



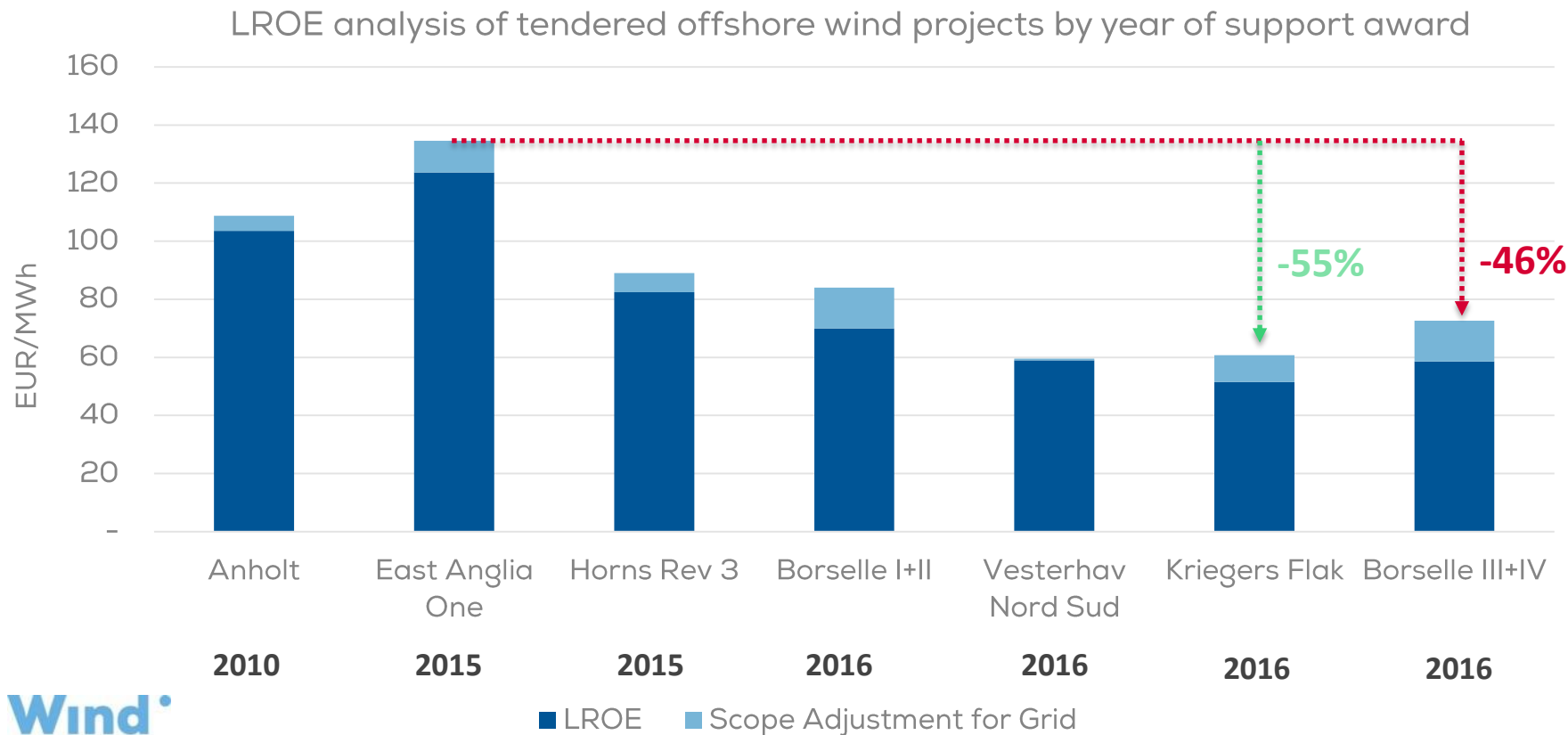
North Seas declaration: Support Frameworks and Finance

