The world’s first large scale floating wind turbine

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New Energy

StatoilHydro

StatoilHydro

This is StatoilHydro

- Established on 1 October 2007 following the merger between Statoil and Hydro's oil and energy business
- Equity production of 1.9 million barrels of oil equivalent per day (boe/d) and 6.3 billion boe/d in proven reserves
- The world's largest deepwater operator and the world's third largest net seller of crude oil
- Approximately 30,000 employees in 40 countries

New Energy activities

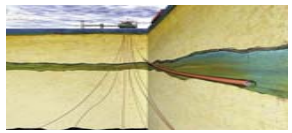
Biofuel

Hydrogen

Offshore renewables

Commercialisation of technology

Wind



CO_2 Capture and Storage (CCS)

Kyoto-business

StatoilHydro

StatoilHydro develops the world's first full scale floating wind turbine

- StatoilHydro invests approximately 400 MNOK
- Start up in 2009
- Chosen vendors:
  - Siemens
  - Technip
  - Nexans
  - Haugaland Power
- Enova is supporting the pilot with a grant of 59 MNOK

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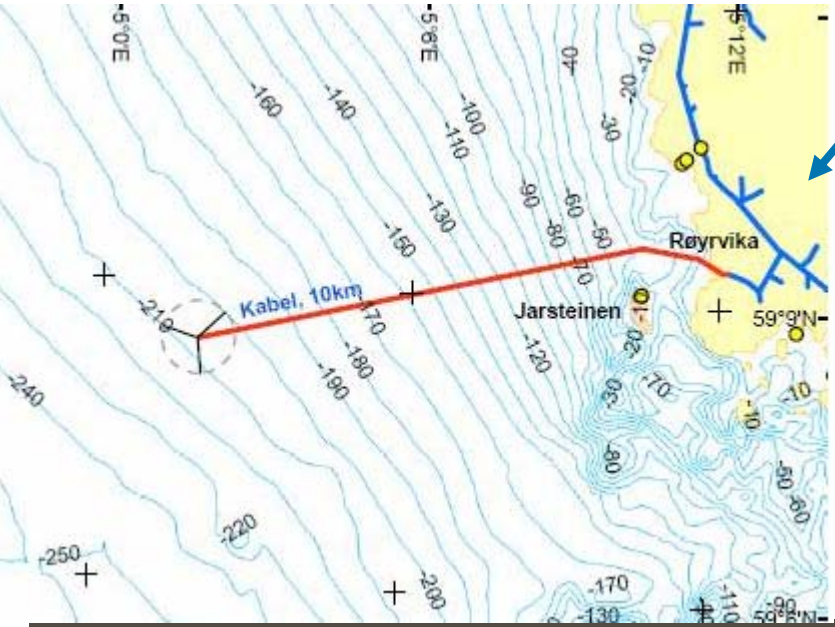
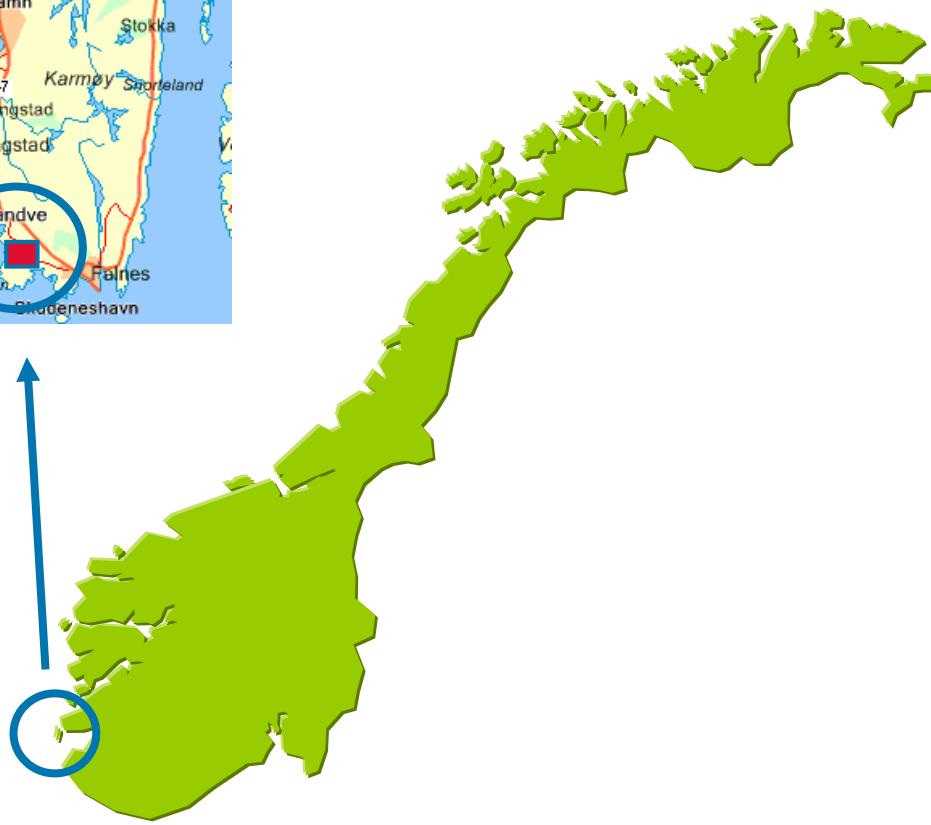
Technical data

