

Energy and Climate Change

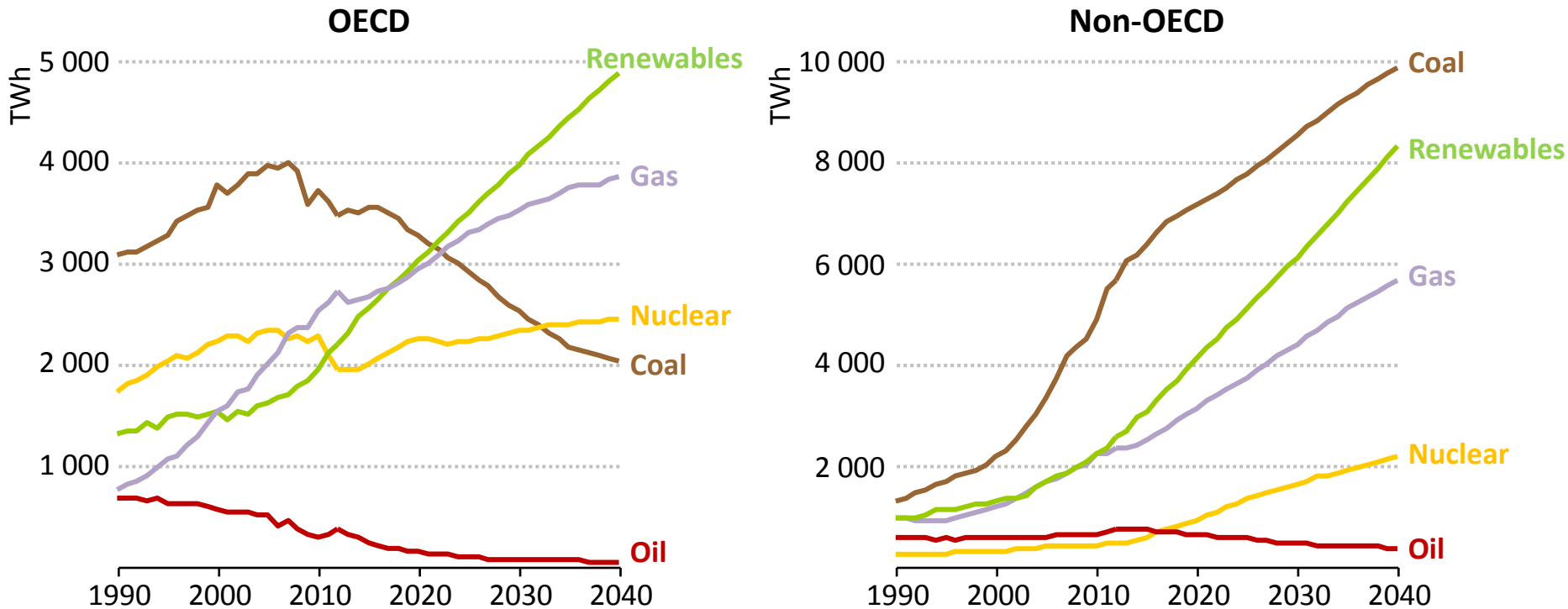
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Paris, 28 September 2015

