Vestas

Wind. It means the world to us.™

Vietnam Wind Power

Morten Dyrholm
Senior Vice President,
Vestas Wind Systems

About Vestas in Vietnam

- 60 MW installed
- 75 MW under construction
- 14 Employees
- 60 MW under Service
- EUR 69,000,000 annual spend

Wind in Vietnam: Setting the scene

Advances in renewable energy are changing the power landscape

Climate change

- *Vietnam signed the 2015 Paris climate agreement. To fulfil this commitment, Vietnam is accelerating the shift away from coal and towards renewable energy*

Electricity demand

- *Vietnam's economy will increase the need for energy, and electricity demand is expected to grow at an average of 10% per year till 2030.*

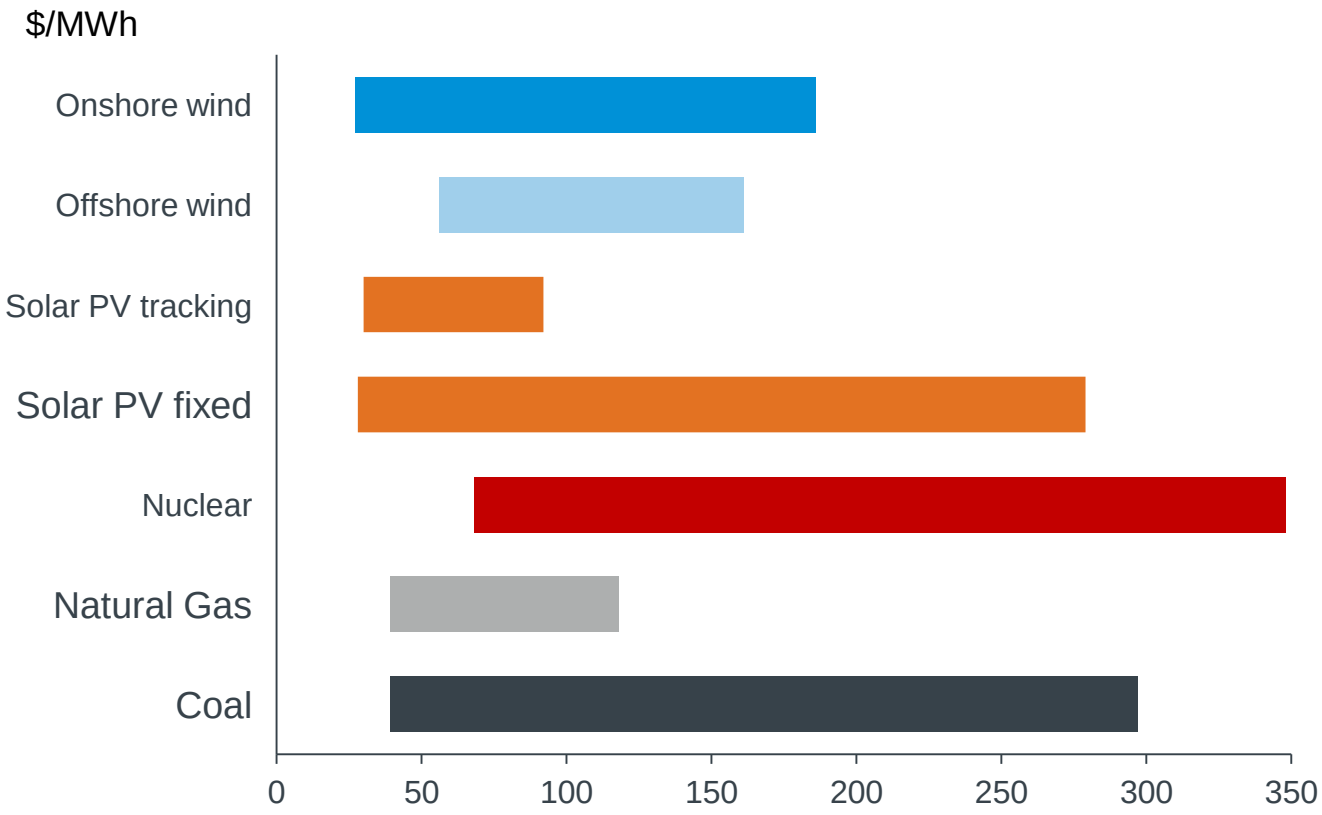
Government targets

- *National Power Development Plan targets 800 MW of wind by 2020 and 6 GW by 2030, corresponding to only 0.8% of wind in the energy mix by 2020 and 2.1% in 2030.*

Competitive renewables

- *New wind and solar may become cheaper than coal during the next decade.*

Global LCOE ranges – H2 2018



Source: Bloomberg 2019

Wind in Vietnam: The opportunities

Wind resources	• *With a coastline of more than 3,000 km and located in the monsoonal climate zone, Vietnam has one of the best wind potentials in Southeast Asia region.*
Projects being built	• *Vietnam's wind market started slowly but is likely to begin scaling in coming years.*
Positive Forecasts	• *BNEF estimates 1.2 GW onshore wind likely to come online from 2019-2023 in Vietnam.*