- WTG: 2,3 MW
- Turbine weight: 138 tonnes
- Turbine height 65 m
- Rotor diameter: 82,4 m
- Draft hull: 100 m
- Displacement: 5300 m^3
- Diameter at water line: 6 m
- Diam. submerged body: 8,3 m
- Water depths: 120-700 metres
- Mooring: 3 lines

Offshore location 10 km off the coast of Karmøy, Norway





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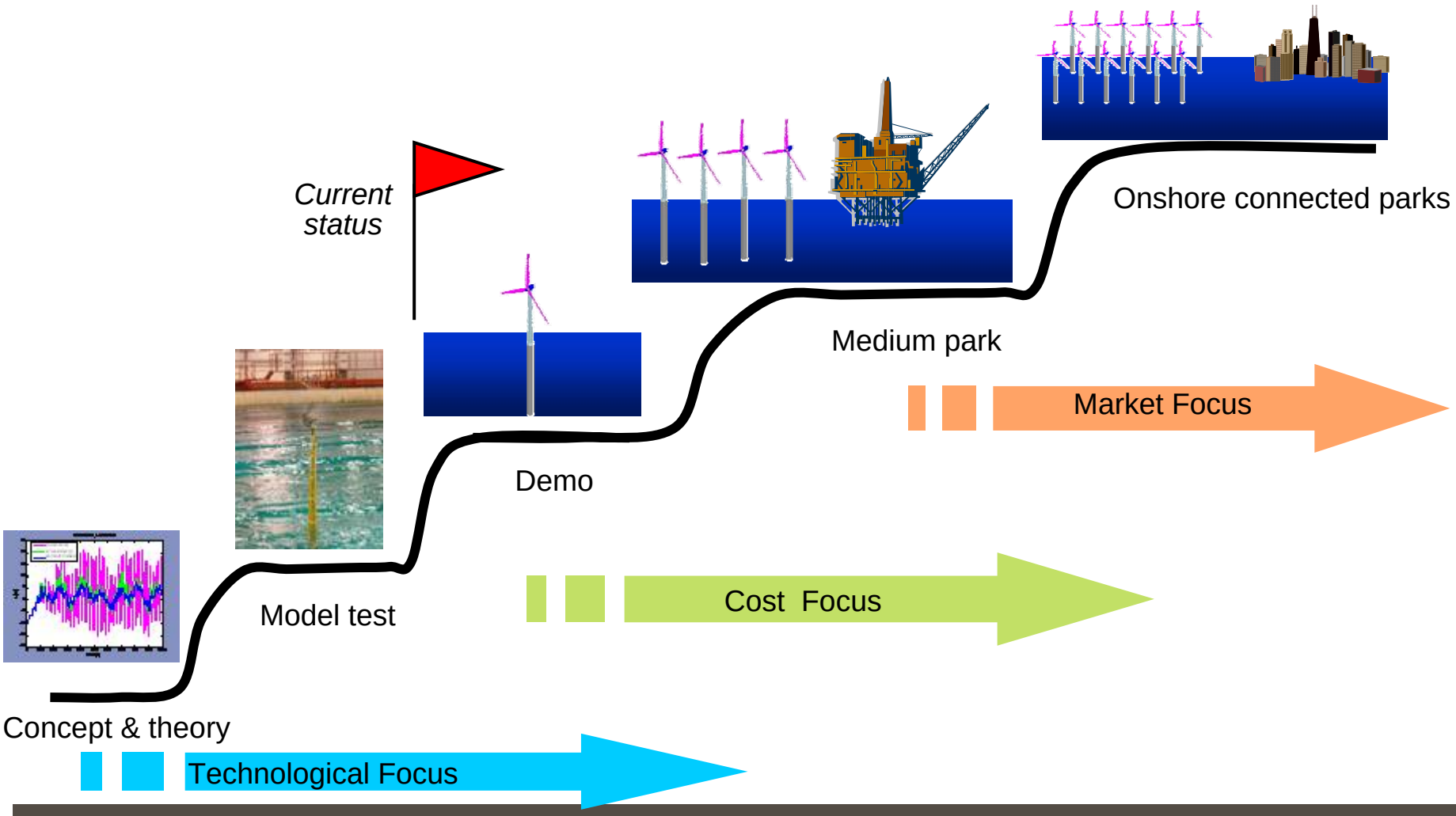
Long way from idea to commercial concept