Changing dynamics of power generation

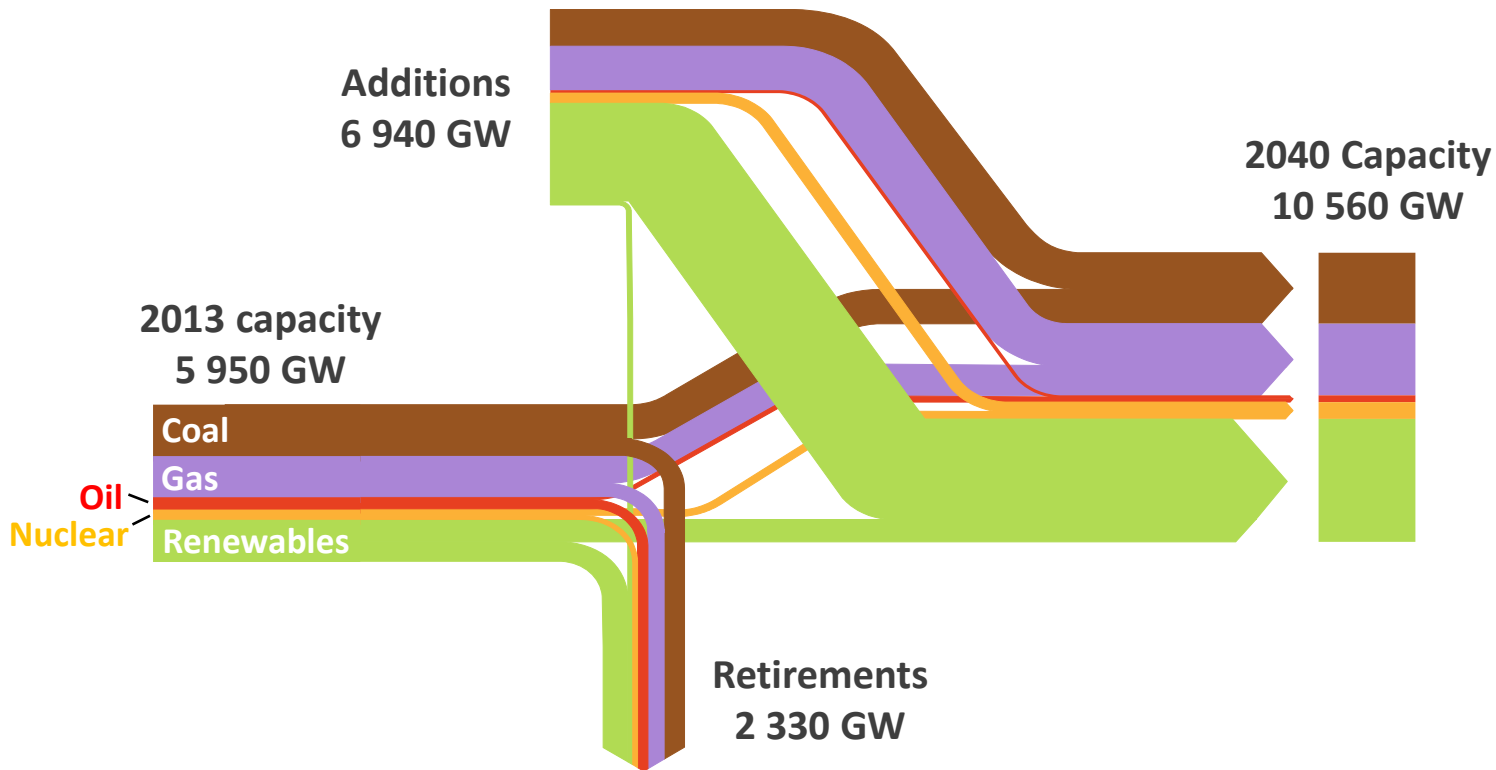
Electricity generation by fuel



Driven by policy support and by falling costs, renewables overtake coal as the largest source of power by 2040, led by non-OECD countries

