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THE EUROPEAN WIND ENERGY ASSOCIATION

Energy production costs: RES vs. conventional sources

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THE EUROPEAN WIND ENERGY ASSOCIATION

www.ewea.org/membership

Around 700 members from almost 60 countries

- Manufacturers with a leading share of the global wind power market
- Component suppliers
- Research institutes
- National wind and renewable associations
- Developers
- Electricity providers
- Finance and insurance companies
- Consultants
- Contractors

This combined strength makes EWEA the world's largest and powerful wind energy network

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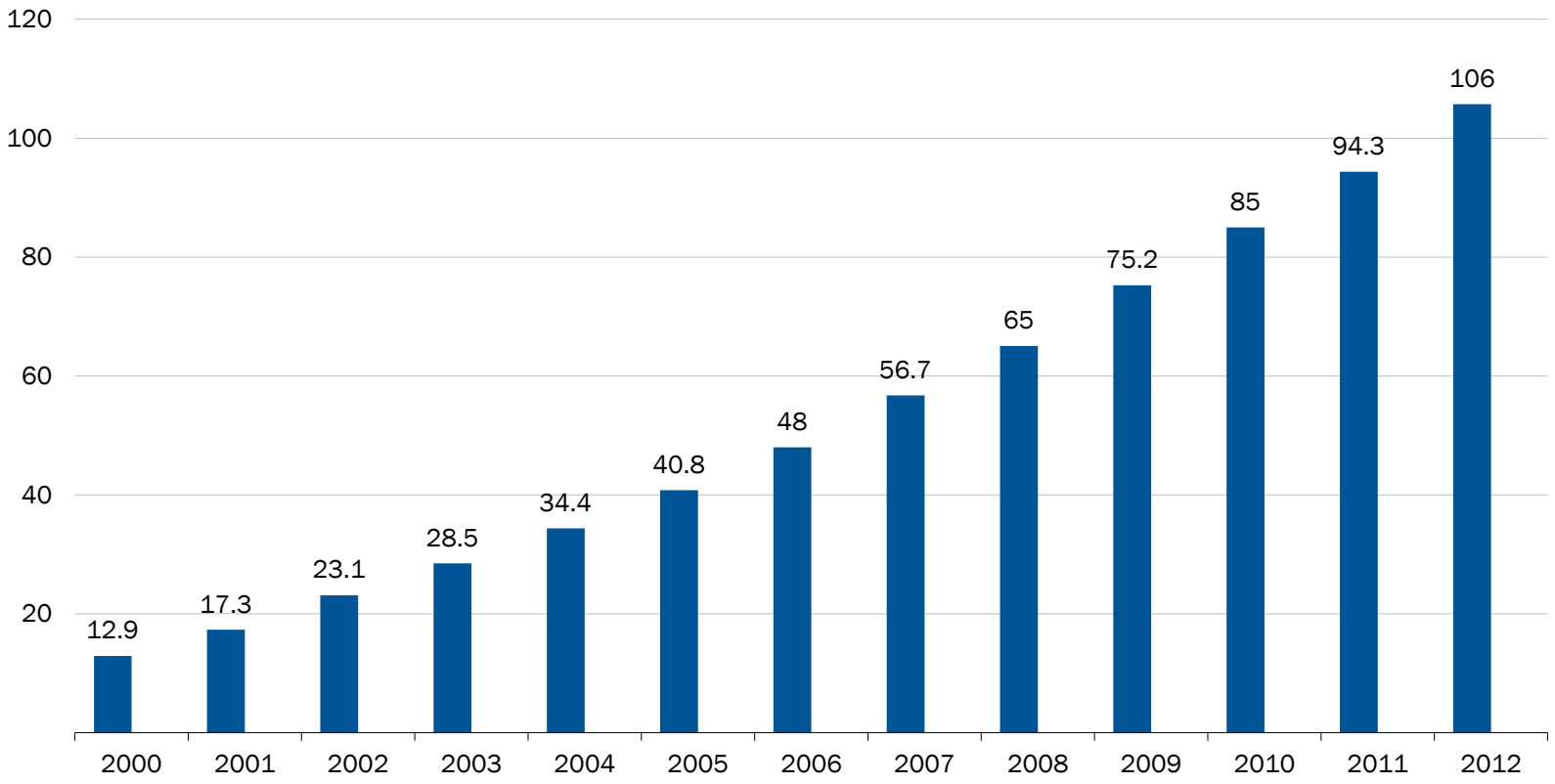
EWEA's leading members