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Important to verify technological steps

- Tested in the Ocean basin in Trondheim - Scale 1:47
- Simulated water depth - 320 meters
- Tests with both waves and wind
- Significant wave height: 3 – 14 meters (100 years condition)
- Wind speeds: 8 – 30 m/sec

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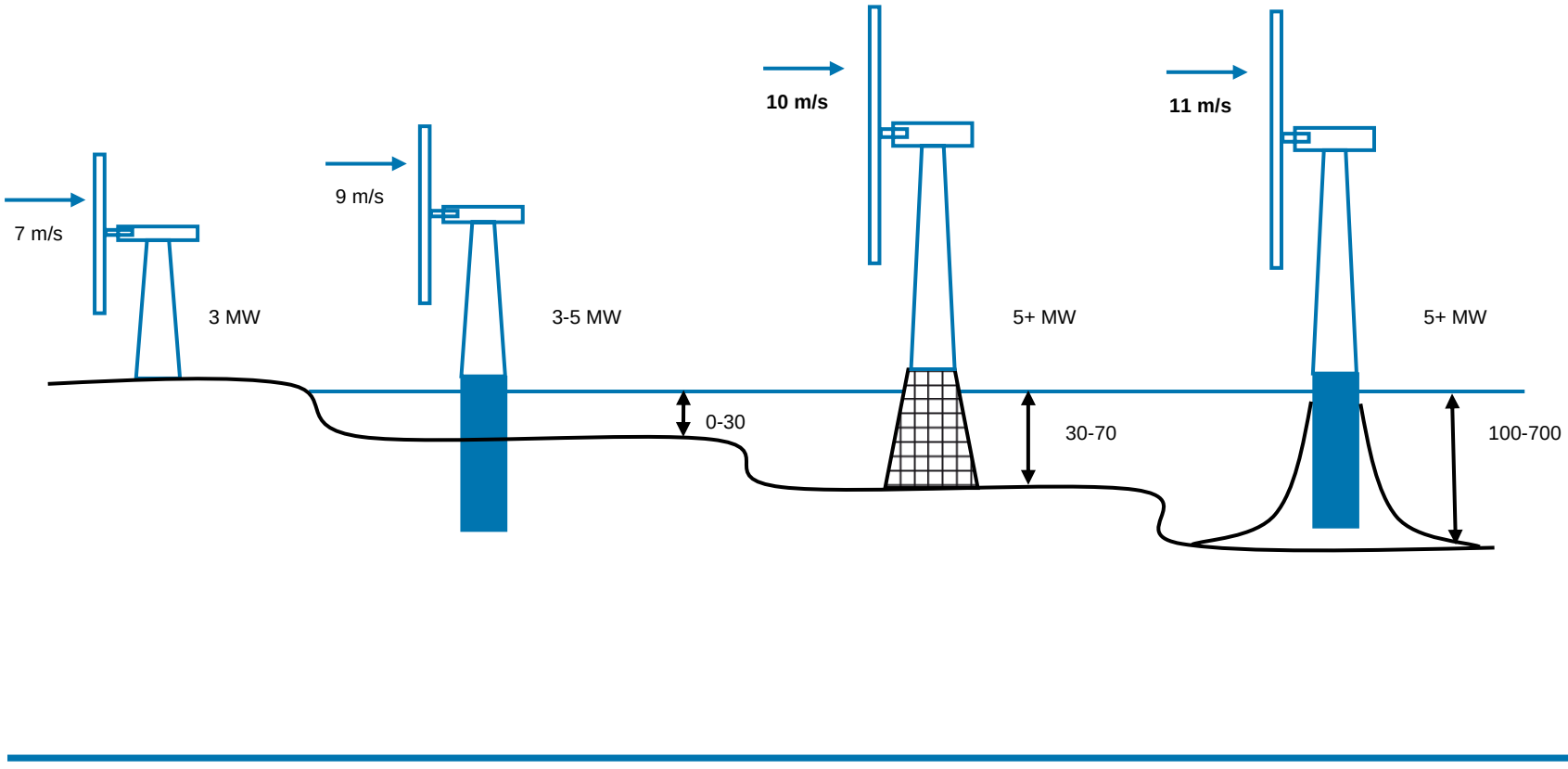
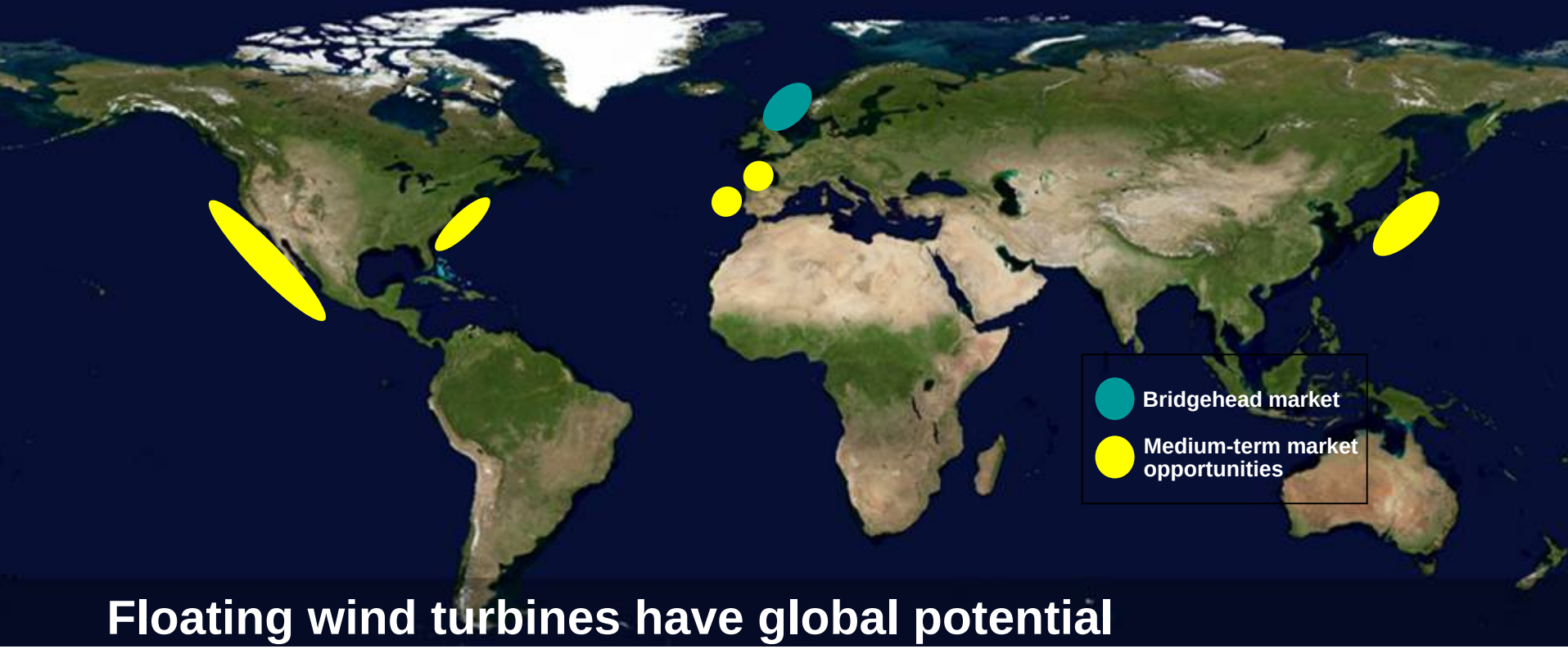
Taking the lead from shore to sea