Retirements add to the investment challenge in the power sector

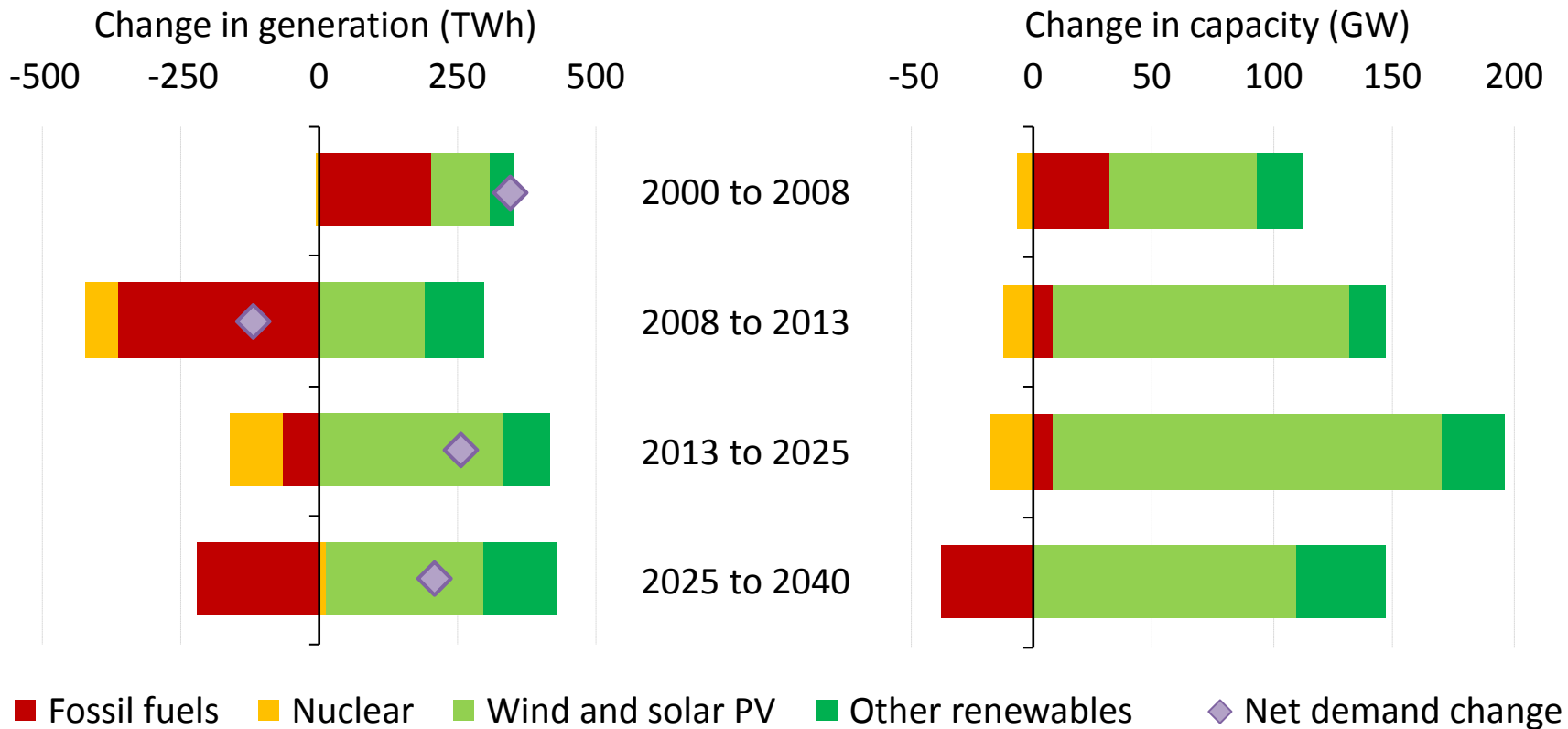
Global power capacity by source, 2013-2040



Despite limited demand growth, OECD countries account for one-third of global capacity additions – to compensate for retirements & to decarbonise

