

The Vestas logo is positioned in the upper left corner of the image. It consists of the word "Vestas" in a bold, blue, sans-serif font, with a registered trademark symbol (®) to its upper right.

**Wind.** It means the world to us.™



## Delivering structural shell V126 at half the capex

by Rob Sauven, VP, Wind Capture Systems

**Wind.** It means the world to us.™

CAPEX

**FLEXIBILITY**

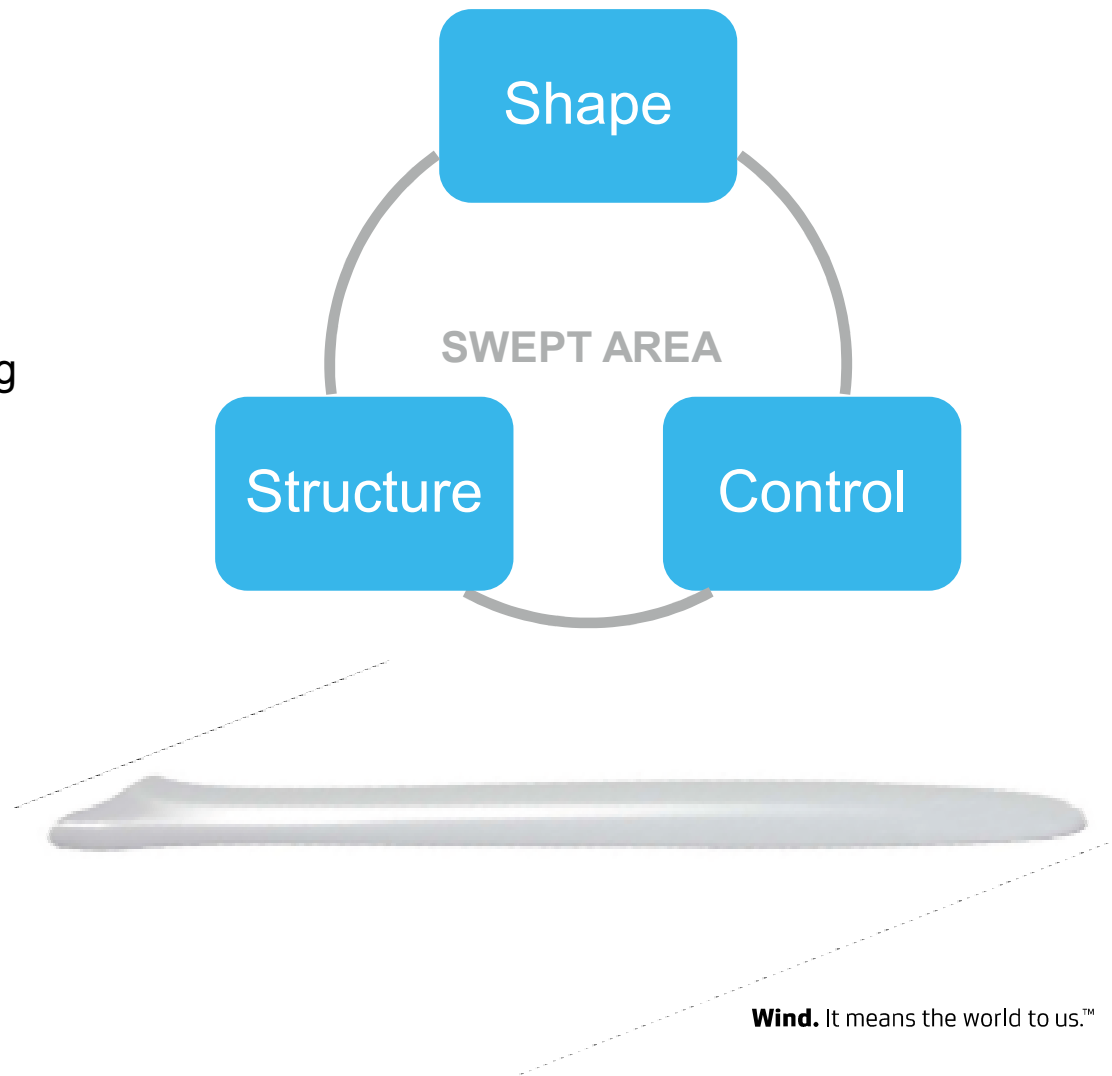
Speed to market

# Maximise energy for minimum cost

## Shape, Control and Structure

The optimum of these often opposing aspects delivers maximum energy while minimising cost.

