Market RES

Scenario 2030: Transition to an electricity market dominated by fixed costs

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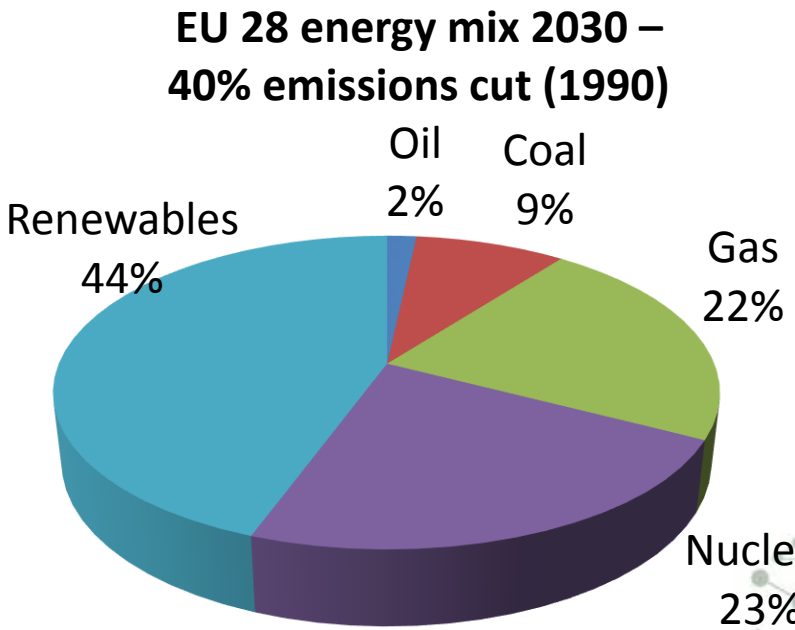
EU 2030 energy strategy

EU 2030 targets

- A 40% cut in greenhouse gas emissions compared to 1990 levels
- at least a 27% share of renewable energy consumption
- a 27% (30%) improvement in energy efficiency compared to projections



Source: Enerdata

A competitive, secure and sustainable economy and energy system

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WP5 Objective

As current RES support schemes are phased out after 2020 new kinds of market mechanisms will have to be implemented that will in accordance with the EU energy policy:

1. Promote a competitive market with large shares of renewables and without support mechanisms.

2. Guarantee security of supply by providing market incentives to invest in generation.

WP5 will define a framework in which the effectivenes of market mechanisms can be studied and provide the first results.

WP5 Objective

Evaluate the most promising market design alternatives in terms of:

- Economic efficiency
- Effectiveness at integrating a high share of RES-E and achieving climate objectives
- Effectiveness at ensuring security of supply
- Robustness against diverging possible developments
- Implementability (compatibility with regulation, cost,…)
- Fairness (distribution of costs and benefits, price discrimination,…)

Procedure

Scenarios 2030
- Economic growth, share of RES, transmission grid, DR, energy efficiency, technological, parameters, etc.

Stakeholder input

Market designs
- Long-term, short-term, very-short term
- CRM, RES support mechanisms

Stakeholder input

KPIs
- Efficiency, effectivenes, robustness, implementability, fairness

Selection process
- Which are the most relevant questions?
- Which questions can be answered with our tools?