WindEurope Working Group: Offshore Wind

Sune Strøm, DONG Energy

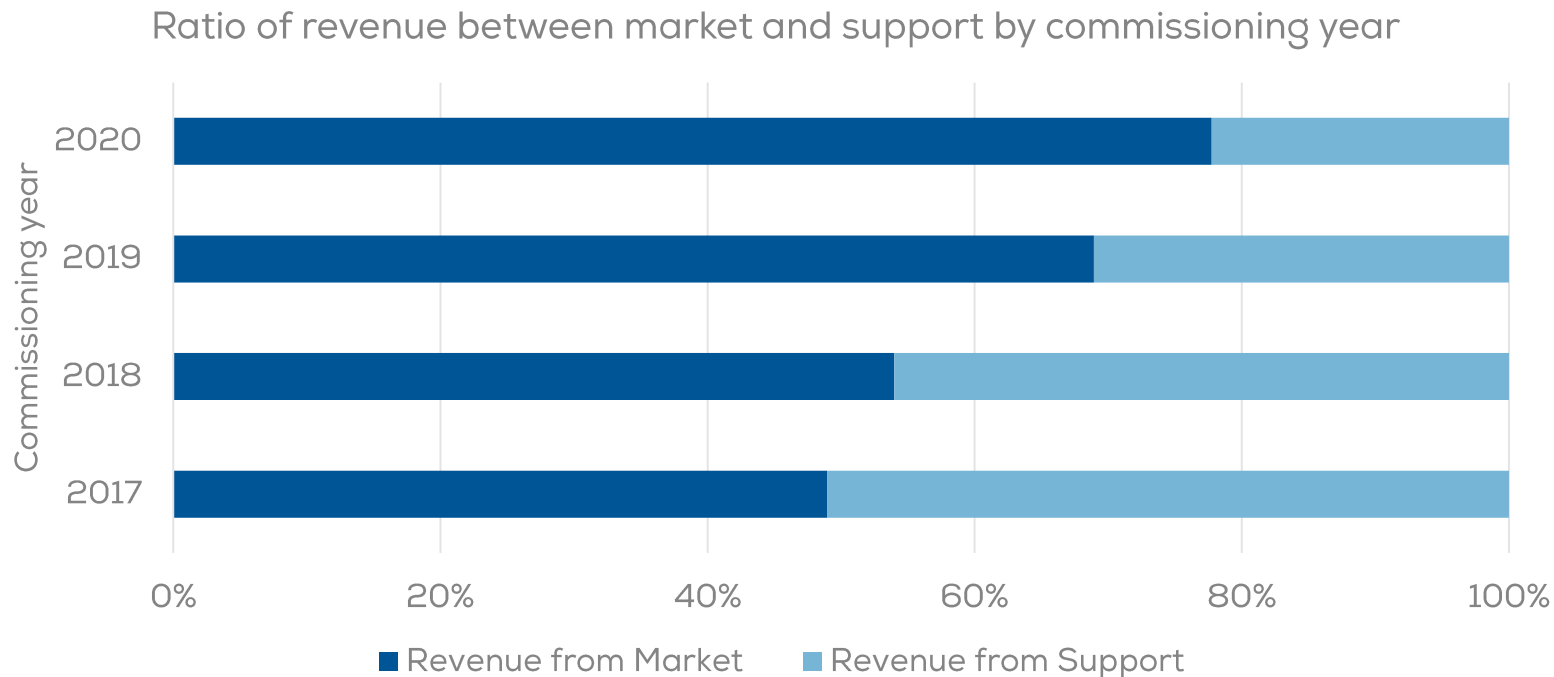
Claudia Grotz, Siemens Wind Power

Prices are cut in half



Revenue - three quarters are financed by the market

Projects are relying less and less on support – analysis based on government wholesale price projections



Drivers in cost reduction

- **Economy of Scale**
 - Large projects (800+ MW)
 - Improved and more efficient installation & O&M
 - Improved procurement
- **Increase in energy production**
 - Larger turbine sizes
 - Latest technology and continuous innovation
- **Political commitment and planning**
 - 2020 targets under NREAPs providing visibility
 - Investments secured by market visibility
 - A transparent one-stop shop



**Market volume
and lower risk
lead to cost
reductions**

Scale is key to lower cost and sustain innovation throughout the supply chain

- A market size of at least **4 GW/a from 2020 onwards**
→ ~one turbine per day ¹⁾
- A market size of at least **7 GW/a**
→ ~accommodates sufficiently large volume for future development

