

UK renewable energy – an update

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ofgem

Renewable energy – key challenges

1

Risks to security
of supply: short
on capacity



2

Costs to
consumers:
affordability of
subsidies



3

Climate change:
decarbonising
the electricity
market



Context: UK & Renewables

- The UK Government has set a target of 216-225 TWh, which is 15% of energy generation, from renewables by 2020
- Renewable Electricity is expected to contribute at least 30% (c.70TWh) of the target
- Renewable energy is to play a key part in a diverse, low carbon and secure energy mix

To deliver this the UK Government has introduced:

- incentives to encourage long term investment in large and small scale renewable energy, supporting supply chain development, cost reduction and innovation
 - incentivise the uptake of renewable electricity - Renewables Obligation (RO) and Feed in Tariff (FIT) scheme,
 - incentivise the uptake of renewable heat - Domestic and Non-Domestic Renewable Heat Incentive
 - encourage energy efficiency - Energy Companies Obligation
- Competitive tendering for transmission networks to connect Offshore windfarms to the onshore grid economically and effectively



Renewable Electricity schemes

In the UK Ofgem runs the following renewable electricity schemes on behalf of the Government:

Renewables obligation

- incentivises large scale renewable generation, including hydro, solar PV, biomass, wind, wave, tidal and geothermal
- places an obligation on UK electricity suppliers to source increasing proportion of their electricity from renewable sources
- remains open to new applicants until April 2017 when it will be replaced by Contracts for Difference (CfD)

Feed In Tariff

- focuses on incentivising domestic, small scale and community renewable installations (<5MW) in Great Britain
- eligible technologies are wind, hydro, solar PV, and anaerobic digestion

Both schemes have played a crucial role in supporting the accelerated deployment of commercial and small scale renewable electricity capacity in the UK



New incentives - Electricity Market Reform (EMR)

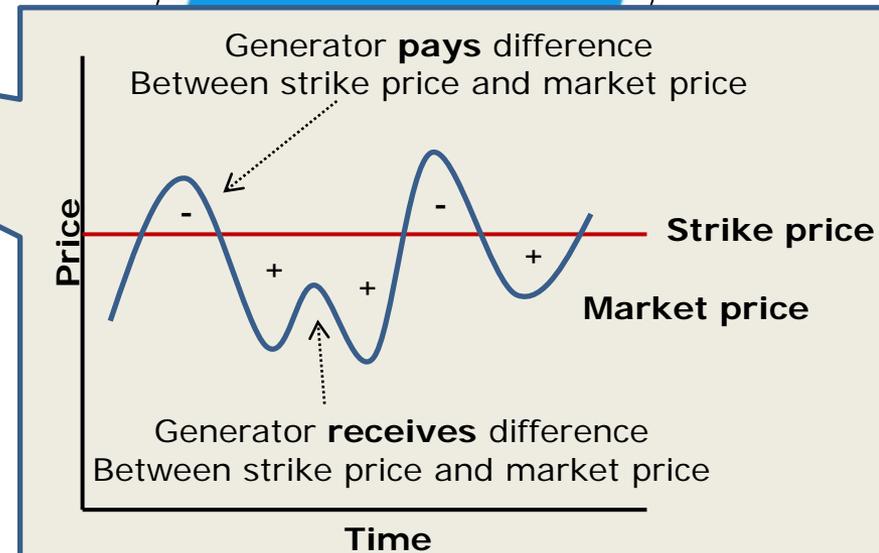
- EMR is designed to address the key challenges to the Electricity Market whilst attracting continued investment
- Lessons have been learnt from existing renewable electricity schemes with EMR aiming to lower costs for consumers

What are the main mechanisms?

- Capacity Market
- Contracts for Difference (CfD)
- Carbon Price Support
- Emissions Performance Standard

What are they designed to achieve?