Stakeholder input

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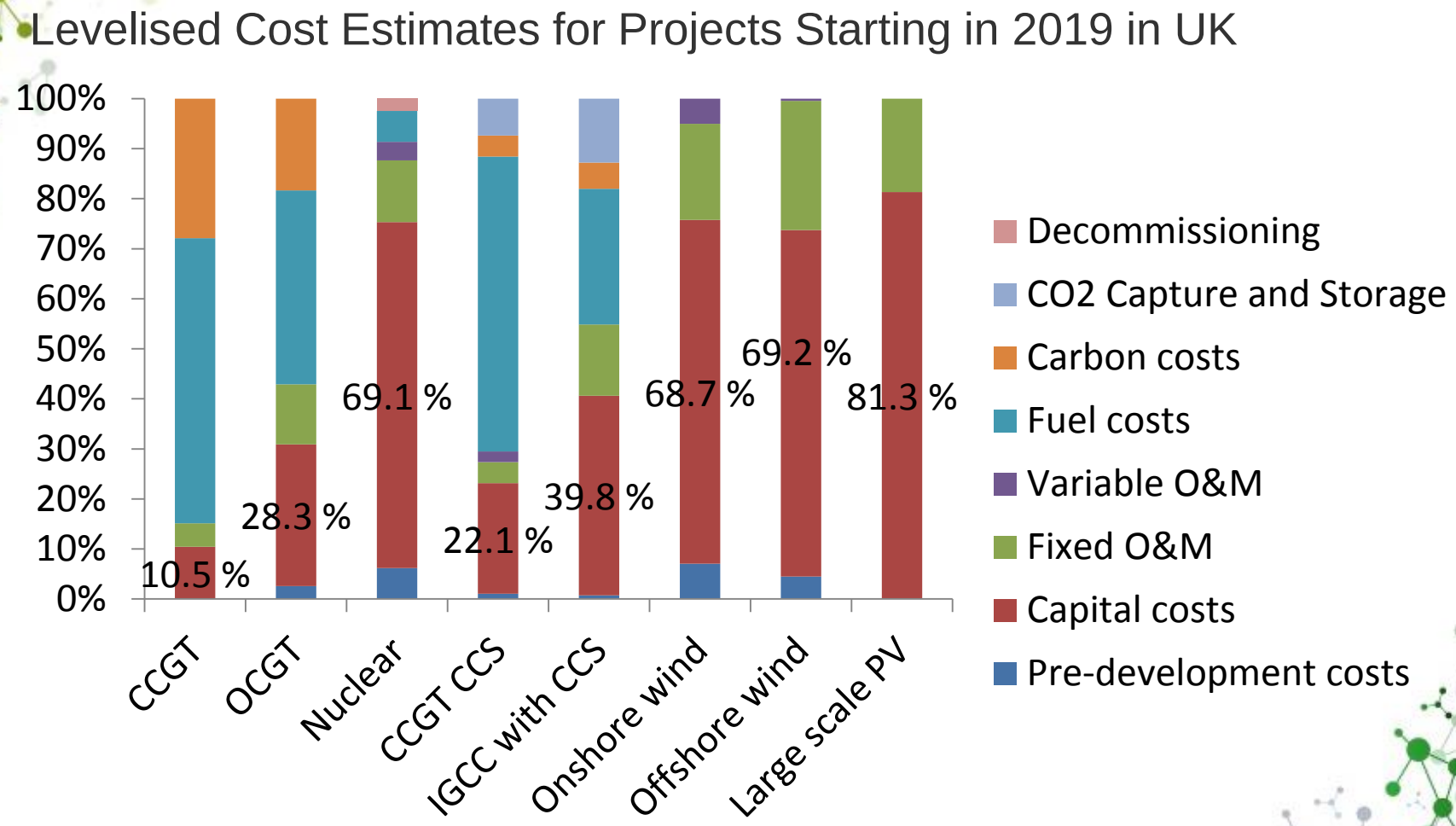
Cost breakdown of electricity generation



Source: Electricity generation costs 2013,DECC, UK.

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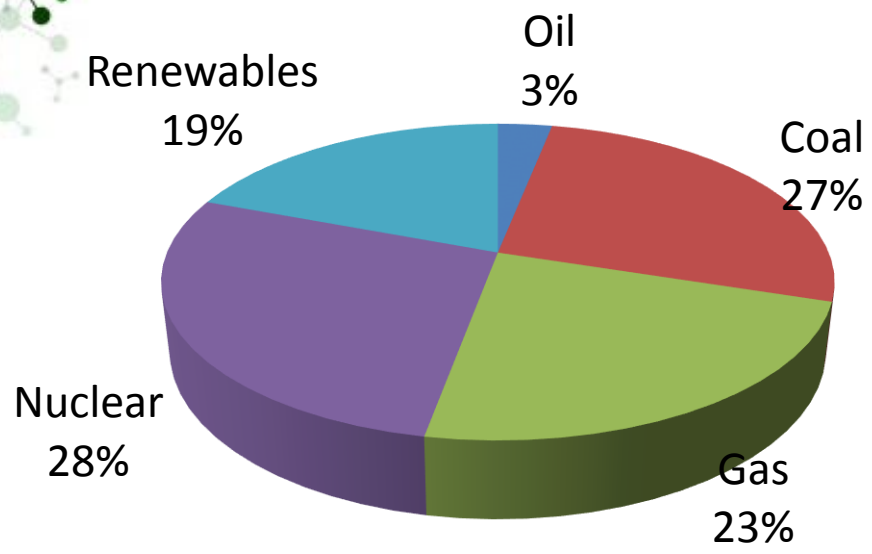
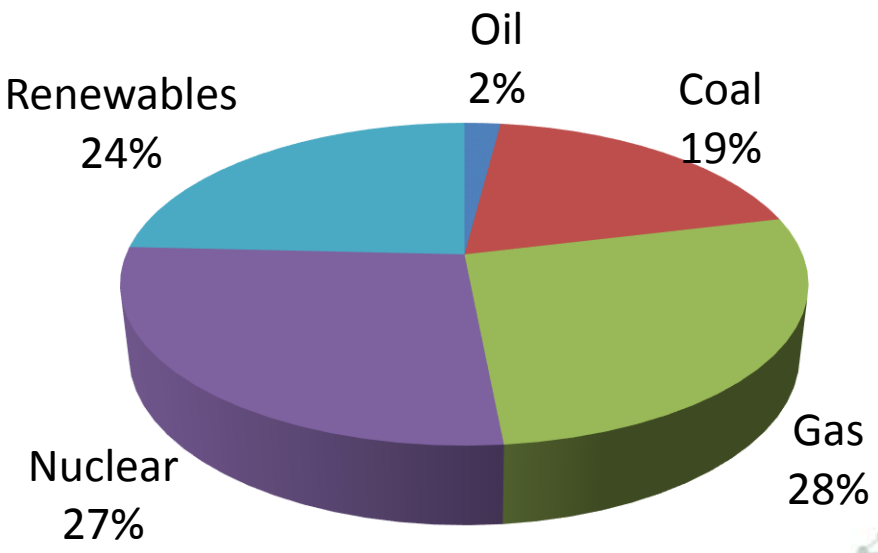
Rising share of capital costs in electricty mix

