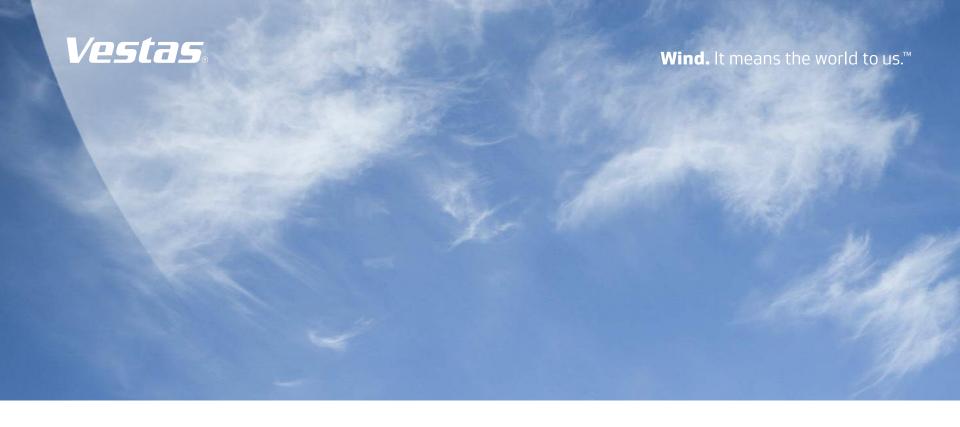
Improved cash conversion cycle

# Return on invested capital

Going forward, ROIC must be above 10 per cent – even in trough years



ROIC, last 12 months EBIT margin before special items, last 12 months



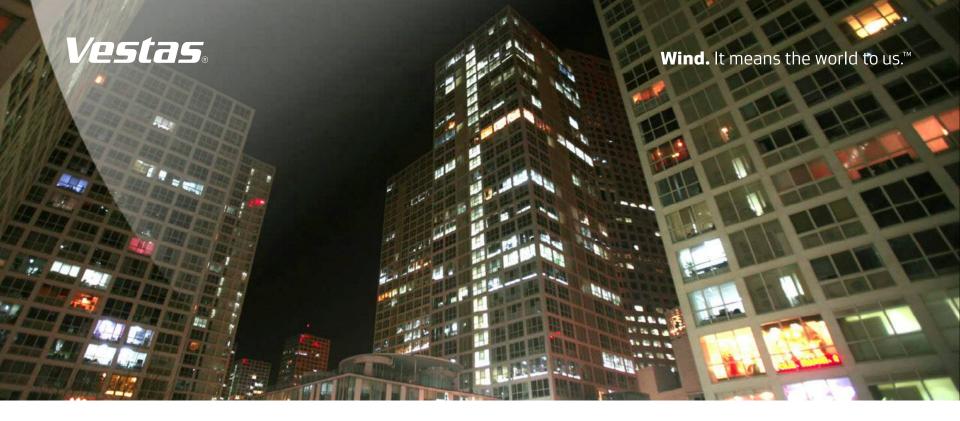
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# Grow profitably in mature and emerging markets

Juan Araluce, Executive VP & CSO

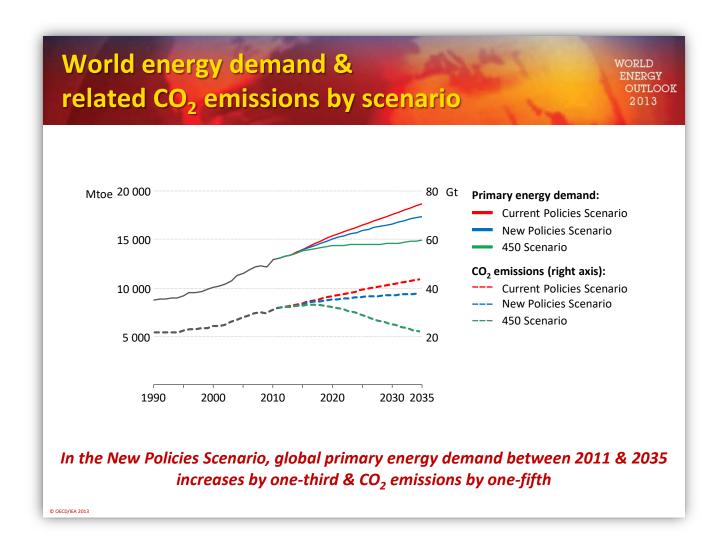
# Agenda



- What does our market environment look like?
- 2. How is Vestas doing today?
- 3. What are we doing to grow profitably in mature and emerging markets?

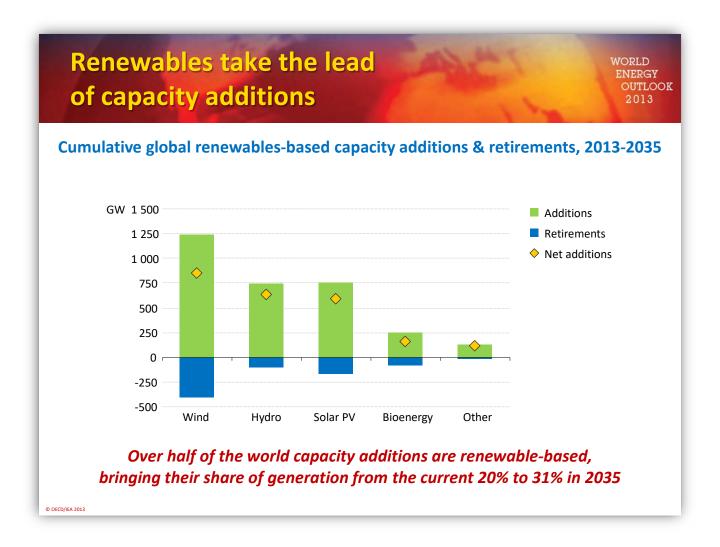
# IEA forecasts increase in energy demand and CO<sub>2</sub> emissions

Low-carbon energy at a reasonable price will be a market for the future



# Renewables to dominate capacity additions from 2013-2035

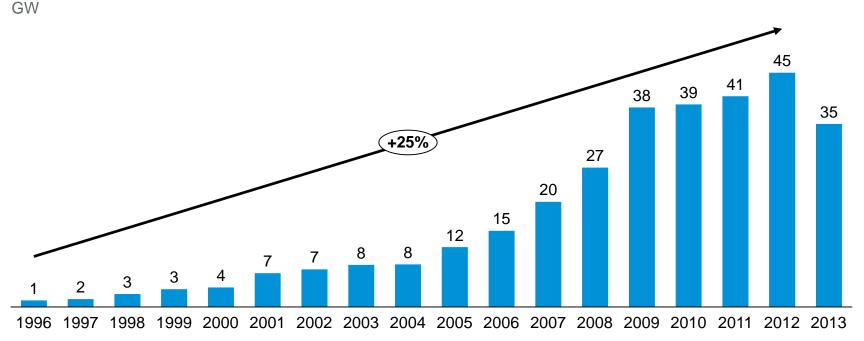
IEA predicts that renewables will increase their share of energy generation from 20 to 31 per cent



### Historical annual wind installations

Annual wind installations dropped for the first time in 2013 after more than 15 years with an annual average growth rate of 25 per cent





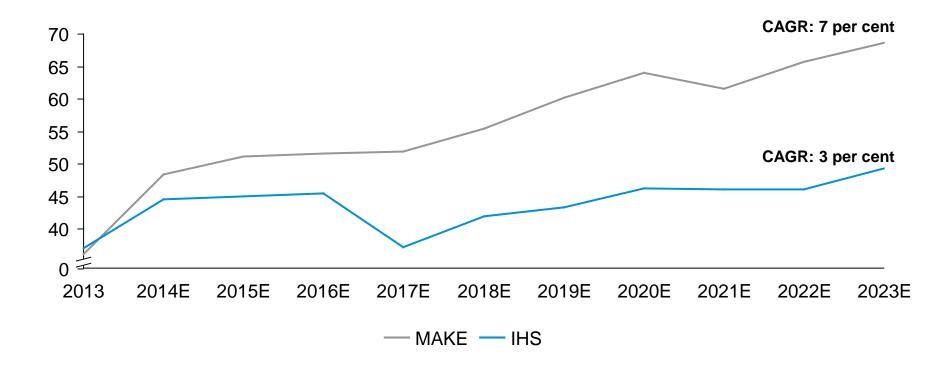
US market dropped by around 12 GW in 2013 due to late extension of the PTC.

### Wind market forecast 2013-2023

Annual average growth rates of 3-7 per cent expected

#### Wind market forecast, net additions

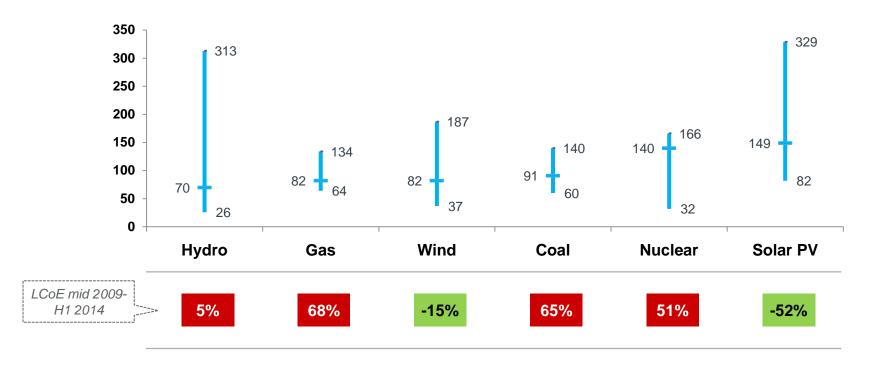
GW



# Wind is competitive against other energy sources

While LCoE for many energy sources increases, wind has lowered its LCoE by 15 per cent over the last five years

**Levelised Cost of Energy (LCoE), January 2014** USD/MWh



Vestas aims at lowering LCoE faster than market average.

Source: Bloomberg New Energy Finance, January 2014. (Note: wind only covers onshore. Hydro and nuclear have only been covered since Q2 2012).

# Politics and regulations still matter

Continued focus on local content and LCoE reductions to lower dependency on politics

#### Policy and regulatory examples



Vestas' global reach to counterbalance local political uncertainties.

# **Agenda**



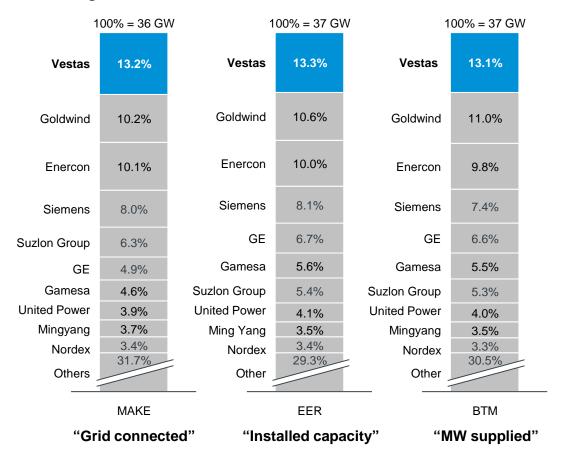
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### **Market shares 2013**

External analysts have Vestas as a clear No. 1 with a market share of more than 13 per cent

#### Market shares 2013 (onshore and offshore)

Percentage



#### **Key takes:**

- Three leading external analysts place Vestas as No. 1 in wind.
- Despite drop in US installations in 2013, Vestas was still able to claim No. 1 position.
- Vestas' strong global position balances the dependency on single markets:
  - Deliveries in 31 countries.
  - Order intake in 37 countries.

Source: MAKE Consulting, EER, BTM part of Navigant.

# Vestas has a strong position in the top-10 markets

Except for China and India, Vestas is among the leading three players in the top-10 markets

Country	New installations 2013 (MW)*	Rank #1	Rank #2	Rank #3	Vestas rank 2012 - 2013	Source
1. China	16,100	Goldwind	Guodian United Power	Mingyang	11 - 13 👢	CWEA
2. Germany	2,988	Enercon	Vestas	Nordex	2-2	DEWI
3. India	1,729	Gamesa	World of Wind India	Suzlon	5 - 6	ВТМ
4. Canada	1,600	Enercon	Suzlon Group	Vestas	3-3	MAKE
5. UK	1,150	Siemens	Senvion/Repower	Vestas	2-3	ВТМ
6. USA	1,131	GE Wind	Siemens Wind Power	Vestas	3-3	MAKE
7. Poland	893	Vestas	Senvion/Repower	Acciona	1-1 🗪	MAKE
8. Sweden	724	Vestas	Siemens	Enercon	1-1 🗪	ВТМ
9. Romania	695	Vestas	Enercon	GE	3 - 1	MAKE
10. Australia	655	Vestas	GE	n. a.	1-1 🗪	MAKE

Vestas has been able to keep a stable position in the top-10 markets.

<sup>\*</sup> Only covers onshore.