Different phases of deployment in the European Union

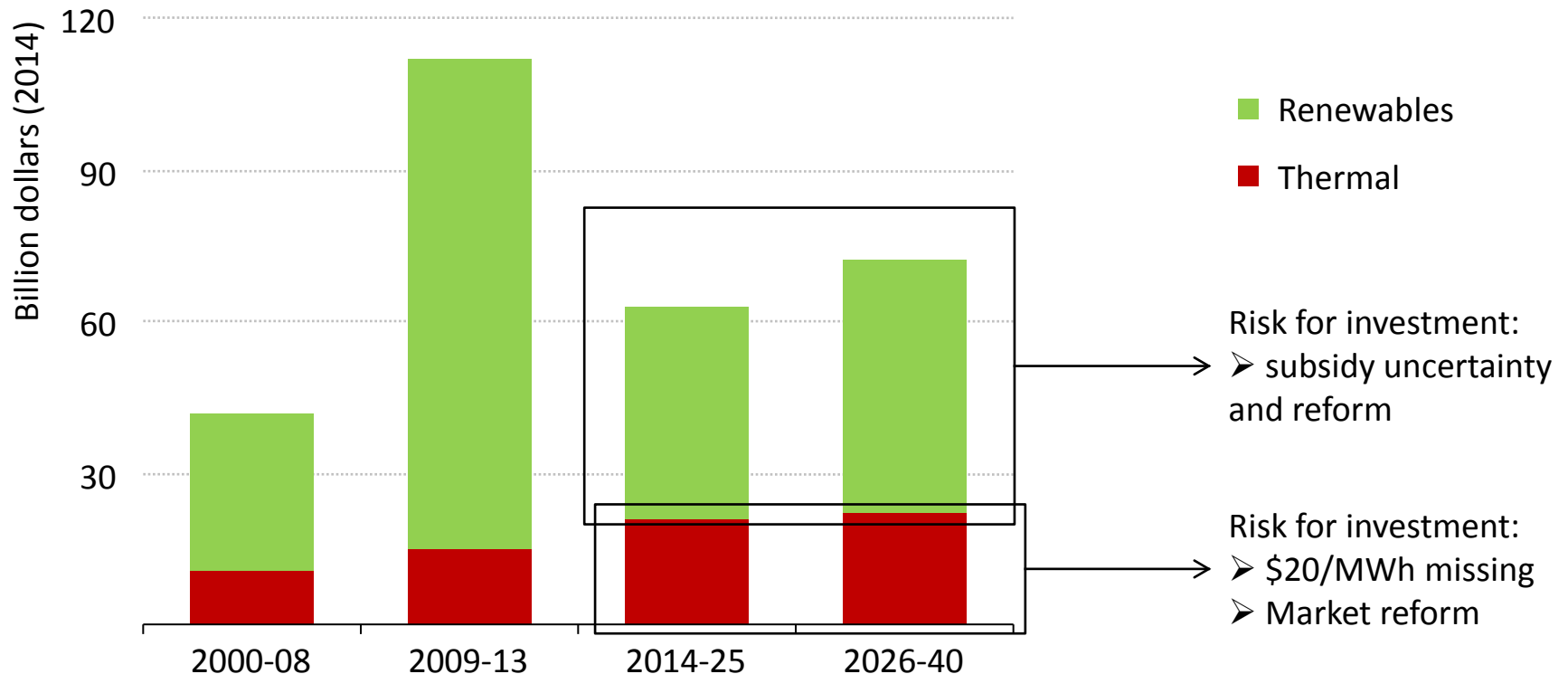
Incremental capacity and generation by type in the European Union



The overcapacity that followed the financial crisis and the strong support to deploy renewables led to low wholesale electricity prices

Will Europe keeps the lights on?

