

The role of offshore wind in the European Renewable Industry



Philip Wolfe

Renewable Energy Association

Renewable Energy Association



Some 600 members

- > Multinationals to high-tech start-ups
- > Energy suppliers to energy users



Renewable heat, power, fuel & CHP



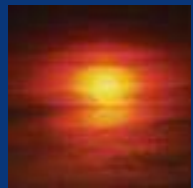
All technologies:

- > Biomass
- > Bioenergy
- > Solar
- > Wind
- > Marine
- > Hydro
- > Heat pumps



RENEWABLE ENERGY ASSOCIATION

Trade Association Office, Forentv/5th, April 2009



Topics

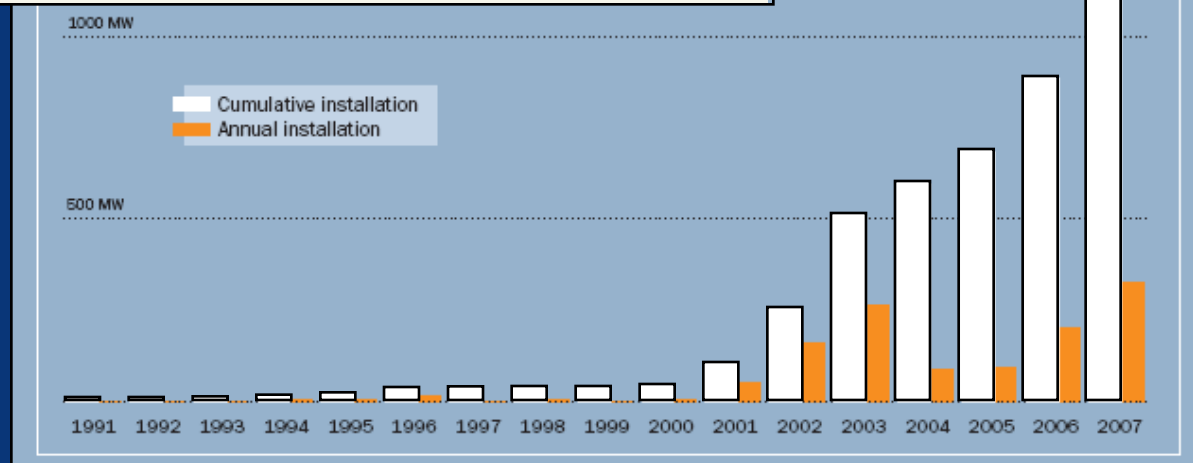
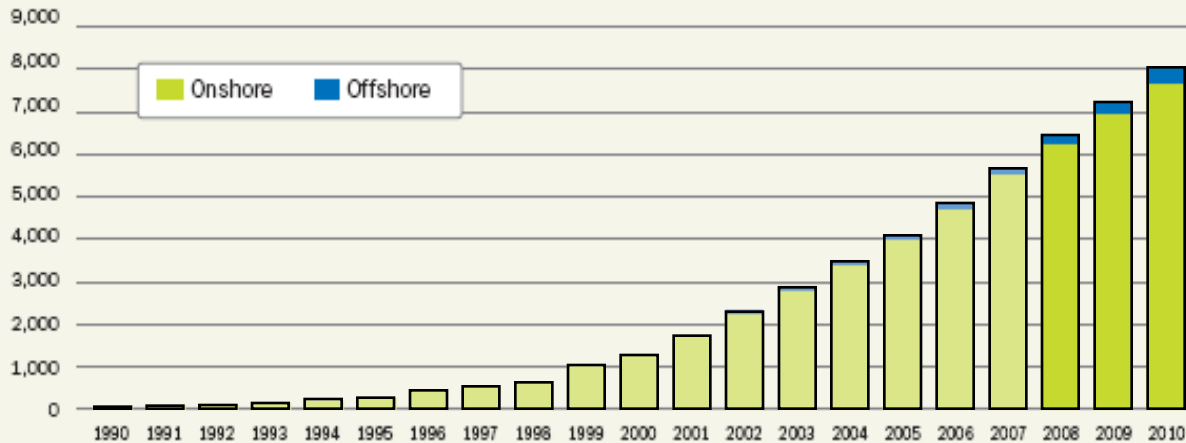
- ▲ Offshore wind in Europe today
- ▲ Policy context for the future
- ▲ Projected future trends
- ▲ Infrastructure issues
- ▲ Recession and recovery