Outline

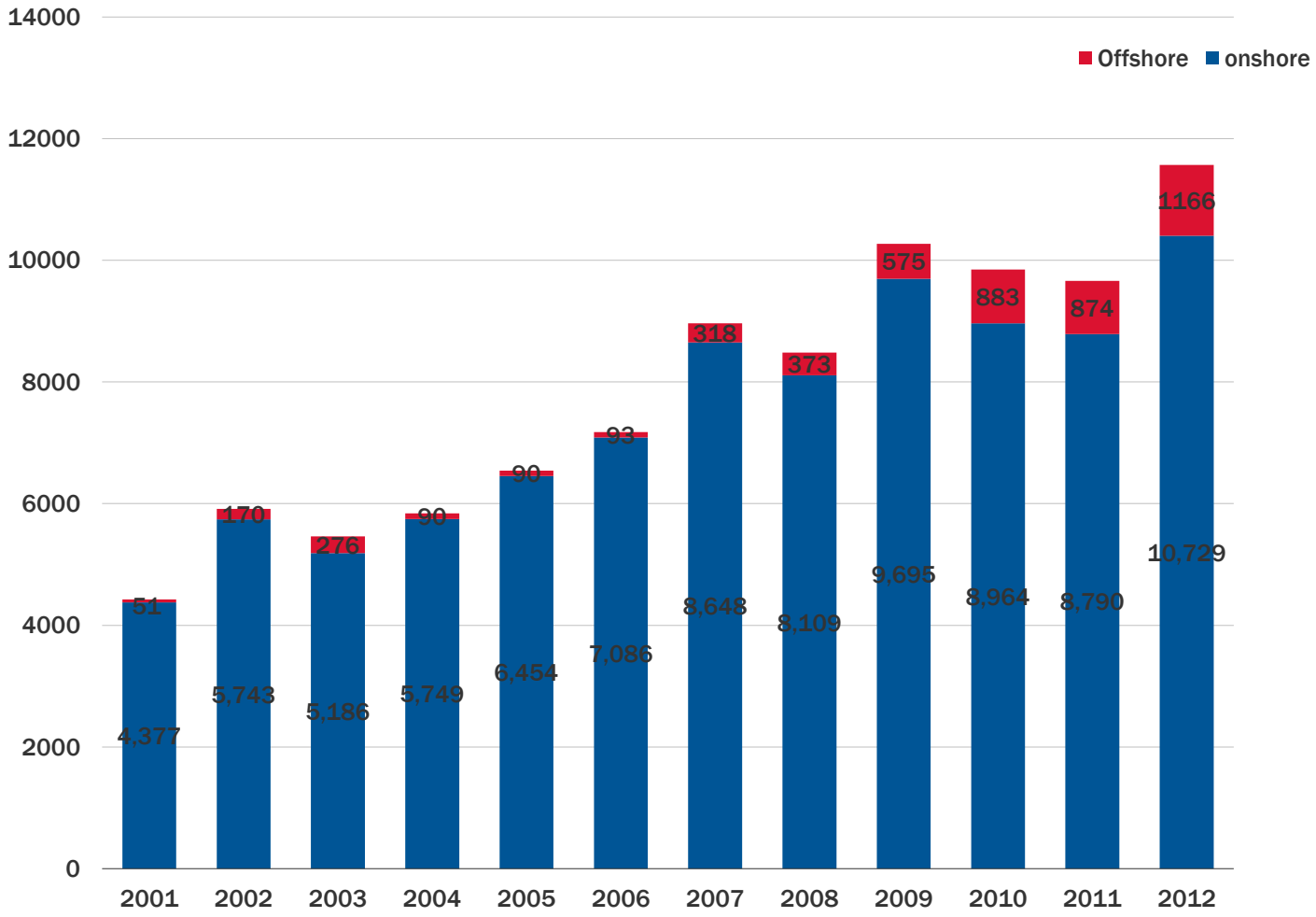
1. Development of the European market
2. Cost of wind vs. conventional technologies
3. Support for renewables compared to support for conventional energy

Cumulative wind power installations in the EU (GW)