The V112 rotor is being extended to V126.




# Blades structures compared

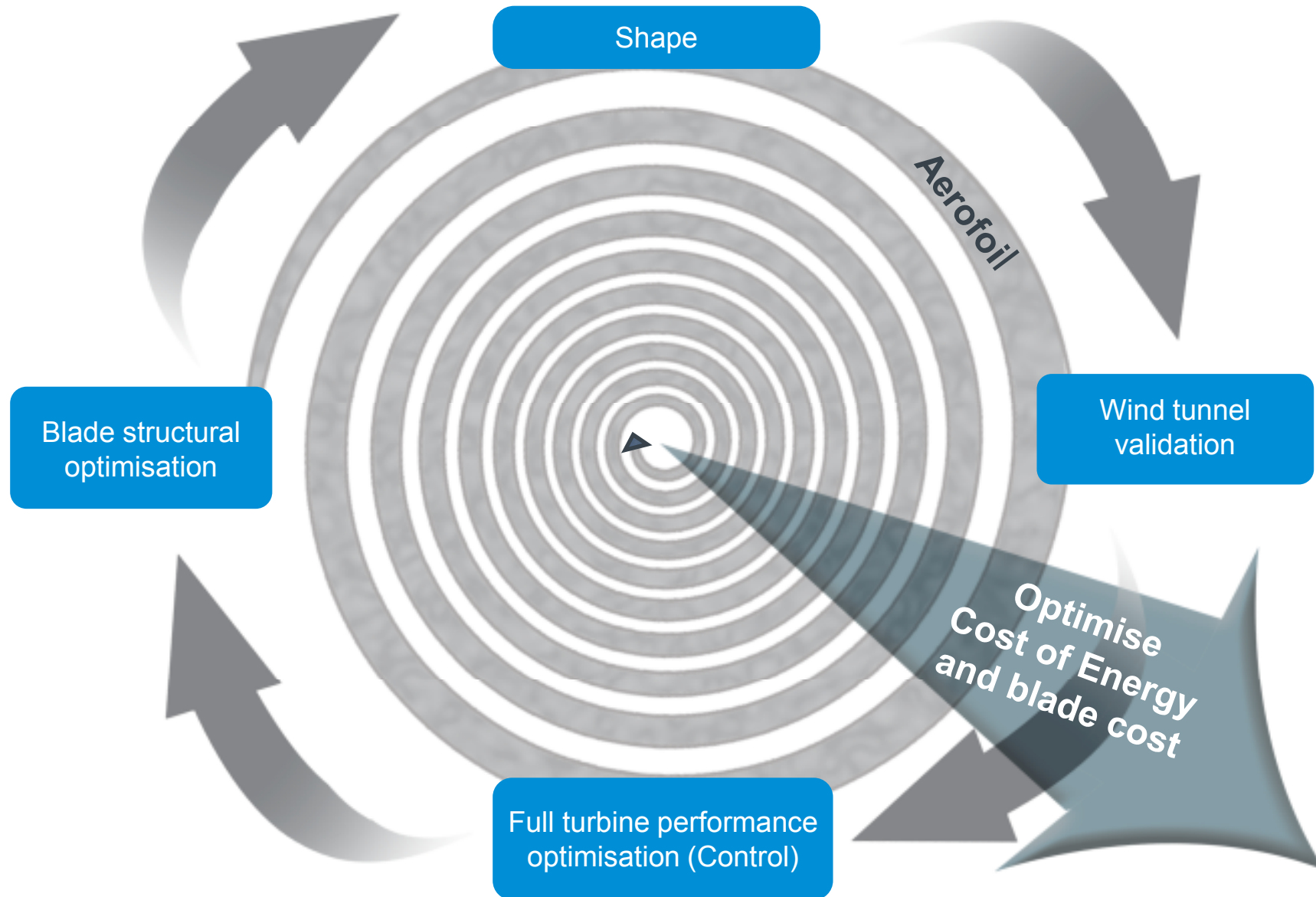
Carbon spar 112	Structural shell 126
High volume.	High flexibility.
Higher start-up cost.	Lower start-up cost.
Massive track record on V90, V100 and V112.	Significant track record with structural shells.
Carbon technology.	Improved carbon technology.
Light weight slim aerofoils.	Even lighter and greater freedom. 10 per cent lower weight moment and 20 per cent lighter.