# **Customers have regained trust in Vestas**

Customers have renewed trust in Vestas' future and offerings

CRSI increases 3 index points vs 2012







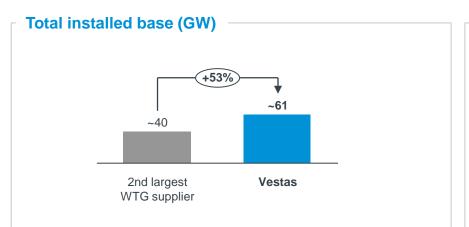




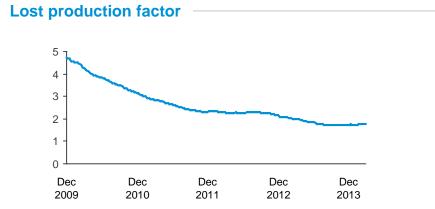
- Reputation back on track.
- Satisfaction generally stable.
- 85 per cent of respondents call Vestas a top-two supplier.
  - NPS the "ambassador effect" at highest point ever.

# Vestas' major key differentiators

Largest installed base, world-class products, global reach and a high quality



 Largest global installed base, providing significant service business potential.



 World-class product portfolio: geographical fit and reach, siting flexibility, best-in-class quality.

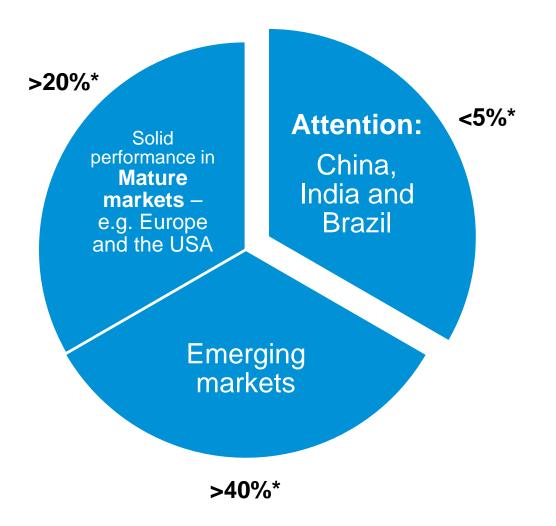
#### Latest product launches Low Medium Hiah wind wind wind **2 MW** V110-2.0 MW V100-2.0 MW platform V126-3.3 MW V117-3.3 MW V112-3.3 MW **3 MW** platform V117-3.3 MW V112-3.3 MW V105-3.3 MW

Very strong and competitive product offering.



### First mover in 35 countries around the world

While Vestas has a strong position in new wind markets and mature markets there is room for improvement in China, India and Brazil



#### **Key takes:**

- Solid performance in North America and Europe.
- Pioneers in 35 out of 73 markets more than any other wind turbine manufacturer.
- Signed orders in 37 countries on six continents in 2013.
- In 2013, orders from many emerging markets including:
  - Croatia, Romania, Ukraine, Turkey, Chile, Uruguay, South Africa, the Philippines and Jordan.

<sup>\*</sup> MAKE Consulting 2013 market shares. Mature markets include: North America, Northern Europe and Southern Europe.

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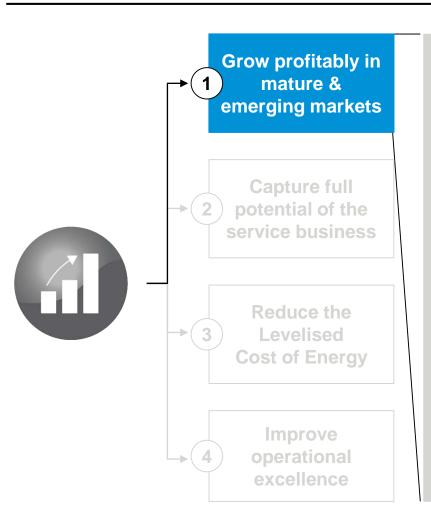
### Grow faster than the market

Build partnerships and generate new opportunities to enable growth

**STRATEGY** 

**OBJECTIVE** 

### **MID-TERM AMBITIONS & INITIATIVES**



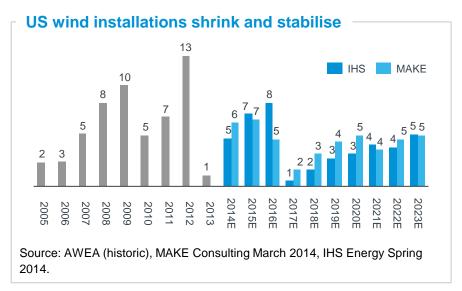
#### Grow faster than the market

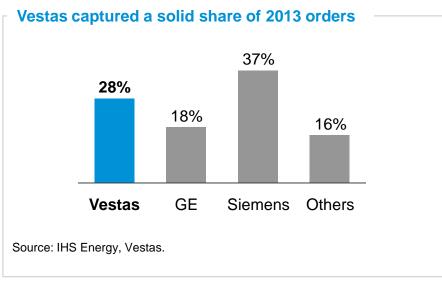
- Strengthen the position in mature markets.
- Grow market share in emerging markets.
- Build partnership with our strategic accounts.
- Pursue opportunities with new market segments.
- Build partnership based on value, business case certainty and stability.

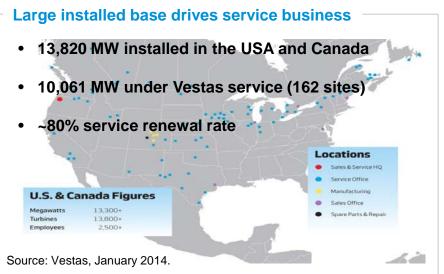
Global reach, trusted partner and strong brand.

## Vestas maintains strong position in volatile US market

Significant near-term potential from non-exercised MSA/TSAs





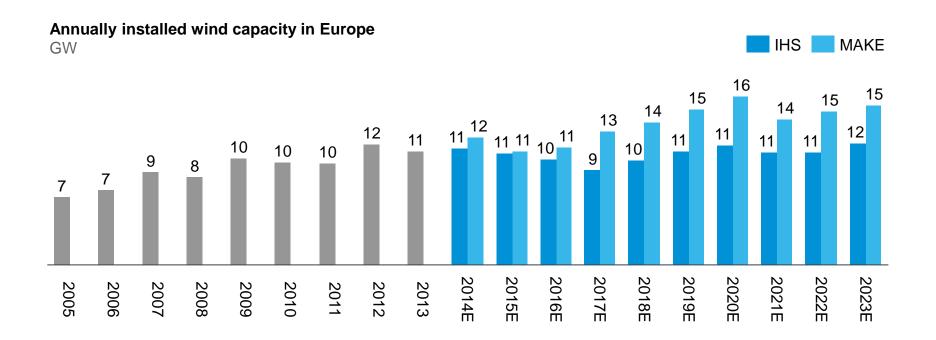


Key 2013 and 2014 agreements position Vestas for coming years

- 1.9 GW FOI from 2013 to June 2014.
- +2.1 GW TSA/MSA - EDF, Enel, RES Americas and First Wind

## European market expected to be fairly stable

Low energy demand and focus on reducing LCoE



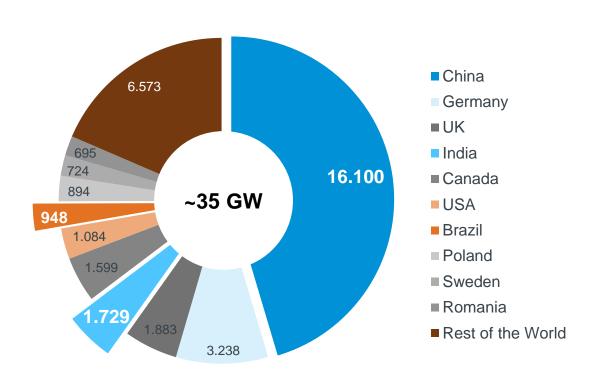
- Vestas to build on its strong European presence.
- Dampening tendency on subsidies creates uncertainty.
- Lowering LCoE to mitigate the effect of lower subsidies.

## China, India and Brazil constitute a large part of the market

China, India and Brazil accounted for more than 50 per cent of the world market in 2013 measured in MW – a trend that is expected to continue

#### Wind capacity installations 2013

Percentage



Country	MW	% Share
China	16,100	45%
Germany	3,238	9%
UK	1,883	5%
India	1,729	5%
Canada	1,599	5%
USA	1,084	3%
Brazil	948	3%
Poland	894	3%
Sweden	724	2%
Romania	695	2%
Rest of the World	6,573	19%
Total Top 10	28,894	81%
World Total	35,467	100%

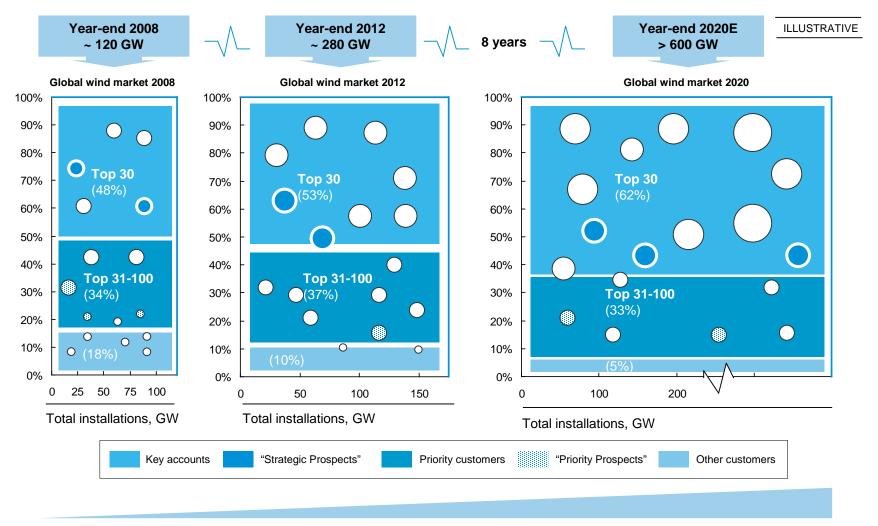
### Vestas to focus on China, India and Brazil

Strong leadership appointed and local market strategy process initiated



## Importance of strategic accounts

Strategic accounts are becoming increasingly important as the customer landscape is changing

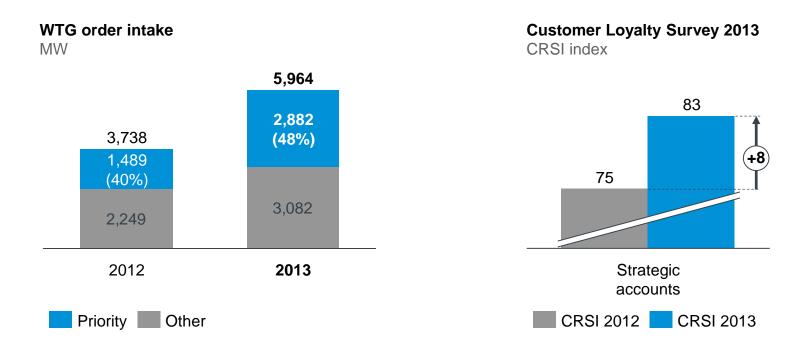


Importance of the largest and fastest-growing owners of wind

Source: MAKE Consulting, EER market forecasts.

## Greater focus on developing strategic accounts

In 2013, priority accounts constituted almost 50 per cent of order intake



#### Key takes:

- Vestas continues to focus on account management, but with greater focus on moving towards strategic relationships with fewer global players: the future top-20 accounts.
- Today, Vestas is only number 1 or 2 supplier with five out of top-20 customers.

## Becoming 'opportunity originator'

Head of new Global Deal Structuring function appointed



On 1 May 2014, Søren Elbech joined Vestas as Senior Vice President of Global Deal Structuring.

 a newly established function with direct report to Juan Araluce, Chief Sales Officer. Becoming originators is about locking the sales opportunities earlier on in the value chain by engaging much earlier with developers, policy makers and with financial institutions.



## Deal origination early in the value chain

Value chain considerations and potential for expansion to secure profitable growth

Vestas has **WTG** Main **Basic** reorganised its **Assembly** value components Components business model to chain become more asset-light. Cast iron Castings Blades WTG Assembly Nacelles Copper **Forgings** Gearboxes **Towers Outsourcing of low** Steel Aluminium **Bearings** Fabrication Rotors margin activities Plastics Converters Control Systems such as castings **Activities of key clients** Wind Focused on WTG **Energy** supply, EPC and **EPC WTG Supply 0&M** value Ownership O&M. chain Technological core Land securing rights Manufacturing Electricity Performance Monitoring Engineering competence Wind measurement & optimisation Deliverv Procurement generation Site planning Electricity Sales & Operations Construction Construction Least capital Grid – connection Installation Installation Trading Maintenance intensive parts of Financial yield Predictive maintenance value chain Financial services required by key clients **Financial** Significant FS **Services** Financial services (FS) required along value Wind Value Chain chain CAPEX finance Construction Project financing Yield guarantees Equity Sale/tendering of M&A advisory Refinancing Working capital financing Supplier finance Equity Repowering finance projects Insurance

Vestas current activity

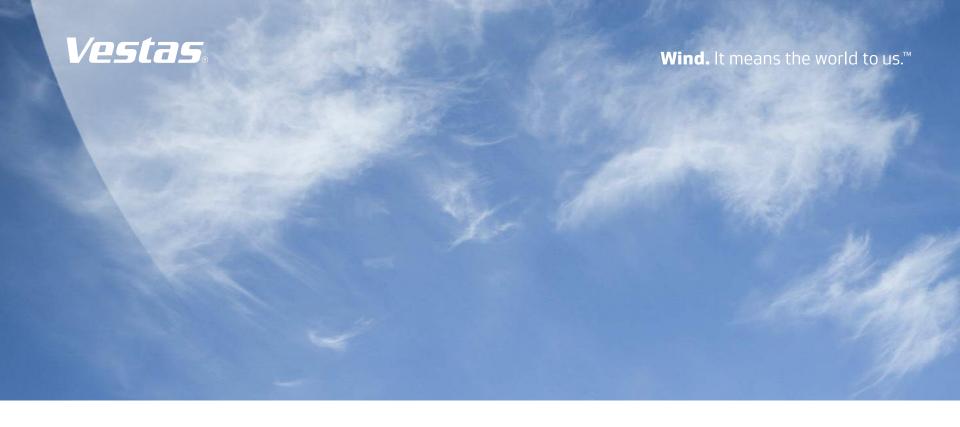
## Summary

What have we learned

Greater focus on cost of energy in the market environment.

