

The Law of Unintended Consequences

The Government’s introduction in the Budget on 22 April of an enhanced ROC regime for offshore wind projects commissioning in the near future was intended to stimulate investment in the face of rising costs. It clearly did its job – within a month of the announcement DONG Energy, E.ON UK and Masdar made commitments to build 1 GW of new capacity which had apparently been under threat as a result of rising capital costs. However, as always one needs to be aware of the potential for unintended outcomes – in this case there appears to be the possibility that the measures could result in a longer term reduction in both the value of ROCs and the amount of new renewable capacity brought online.

IPA Energy + Water Economics’s most recent quarterly Great Britain electricity market forecast, *PowerView*, has examined the impact of the new measures on the market and concludes that the scheme, which applies only to capacity which commits funding and starts construction by the end of 2012, will bring forward investment, but that the consequent reduction in the value of Renewable Obligation Certificates (ROCs) by 2019 may mean that the overall level of renewable generation could be lower than would have been the case without the stimulus measure.

The Renewables Obligation (RO) is the Government’s principal support measure for investment in new renewable electricity generation capacity to help ensure that the UK meets its European Union target of supplying 15% of all energy from renewable sources. Electricity suppliers are obliged to either surrender a steadily increasing proportion of ROCs compared to their sales or pay a “buy out” price for any shortfall. The buy out payments are then recycled back to those who surrendered ROCs increasing the value of the certificates. Up to April this year, all renewable generation earned 1 ROC for each MWh of electricity generated. This has been moderately successful, having resulted in renewable capacity growing from 3.5 GW in 2003 to 16 GW in 2007 (source: *Digest of United Kingdom Energy Statistics 2008*, BERR). However, as the value of a ROC was the same regardless of the source, developers tended to focus only the most economic sources – principally landfill gas and onshore wind – leaving other technologies unexploited. The change to RO from 1st April introduced “banding” so that different technologies would earn a different number of ROCs depending on the technology employed:

Stage	Technologies	ROCs per MWh
Established 1	Landfill Gas	0.25
Established 2	Sewage Gas Co-Firing of Biomass	0.5
Reference	Onshore Wind Hydro Co-Firing of Energy Crops Energy-from-Waste with CHP Geopressure Co-Firing of Biomass with CHP Standard Gasification Standard Pyrolysis	1
Post-Demonstration	Offshore Wind Dedicated Biomass Co-Firing of Energy Crops with CHP	1.5

Stage	Technologies	ROCs per MWh
Emerging	Wave	2
	Tidal Stream	
	Advanced Gasification	
	Advanced Pyrolysis	
	Anaerobic Digestion	
	Dedicated Energy Crops with or without CHP	
	Biomass with CHP	
	Solar Photovoltaic	
	Geothermal	
	Tidal Impoundment: Lagoons and Barrages	

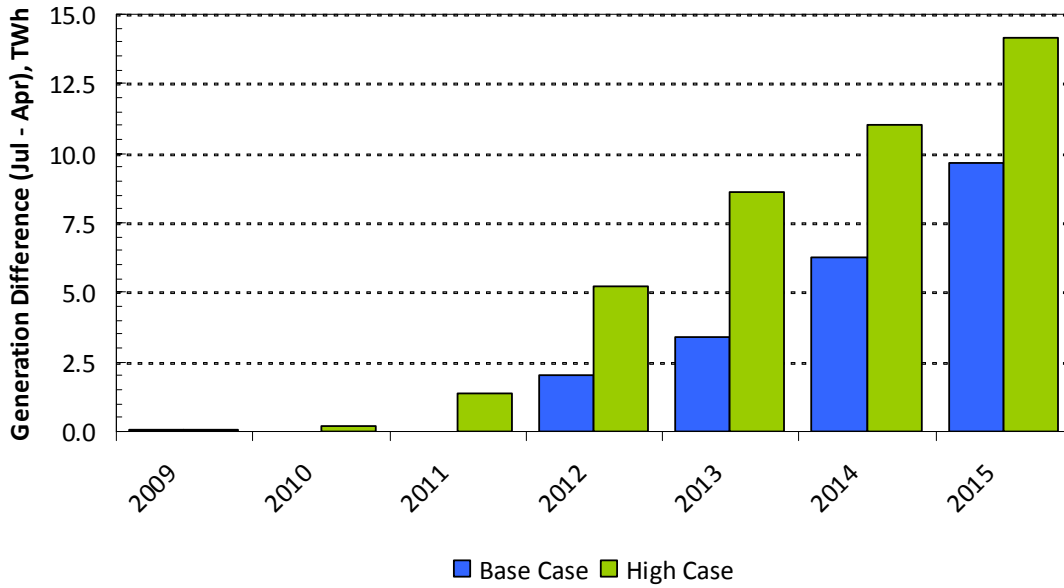
Despite the new banding regime only having come into effect at the start of the month, in the Budget the Chancellor announced a further review of the Renewables Obligation with the intention of providing short-term extra support for offshore wind farms. This had followed lobbying by the British Wind Energy Association (BWEA) and a number of industry players including Centrica (who had announced at the end of March that they were indefinitely deferring their 250 MW Lincs project) and E.ON UK (particularly in relation to their flagship 1,000 MW London array project), with much concern expressed about recent capital cost increases for offshore projects to £3,100/kW, partly as a result of Sterling’s depreciation, and the general unavailability of finance as a result of the global credit crunch and recession. Wind farm projects for which investment was committed by 31 March 2010 and construction started by the end of 2011 would receive 2.0 ROCs per MWh generated, and those committed by 31 March 2011 (and starting construction by December 2012) would receive 1.75 ROC/MWh, with later projects then reverting to the 1.5 ROC/MWh originally intended under the banding regime.