Lilligrund © Vattenfall

Wind energy in Europe

FIG 5.2: Cumulative capacity EU 1990-2010 (In MW)



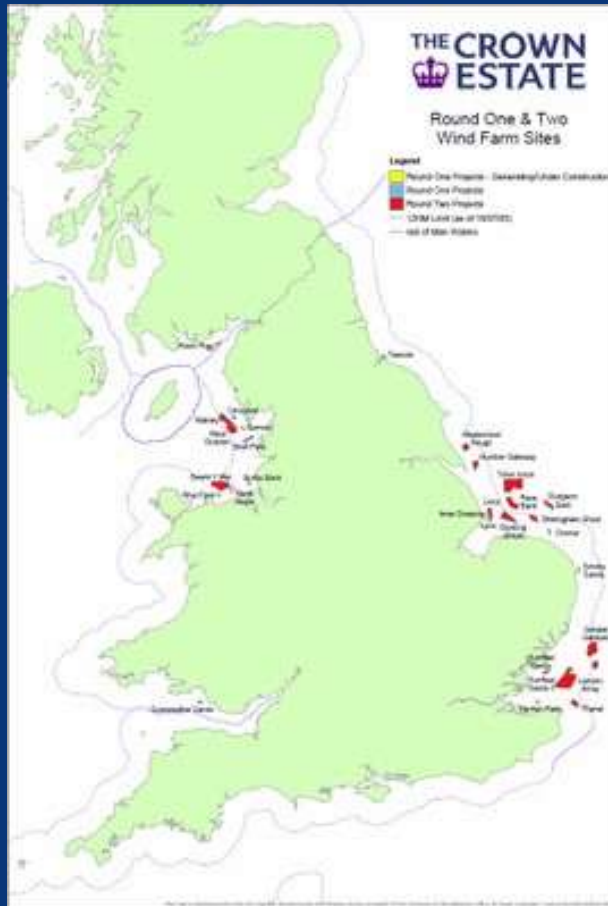
Source: EWEA

European offshore wind sites



Source: EWEA

UK offshore wind sites



Rounds
1 & 2



Round 3

Source: *The Crown Estate*

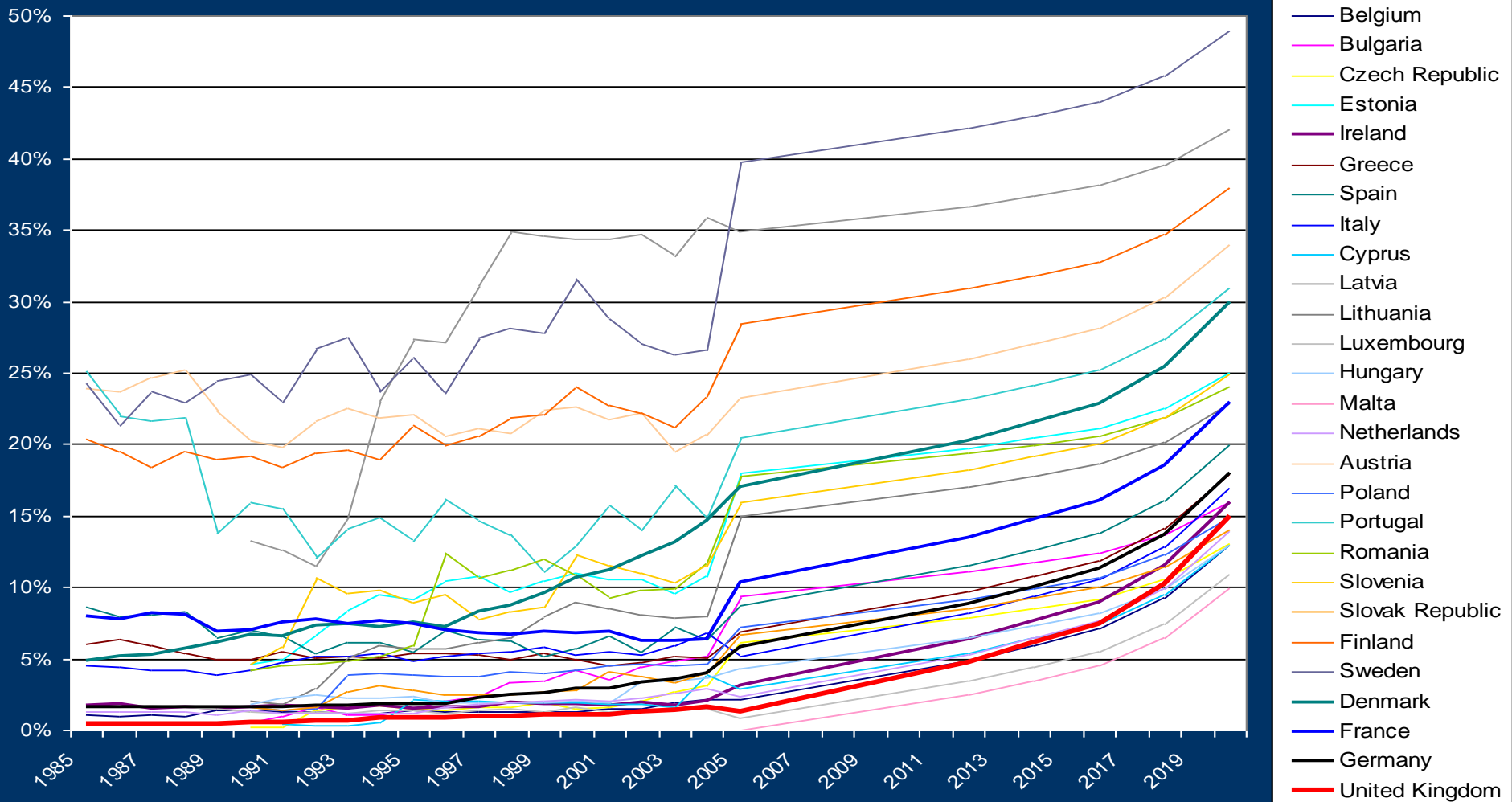


Policy drivers

The 2020 EU targets – “20-20-20”

- ▲ Emissions reductions Binding
 - > 20% unilateral, or
 - > 30% if multilateral
- ▲ Energy conservation Non-binding
 - > 20% below current projections
- ▲ Renewables Binding
 - > 20% of total energy
 - > 10% of transport fuels

Eleven years to 2020



Future developments



© Vattenfall

Contribution to renewables

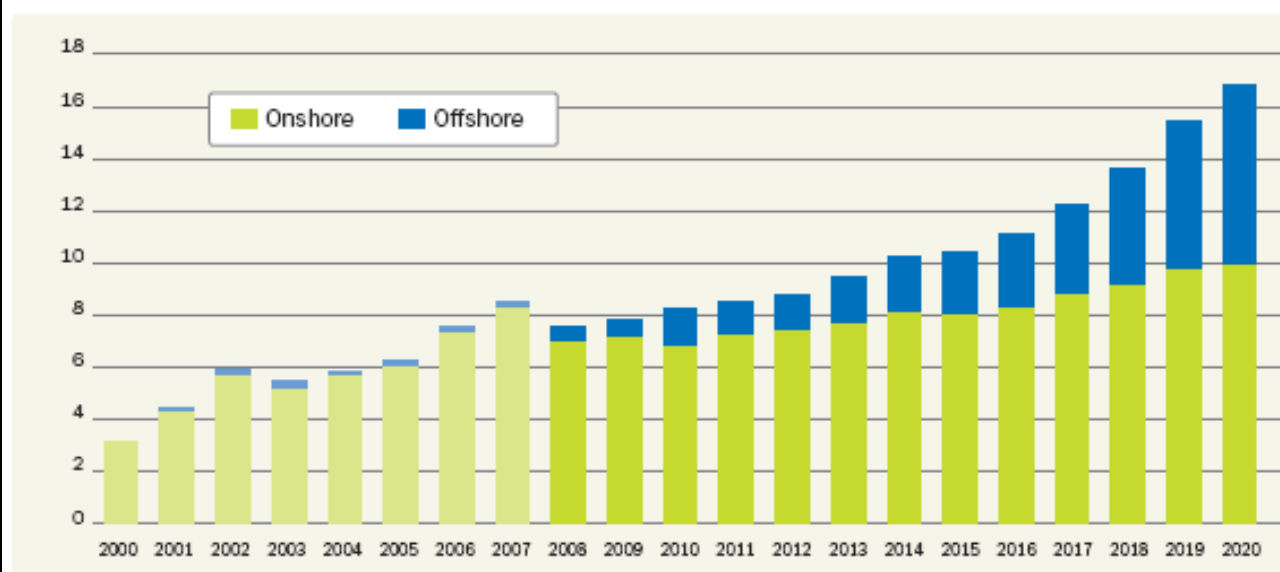
TYPE OF ENERGY	2004		Projections 2010		TARGETS 2020	
	Eurostat Convention	% of Total	Eurostat Convention	% of Total	Eurostat Convention	% of Total
Total Gross Inland Consumption	1,747		1,761 Combined RES and EE		1,633 Combined RES and EE	
Wind	5.03	0.29	15.4	0.87	43.9	1.69
Hydro	26.13	1.50	30.6	1.74	33	2.02
Photovoltaics	0.06		0.8	0.05	5.3	0.32
Biomass	71.9	4.11	125	7.10	235	14.4
Geothermal	5.36	0.31	8.2	0.46	16.4	1.00
Solar Thermal	0.68	0.04	2	0.11	12	0.73
Solar Power	0		0.2	0.01	0.8	0.05
Ocean			0.25	0.01	1.3	0.08
Total Renewable Energies	109.16	6.25	182.4	10.4	348	21.3

Source: EREC

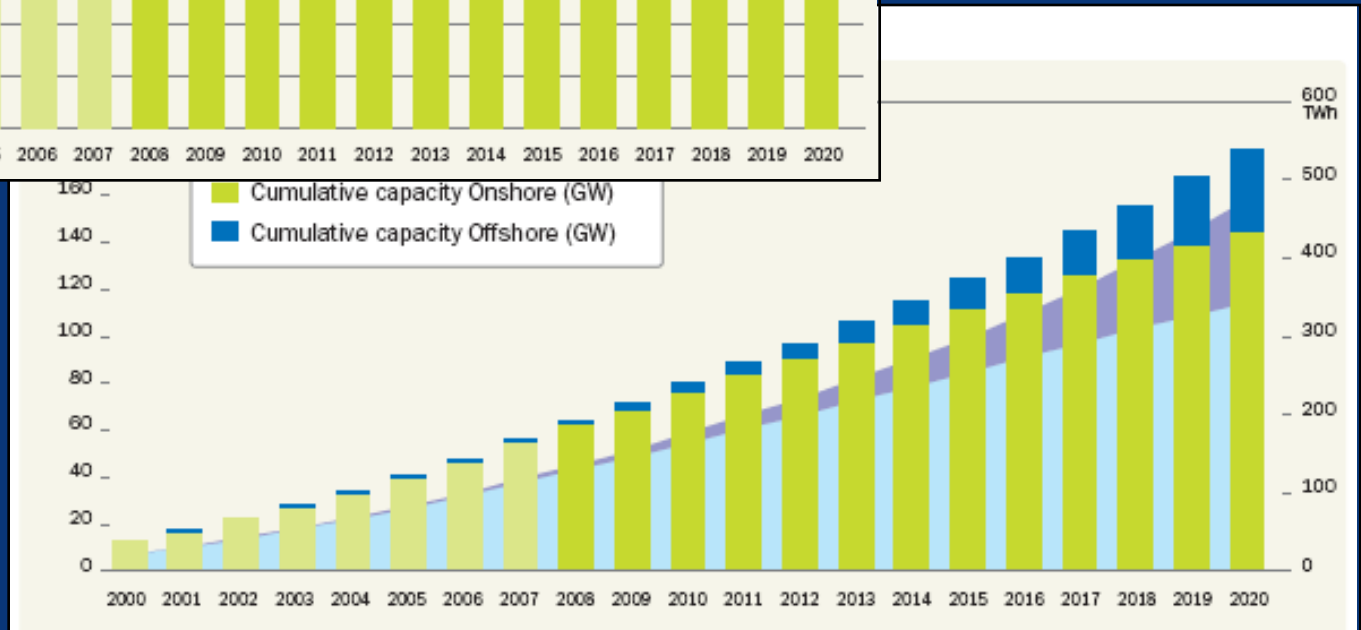
To be
updated

Future on- and off-shore wind

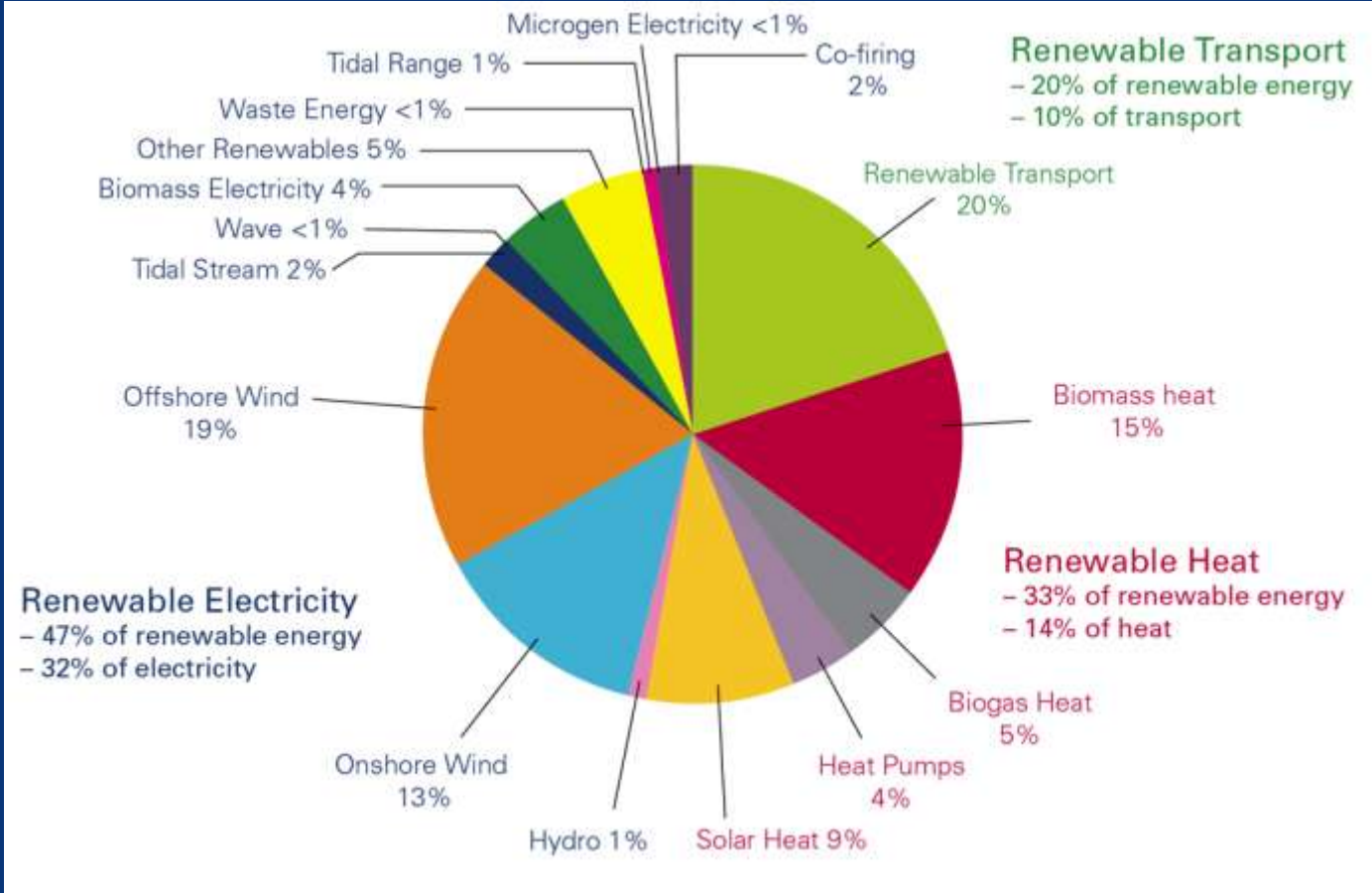
FIG 6.3: Wind energy annual installation 2000-2020 (in GW)



Source: EWEA

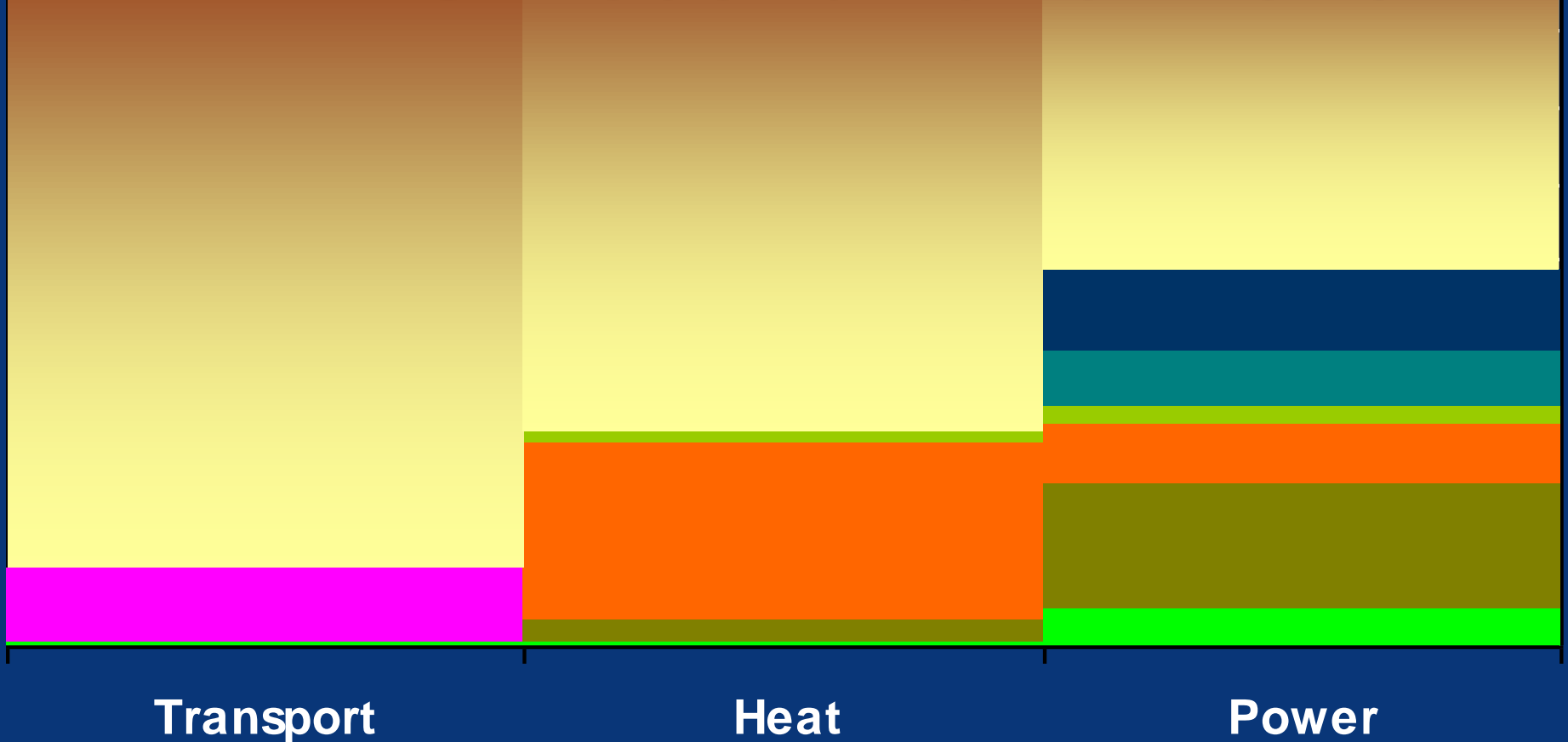


UK government scenario for 2020



Source: BERR

REA UK scenario for 2020



A photograph showing a large white wind turbine nacelle being hoisted by a crane on a barge in a body of water. Another barge with yellow equipment is visible in the foreground. The sky is blue with some clouds.

Infrastructure contribution

© Multibrid

‘Offshore Super-grid’



Source: Airtricity

Updating the vision for 2020

New EU-funded project (REPAP 2020)

- ▲ Evolves national industry roadmaps
- ▲ Supports governments in producing National Renewable Energy Action Plans
- ▲ Critiques the NREAPs for the EC

Coincidentally in all 27 member states, so:

- > Shared best practice
- > Cross-fertilisation of ideas



Sustainable recovery

Nysted © DONG

Green New Deal

- ▲ Recession – recovery must be sustainable
- ▲ Stimulus packages – 20% should be ‘green’¹
 - > USA 12%; China 37%; Germany 13%²
- ▲ Energy efficiency & renewables a major part
- ▲ Renewables in EU & UK stimulus packages

¹ *Professor Lord Stern*

² *HSBC*

EU stimulus package (part)

Project	Capacity	Location	Contrib ⁿ .
1) Grid integration of offshore wind energy			
Baltic I and II - Kriegers Flak I, II, III	1.5 GW	Denmark, Sweden, Germany, Poland	€ 150m
North sea grid	1 GW	UK, Netherlands, Germany, Ireland, Denmark	€ 150m
2) New turbines, structures and components, optimisation of manufacturing capacities			
Alpha Ventus / Bard Offshore 1 New 6-7 MW turbines in deeper waters (up to 40m)	0.5 GW	Germany, Poland	€ 150m
Aberdeen offshore wind farm (European testing centre)	0.25 GW	UK	€ 40m
Thornton Bank 5 MW turbines in deep waters (up to 30m) with low visual impact (up to 30 km).	90MW	Belgium	€ 10m
TOTAL			€ 500m

REA's Green New Energy Deal

Budget 2009

▲ Centralised energy

> Offshore wind 2 ROCs £525m

▲ Decentralised Energy

> Bridges to tariffs £70m

▲ Energy infrastructure, including:

> Smart metering, distribution networks £0 new

▲ Skills, research and awareness part of £260m

Supply chain & manufacturing £405m

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