**Vestas is well-positioned globally** - Special attention on China, India and Brazil.

Strategic account development and deal origination - Key elements of commercial strategy.



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50 Agenda – CMD 2014 Classification: Restricted Wind. It means the world to us.™

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51 Agenda – CMD 2014 Classification: Restricted Wind. It means the world to us.™



## Capture full potential of the service business

**Christian Venderby, Group SVP and Head of Service** 

## **Agenda**



### 1. Introduction

- 2. The successful transformation of the service business
- 3. Capturing the full service potential

### Introducing your speaker

### **Christian Venderby**

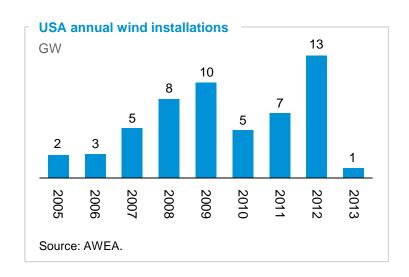
- Group Senior Vice President and Head of Service.
- Joined Vestas in 2006 as CFO for North America and was appointed COO in 2010 with responsibility for Construction, Service, Supply Chain and Technology.
- Degree in Finance from Copenhagen
   Business School and E-MBA from INSEAD,
   Paris.
- 15 years with FLSmidth, leading finance and construction teams in Japan, Brazil, Egypt and India.
- 20 years of international business experience.

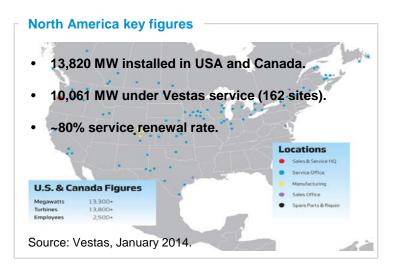


### My Vestas journey

### Christian Venderby

- CFO during the US wind industry's boom and burst years 2006-10.
- P&L responsibility for North American construction and installation of > 4 GW wind turbines.
- P&L responsibility for > 8,000 turbines under long-term service agreement.
- Managed the US restructuring in 2012-13.
- Won > 1.5 GW large and complex North American wind turbine and service deals in 2013.





## Service customers, create value and acquire fair share of it

Building on our strong performance and long-term customer relationships

- Always delivering a high level of safety performance.
- Being transparent to our customers and having an open dialogue and collaboration about performance and opportunities.
- Closer integration with our strategic customers to optimise value creation across the value chain.
- Deliver high-quality service solutions in order to lower the Levelised Cost of Energy irrespective of the customers' preferred service strategy.
- Growing our knowledge and insight from the installed base of Vestas wind turbines in order to offer optimised turbine performance throughout the entire turbine life cycle.
- Continuously improving service maintenance and spare parts solutions to support optimised maintenance costs.

## **Agenda**

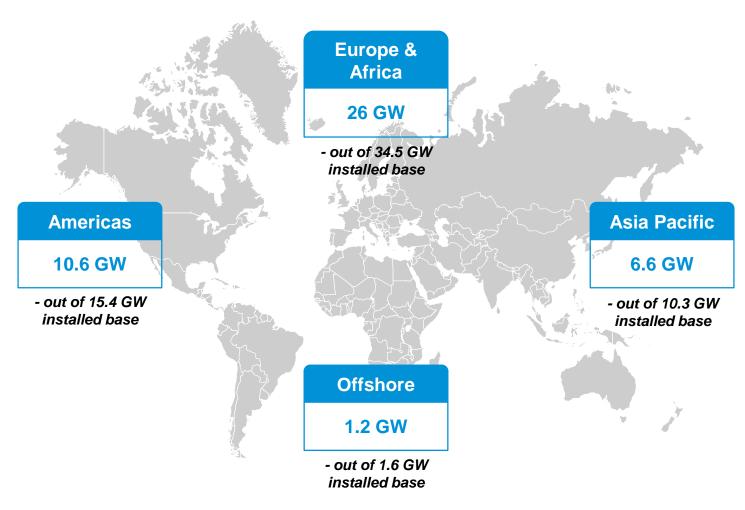


- 1. Introduction
- The successful transformation of the service business
- 3. Capturing the full service potential

## The service business today

Today, Vestas has more than 45 GW under service from a total installed base of more than 61 GW

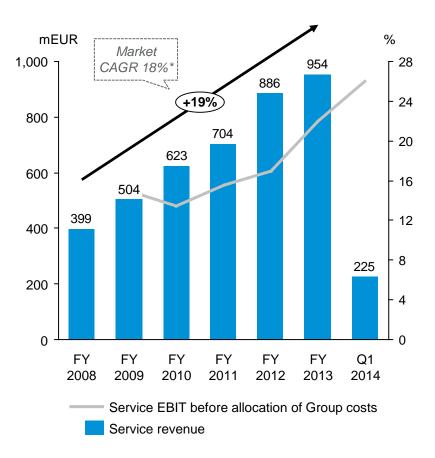
MW under service and track record end 2013



## Satisfactory development in service business' financials...

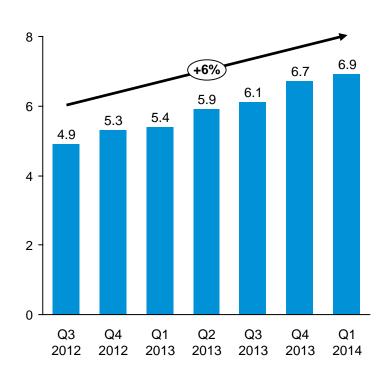
Continuous growth in revenue and order backlog while earnings have improved significantly

# **Service revenue and EBIT margin** mEUR and percentage



### Service order backlog

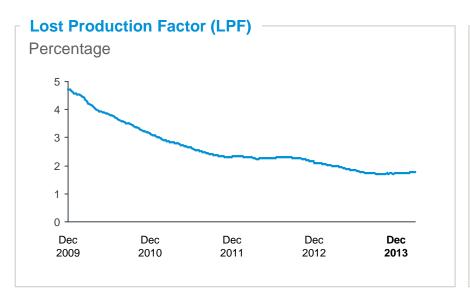
bnEUR

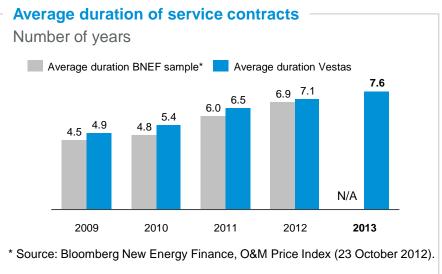


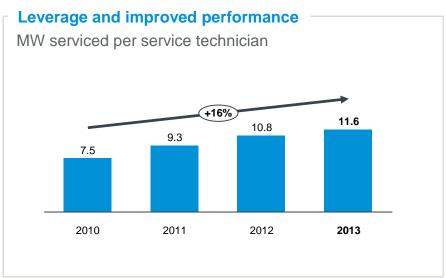
<sup>\*</sup> Source: Bloomberg New Energy Finance, O&M Price Index (24 January 2014).

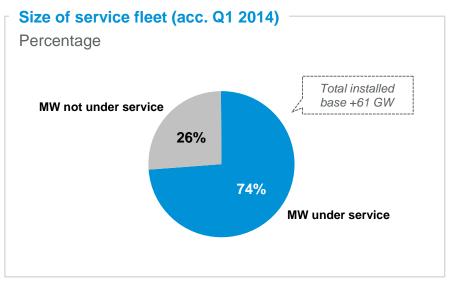
## ... driven by successful transformation of service activities

Improved operational performance, leverage and customers' demand for business case certainty









Classification: Restricted

## **Agenda**



- 1. Introduction
- 2. The successful transformation of the service business
- 3. Capturing the full service potential

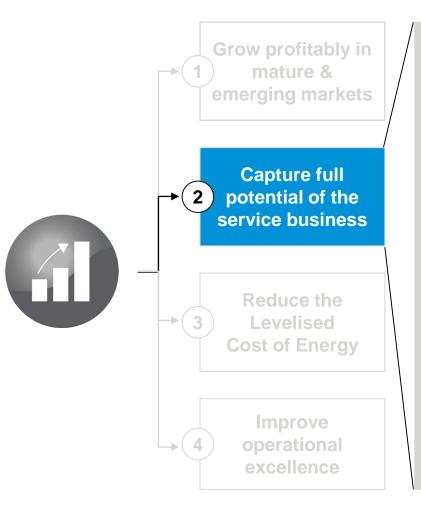
## Grow the service business by more than 30 per cent

Leverage on the installed base and establish a new service organisation

**STRATEGY** 

**OBJECTIVE** 

#### **MID-TERM AMBITIONS & INITIATIVES**



Grow the service business by more than 30 per cent

- Capture service business on all new orders.
- Establish a new service organisation, with direct report to the CEO.
- Grow revenue through new service solutions and products.
- Efficiency from knowledge and scale.

Leverage on the largest installed base in the world.

## Current growth drivers in the service business

Current trend in performance indicators and value drivers point in the direction of growth

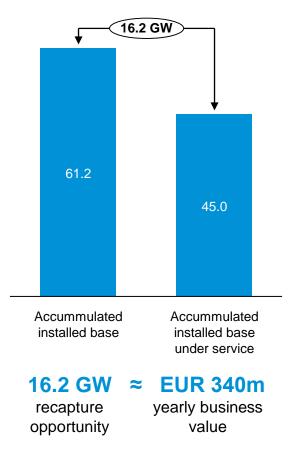


Grow with the market in terms of installations

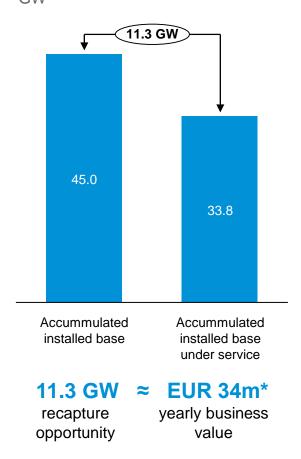
## Capture full service sales potential

Examples: Recapture share of the lost GW; and increase current renewal rate

#### Recapture opportunity (acc. Q1 2014) GW



#### Renewal opportunity (acc. Q1 2014) GW



<sup>\*</sup> With 75 per cent renewal rate and an average duration of seven years.

## Initiatives to grow the service business

PowerPlus<sup>TM</sup> improves annual energy production (AEP) on existing plants

### Service solution

### **Customer value**

### **Power Uprate**

**Modify control parameters** that allows the wind turbines to increase their maximum power output.

 Vestas is able to increase AEP, generally by 1.0-4.0 per cent.

#### **Extended Cut Out**

Modify control parameters that allows wind turbines to capture more wind at higher speeds by extending the maximum wind speed limit.

 Vestas is able to increase AEP, generally by 0.5-2.0 per cent.

### **Aerodynamic Upgrades**

**Vortex Generators** a cost-effective solution using small fins that optimise air flow over the blades to improve the aerodynamics.

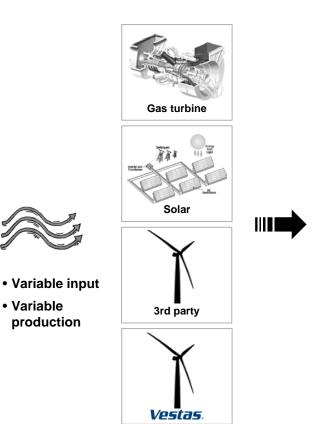
 Vestas is able to increase AEP, generally by up to 0.8 per cent.

### Vestas value

 Vestas will share the additional upside with the customer through a revenue sharing model or an upfront payment.

## Initiatives to grow the service business

Aligning full scope service offerings to match a liberalised energy market



### **Power plant** portfolio management

- Aligning full scope long-term contracts to customers' operational and commercial model.
- Inclusion of customers' commercial model into availability guarantees.
- Vestas' variable fee linked to customers' revenue streams.