The change appeared to have the desired effect as DONG Energy immediately announced that they would build the 367 MW Walney I and II projects in the Irish Sea at an estimated investment cost of DKK9.7bn (~£1.1bn or £3,100/kW), and then in May, DONG, E.ON UK and Masdar announced that the first phase of London Array (630 MW) would also proceed, at a cost of €2.2bn (also ~£3,100/kW), aiming to be completed by 2012. (It is not clear what StatoilHydro and Statkraft made of the announcement though, having stated that they were proceeding with the 315 MW Sheringham Shoal project on 1 April at a similar estimated unit cost and hence not being eligible for the additional ROCs.)

It is likely that other developers will also seek to accelerate projects to qualify for the additional subsidies – which are “grandfathered” through the life of the project – with Centrica’s 250 MW Lincs and RWE Innogy’s 750 MW Gwynt y Môr among the best placed to take advantage.

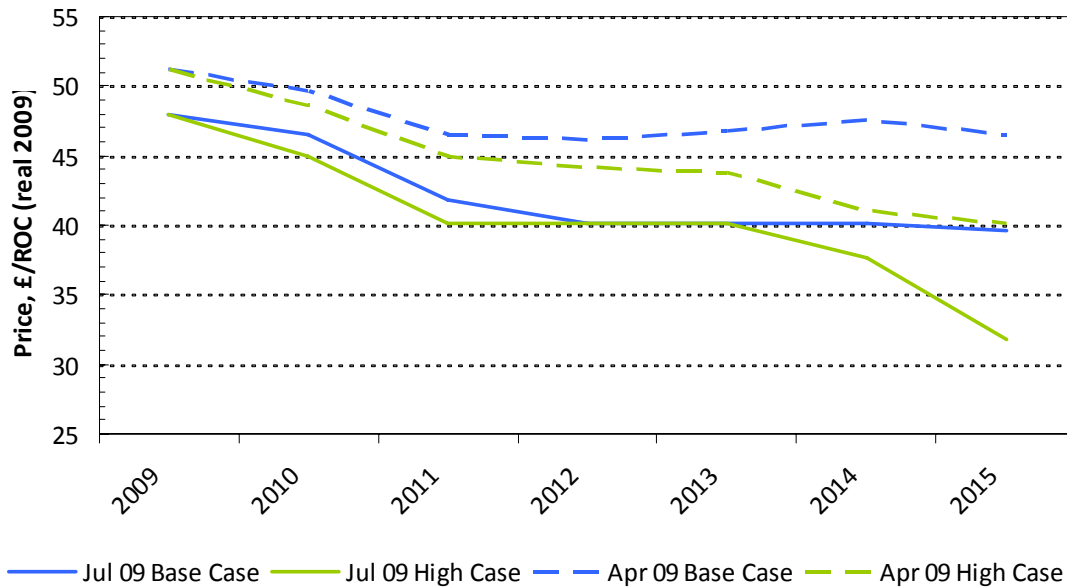
IPA’s July energy market forecast shows the impact of the measure compared with our previous forecast, under two scenarios for price development, with 10-15 TWh of additional renewable generation by 2015:

Total Renewable Generation: Change from April to July 2009 PowerView



However the corollary of this increase in renewable generation is a fall in the value of ROCs as the increased generation and scaled-up increased ROC production mean that the obligation target is reached more quickly, and hence the amount available for recycle is reduced, by over £5/ROC compared to our previous forecast:

Forecast ROC Prices: April and July 2009 PowerView



For the early offshore wind projects, this will not be an issue as the extra 0.25-0.5 ROC earned per MWh of generation over their lifetimes compensates for the fall in value of each ROC. However, later projects and other technologies which do not receive additional ROCs will be affected, and subsequent build could be deterred.

This is particularly evident in our high case scenario, which is characterised by high energy prices and strong environmental concerns which together provide such a strong incentive for renewables deployment that the obligation levels are reached more quickly and ROC values drop sharply by 2016. Our updated renewable generation forecast in this case converges with our previous one by 2019 as the rate of renewable build slows, and shows a long-term trend marginally (~1-2%) lower than before.

Ironically, it therefore seems that the policy change to encourage early offshore wind build may have unintended consequences in the long-term *if* the external environment would have allowed offshore build to have occurred anyway on economic grounds, meaning that the measure – aimed at improving the market for renewables and reducing emissions – may have exactly the opposite effect. Consequently, a future Chancellor may find himself in the position of being forced to further amend the ROC regime to rectify the problem – a later increase in the RO target or further changes to banding levels could be introduced to compensate for this effect.

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Notes to Editors

IPA Energy + Water Economics is an economic consultancy, with over 20 years experience, in the Electricity, Gas, Sustainable Energy, Carbon, Water, Transport and Infrastructure sectors. We have offices in Edinburgh, London, Abu Dhabi, Shanghai, and Melbourne. Since 2005, IPA Energy + Water Economics has been part of the DAR Group (www.dargroup.com) - one of the world's top 15 international groups of professional services.

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