EU 28 energy mix 2008



Capital costs: 50,2%
Variable costs: 30,2%

EU 28 energy mix 2012



Capital costs: 51,0%
Variable costs: 29,9%

Sources: Electrical power visions 2040 for Europe, EUREL, EU Energy Market in 2014, EC.
Costs and Benefits to EU Member States of 2030 Climate and Energy Targets, Enerdata, UK.

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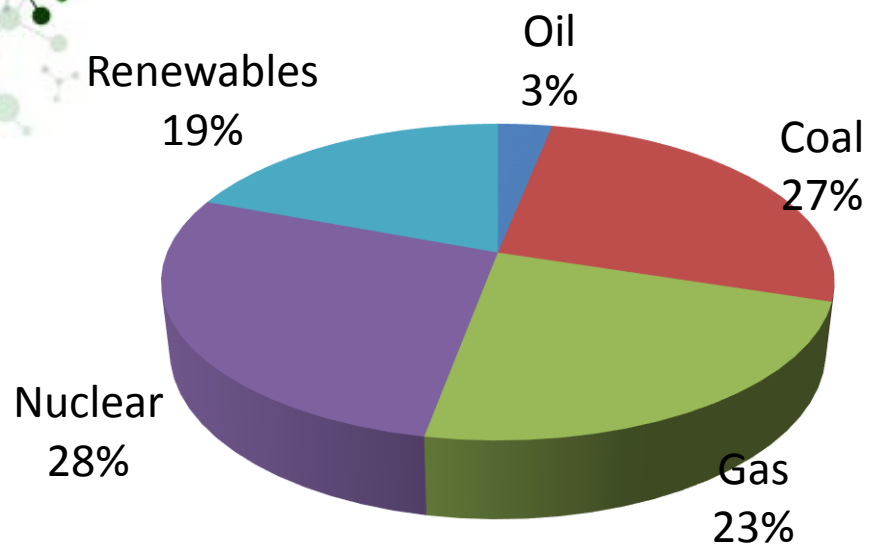
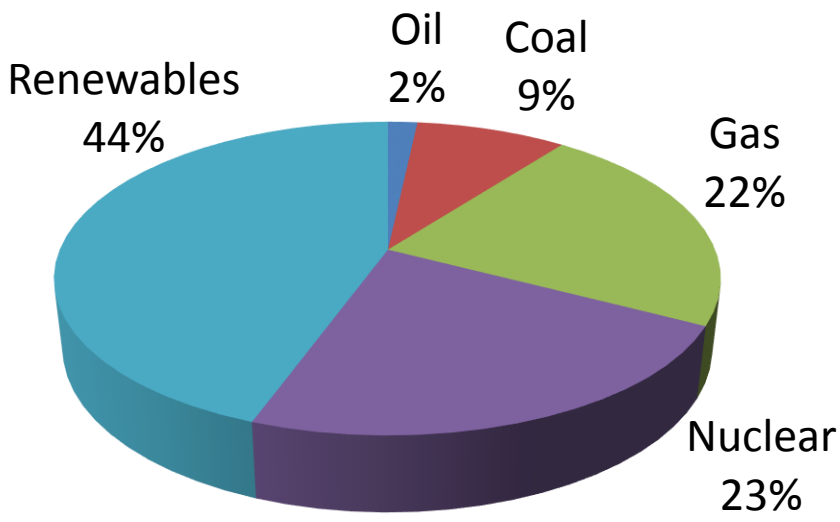
EU 28 energy mix 2008