- Liberalised energy markets
- Variable energy prices

Variable

production

## **Summary**

What have we learned

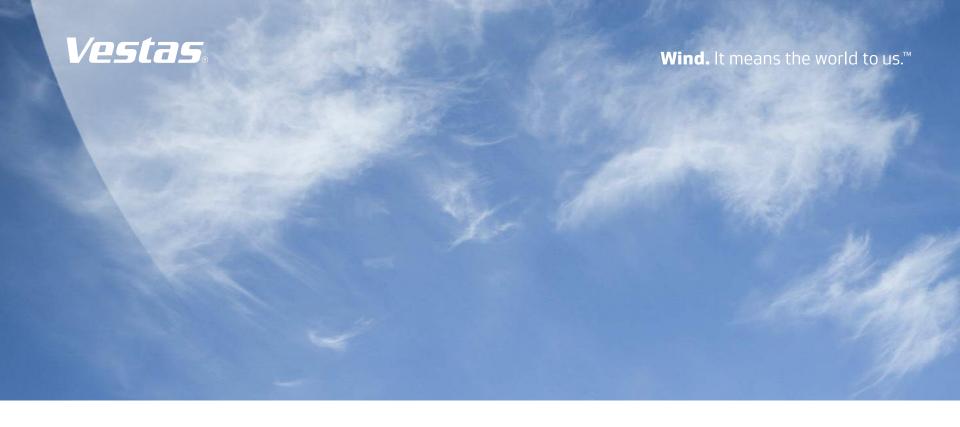
We have a large and profitable service business with an order backlog of approx EUR 7bn.

We have a significant growth potential to be captured with a robust commercial strategy.

We have an opportunity to improve our service delivery model leveraging our size and creating synergies.

Classification: Restricted





# Thank you for your attention

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# **Agenda for Vestas Capital Markets Day 2014**

Time	Торіс	Speakers
09.30-10.00	Introduction	Anders Runevad, Group President & CEO Marika Fredriksson, Executive VP & CFO
10.00-11.00	Grow profitably in mature and emerging markets	Juan Araluce, Executive VP & CSO
11.00-11.30	Break	
11.30-12.30	Capture full potential of the service business	Christian Venderby, Group SVP and Head of Service
12.30-13.30	Lunch	
13.30-15.30	Reduce Levelised Cost of Energy	Anders Vedel, Executive VP & CTO Jorge Magalhaes, SVP, Engineering Solutions Johnny Thomsen, SVP, Product Management
15.30-16.00	Break	
16.00-17.30	Improve operational excellence	Jean-Marc Lechêne, Executive VP & COO Albie Van Buel, Group SVP, Global Sourcing
17.30-17.45	Closing remarks	Anders Runevad, Group President & CEO
17.45-18.00	Drinks at Vestas' Headquarters	
18.00-20.00	Dinner at Vestas' Headquarters	

70 | Agenda – CMD 2014 Wind. It means the world to us.™

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## **Reduce Levelised Cost of Energy**

Anders Vedel, Executive VP & CTO
Johnny Thomsen, SVP, Product Management
Jorge Magalhaes, SVP, Engineering Solutions

Aarhus, 12 June 2014

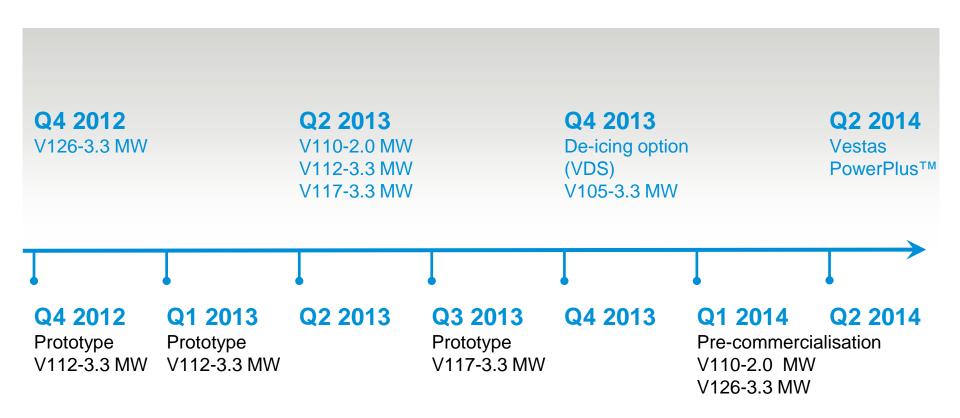
### Agenda



- 1. Looking back: What have we done since 2012?
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  - Reducing the Levelised Cost of Energy
  - Innovation
  - Industrialisation and modularisation

### Faster delivery of wind turbines and services to the market

Harvesting the full potential of our 2 and 3 MW platforms



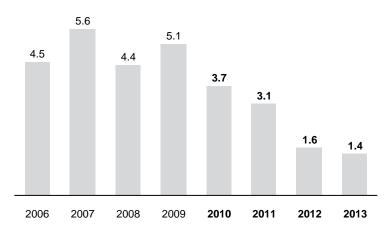
We have developed new competitive products while reducing R&D cash spend by more than 40 per cent.

### Vestas' turbines are performing well

Warranty consumption and LPF continue at a low level

#### Warranty provisions consumed

Percentage



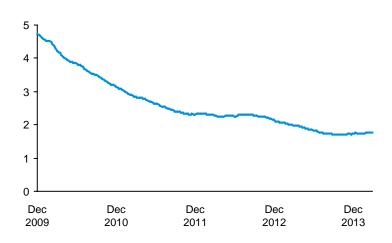
#### **Key takes:**

Provisions made

 Warranty consumption constitutes approx 1.5 per cent of revenue over the last 12 months.

#### **Lost Production Factor (LPF)**

Percentage

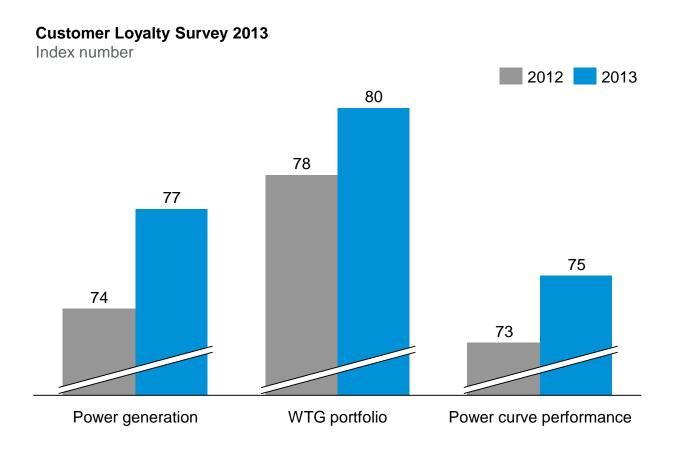


#### **Key takes:**

- LPF continues at a low level below 2.0.
- LPF measures potential energy production not captured by the wind turbines.

#### Our customers are satisfied with our products

Positive trend from the Customer Loyalty Survey 2013



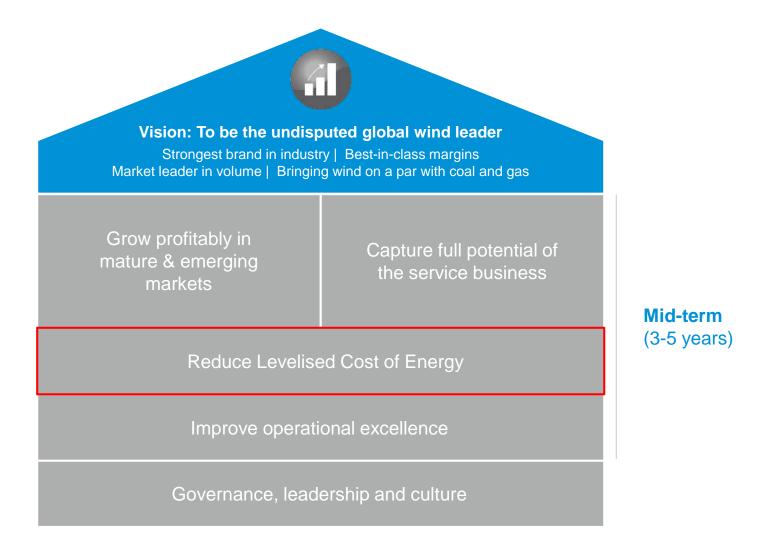
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#### **Profitable Growth for Vestas**

Reducing Levelised Cost of Energy to support Vestas' mid-term ambitions



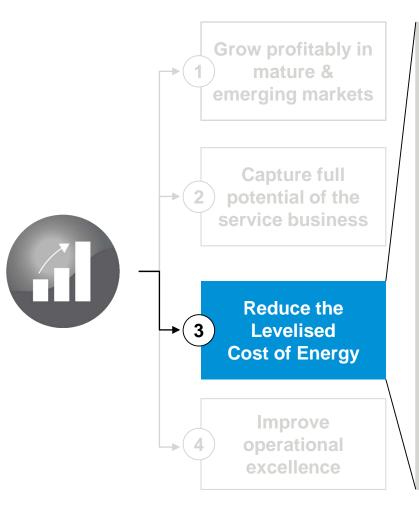
#### Reduce cost of energy faster than market average

Reducing Levelised Cost of Energy to support Vestas' mid-term ambitions

**STRATEGY** 

**OBJECTIVE** 

#### **MID-TERM AMBITIONS & INITIATIVES**



Reduce Levelised Cost of Energy faster than market average

- Cost out and optimised performance:
   Increase product competitiveness and continue cost out on the 2 MW and 3 MW platforms.
- Industrialisation and modularisation:
   Work towards a new flexible and scalable product architecture.
- Innovation:
   Ensure new growth for Vestas through an innovative company culture.

Largest wind R&D to focus on industrialisation and cost out.

### Introducing deep dives into strategic focus areas

Reduce Levelised Cost of Energy, innovation and industrialisation



Reduce levelised cost of energy
Johnny Thomsen, SVP, Product Management



Industrialisation and modularisation
Jorge Magalhaes, SVP, Engineering Solutions



**Innovation**Jorge Magalhaes, SVP, Engineering Solutions

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### **Agenda**



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#### Hmmm, is that what we are talking about?

Complicated formula to be simplified into...

LEC = 
$$\frac{\sum_{t=1}^{n} \frac{I_{t} + M_{t} + F_{t}}{(1+r)^{t}}}{\sum_{t=1}^{n} \frac{E_{t}}{(1+r)^{t}}}$$

LEC = Average lifetime levilised electricity generation cost.

 $I_t$  = Investment expenditures in year t.

 $M_t =$ Operations and maintenance expenditures in the year t.

 $F_t$  = Fuel expenditures in the year t.

 $E_t$  = Electricity generation in the year t.

r = Discount rate.

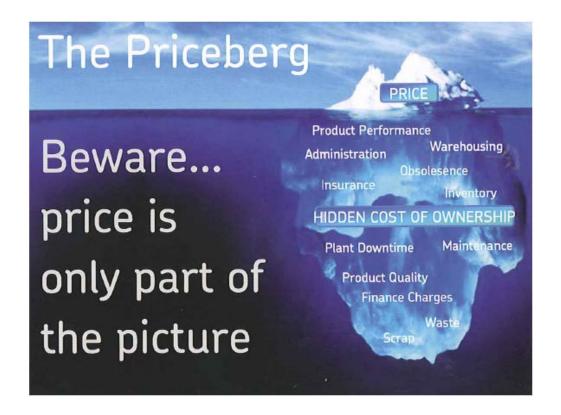
n = Life of the system.

#### Hmmm, is that what we are talking about?

... something more tangible

#### Being competitive

Cost of ownership is important...



... and in our industry it is called Levelised Cost of Energy.

### Why is Levelised Cost of Energy important?

LCoE is important because...

- 1. Vestas needs to stay competitive and increase shareholder value.
- 2. Customers request wind power at lower cost of energy.
- 3. Wind support schemes are under pressure.
- 4. The world needs clean, affordable and predictable energy.

### Levelised Cost of Energy for onshore wind

LCoE depends on different factors resulting in different cost of energy ranges for different sites

Classification: Restricted

# <u>USD 37-187 per MWh</u>



**Production/wind climate** 



**CAPEX** 



**OPEX** 



**Finance cost** 

#### What does it take to lower LCoE by 3 per cent?

Approximate figures

-3%
Cost of Energy
- all other factors
being equal

-9% Bill of material

+3% Rotor

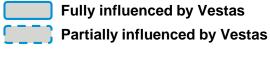
+10% Rating

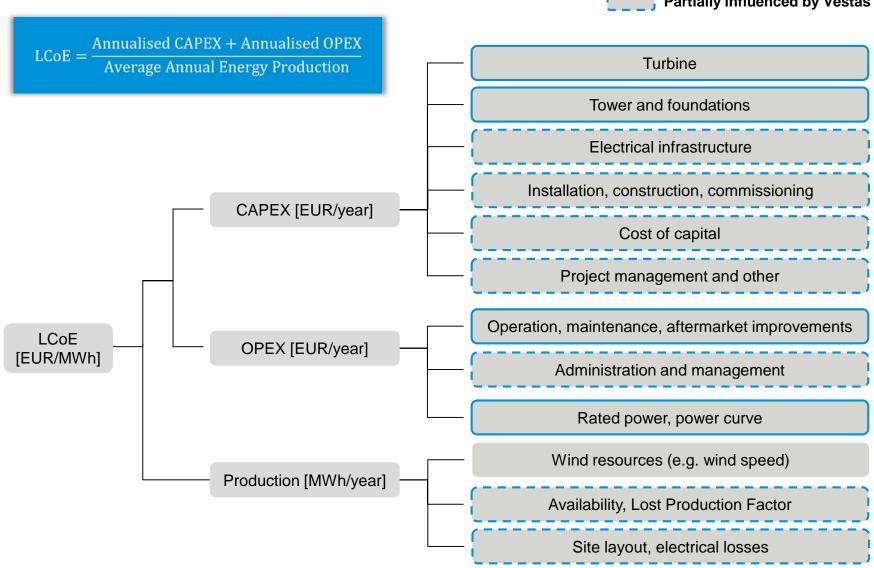
-17% Service

-15% Balance of Plant

#### **Levelised Cost of Energy**

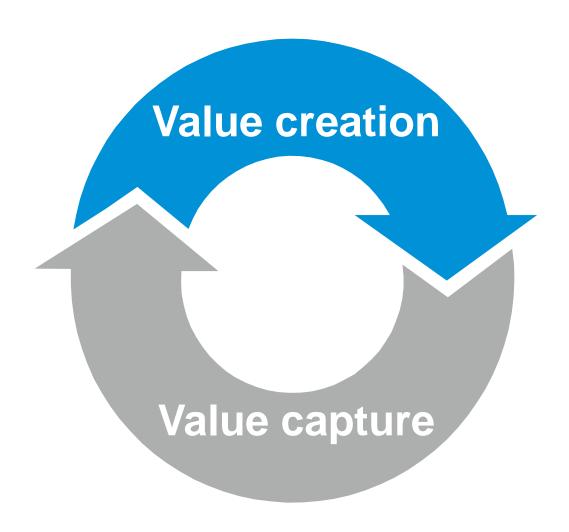
How much can Vestas affect?