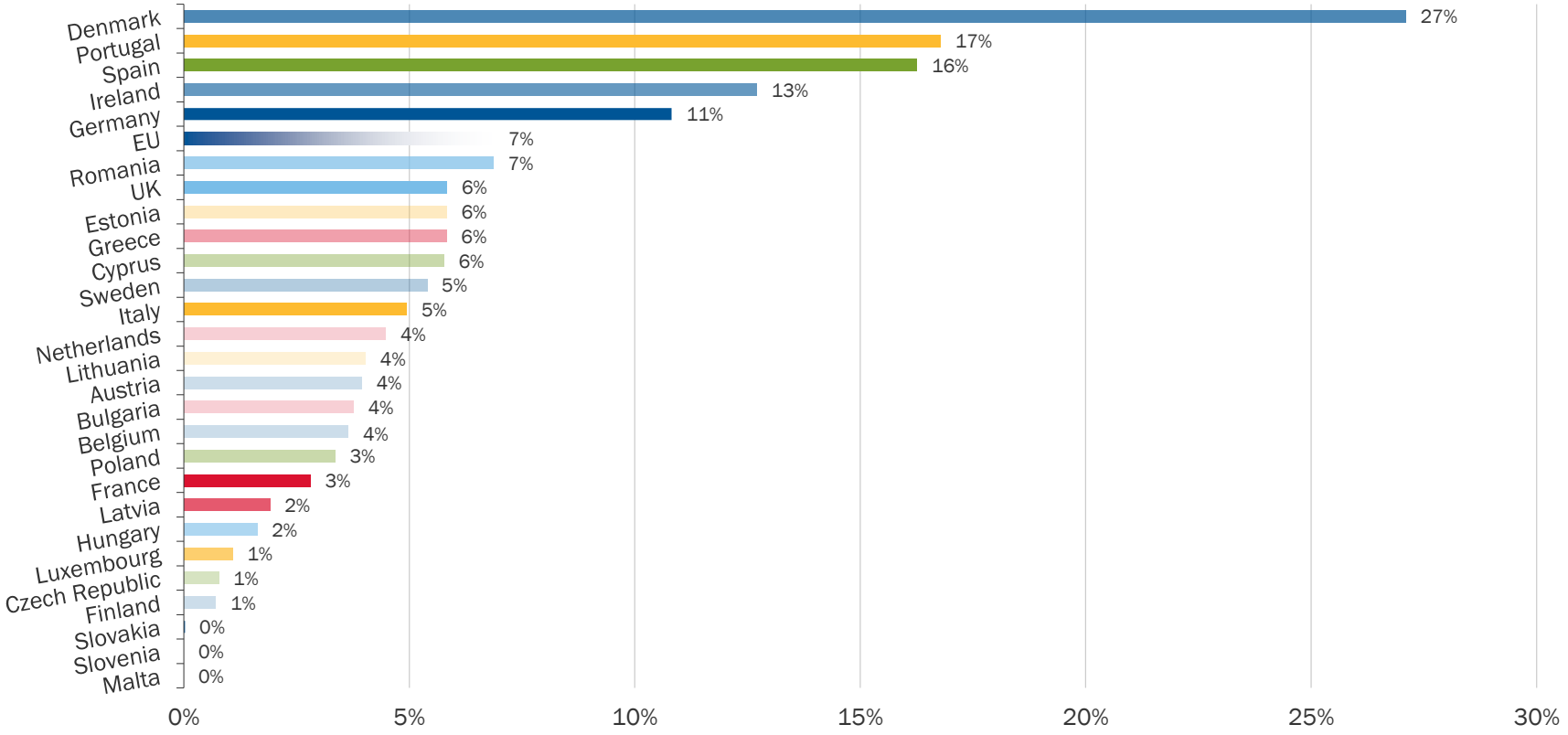
Source: EWEA

Annual onshore and offshore installations (MW)