Capital costs: 50,2%
Variable costs: 30,2%

EU 28 energy mix 2030 –
40% emissions cut over 1990



Capital costs: 57,7%
Variable costs: 22,6%

Sources: Electrical power visions 2040 for Europe, EUREL, EU Energy Market in 2014, EC.
Costs and Benefits to EU Member States of 2030 Climate and Energy Targets, Enerdata, UK.

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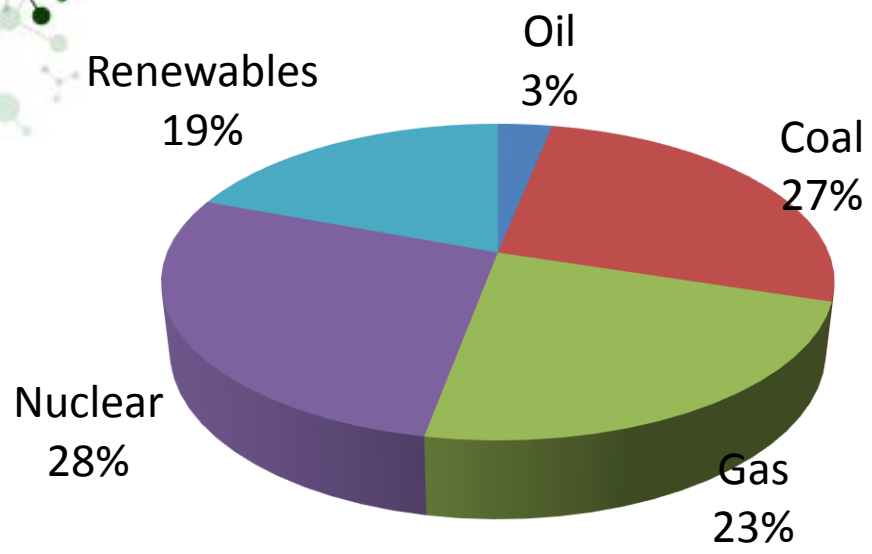
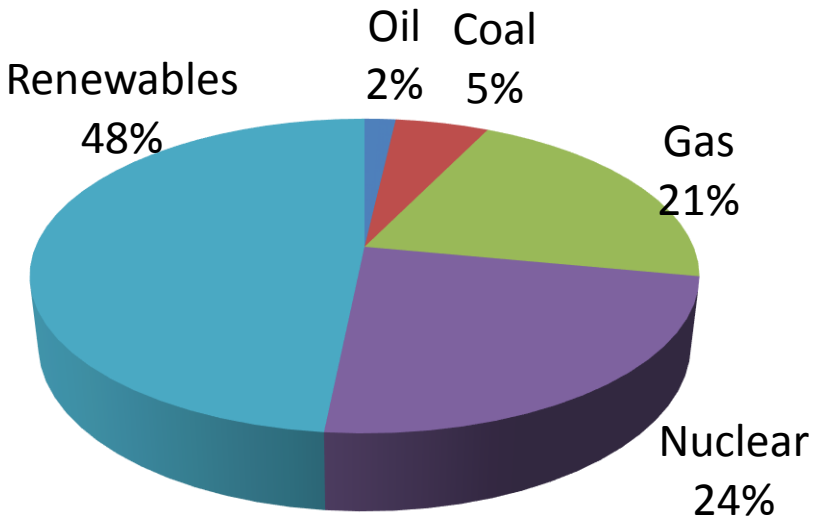
Rising share of capital costs in electricity mix

EU 28 energy mix 2008



Capital costs: 50,2%
Variable costs: 30,2%

EU 28 energy mix 2030 – 50% emissions cut over 1990



Capital costs: 59,4%
Variable costs: 21,0%

If storage and RES are to replace the remaining fossil fuels, the respective values become 74% and 3,8%.

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Effect of cost of capital on wholesale electricity prices

	Cost of capital (WACC)[1,2,3]				
	12%	14%	10%	9%	8%
Energy price as share of reference	**100%**	109%	92%	87,5%	84%

1. Share of CAPEX in total cost 57,7% (40% emissions cut)
2. Nominal before taxes!
3. Length of financing period 30 years.