### Value creation and capture

A business case has to consider all aspects to improve ROIC and/or to create growth



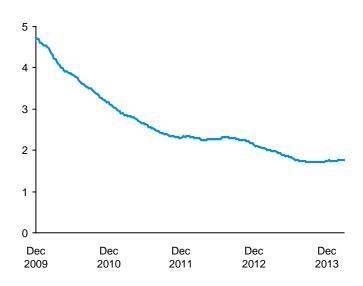
# **Examples**

#### Turbine quality and operation strategies lowers LCoE

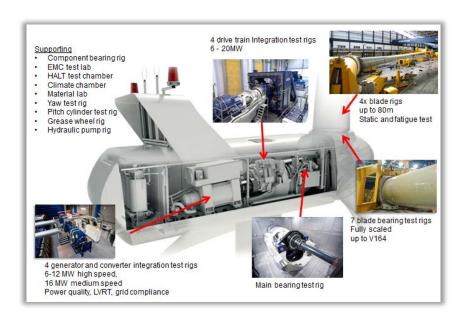
Examples on lowering cost of energy

#### **Lost Production Factor (LPF)**

Percentage



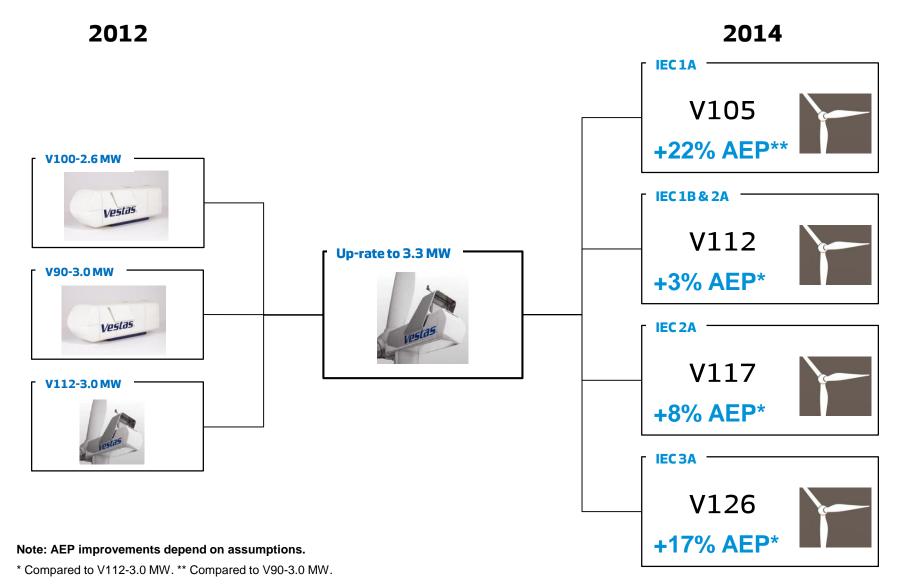
#### **Testing facilities**



Translates into 2.8 per cent more annual energy production on the installed base and for new turbines.

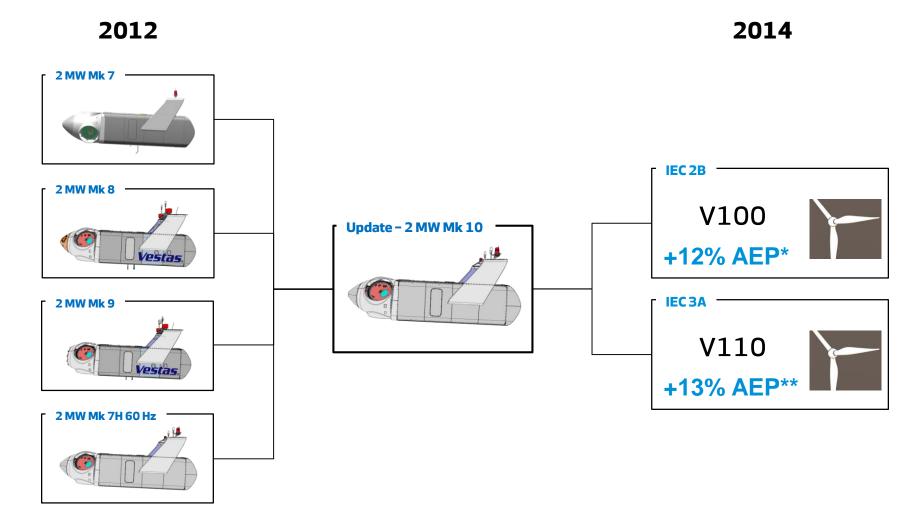
### 3 MW platform – standardising and modulising

Examples of lowering cost of energy



### 2 MW platform transition - simplification and AEP

Examples of lowering cost of energy



Note: AEP improvements depend on assumptions.

<sup>\*</sup> Compared to V90-1.8/2.0 MW. \*\* Compared to V100-1.8/2.0 MW.

### Large diameter steel tower for the 3 MW platform

Examples of lowering cost of energy



#### **Vestas PowerPlus™– LCoE improvements in the aftermarket**

Examples on lowering cost of energy

Vestas Power**Plus**<sup>™</sup> is the newly launched product bundle for production improvement solutions dedicated to the aftermarket.

It currently consists of the following solutions:

- Power Uprate
- Extended Cut Out
- Aerodynamic Upgrades

5% AEP

Site-specific **optimisation** of control parameters and aerodynamic **performance**.

Building on extensive wind turbine knowledge and industry-leading R&D.

Note: AEP improvements depend on assumptions.

#### **Summary**

What have we learned

- LCoE continues to go down year-on-year.
- 2 Vestas' ambition is to lower LCoE faster than the market in general.
- The new product roadmap focus initiated in 2012 resulted in products and services with lower LCoE. This contributes to a strong order intake and growth possibilities.
- To create profitable growth, Vestas will maintain a strong focus on capturing the value of the LCoE improvements.
- Vestas focuses on all parts of the value chain. Vestas uses its global reach and combined knowledge about wind technology & operations.

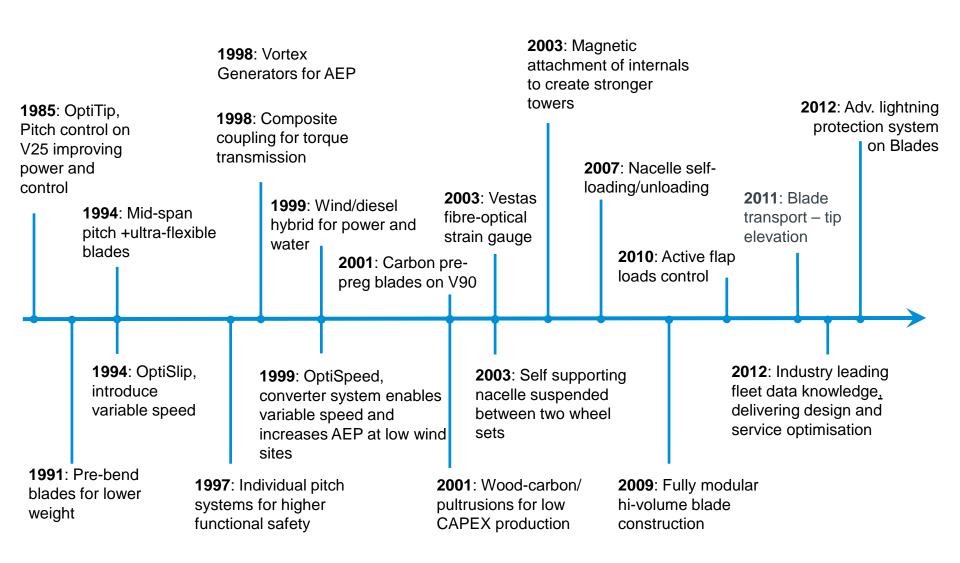
### Agenda



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### Building on a strong innovation heritage as pioneer in wind

1,100 patent applications filed and ability to commercialise innovation at scale



#### What is the purpose of innovation at Vestas?

Ensuring competitive products and capabilities also in the long-term

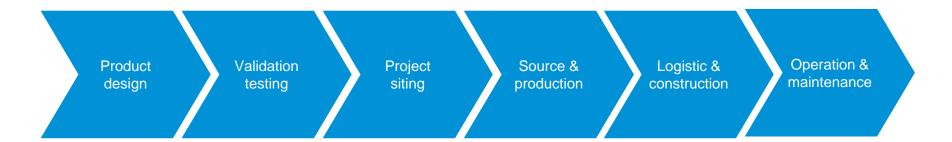
To bring commercially relevant, game-changing ideas to the market in a profitable way, enabling Vestas to fulfill its vision:

"To be the undisputed global wind leader."



#### How will we do that?

#### Focus on the entire value chain



#### Innovation culture

- Build on Vestas' capability to innovate across the value chain ... unleash it throughout the organisation.
- Share knowledge and collaborate.

#### **External leverage**

- Highly networked with thought leaders in academia and in the industry.
- Complementary competences to solve application-specific challenges.

#### **Business driven**

- Efficient and effective idea selection and incubation.
- Commercially driven innovation in selected target areas: managed as a portfolio of time-to-market and risk/reward opportunities.



### **Example Product: New generation structural shell blades**

Innovation across the value chain: Design, manufacturing and transportation

#### Enables delivery of a 110 m rotor on the proven 2 MW platform:

- Innovative aeroelastic carbon design ensures light-weight, low-load blades.
- Flexible, scalable, low-CAPEX architecture
- Vertical integration enables rapid rollout of structural shell technology across all wind turbine platforms
- New transportation mechanism allows low-cost delivery to customer

### **Example Product: Large diameter steel tower (LDST)**

Innovation across the value chain: Design, manufacturing and transportation

Vestas has launched the Large Diameter Steel Tower, a cost effective solution to increase tower height for 3 MW turbines to over 140 m. The new solution boosts annual energy production and reduces cost significantly compared to concrete/hybrid towers.



### Example of innovation across the value chain

Foundation for the V126-3.3 MW prototype at Oesterild, Denmark





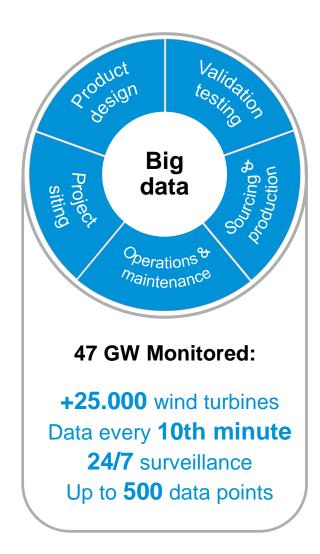
### Example of innovation across the value chain

Tooling and transport: V126-3.3 MW blade lift test in Lem, Denmark

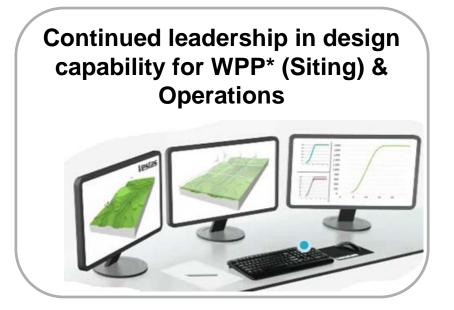


#### **Example: Big data-driven solutions for wind power plants**

Integrating data insights from value chain with state-of-art analytics and supercomputing







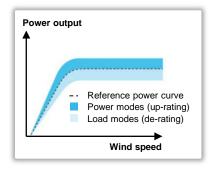
<sup>\*</sup> Wind Power Plant.