Floating wind turbines have global potential

Map: NASA

- **Deepwater sites exist near major consumption areas**
- **Market assessment based on:**
  - **Water depth**
  - **Wind conditions**
  - **Regulatory regimes**
  - **Market size**
  - **Price/incentives schemes**

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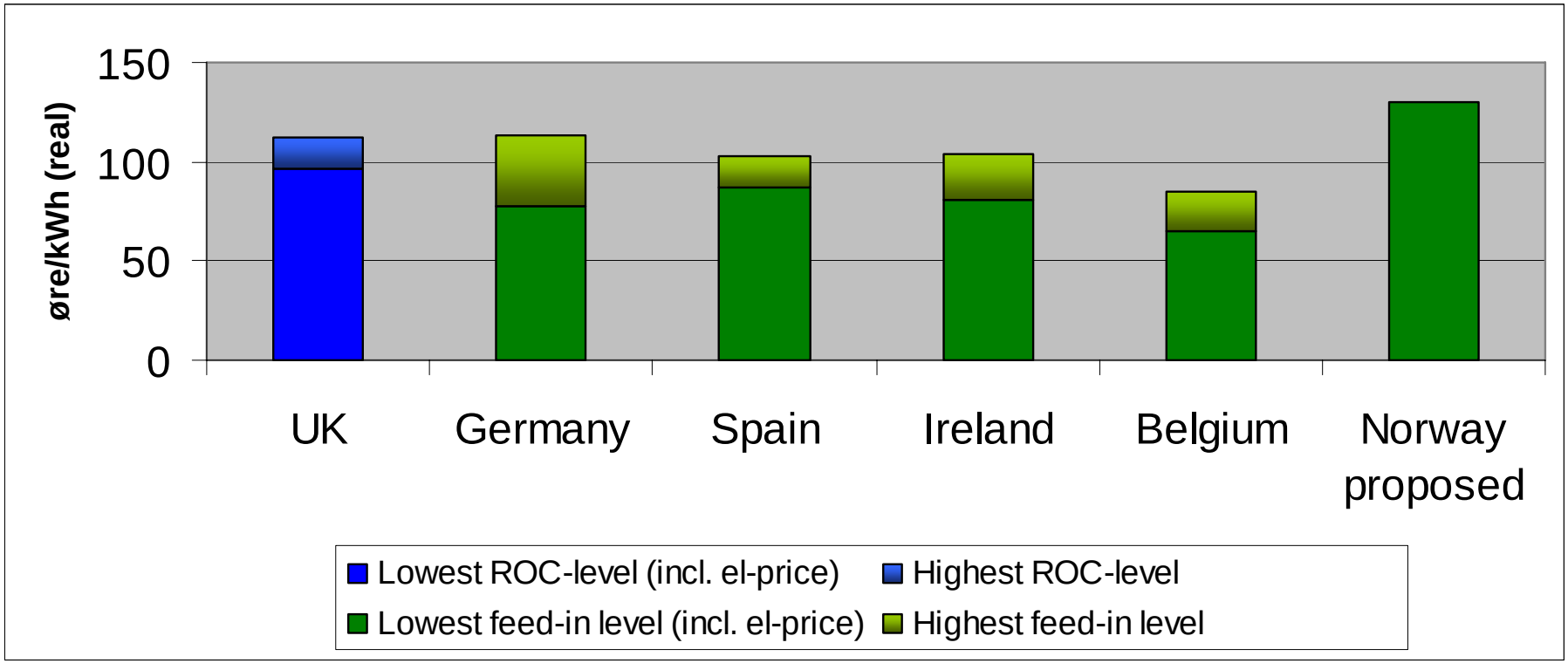