Increased risk (WACC 14%) instead of reduced risk (WACC 9%) results in a difference of 24% in the final energy price.

Targeting investment risk will become increasingly interesting for reducing the cost of electricity.

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Contracts for Differences UK

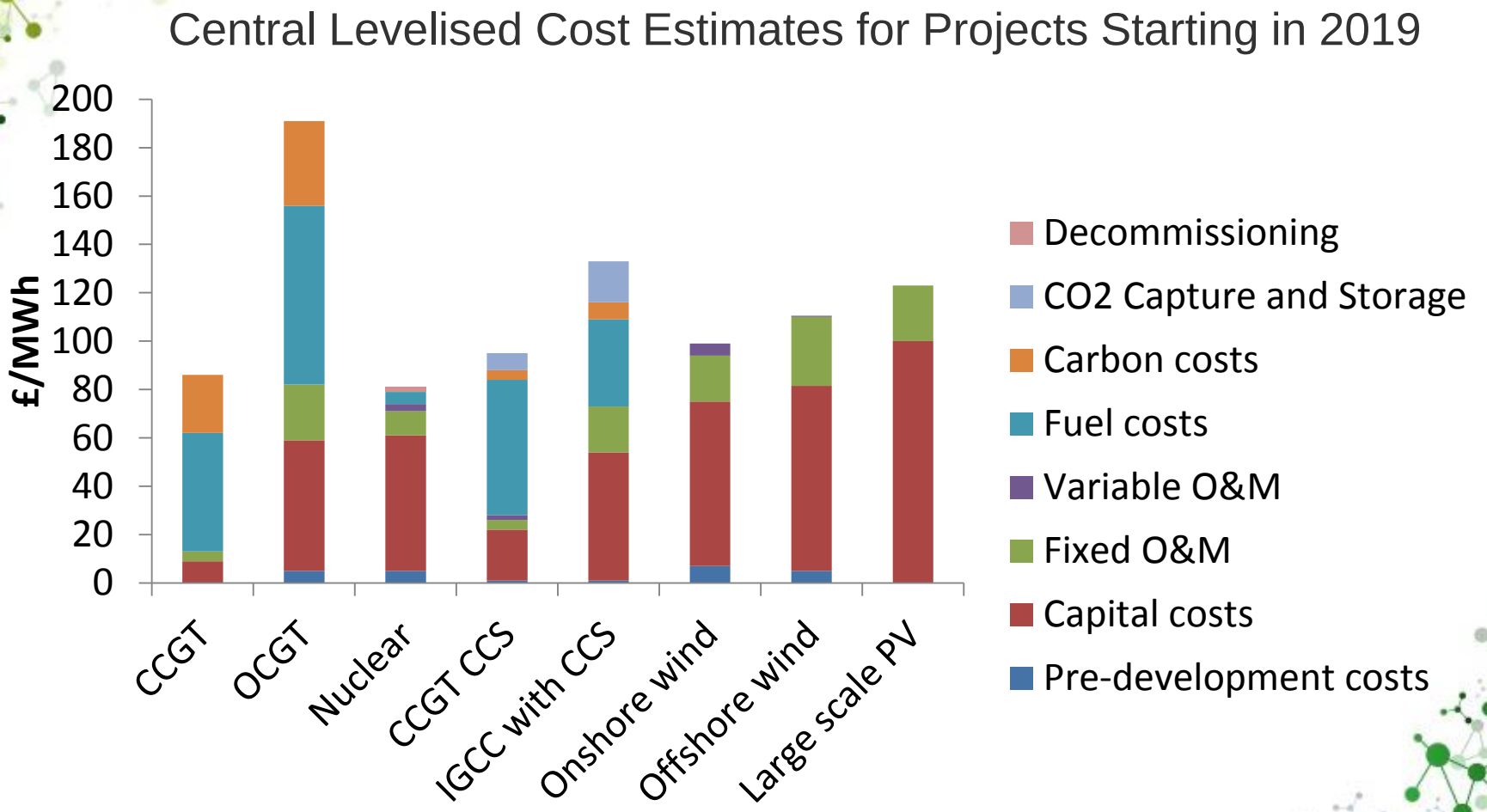
Foreign Direct Investment

Security of supply

25.000 jobs

Reduce WACC from 12%-14% to 10%

Cost breakdown of electricity generation



Source: Electricity generation costs 2013,DECC, UK.

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Thank you very much for your attention

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