### **Example: Maximising site-optimality of wind power plants**

The ability to optimise every link of the WPP- from the wind to electrons to local conditions

## Via sentient controls that allow turbines to run harder and smarter (load & power modes)

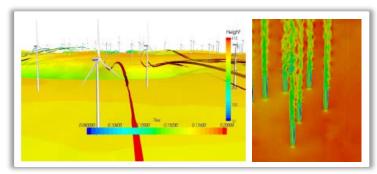
- PowerPlusTM commercial launch: up to 5 per cent increase of Annual Energy Production (AEP) when combined with aero upgrades.
- Load Dependent Operation: allows siting in harsher climates or conditions.



#### Via site-specific towers to reduce cost

#### Via smarter wind power plant operations

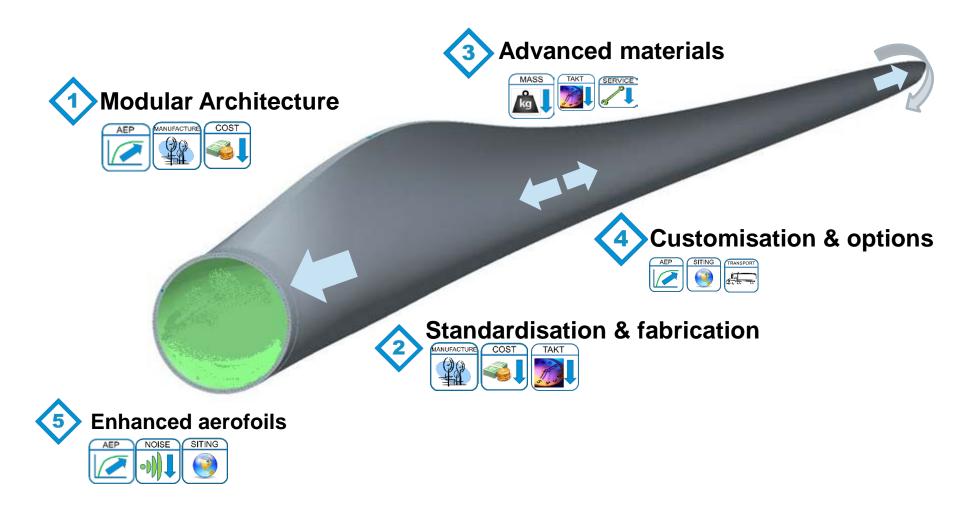
Increased energy and reliability/life.



Hi-fidelity simulations to characterize farm-level phenomena.

#### **Vestas blades – architecture and focus**

High performance, manufacturability, supply chain efficiency and lowered costs



## Challenges and focus areas across the value chain

High performance, manufacturability, supply chain efficiency and lowered costs

# Future power plants and services

 Wind turbines which are simple, auto-configured on set-up, selfmonitoring and self-adapting to site and specific conditions.



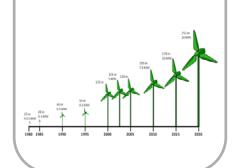
# New capabilities for construction

Minimise the need for cranes.



# Innovation to ensure future transportability

 Modularity to enable more costeffective transportation.



# New capabilities for maintenance

 Continued focus on creative ways to reduce OPEX.



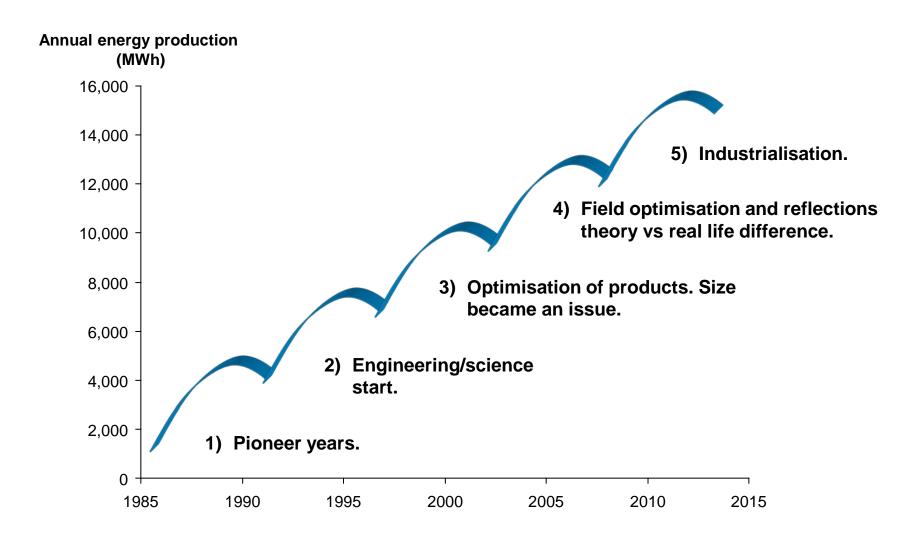
# **Agenda**



- 1. Looking back: What have we done since 2012?
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  - Innovation
  - Industrialisation and modularisation

### 25 times more Annual Energy Production now than in 1985

From pioneer years to industrialisation



### What is the objective of industrialisation?

Flexibility, speed and cost

To offer more options and flexibility to the market and supply chains faster and with significantly reduced internal complexity and cost.

### What is industrialisation?

Moving from "one-size-fits all" to customer configurability based on standardised building blocks

#### **Modularisation**

All products share the same architecture and the same interfaces, enabling configurability through a selection of modules suiting the actual customer needs.

#### **Standardisation**

Scalable modules and components are reused across product families to focus the engineering effort, ensure economy of scale, and ease operations.

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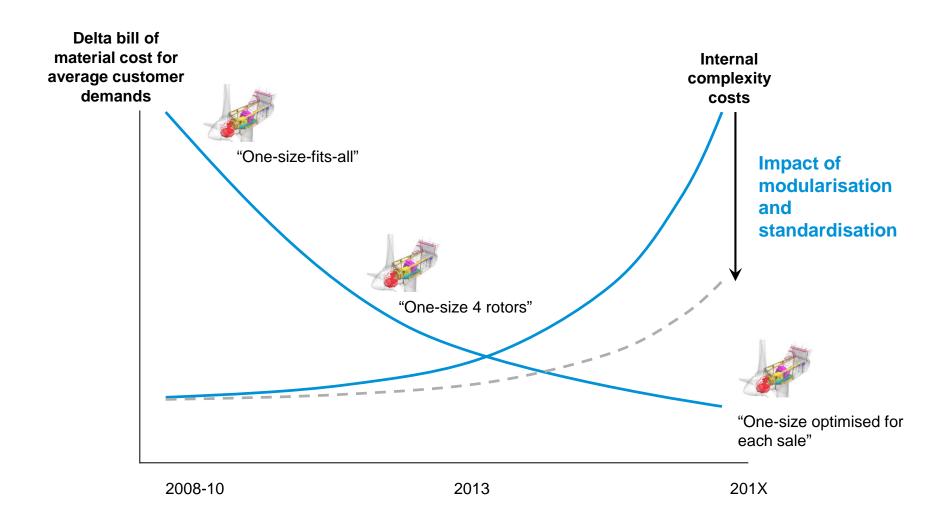
### Industrialisation addresses key market challenges

Enabling flexibility in design to enable right market requirements at right time and right cost

- Global varying and diverse requirements: Being the most global player, Vestas is exposed to the largest demand for variety in performance, compliance, service and supply chain requirements.
- 2. Market uncertainty: It is challenging to predict the markets' needs for turbine configurations, but we can foresee how variation will impact the design.
- **3.** Increasing local content: Demand for local content requires design to accommodate cost effectively.
- **4.** Supply chain flexibility through asset-light strategy: Vestas has historically been highly vertically integrated. Going forward, we will to a greater extent leverage and source from suppliers.

# More value propositions at lower complexity

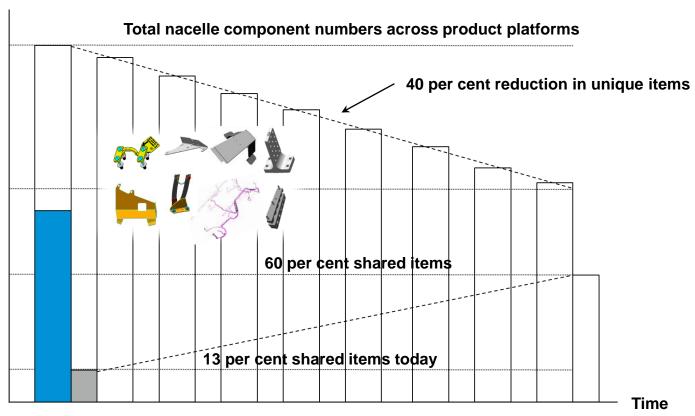
#### Illustration



## Part simplification and re-use across platforms

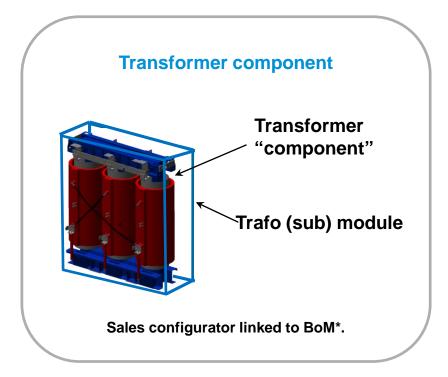
#### Illustration

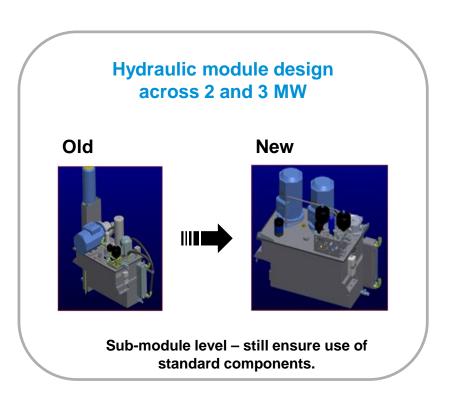
#### **Unique items**



### Modularity on sub-module level in practice

### Examples





Classification: Restricted

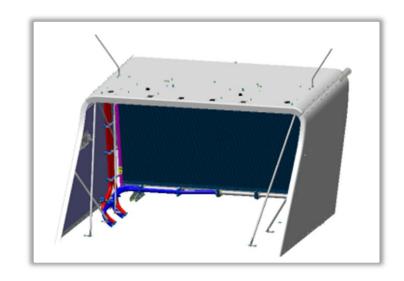
<sup>\*</sup> Bill of Material.

# Sourcing of design and assembly at sub-system level

Close collaboration with suppliers

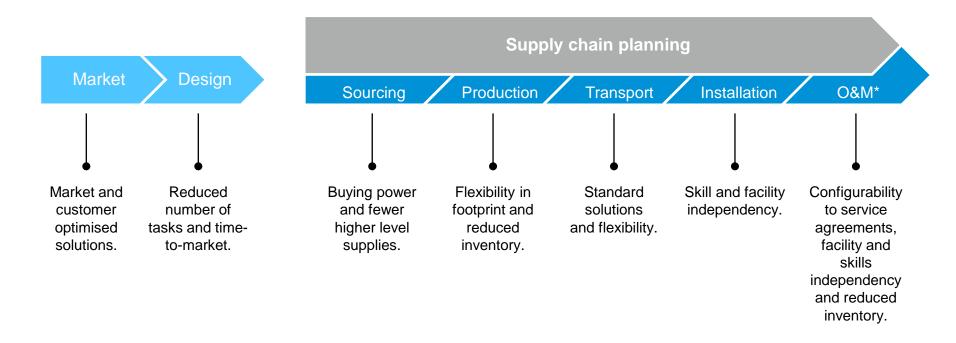
#### **Benefits for Vestas**

- Part simplification 150 to 1.
- Supplier simplification from 30 to 1.
- Transferred value chain responsibility.
- Reduced number of internal transactions.
- More resources for core technology projects.



## Full value chain and life cycle impact

Cost model used for holistic cost and trade-off analyses

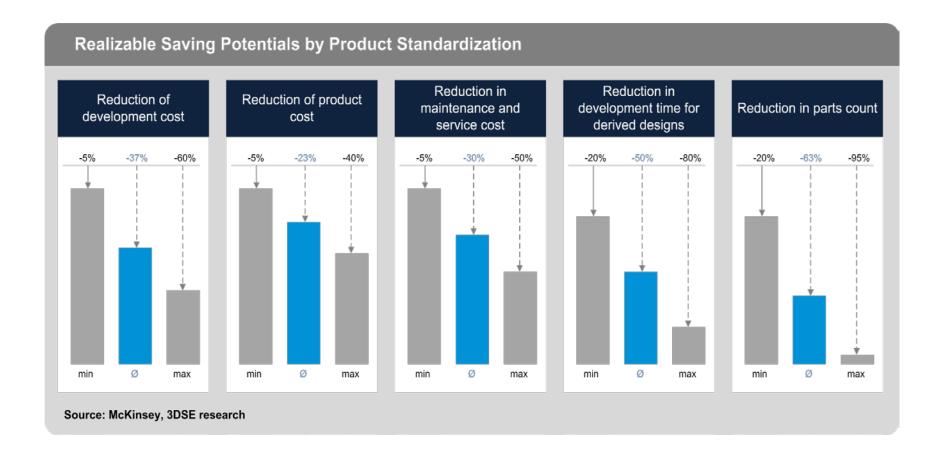


Classification: Restricted

<sup>\*</sup> Operations & maintenance.