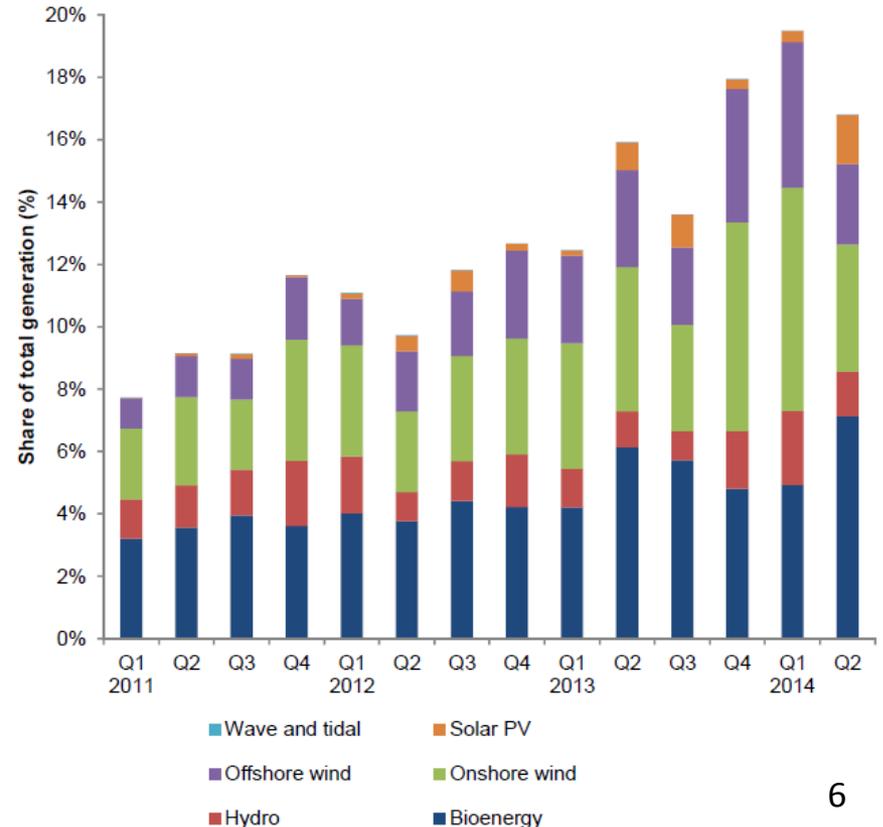
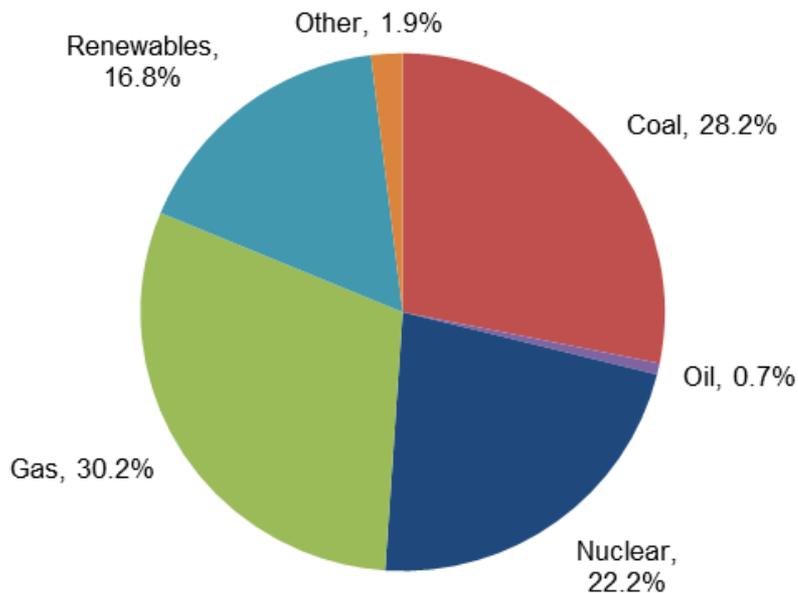
- Encourage investment in renewables through price certainty
- Easier/cheaper to secure finance than under renewable obligation (RO)
- Meeting the expectation of renewables making up at least 30% of the generation mix by 2020
- Helping to meet carbon targets – 80% reduction by 2050



Renewable electricity – energy progress to date

- Renewable generation has risen from 25.2TWh in 2009 to 53.7TWh in 2013
- A further increase in renewable generation is needed to meet Government’s expectation of at least 30% by 2020