Source: BNEF 2019, Wood Mackenzie 2019

Wind in Vietnam: The challenges

	Grid	Permitting	Supply chain	Bankability	Financing
Challenge	• *Grid challenges, including grid management of variable energy sources like wind*	• *Complex permitting process involving state and regional authorities with variable duration of approval process*	• *Vietnam needs to build a local supply chain to cater the needs of the growing sector*	• *Current PPAs prevent international banks to provide non-recourse project financing*	• *Local financing remain limited though growing as the policy risks are gradually lowered*
Solution example	• *Grid development should follow the targets of the National Power Development Plan*	• *National framework for provinces supported by targets; aim for faster approvals*	• *More volume and larger project scope will help to expand local supply chains for more investment and employment*	• *Review PPAs to eliminate barriers; align PPA structure to international standards*	• *Encouraging innovative financing structures to attract international finance*

Source: GWEC 2019

Lessons learned from over 80 markets worldwide

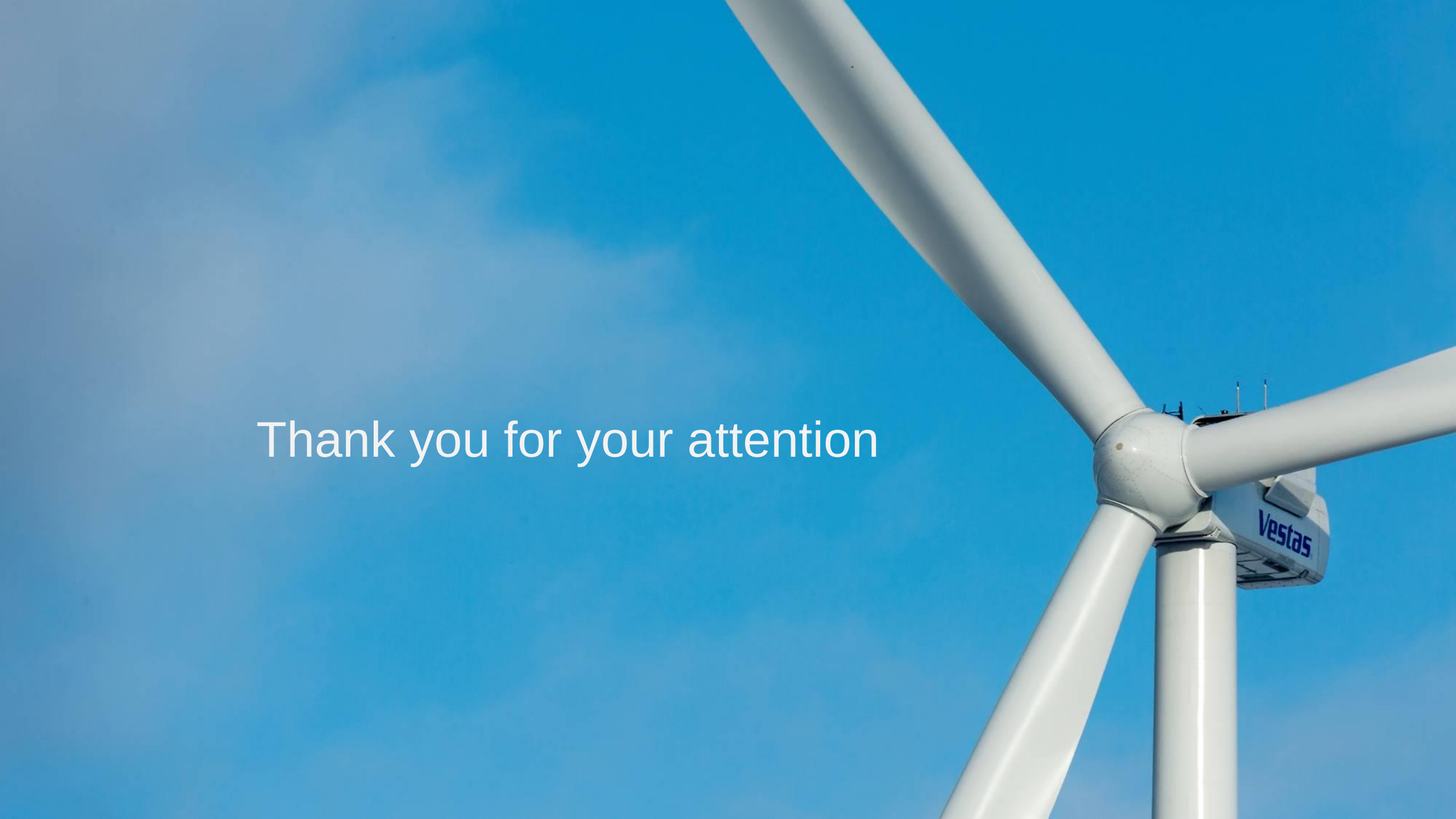
Onshore wind

- Onshore wind is today among the most cost-efficient power generating technologies, mainly due to declining wind turbine prices, O&M optimisation and increased power output.
- Reliable national targets and local planning frameworks have encouraged growth in onshore wind in many emerging markets.
- Many solutions available to address the challenges of growing the Vietnamese onshore wind sector and meeting the country's renewable energy targets

Offshore wind

- Offshore wind is not onshore wind. It requires a larger, stronger and different infrastructure in order for offshore to realise its full potential.
- Wind maps, seabed conditions, infrastructure, supply chain, ports, ships and manufacturing centres to support construction and maintenance activities are key enablers for the industry.
- In order to accelerate the build-out, start at scale and prioritise long term market visibility and early planning to speed up the pace of cost reductions.

Source: Vestas 2019, MVOW 2019



Thank you for your attention