### Externals' view on potential savings by standardisation

Significant reduction in bill of material, fixed costs and time-to-market

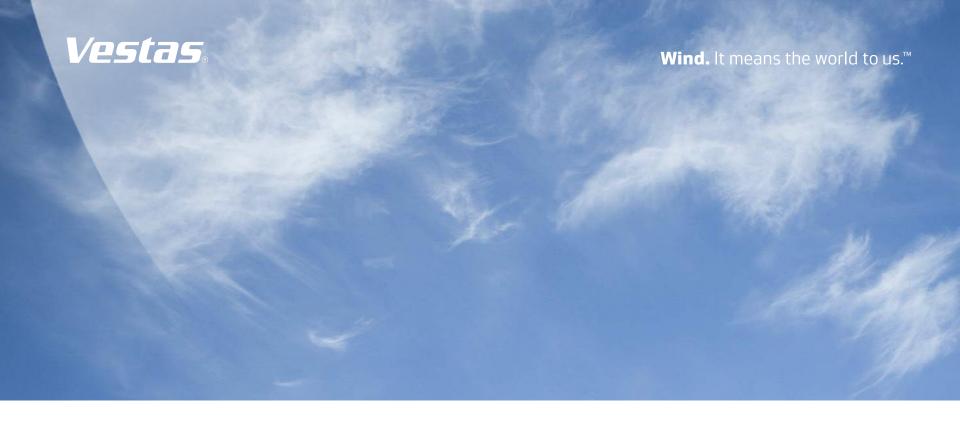


Classification: Restricted

### **Summary**

#### What have we learned

- Innovation, building on creative heritage and commercially focused, highly leveraged and networked and focused on developing a sustainable culture that delivers game changing profitable ideas.
- 2 Innovation focused across the entire value chain.
- Industrialisation will offer more options and flexibility to the market and supply chain faster and with significantly reduced internal complexity and cost.
- Industrialisation focused on modularisation and standardisation.
- Benefits of industrialising platform are significant across the value chain.



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Q&A

# **Agenda for Vestas Capital Markets Day 2014**

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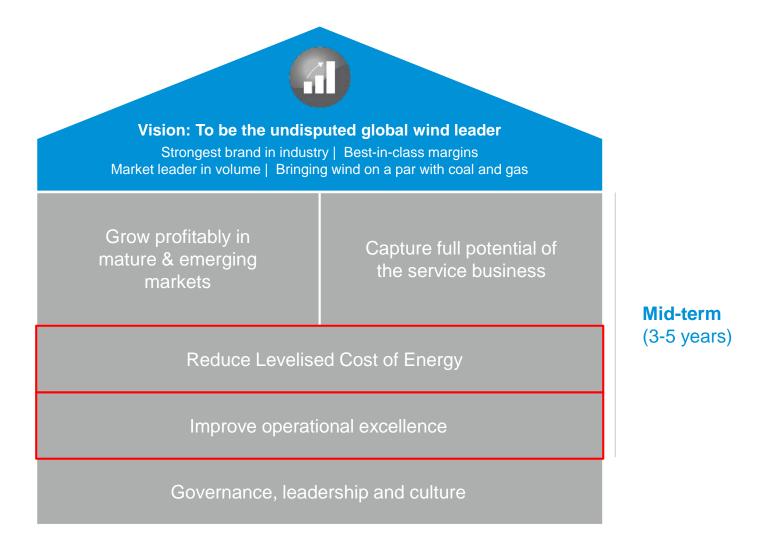
# Improve operational excellence

Jean-Marc Lechêne, Executive VP & COO Albie Van Buel, GSVP, Global Sourcing

Aarhus, 12 June 2014

### **Profitable Growth for Vestas**

Optimised manufacturing footprint, closer collaboration with suppliers and working capital management to support Vestas' mid-term ambitions



# Agenda



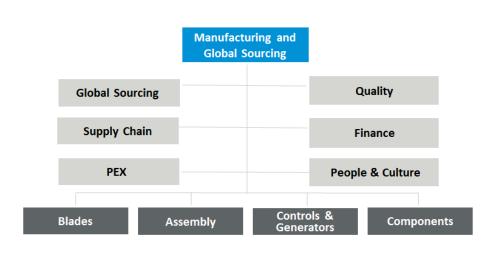
- 1. Lower costs while more flexible and asset-light
- 2. Global Sourcing

### A leaner and more streamlined organisation

Merging the four production business units into one and reducing employees by +40 per cent

### **New organisational setup**

From 4 to 1

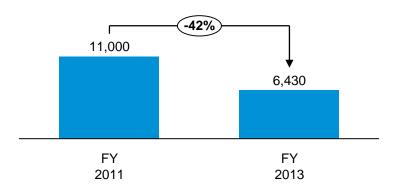


### **Employee reduction**

42 per cent

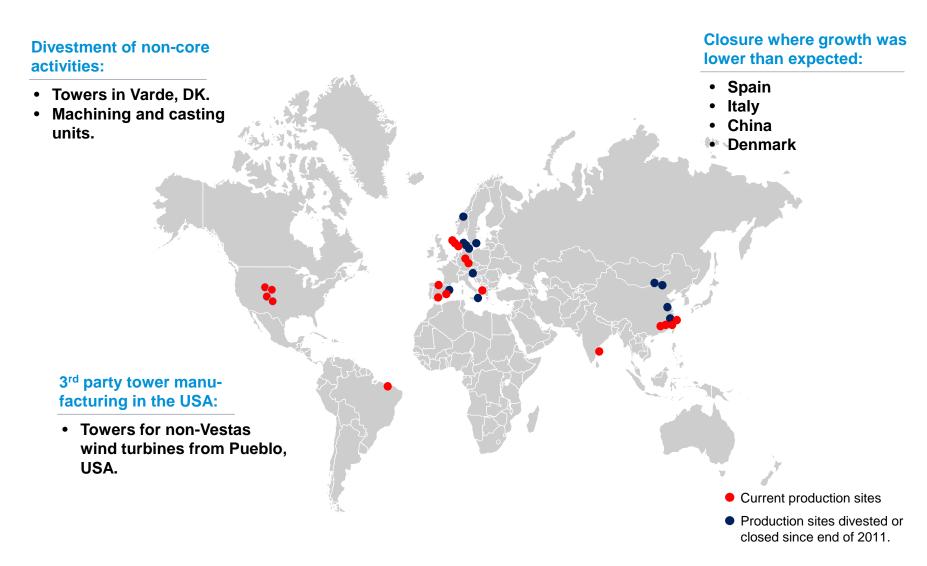
#### **Employees in Manufacturing & Global Sourcing**

Number of employees end of year



# Focus on core activities and rightsizing capacity

From 31 to 19 factories resulting in a cost-effective, flexible and global manufacturing footprint



## Added flexibility and scalability

Working conditions and manufacturing set-up initiatives to add flexibility and scalability in order for Vestas to achieve cost leadership within the industry

- Flex working conditions at Leon factory, Spain.
- Shifts between blades factories in the USA.
- Manufacturing set-up to produce multiple wind turbine types at Leon factory, Spain.
- Adjusting manufacturing workforce according to demand (e.g. hiring in Ringkoebing, Denmark, and Brighton, USA, during H1).

## Manufacturing's main priorities for 2014

Focus on ramping up production to meet demand and phase in new technology

#### **Nacelles:**

- Phase in and ramp up 3.3 MW nacelles for V105, V112, V117 and V126.
- Ramp up 2 MW production to meet US demand.
- Preparation of factory in Brazil.

#### **Blades:**

- Ramp up production to meet demand.
- Phase in new blades in the manufacturing process.

#### **Controls & Generators:**

- Ramp up production to meet demand.
- Establish supply chain as required in emerging markets, e.g. local content.
- Implementation of standardisation/industrialisation processes.

#### **Towers:**

- Update surface treatment facility to add capacity to meet demand in the USA.
- Implementation of five new tower designs in production, including the V110 and V117.

### But we must not forget safety and quality

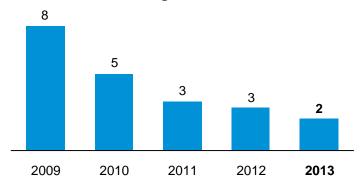
We remained focused during the turnaround

### Vestas' safety improved substantially

- Further improvements must be done.
- LTI target of 0.5 in 2015 (some segments are already close).
- Major stage in electrical safety journey completed.

#### Incidence of lost time injuries (LTI)

Per one million working hours

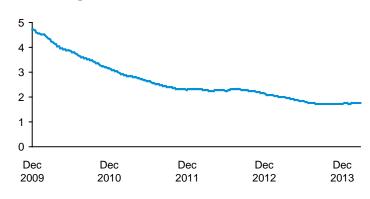


# Vestas' Cost of Poor Quality (COPQ) continues to decline

- Warranty and LPF continue to decline.
- Internal COPQ about 50 per cent of 2012 level.
- Improvements in COPQ via collaboration between Sourcing, Manufacturing and Technology & Service Solutions.

#### **Lost Production Factor (LPF)**

Percentage



# **Summary**

We are ramping up in a prudent manner

Safety, Delivery on time and at quality and NWC control...

... are key KPIs for Manufacturing & Global Souring.

... but so are product costs, which is why we have launched a program called Accelerated Earnings.

# **Agenda**



1. Lower costs while more flexible and asset light

### 2. Global Sourcing

- Global Sourcing today
- Objectives
- Priorities

### Introducing your speaker

#### Albie Van Buel

- Joined Vestas in 2012 as Group Senior Vice President for Global sourcing.
- 20+ years background in the automotive industry holding various positions in supply management for Mitsubishi, Ford Motor Company and Volvo (SVP Purchasing, Sweden and member of the Board of Volvo Car Corporation until 2008).
- From 2008 to 2012 worked for Royal Philips responsible for procurement in the sector Lighting and member of Philips Lighting management team.
- Master degree in Business and Strategic Management, as well as a degree in business economics.



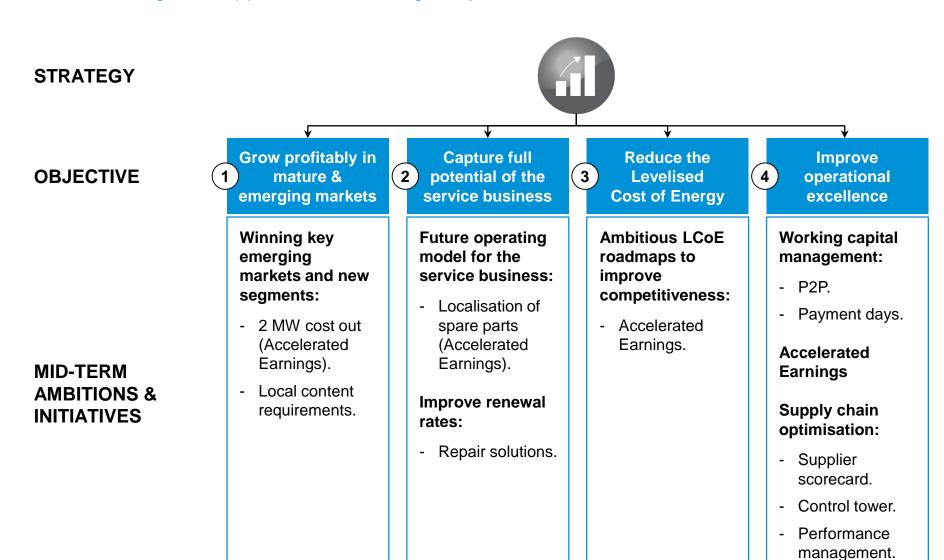
# **Agenda**



- 1. Lower costs while more flexible and asset light
- 2. Global Sourcing
  - Global Sourcing today
  - Objectives
  - Priorities

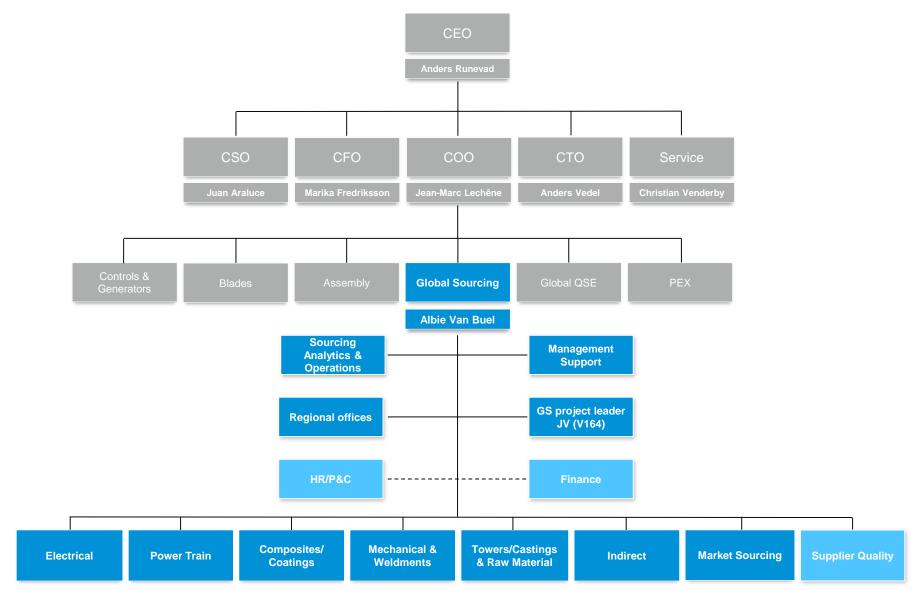
### **Profitable Growth for Vestas**

Global Sourcing can support all four strategic objectives of Profitable Growth for Vestas



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# **Global Sourcing Organisation**



### **Global Sourcing scope**

All spend with external suppliers is in scope

#### **Direct spend**

 All item parts of the wind turbine (bill of material spend).