Supply industry



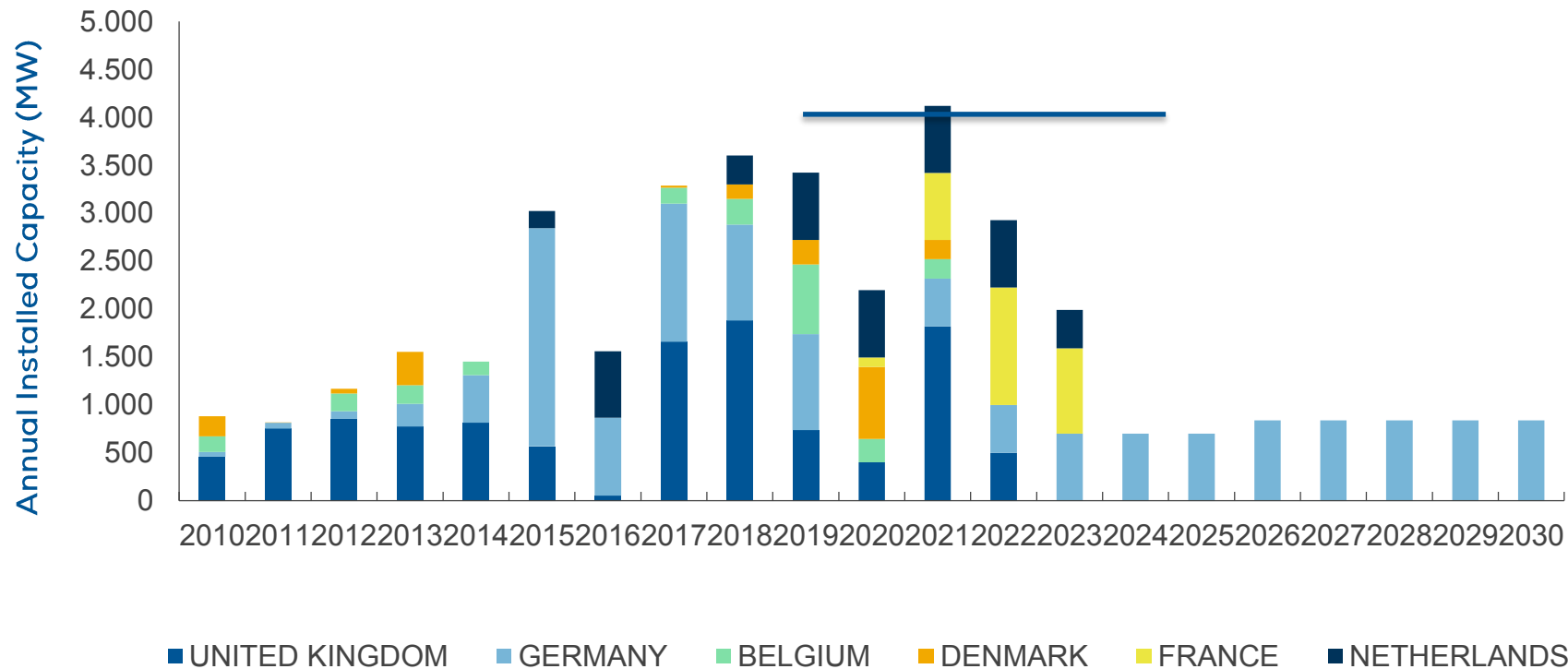
To ensure competition, the market needs several manufacturers and a larger number of suppliers

At least 4 GW/a in Europe is minimum for a sustainable industry from 2020 onwards
In the future at least 7 GW/a will be necessary for EU to remain the global leader of the offshore wind industry

¹⁾ Assumed a calculatory average turbine size of 10 MW in the period from 2020 onwards

Market outlook to 2030

Projection based on real project data and firm government commitments



Stepwise alignment

Harvesting the cost benefits of cooperative schemes will require high level of alignment – otherwise regulation is more likely to decide the winner than site conditions

- Regulation of environmental issues, standards and certification
- Support level, length and payment system
- Rules of taxation and depreciation
- The strength and interconnection of the grid
- Market design

The differences is a challenge and we need a national based market along the road when we solve the challenges of alignment



Support set-up reflections

Responsibility split between authorities and developers

- Full competitive exposure vs de-risking through more authority responsibility (site selection, site investigation and transmission assets)

High likelihood of needed approvals (EIA, consents etc.)

- Authorities ensure suitable gross offshore wind energy areas

One-stop shop

- Efficient if close authority cooperation is ensured



Support design reflections

Length of support period

- Reduces cost of capital due to long term revenue stability vs shorter support period to be financed and more years with full exposure to market prices

Variable premium (CFD) or fixed premium

- Variable premium with a strike price reduces cost of capital due to revenue stability throughout the support period vs improved budget predictability for the societies

Full Load Hours or fixed number of years

- Fixed number of years provides a secure timeframe for support which reduces cost of capital
- Full load hour based support increases operational flexibility for the wind farm owner as the support depends on the delivered production