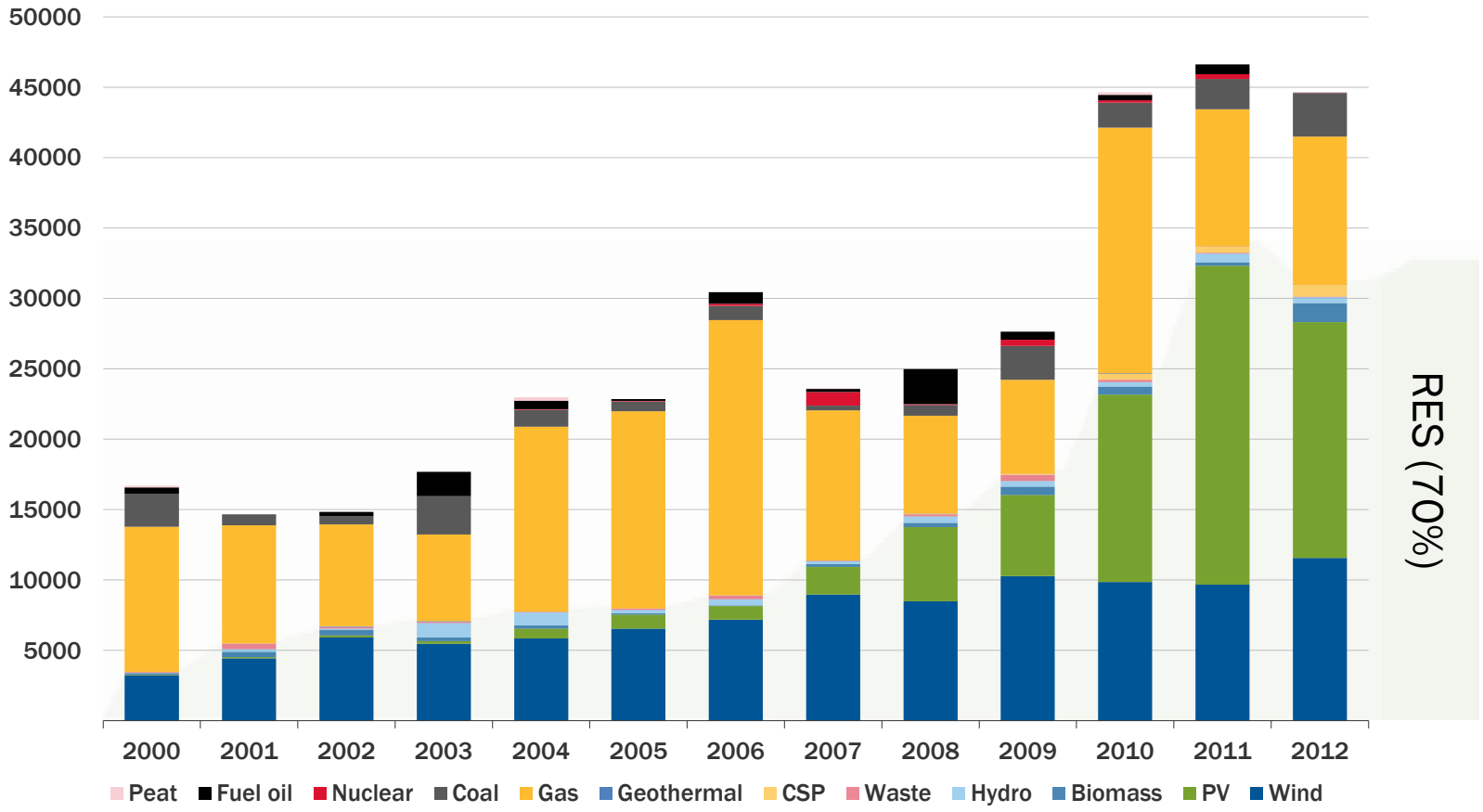
Source: EWEA

Wind power share of total electricity consumption in EU (7%) and in member states