# Key changes in technology

Box-spar & shell → Structural Shell

V112 Box-spar & shell		Vestas' structural shell
Optimised for four to six line factories. 24/7 operation. Significant automation.	<b>Factory capex</b>	Optimised for two line production. Rapid start-up. Automation is optional.
Infrastructure optimised around one product with a long life.	<b>Flexibility</b>	Product capex minimised. Infrastructure non-product specific. Rapid product changes possible.
Optimised for vertical integration.	<b>Build to print</b>	The technology designed for 'build to print' as well as own manufacture.
V112 comes from the same stable as the V100 and the V90.	<b>Pedigree</b>	V126 is building on the best of the V112 combined with our structural shell experience.
As the blades grow in length, capex needs to grow with the cube of the length.	<b>Size</b>	Structural shell breaks the capex cost curve and is suitable for the largest blades we can vision.

# Achieving performance at lowest cost



# Validating product integrity





Blade manufacture is beginning

First blade on test H1 2013



Rotor test rig being assembled



V164-8.0 MW mould



# Improving our products in the field

Add-on vortex generators have added up to 2 per cent annual energy production



# De-icing trials continue to open this valuable market

Ice phobic coatings are delivered to one project.

De-icing technology being validated on a production prototype this winter.



CAPEX

**FLEXIBILITY**

Speed to market

# Q&A

# Disclaimer and cautionary statement

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.

Forward-looking statements include, among other things, statements concerning Vestas' potential exposure to market risks and statements expressing management's expectations, beliefs, estimates, forecasts, projections and assumptions. There are a number of factors that could affect Vestas' future operations and could cause Vestas' results to differ materially from those expressed in the forward-looking statements included in this presentation, including (without limitation): (a) changes in demand for Vestas' products; (b) currency and interest rate fluctuations; (c) loss of market share and industry competition; (d) environmental and physical risks; (e) legislative, fiscal and regulatory developments, including changes in tax or accounting policies; (f) economic and financial market conditions in various countries and regions; (g) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, and delays or advancements in the approval of projects; (h) ability to enforce patents; (i) product development risks; (j) cost of commodities; (k) customer credit risks; (l) supply of components from suppliers and vendors; and (m) customer readiness and ability to accept delivery and installation of products and transfer of risk.

All forward-looking statements contained in this presentation are expressly qualified by the cautionary statements contained or referenced to in this statement. Undue reliance should not be placed on forward-looking statements. Additional factors that may affect future results are contained in Vestas' annual report for the year ended 31 December 2011 (available at [vestas.com/investor](http://vestas.com/investor)) and these factors also should be considered. Each forward-looking statement speaks only as of the date of this presentation. Vestas does not undertake any obligation to publicly update or revise any forward-looking statement as a result of new information or future events others than required by Danish law. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation.