

3 June 2015

ACCELERATING THE CLEAN ENERGY TRANSITION

UNFCCC meeting, Bonn

Angus McCrone

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1. Steps needed
2. Investment trends in the world and in Europe
3. Technology and financing highlights
4. Policy – barriers and opportunities



Source: Wikimedia Commons

STEPS NEEDED

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- Investment in renewable energy and in energy smart technologies (efficiency, smart grid, power storage, demand response).
- Improvements in technology and reductions in cost.
- Development of financing tools to enable the transition to take place as quickly as possible.
- Development of government and international policies to encourage investment in renewables and energy smart technologies. Remove fossil-fuel subsidies.
- Investment in transitional energy sources, eg coal-to-gas switching, fast-ramp-up gas peakers, perhaps some nuclear and carbon capture and storage.

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INVESTMENT TRENDS IN THE WORLD AND IN EUROPE

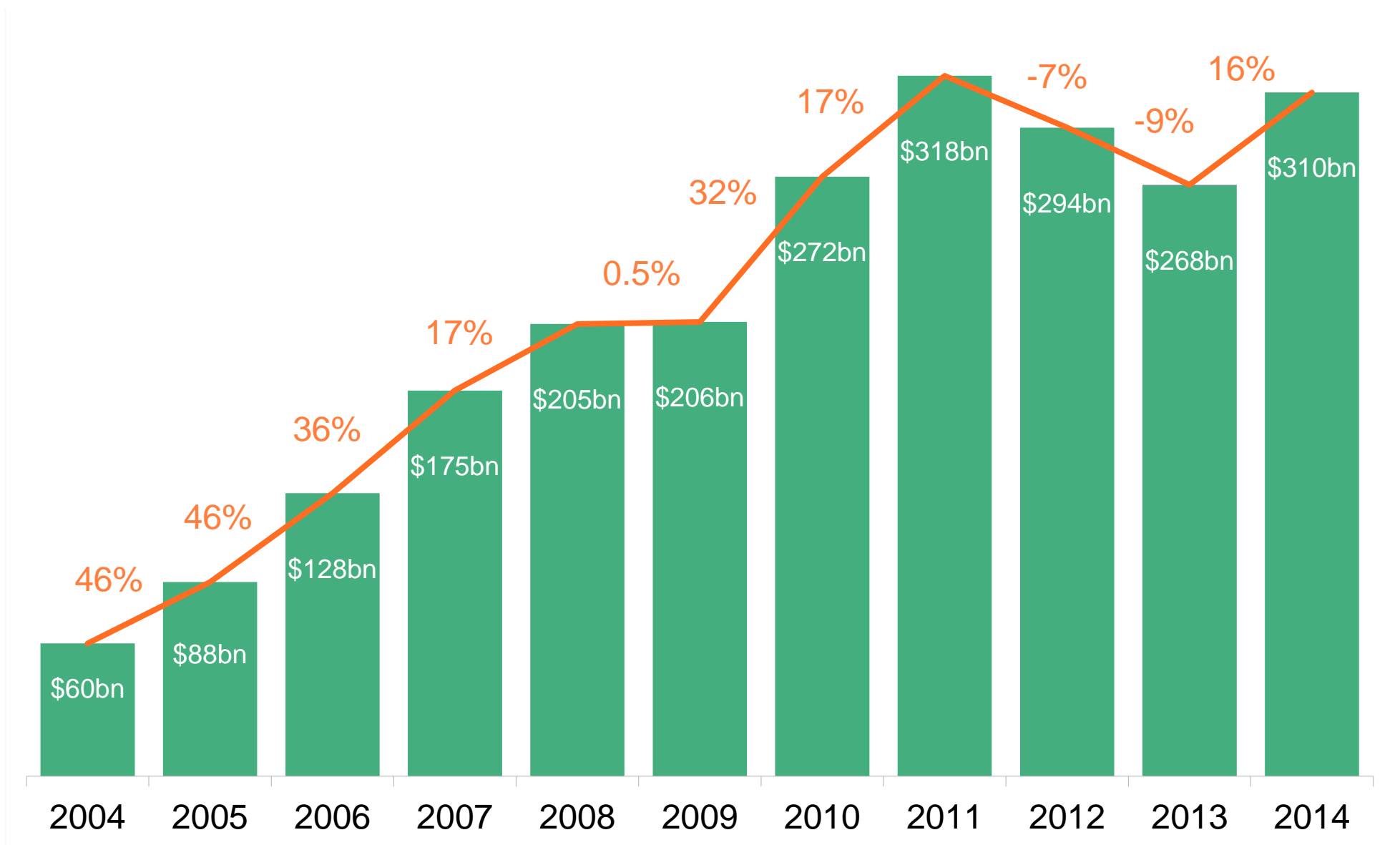


Source: Wikimedia Commons

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NEW INVESTMENT IN CLEAN ENERGY

2004-14 (\$BN)

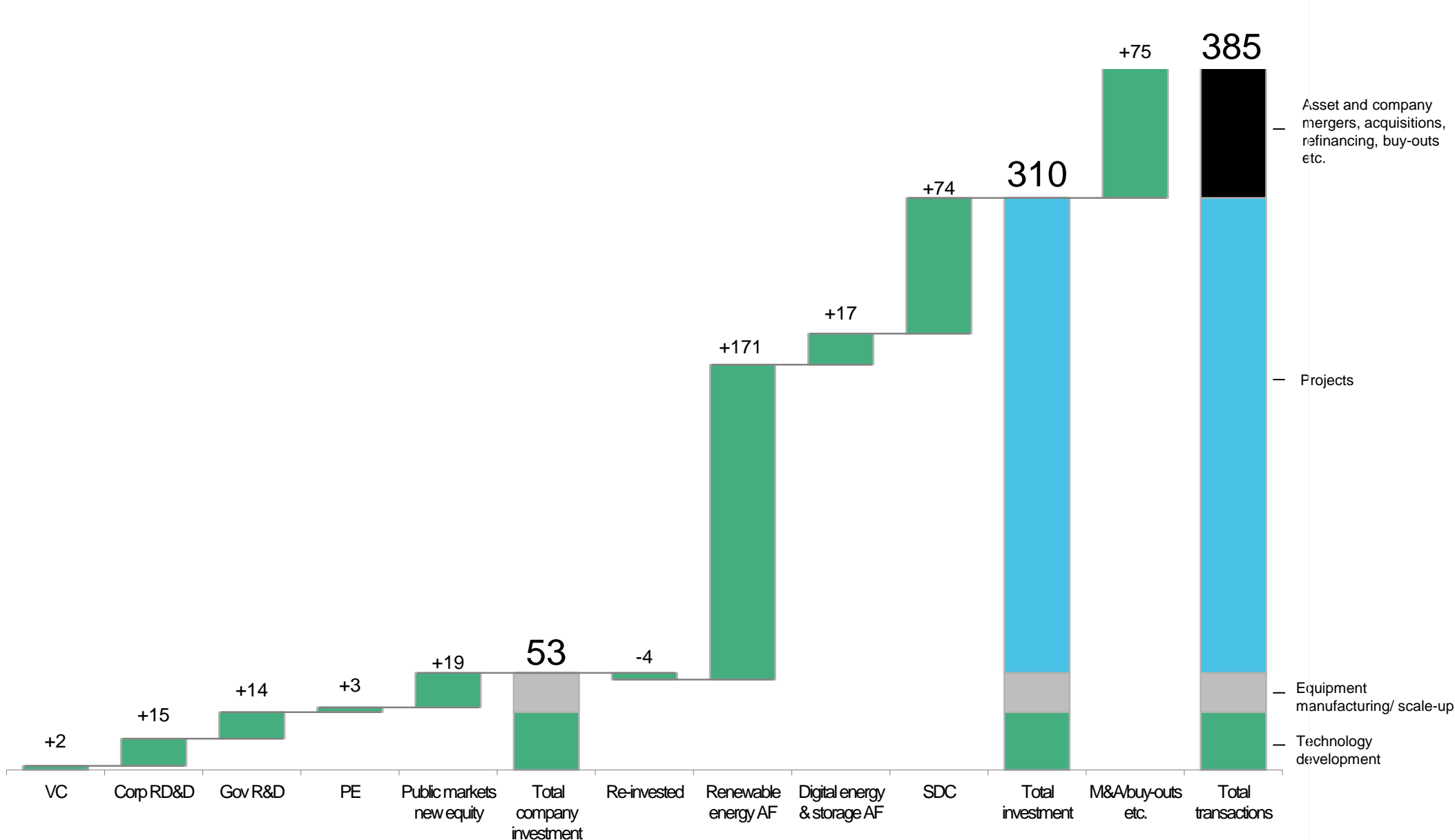


Note: Total values include estimates for undisclosed deals. Includes corporate and government R&D, and spending for digital energy and energy storage projects (not reported in quarterly statistics).

Source: Bloomberg New Energy Finance

CLEAN ENERGY INVESTMENT TYPES & FLOWS

2014 (\$BN)

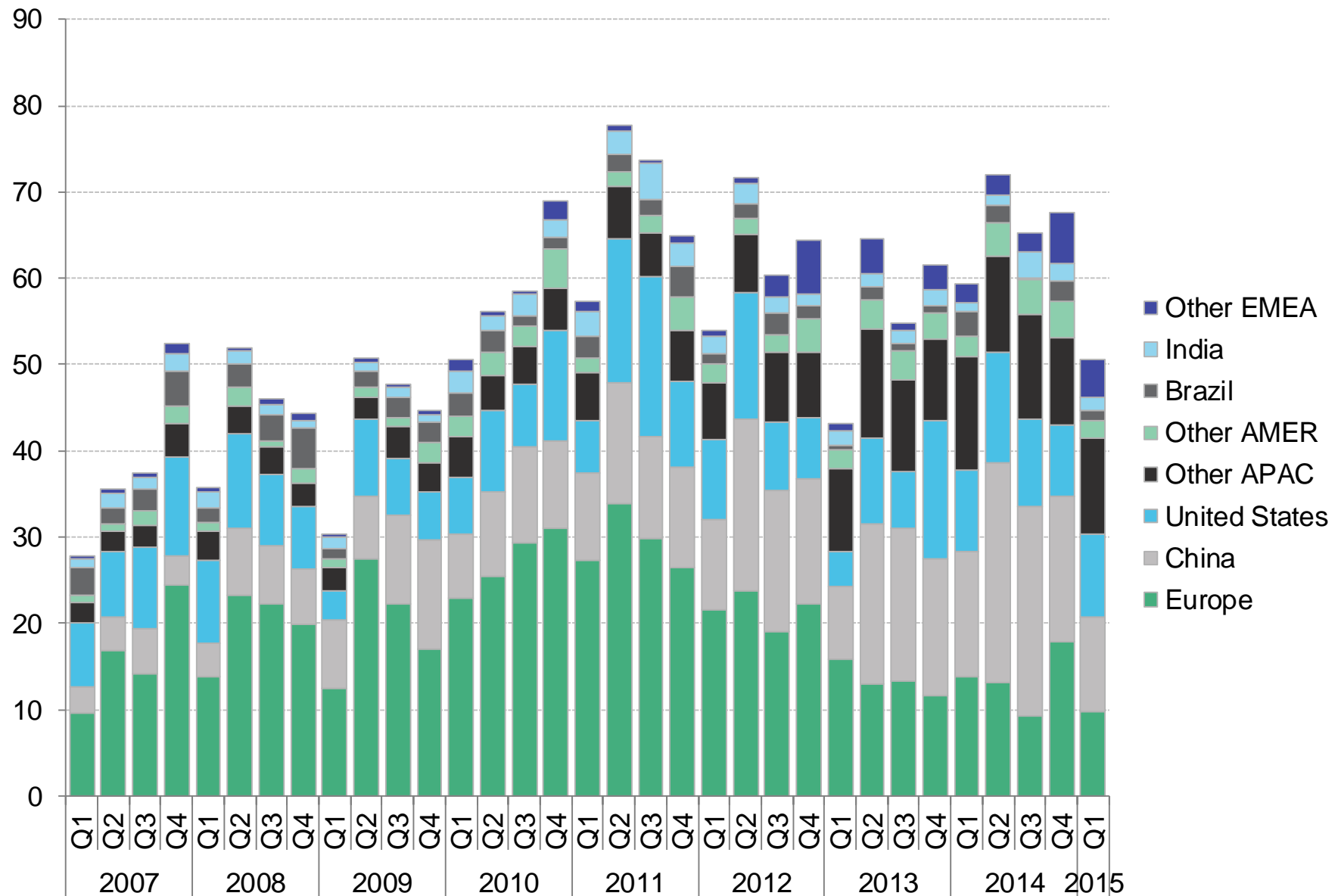


Note: Total values include estimates for undisclosed deals. AF = asset finance, SDC = small distributed capacity.

Source: Bloomberg New Energy Finance

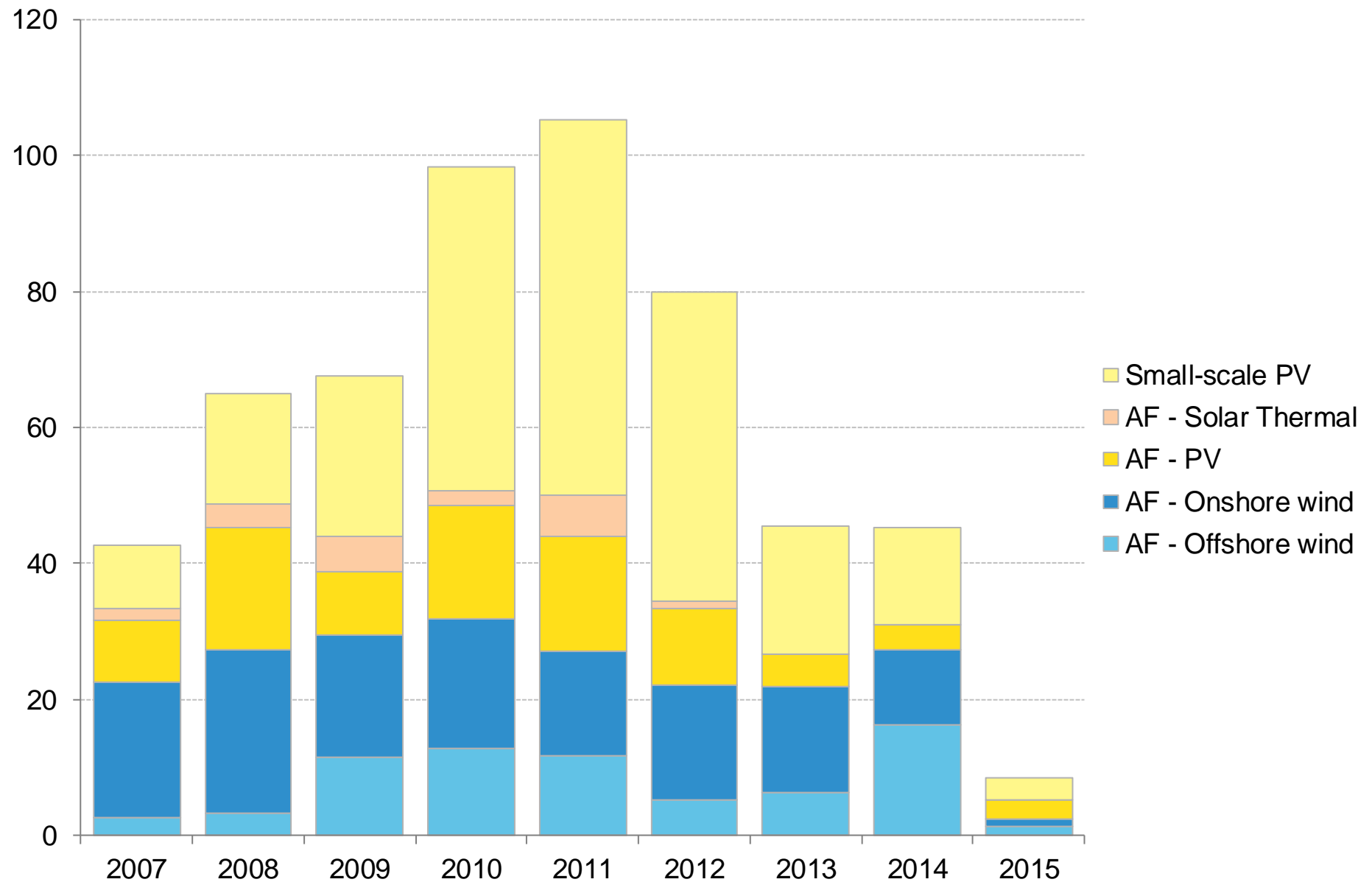
WORLD CLEAN ENERGY INVESTMENT, BY REGION

Q1 2007 TO Q1 2015 (\$BN)



Source: Bloomberg New Energy Finance

EUROPEAN CAPACITY INVESTMENT IN RENEWABLE ENERGY, BY SUB-SECTOR 2007-Q1 2015 (\$BN)



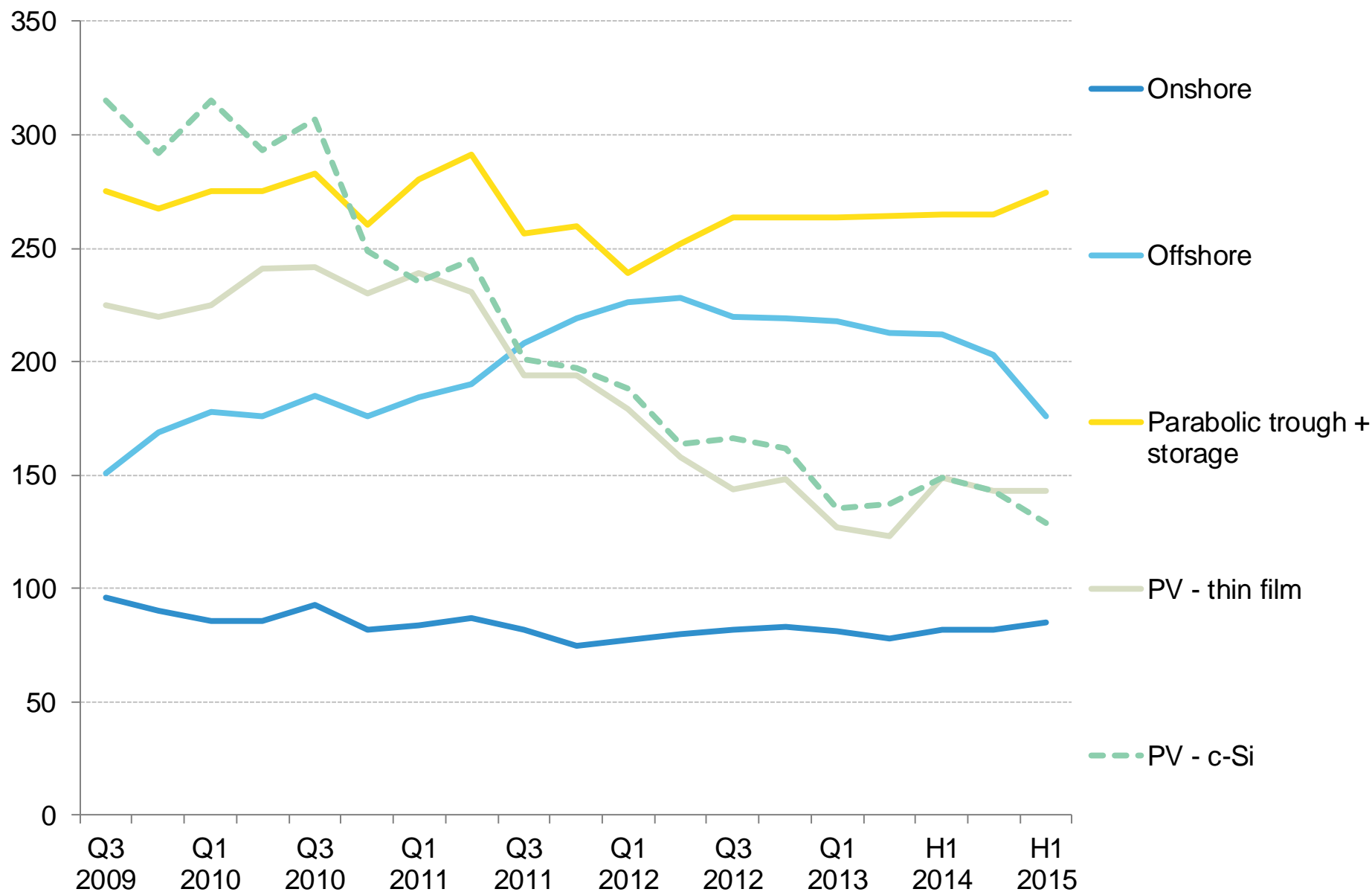
Source: Bloomberg New Energy Finance



TECHNOLOGY AND FINANCING HIGHLIGHTS

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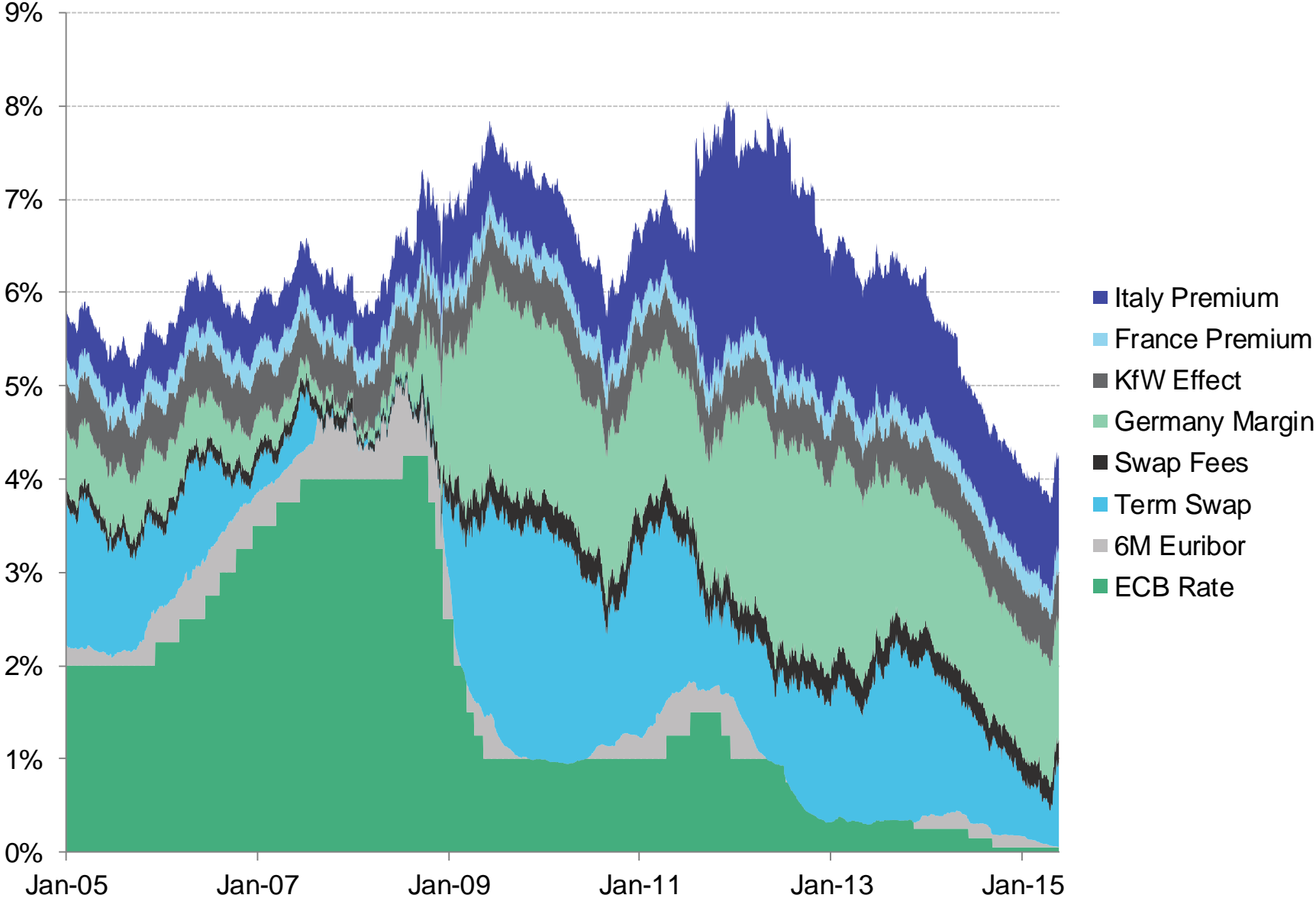
LEVELISED COST OF ELECTRICITY, SELECTED TECHNOLOGIES, \$ PER MWH Q3 2009 TO H1 2015



Source: Bloomberg New Energy Finance

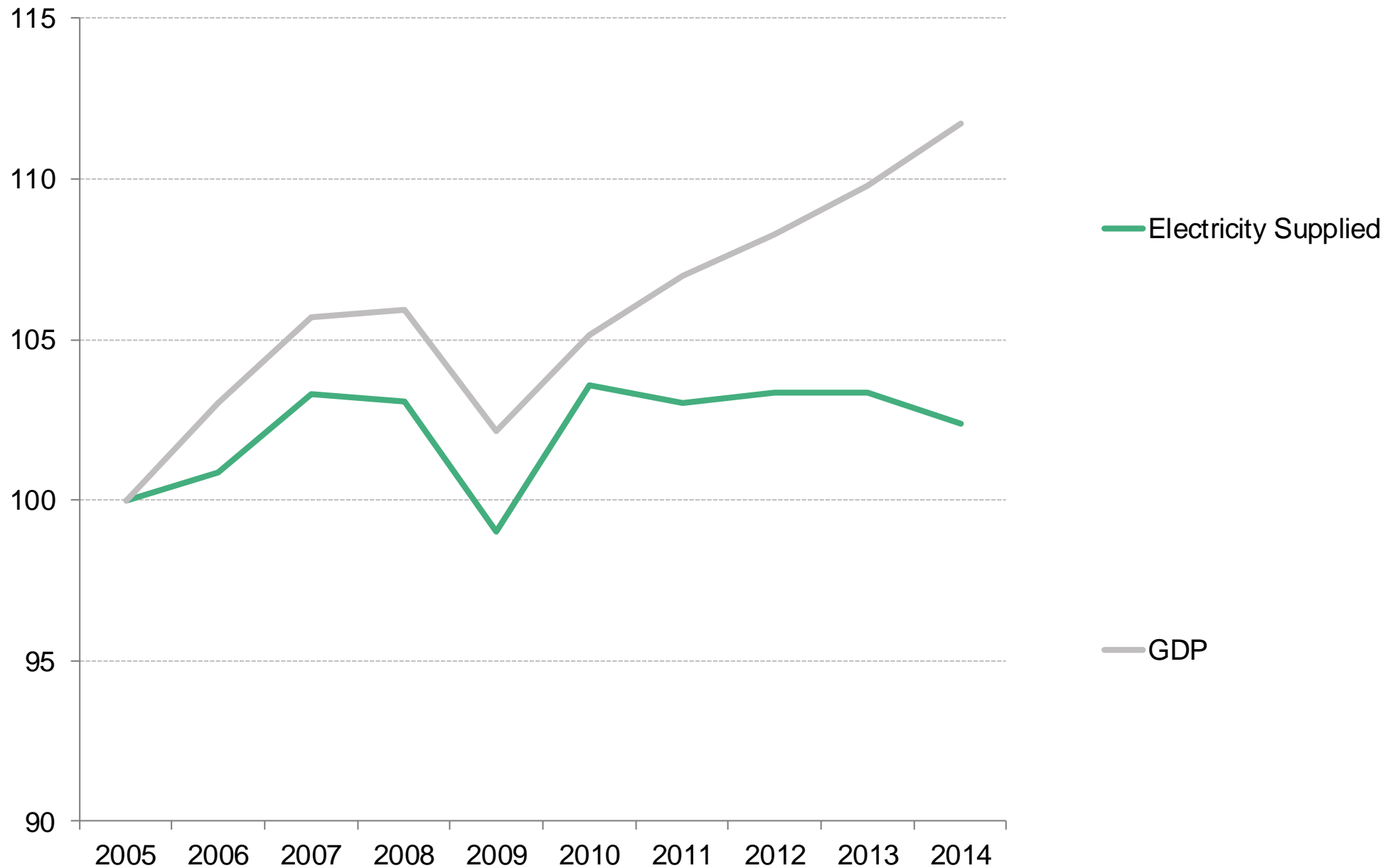
- Size of direct institutional deals: four Danish pension funds spending EUR 600m on half of Gode Wind, La Caisse spending GBP 644m on half of London Array.
- Biggest non-hydro project financing ever. Gemini EUR 2.8bn offshore wind, May 2014: two pension funds (PKA and NPI) providing subordinated loan/mezzanine of EUR 200m.
- UK quoted project funds raised another \$700m last autumn, and in February, ACS sold 51% stake in Saeta Yield, a vehicle containing Spanish wind and solar assets, for EUR 424m, in Madrid IPO in February.
- Morocco sees \$524m financing of solar thermal plants in May, Egypt holds first auction for wind and solar tariffs, Jordan commissions wind and PV projects.

INITIAL COST OF DEBT FOR ONSHORE WIND PROJECT, EURO AREA



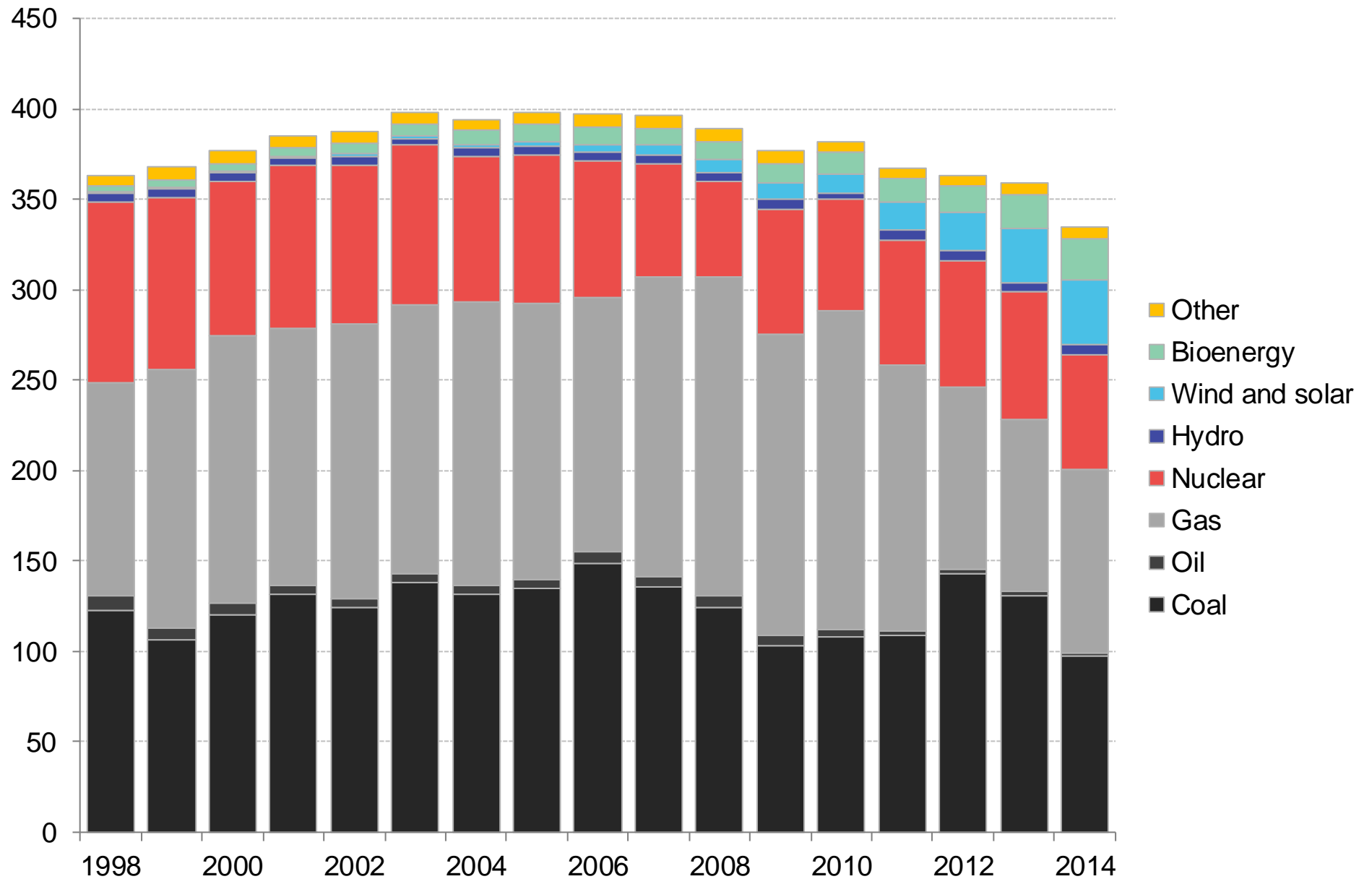
Source: Bloomberg New Energy Finance

ELECTRICITY DEMAND V GDP IN OECD COUNTRIES, 2005 = 100 2005-2014



Sources: International Energy Agency, OECD

UK ELECTRICITY GENERATION (TWH) 1998-2014



Source: DECC

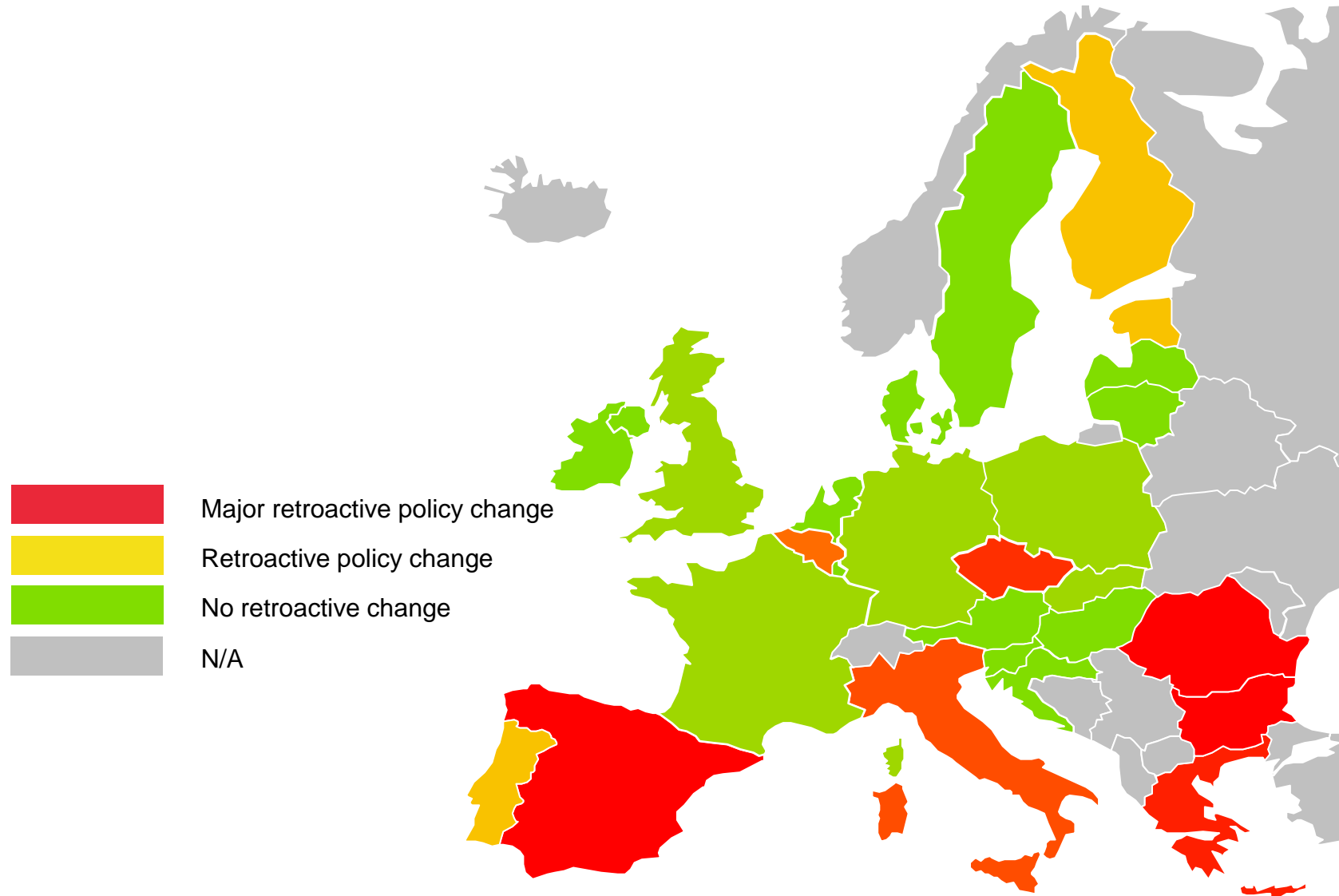


Source: Wikimedia Commons

POLICY – BARRIERS AND OPPORTUNITIES

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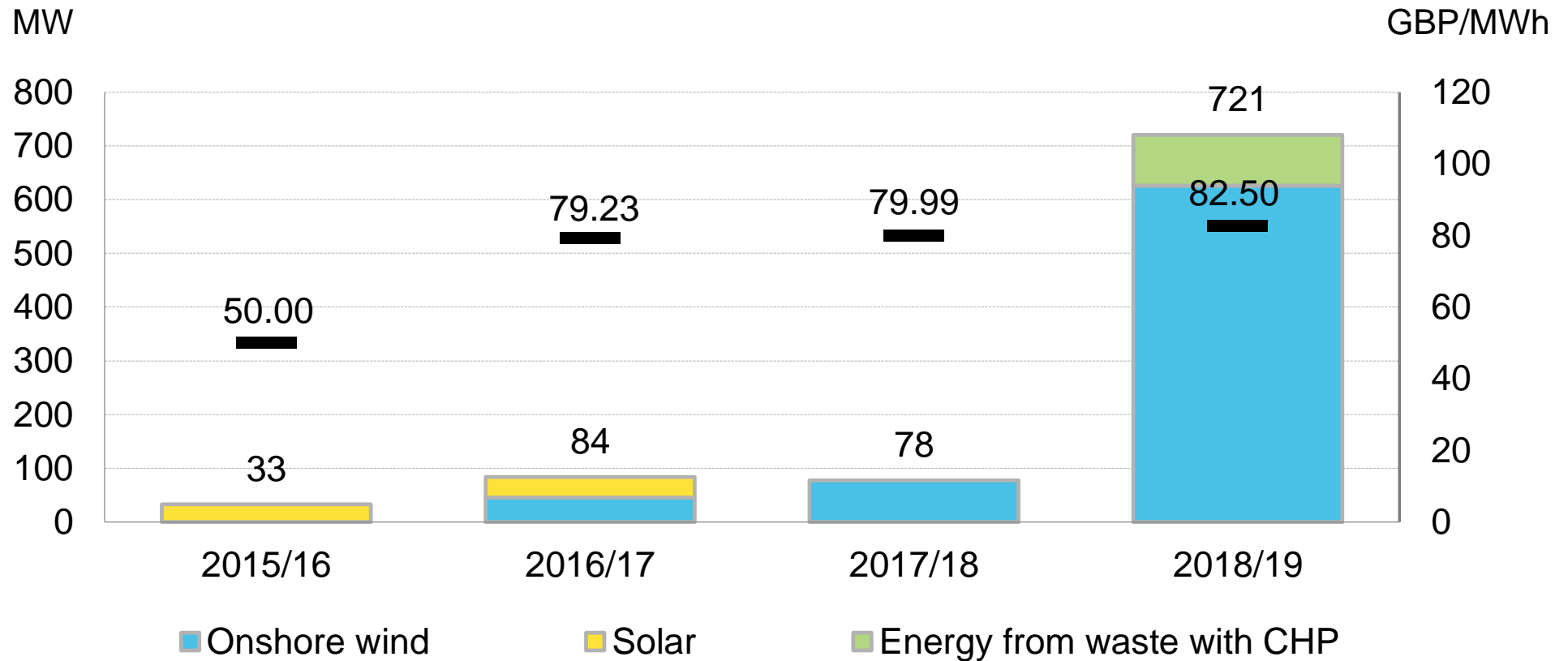
RETROACTIVE POLICY CHANGES IN EUROPE



Source: Bloomberg New Energy Finance

- New UK Conservative government set to stop subsidies for new onshore wind projects. Uncertainty over whether this includes projects that already have planning permission.
- The German government's first tender for PV projects saw 170 applications, heavily oversubscribing the 150MW capacity, with bids coming in at EUR 90-100 per MWh.
- Sweden and Norway agreed to raise the production target of their REC market, to remove oversupply of certificates.
- There is a general trend away from feed-in tariffs and green certificate systems towards auctions for renewable capacity, eg UK, Germany, Poland, Italy, France.

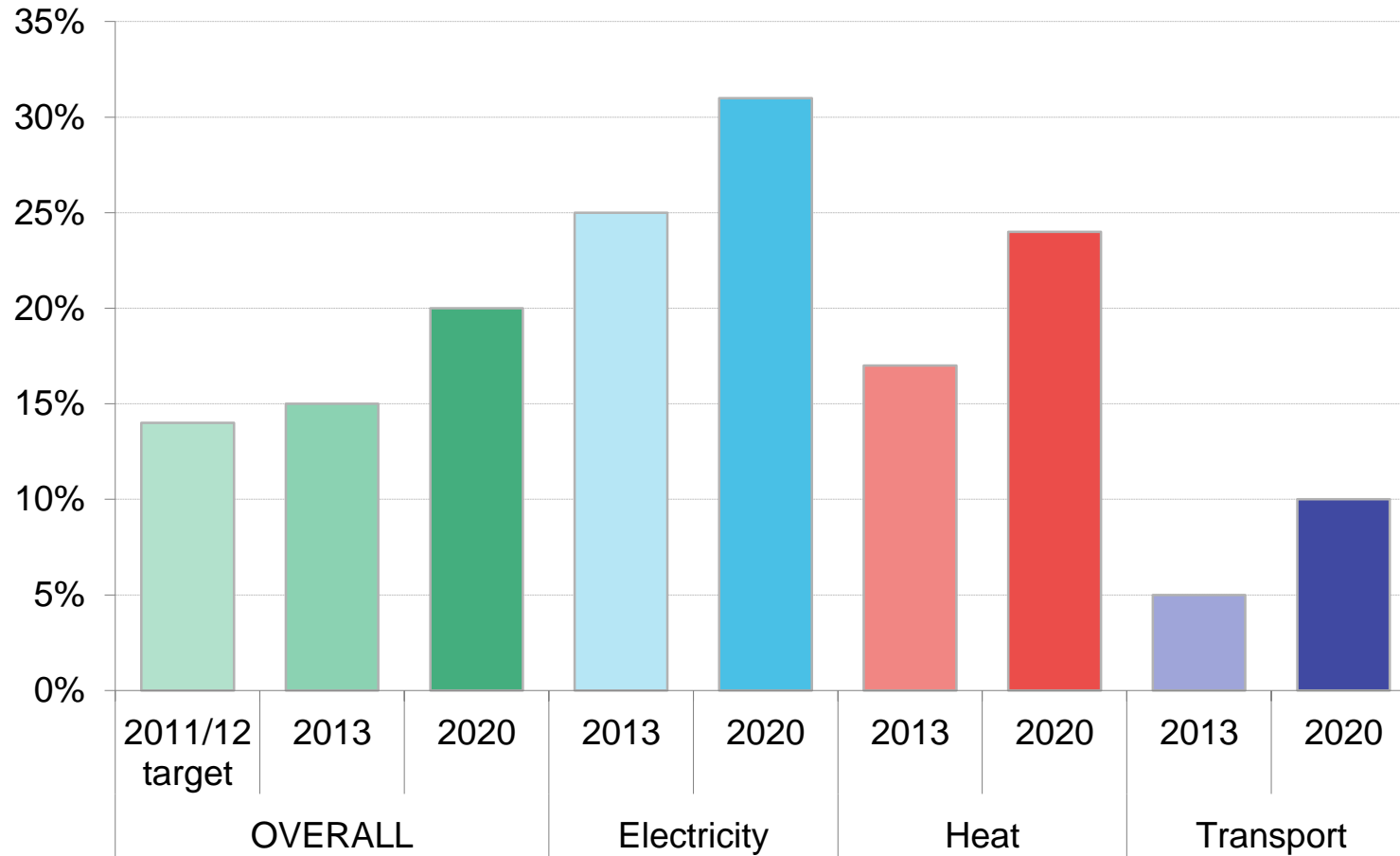
UK: FIRST CFD ALLOCATION ROUND 'POT 1'



Note: The clearing price in 2018/19 applies to onshore wind – the price for the energy from waste projects was capped at their administrative strike price of GBP 80/MWh. Prices are in 2012 values.

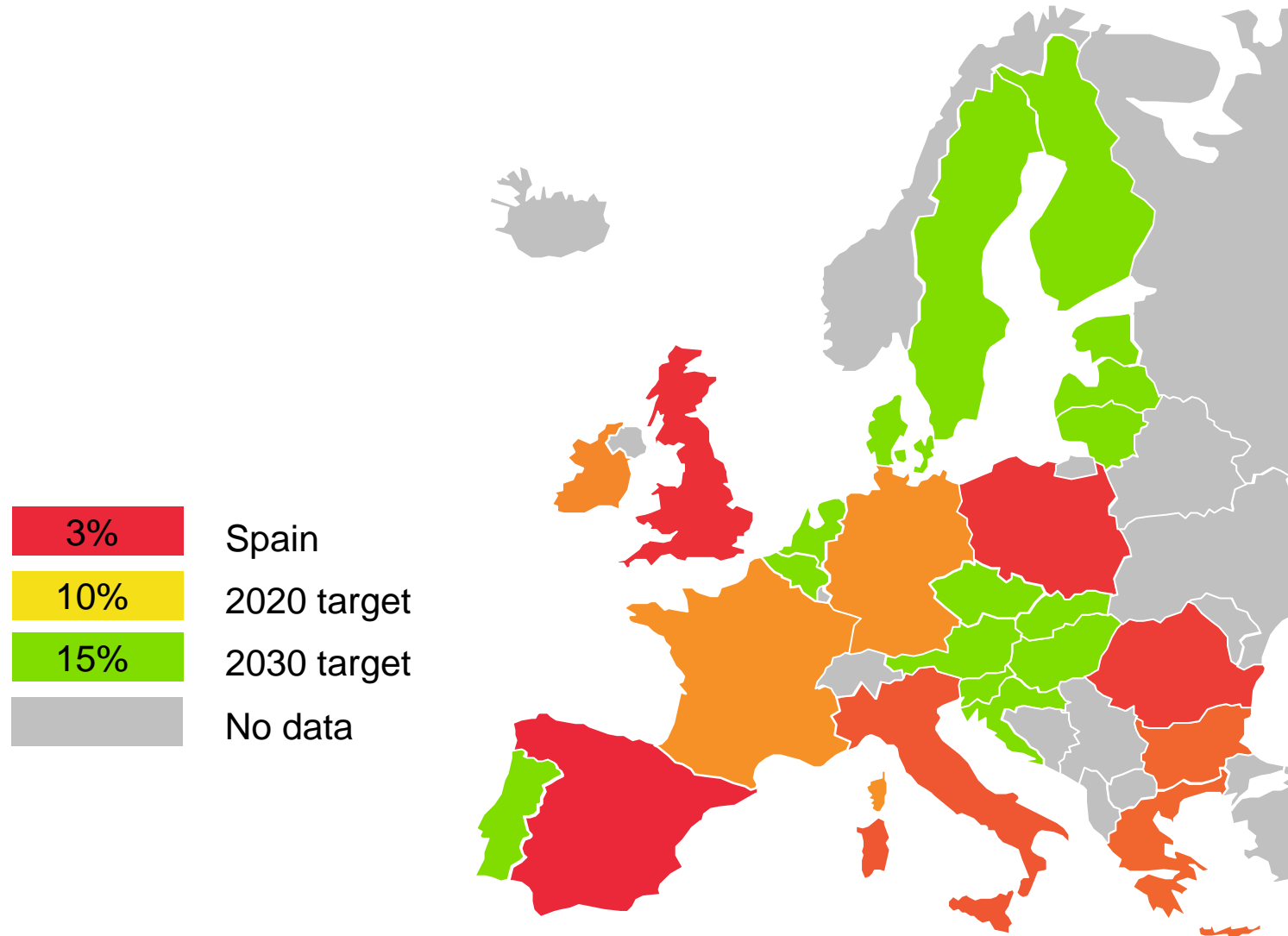
Source: Bloomberg New Energy Finance, DECC.

EU 28 PROGRESS TOWARD 2020 RENEWABLES TARGETS (%)



Source: Bloomberg New Energy Finance

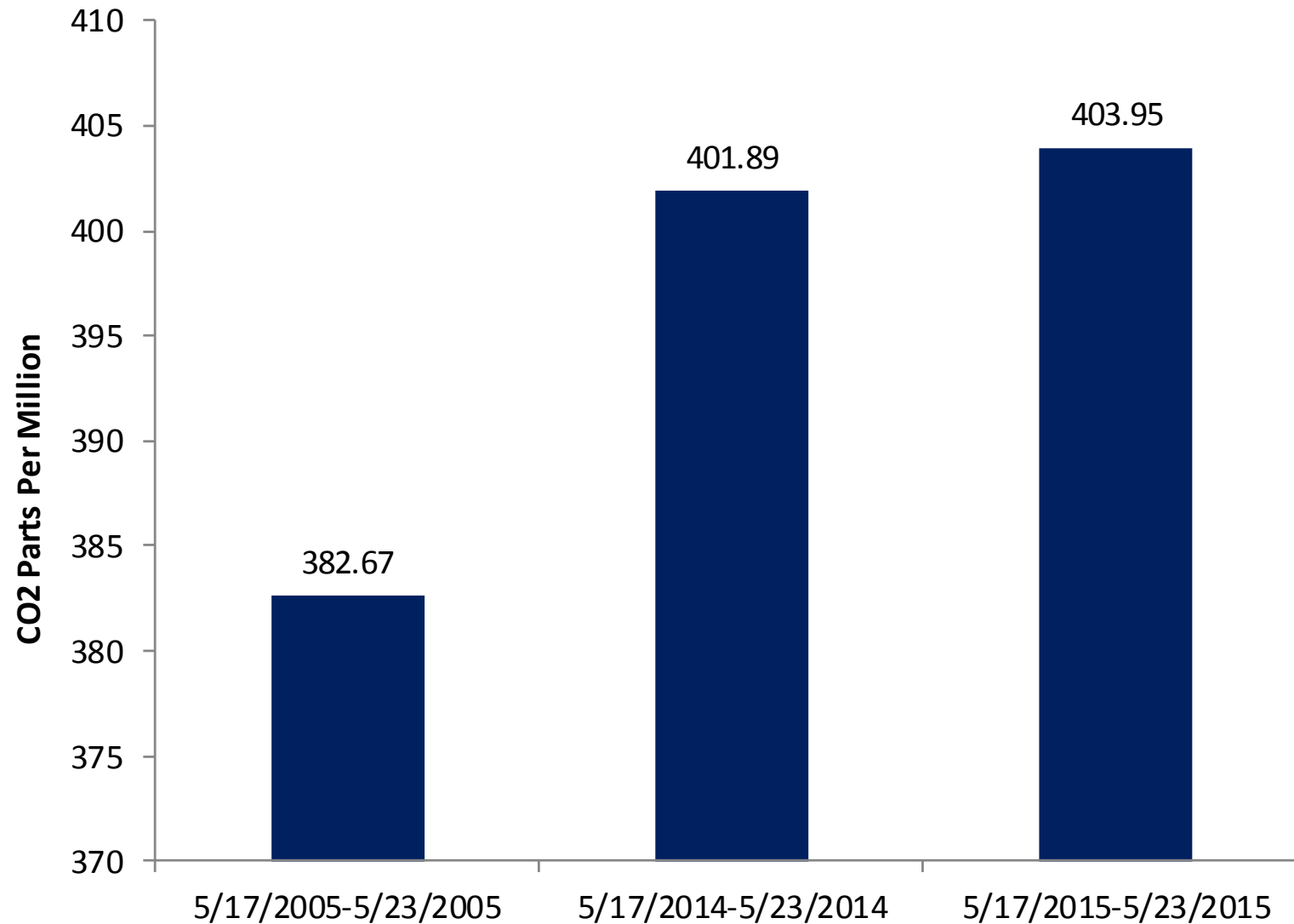
PROGRESS MADE TOWARDS EU INTERCONNECTION TARGETS AS OF 2014



Note: Level of interconnection is based on a country's average daily incoming Net Transfer Capacity in 2014 and its installed capacity. As of the end of 2014, 11 member states, including Germany, France, Spain and Italy, did not meet the 2020 target.

Source: TYNDP 2014, Bloomberg New Energy Finance

ATMOSPHERIC CO2 AT MAUNA LOA, HAWAII, PARTS PER MILLION



BloombergBriefs.com

Source: National Oceanic and Atmospheric Administration

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