Renewables’ current share of electricity generation – Q2, 2014



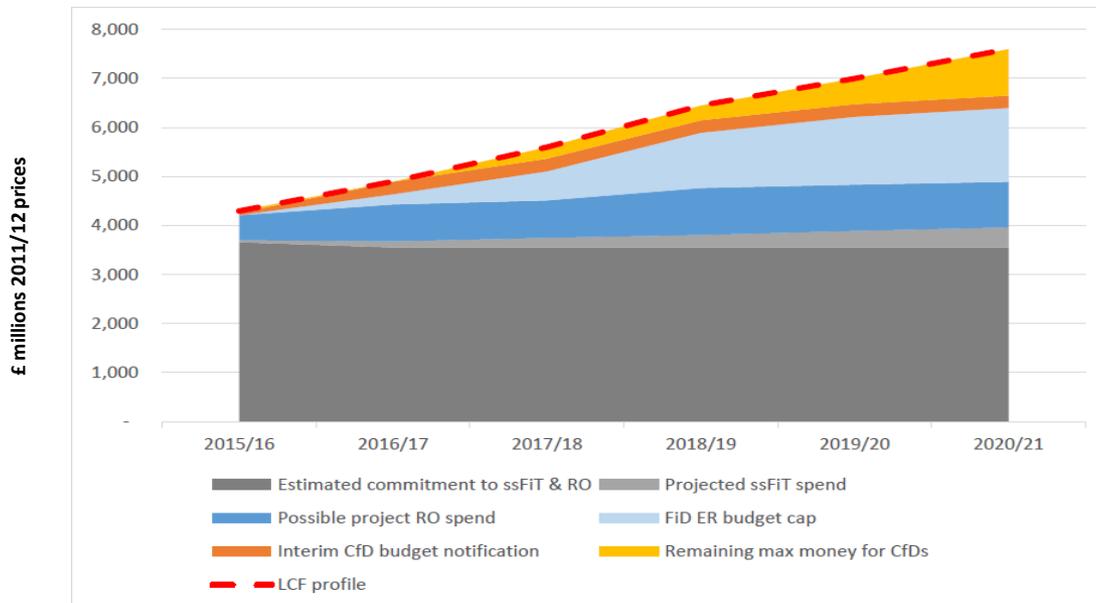
Renewable Energy: cost performance to date

Renewables Obligation (RO) - value committed to date: c.£50.4bn (£2.6bn in 2013/14). In 2013/14 the scheme resulted in 49.6TWh of renewable electricity.

Feed in Tariff (FIT) - value committed to date: c.£16bn. In 2013/14 the scheme resulted in 2.64TWh of renewable electricity generation

Contracts for Differences - There is still an amount of unallocated budget, which can be used for CfD. The cap is £7.6bn in 2020/21 (real 2011/12 prices) but there is 20% headroom above the cap available.

The **following chart** shows the proportion of the total budget forecast for each scheme in £m 2011/12 prices.