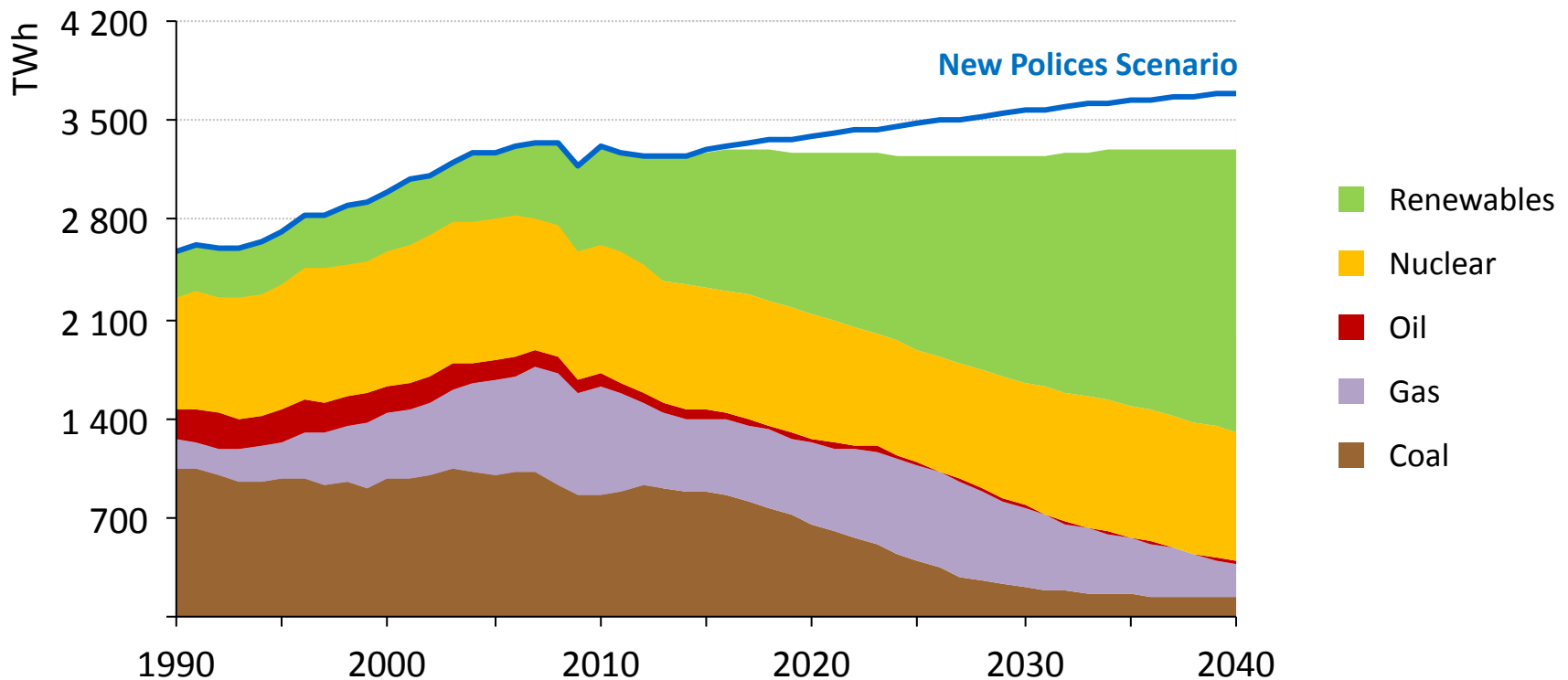
Investment in power plants by type in the European Union, 2000-2040



With a continuous decarbonisation efforts, reform of the power markets will be critical to maintain reliable electricity supply

Moving towards deeper decarbonisation

European Union electricity generation by source in the 450 Scenario



Market reforms need to be coherent with stronger and more rapid action in the 450 Scenario that help bring the low-carbon share to 90%

Conclusions

- Over the past decade, four-fifths of investment in European power generation went to renewables, 60% just to wind and solar PV
- Europe needs to invest \$2.7 trillion (2nd largest after China) to 2040 to replace ageing infrastructure & meet decarbonisation goals
- This investment won't happen with current market rules: wholesale power prices are on average 20\$/MWh below cost-recovery levels
- Current overcapacity offers some breathing space, but 100 GW of new thermal plants is needed before 2025 to safeguard reliability
- Market reforms are needed to maintain security of electricity supply, for both dispatchable plants and for renewables

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