Sources: EWEA, Eurostat 2010

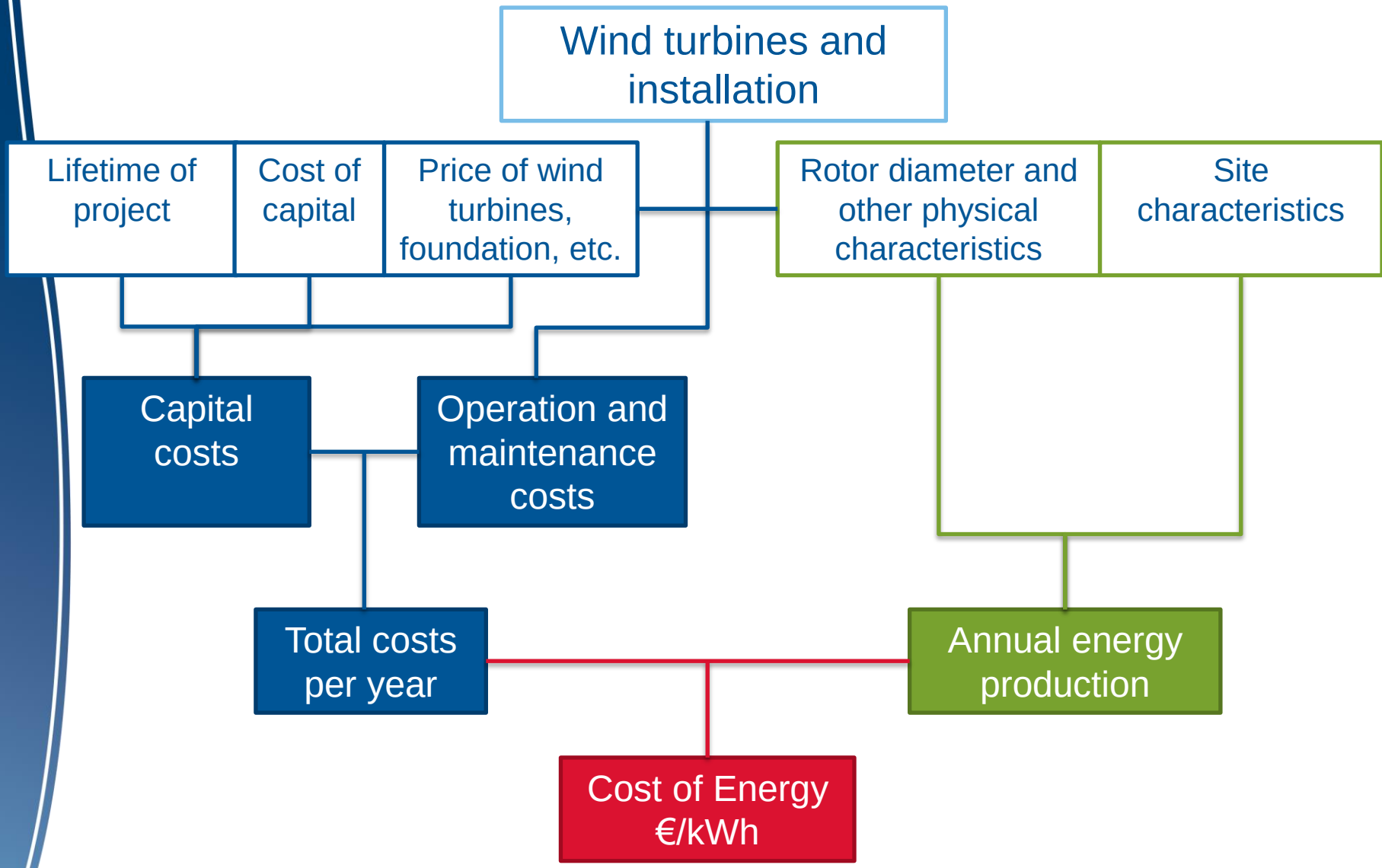
Installed power generating capacity per year in MW and RES share (%)