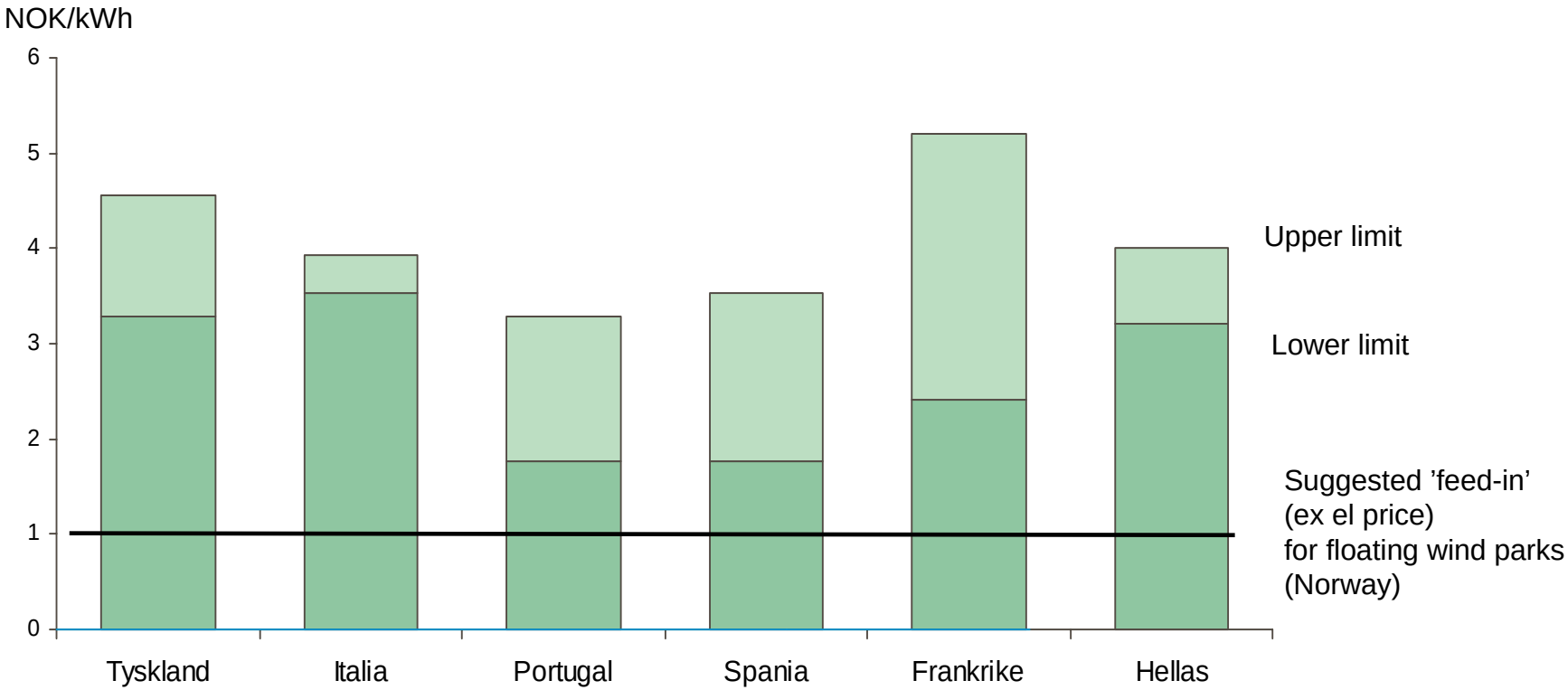
Comparison of offshore wind support mechanisms



- Electricity price included
- ROC = Renewable Obligations Certificates
- Maximum and minimum levels in real terms in the period 2011-2020

Solar energy – feed-in tariff



Source: BCG

Thank you for your attention

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