Source: RenewableUK

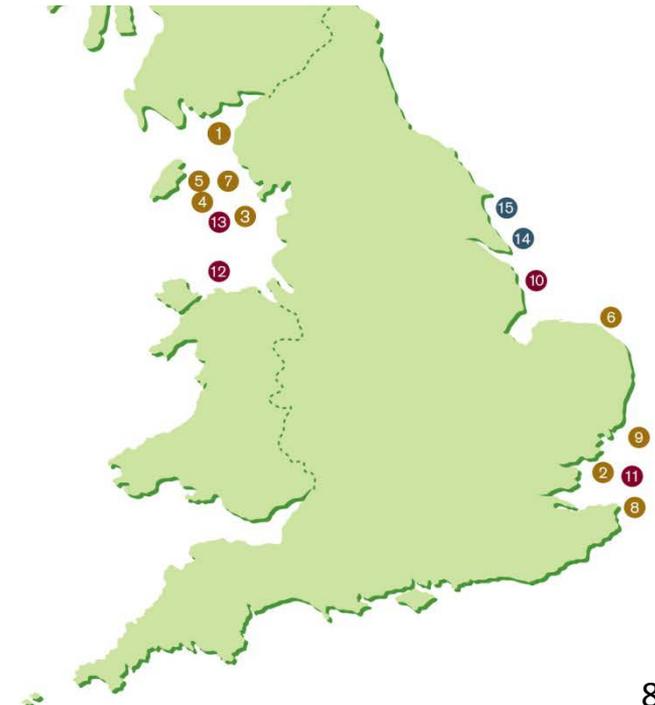


Offshore Transmission regime design

The regime is an innovative approach designed and run by Ofgem to:

- ensure electricity links delivering power to shore are fit for purpose and provide value for money
- attract new entrants and funding to invest in offshore wind energy
- current projects are built by wind-farm developer and tender is run for owner/operator – future tenders expected to include construction

| ● Transitional Round 1 | ● Transitional Round 2 | ● Tender Round 3 Project |
|----------------------------------|---------------------------------|--------------------------|
| 1 Robin Rigg (182MW) | 9 Greater Gabbard (500MW) | |
| 2 Gunfleet Sands 1 and 2 (164MW) | 10 Lincs (250MW) | |
| 3 Barrow (90MW) | 11 London Array (690MW) | |
| 4 Walney 1 (184MW) | 12 Gwyn y Mor (565MW) | |
| 5 Walney 2 (184MW) | 13 West of Duddon Sands (382MW) | |
| 6 Sheringham Shoal (316MW) | 14 Humber Gateway (220MW) | |
| 7 Ormonde (150MW) | 15 Westernmost Rough (205MW) | |
| 8 Thanet (300MW) | | |



Offshore Transmission: delivering outcomes

The Offshore Transmission regime has been successful at:

- lowering the cost of capital, for building and operating assets
 - providing value for money for energy consumers
- enabling wind farm developers to recycle capital into future projects
- enabling new players to bring innovative technical, operational and financial solutions to the connection of offshore wind farms
 - eg innovative Project Bond financing Greater Gabbard

It has achieved this by:

- running a fair, robust and well proven tender process for offshore transmission assets
- providing a lighter touch regulatory approach - no need for regular price control reviews
- creating an attractive investment sector - low risk asset class and low counterparty risk
- guaranteeing a 20 year revenue stream - with well defined incentives to prevent poor performance



Offshore Transmission: key figures

- 3** Tender rounds initiated (TR1 2009, TR2 2010-13, TR3 2014)
- 15** Total number of projects in the first 3 tender rounds
- 9** Number of operational OFTOs in place
- 29** Parties involved in bidding for assets at the Pre-Qualification (PQ)/ Invitation to Tender (ITT) stages - transitional tender rounds
- 35** Number of different funders at the Invitation to ITT stage - transitional tender rounds
- Over 99%** OFTO availability performance
- £2.9bn** Value of OFTO assets tendered to date
- £1.4bn** Investment attracted by the regime to date
- 3.9GW** Amount of offshore wind capacity currently connected in TR1/TR2



Challenges ahead

Meeting Government climate change targets in the most cost effective and secure way, whilst minimising the impact on consumer bills:

- **Security of Supply**

- Ensuring long term investment certainty to encourage innovation, cost reduction, supply chain development
- Addressing increase in intermittent generation capacity
- Interconnections

- **Affordability**

- Transparency of decarbonisation subsidy costs
- Increased use of competition for both generation subsidy and transmission investment, including onshore networks

- **Decarbonisation**

- Expectation that renewables will make up at least 30% of the generation mix by 2020
- Pathway to meet higher carbon targets – 80% reduction by 2050

- **Investment**

- £100bn of electricity infrastructure investment required by 2020



Ofgem is the Office of Gas and Electricity Markets.

Our priority is to protect and to make a positive difference for all energy consumers. We work to promote value for money, security of supply and sustainability for present and future generations. We do this through the supervision and development of markets, regulation and the delivery of government schemes.

We work effectively with, but independently of, government, the energy industry and other stakeholders. We do so within a legal framework determined by the UK government and the European Union.