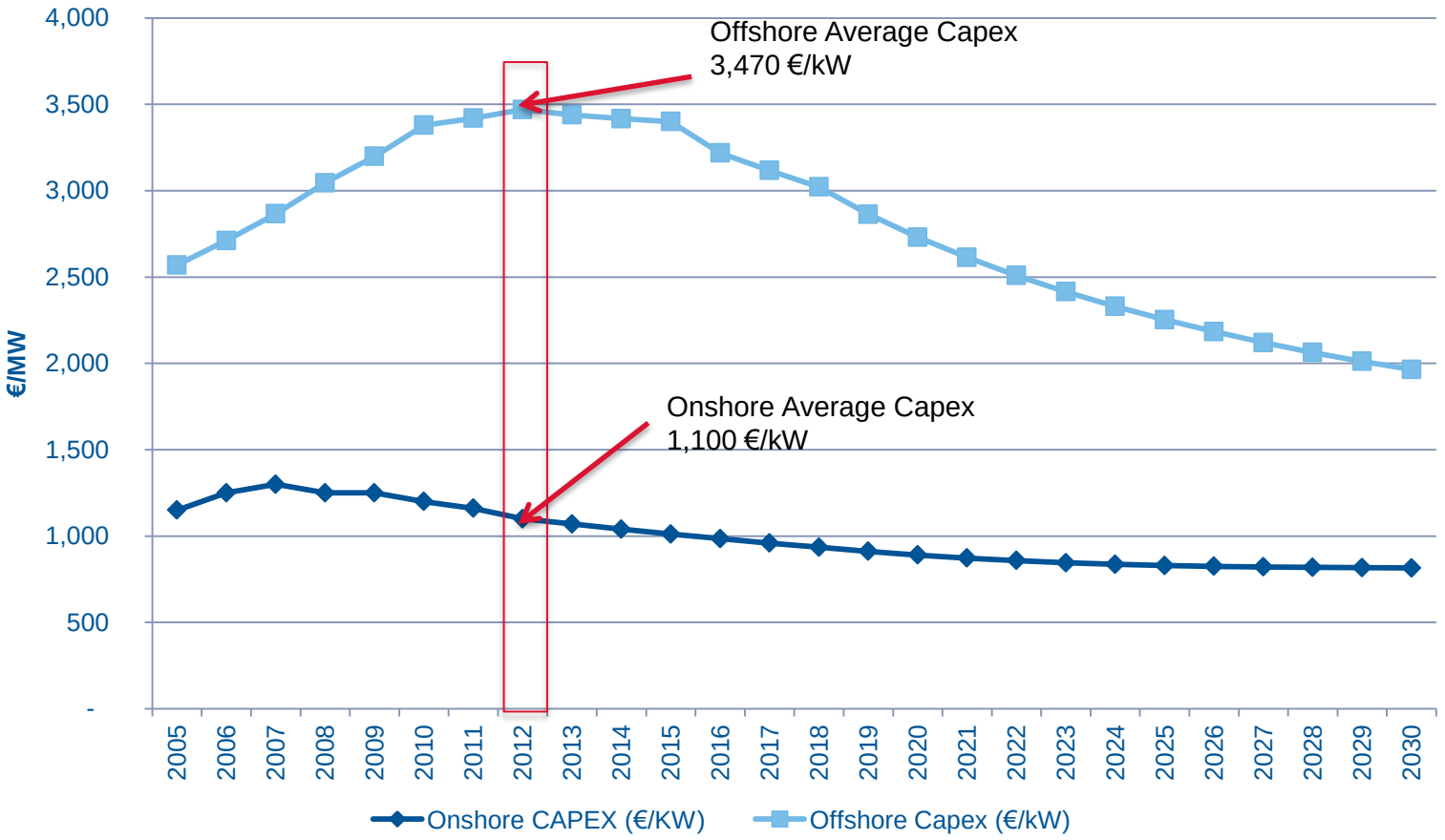
Sources: Platts PowerVision 2012, EWEA, EPIA, ESTELA

Cost of wind vs. conventional energy

Cost of wind energy



Evolution and future of Capital costs of wind power onshore and offshore



Range of CAPEX for power generating technologies

Capital cost per technology (euro/kW)		
Technology	2011	2020
Wind onshore	1,095-1825	803-1533
Wind offshore	2,263-4,307	1,460-2,555
Gas	584-730	584-730
Coal	584-1606	584-1606
Nuclear	1825-4088	

Source: IEA, Energy Technology Perspectives 2012

Levelised cost of electricity from different generating sources

Levelised cost of electricity (€/MWh)			
Technology	2007	2020	2030
Wind Onshore	85	68	64
Wind Offshore	104	85	76
Coal	68	69	68
Gas	63	84	90
Nuclear	69	67	68