#### **Market sourcing**

 All materials and services that are used in the sales business units for installation and servicing of wind turbines (transport, cranes, spare parts).



#### **Indirect spend**

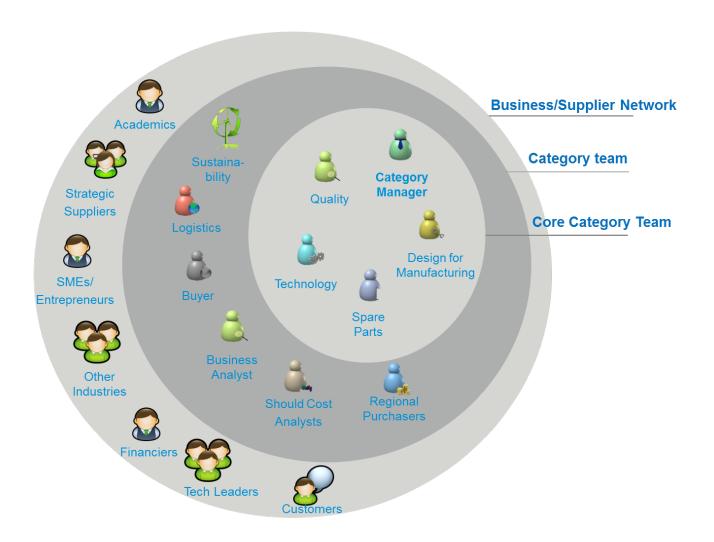
 Indirect products and services (car hire, office consumables, travel, MRO\*)



<sup>\*</sup> Maintenance, Repairs and Operations.

## **Category team development**

The importance of cross-functional networks



### Challenges

Global Sourcing faces challenges related to customers, markets and products

### Our challenges consist of:

### Customer expectations are changing and more demanding

- Reliability of performance and output.
- Flexibility and shorter lead times.
- Cost competitiveness.

### Markets are changing

- New (non-traditional) markets.
- Seasonality in demand. Stop and go of requests.
- Globalisation and local content requirements.

### **Product development**

- Shorter time to market.
- Standardisation and modularisation.
- Product variety is increasing.

# **Agenda**



- 1. Lower costs while more flexible and asset light
- 2. Global Sourcing
  - Global Sourcing today
  - Objectives
  - Priorities

### How are we measuring our business

Key ingredients "6 Cs"



### **Customer (satisfaction)**

- Acquire substantial innovation from suppliers.
- 100% reliable performances.
- Service provider.



### **Commitment (employees)**

- Employee engagement.
- Build and retain talent.
- Resource to win in Global Sourcing.



### Cash (lean)

- Best-in-class supplier payment terms.
- (In)direct & market sourcing savings.



### Complexity

- · Consolidation.
- Contingency plans availability.
- Flexibility.



### **Cost (competitive)**

- Spend consolidation.
- Cost of purchasing.
- "Should-cost" modelling.
- Zero waste.

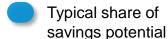


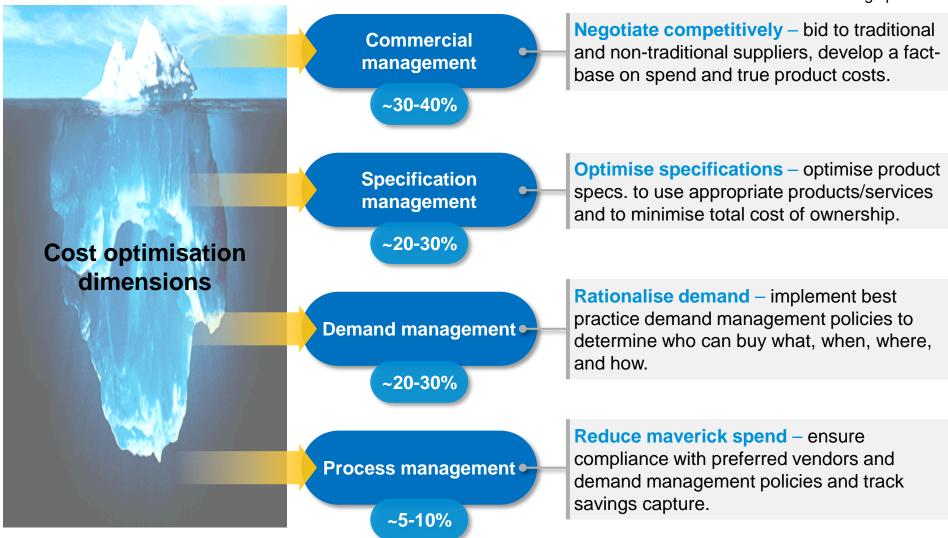
### Compliance

- Code of conduct.
- Safety # 1.
- Sustainability.
- Quality management.

## Global teams with focus on total cost reductions

Generic model representing typical contribution to total obtainable savings

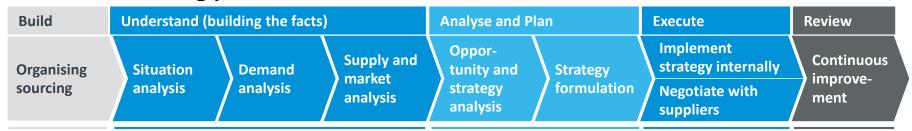




## Implement professional global standards

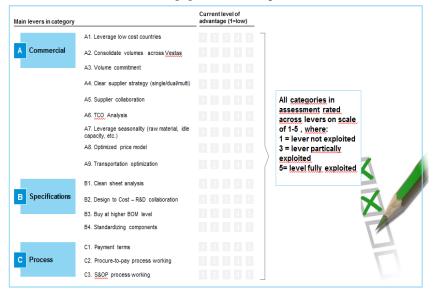
#### In control

#### **Vestas sourcing process**

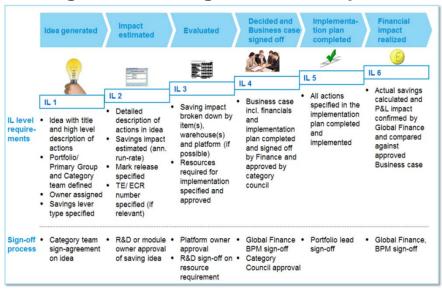


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#### Structured opportunity identification



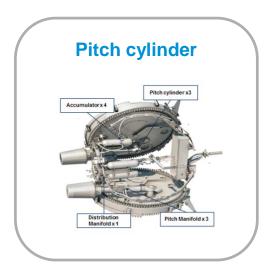
#### Tight monitoring and follow-up



# **Examples**

## **Direct sourcing**

#### **Examples**







## **Market sourcing**

Examples

**Global vessel tender** 



Freight: standard



# Site infrastructure / Balance of Plant



## **Indirect spend**

#### Examples







## **Agenda**



1. Lower costs while more flexible and asset light

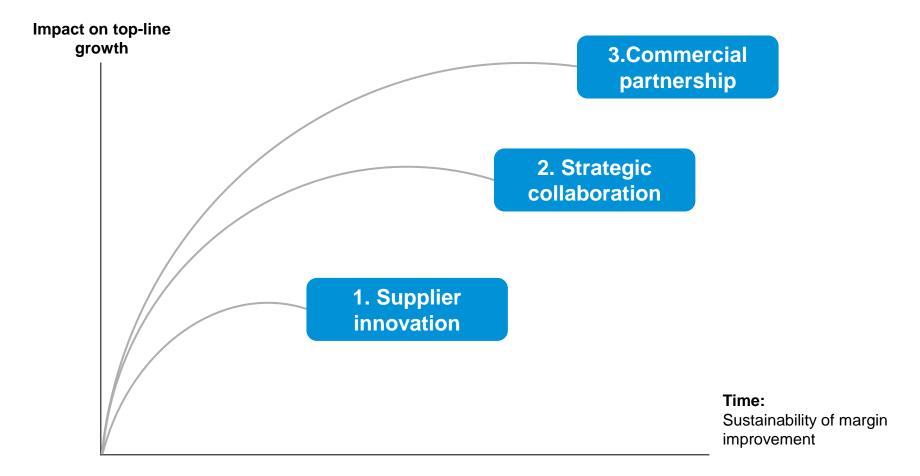
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### 2. Global Sourcing

- **Global Sourcing today**
- **Objectives**
- **Priorities**

## How Global Sourcing can provide additional value creation?

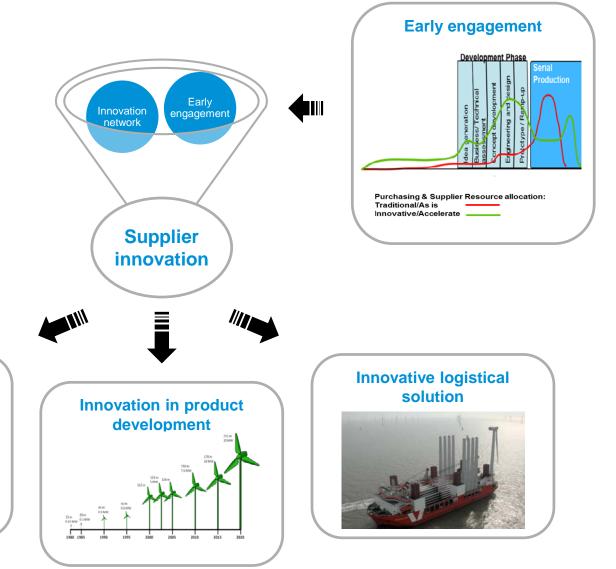
Going from traditional cost reductions to top-line value creation



The above development can only happen if the traditional view of procurement – only contributing to cost reduction – is replaced by the organisational recognition that procurement can in fact contribute to top-line growth.

## Supplier innovation through early engagement

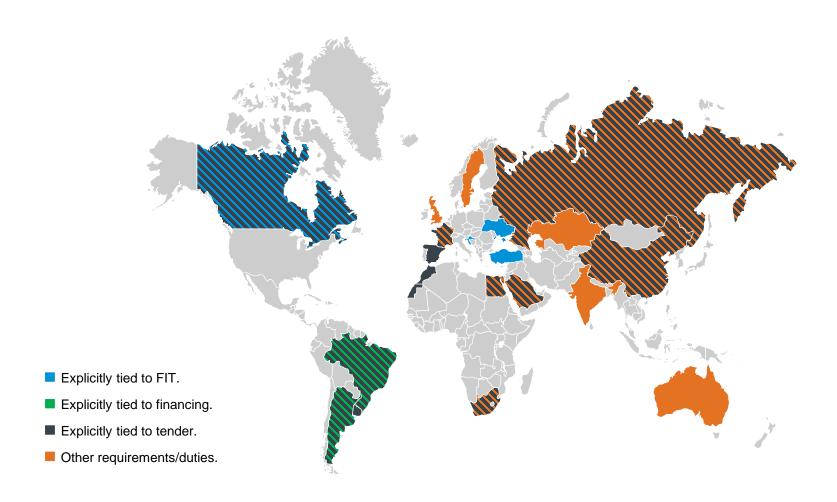
Top-line growth as the result of a well-functioning process



**De-icing** 

## Strategic collaboration via early engagement

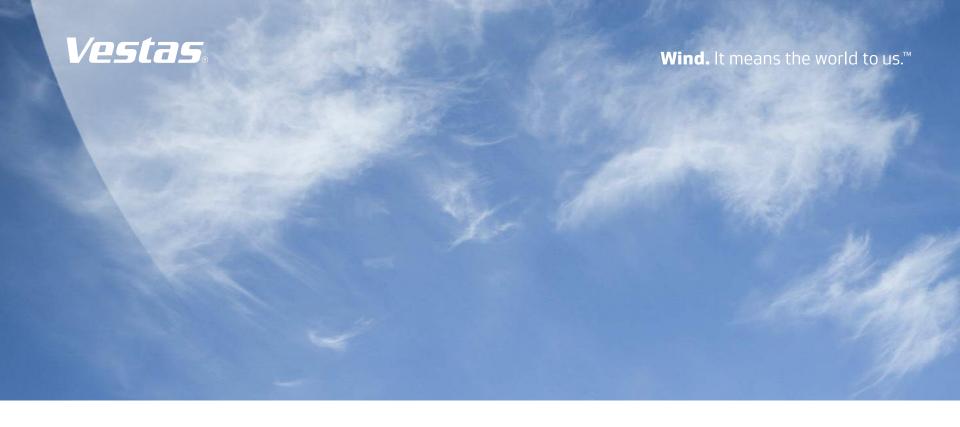
Regulatory frameworks call for a strategic collaboration with suppliers in order to meet customer requirements



## Commercial partnerships delivering top-line growth

Opportunities identified via strong relationships and business acumen





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## We have a gift for you...

... or for your children



159 Closing remarks – CMD 2014 Classification: Restricted Wind. It means the world to us.™