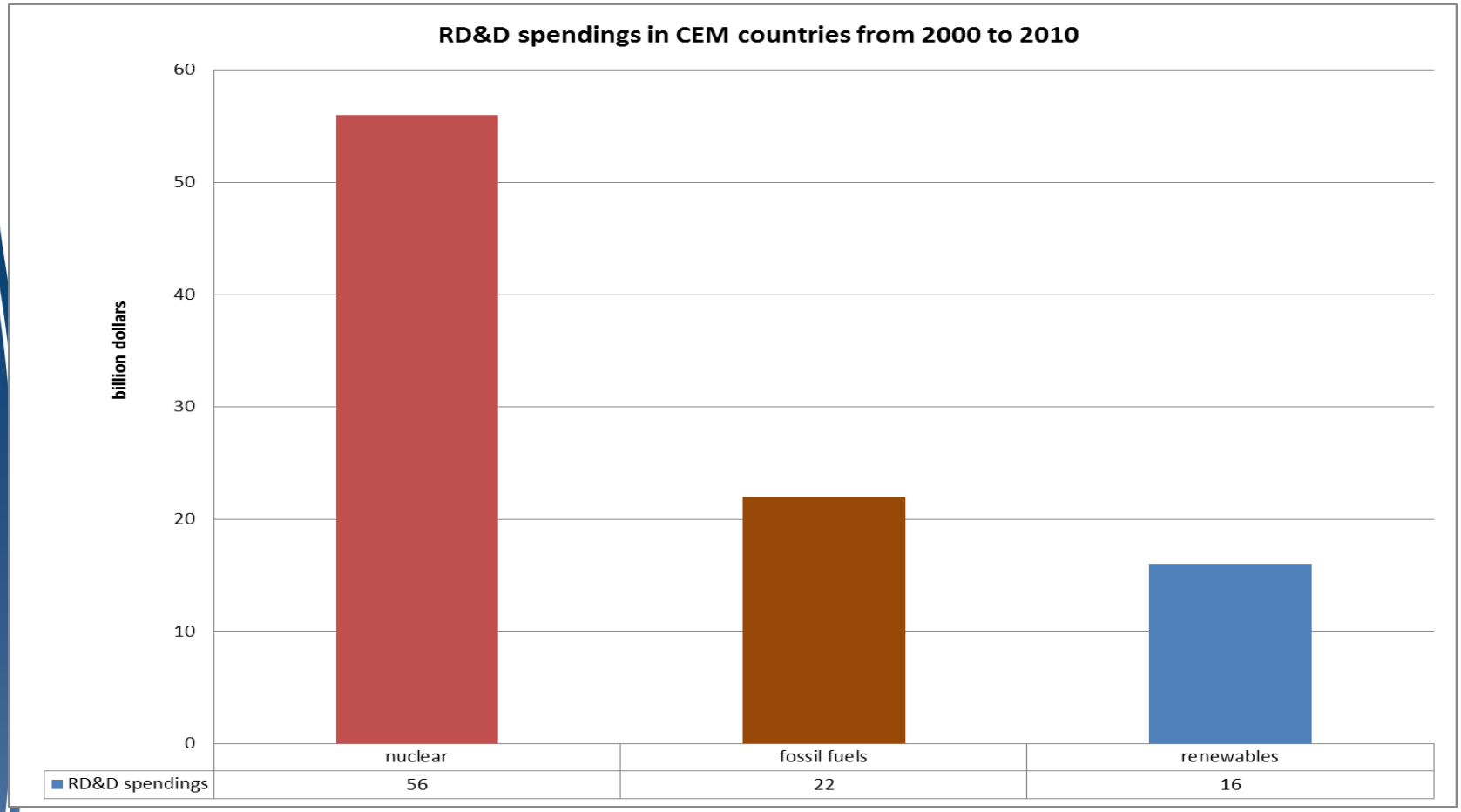
Source: European Commission (Joint Research Centre)

Short term expectations

- Wind energy investments (on and offshore) do not suffer from unpredictable and volatile costs.
- To compare LCOE, risk on fuel and carbon price volatility must be included.
- EWEA electricity cost calculator:
  - Risk factored-in: wind competitive in 2020
  - Risk not factored-in: wind competitive in 2030
- Trends:
  - Onshore wind is moving towards competitiveness in 2016 (Bloomberg New Energy Finance)
  - DONG Energy recently stated: offshore wind LCOE could fall to 100€/MWh by 2020 from 150-160 today.
  - Offshore cost reduction pathways could lead to 39% cut in levelised cost of wind (Crown Estate)

Support for wind vs. conventional energy

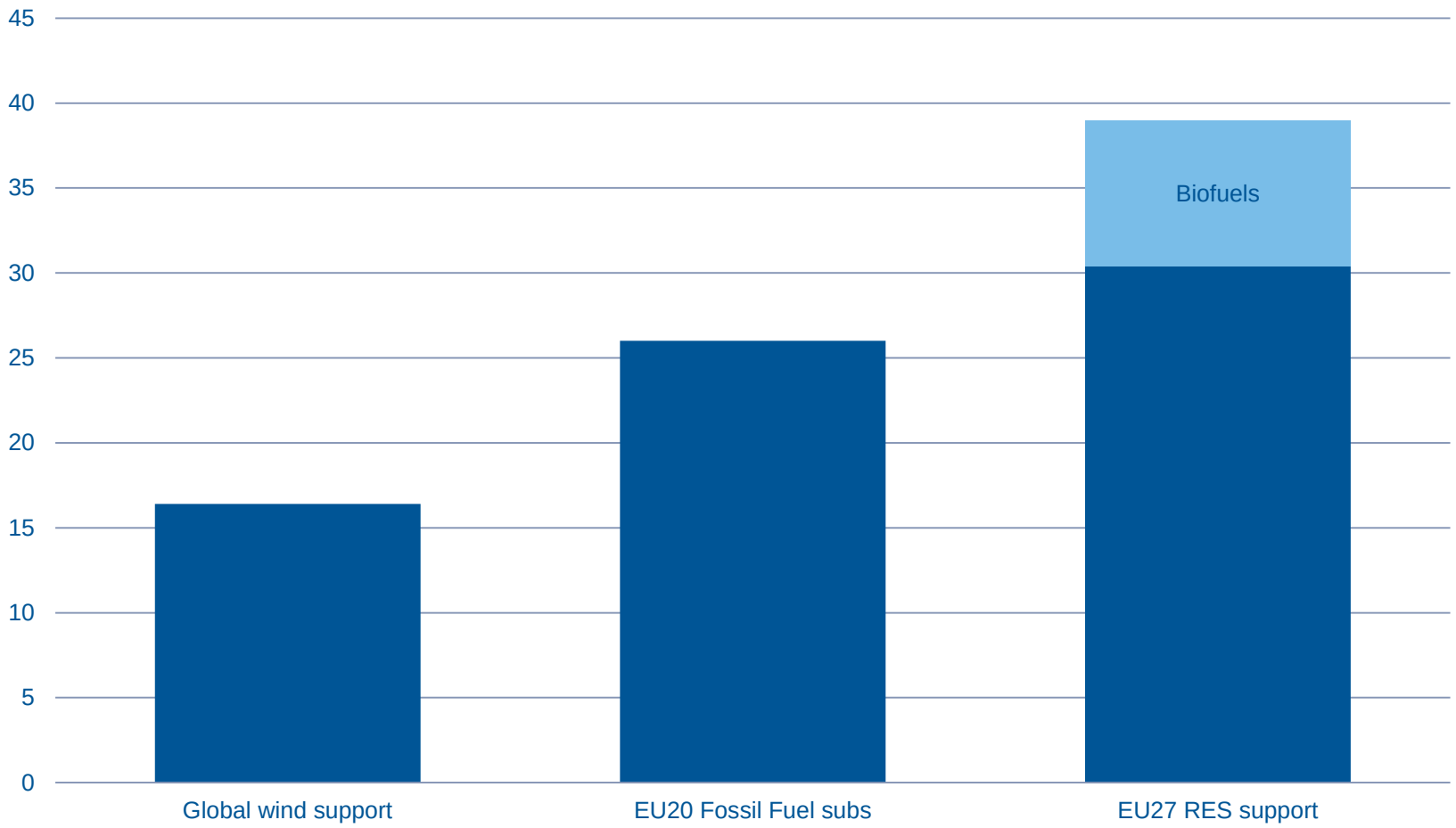
Historical and current R&D support



Source: Clean Energy Progress report, OECD/IEA 2011

CEM countries: Australia, Brazil, Canada, China, Denmark, the European Commission, Finland, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Norway, Russia, South Africa, Spain, Sweden, the United Arab Emirates, the United Kingdom, and the United States.

Support for fossil fuels in EU20* RES in EU27 and global support for wind energy in €bn



Conclusions

- Onshore wind will edge towards competitiveness in the next decade
- Offshore wind will eventually follow a similar curve
- In order to deliver this the industry needs stable legal frameworks to make the necessary investments:
  - Well designed support mechanisms;
  - Level playing field and liberalised electricity market.
- Supporting renewables is an investment in our economy:
  - 238 000 jobs in 2010
  - € 32 Billion of contribution to the DGP
  - € 8.8 Billion of exports

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THANK YOU

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