DEPARTMENT OF ENERGY & CLIMATE CHANGE

Electricity market reform: policy overview

May 2012

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Introduction

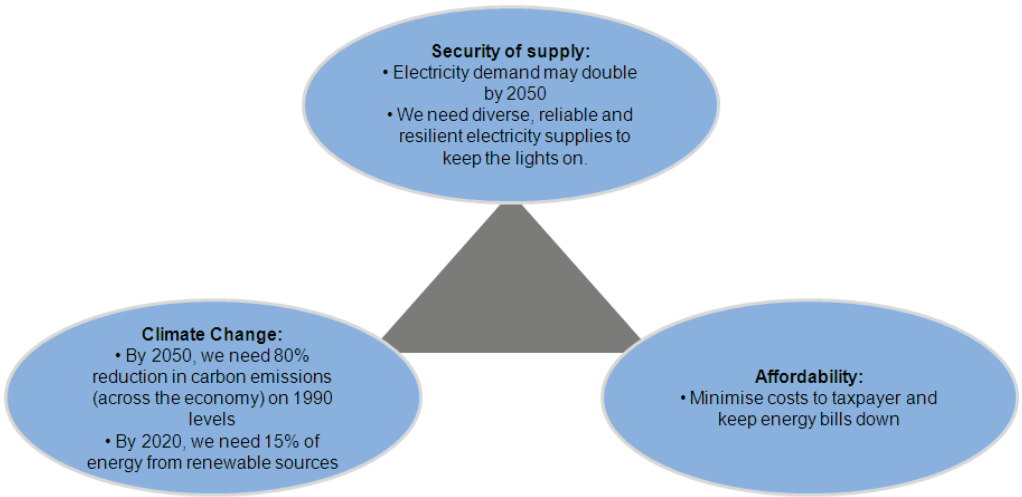
Our overall energy objectives

1. The Government's energy and climate change goals are to deliver secure energy on the way to a sustainable low carbon future and drive ambitious action on climate change at home and abroad. To achieve this it is critical that we address both security of supply and climate change challenges while maximising the benefits and minimising costs for consumers and taxpayers. Nowhere in our energy policy are these challenges more evident than in the electricity sector.

Role of electricity sector

2. In the electricity sector, we face particular challenges, to ensure continuing security of supply, decarbonise electricity generation and maintain affordability. Around a fifth of existing plant is set to close over the coming decade and will be replaced by energy sources which are likely to be increasingly intermittent such as wind or inflexible such as nuclear. Moreover, demand for electricity is set to expand over the coming decades as major sectors such as transport and heat are electrified. Indeed, to meet these challenges an estimated £110 billion[1] of investment in electricity generation and transmission is needed in this decade alone. Figure 1 summarises the Government's objectives for the electricity sector.

Figure 1: The Government's objectives for the electricity system mirror those for the wider energy system



[1] Our analysis shows that around £75 billion could be needed in new electricity generation capacity, and Ofgem's 'Project Discovery' estimated that around an additional £35 billion of investment is needed for electricity transmission and distribution.

3. This investment requirement in the electricity sector is even more challenging because of the uncertainties in the underlying economics of different forms of electricity generation. Every form of electricity generation comes with risks over its price, security and delivery - from uncertainty over the long term price of gas to the speed at which renewable technologies can reduce their costs, to the race to make Carbon Capture and Storage (CCS) commercially viable to the challenge of building a new generation of nuclear reactors.

4. So the policy challenge is to meet our three objectives (energy security, decarbonisation and affordability) by encouraging huge investment in the electricity infrastructure, in the face of pervasive uncertainty. That is why the Government's view is that we cannot rely on any single form of generation and instead we should pursue a diverse mix. We believe we can only meet this challenge through a portfolio approach, that balances the risks and uncertainties. We believe electricity market reform does just that. We believe it is vital if we are to see the investment we need in everything from renewables, new nuclear power, CCS and unabated gas, to effective use of electricity demand reduction, demand side response, storage and international interconnection[2].

5. This combination of challenges to energy and electricity policy is relatively new. Since electricity privatisation, the current electricity market has worked well, delivering reliable and affordable power. It has been adapted to meet individual new challenges, for example with Renewables Obligation Certificates to support the development and early deployment of new technologies. Yet, as we have set out in the EMR White Paper[3] and Technical Update[4], the market adjusted with various policy add-ons will not deliver the huge investment necessary to provide the diverse portfolio we need for a variety of reasons:

    - low carbon plant such as nuclear or offshore wind typically has very high upfront capital costs and very low ongoing costs, compared with unabated[5] fossil fuel plant such as gas;

    - technologies are at very different stages of development;

    - low carbon plant is price taking and more exposed to gas or carbon price volatility, compared with gas fired generation which tends to be the marginal,

[2] The Government will also be publishing a document in summer 2012 focussing on the challenges around balancing and system flexibility as the UK decarbonises electricity use

[3] Planning our electric future: a White Paper for secure, affordable and low-carbon electricity http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/emr_wp_2011.aspx

[4] Planning our electric future: Technical Update http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/tech_update/tech_update.aspx

[5] A plant that is not adapted to reduce carbon emissions such as through Carbon Capture and Storage technology

price setting plant, generally able to pass through any changes in gas or carbon prices to the electricity price;

- the cost of carbon is not fully reflected in the market price as it does not take into account the damage caused to the climate. This is what Lord Stern called the 'greatest market failure of all time[6].

- The carbon price is also volatile and hard to predict - making long-term investment decisions more uncertain.

- The market may not bring forward enough generation to meet demand at all times, as this would require very high electricity prices at times of high demand.

6. So, without reform to the electricity market we would increasingly rely on one type of generation, gas, which would leave us with less diversity – with energy security and affordability implications as we would be more exposed to price volatility as well as less able to meet our climate change objectives.

7. Gas will nonetheless continue to play an important role in the electricity sector – providing vital flexibility to support increasing amounts of low carbon generation, continuing to meet a significant proportion of demand, and maintaining security of supply. Gas can provide reliable and flexible generation and help with balancing the system, and in the longer term it can provide flexible resource either operating as back up and to meet some peak demand, or with a wider operating pattern once fitted with CCS. We will publish a strategy on the role of gas in the electricity market in autumn 2012.

8. Equally, the intermittent nature of many renewable technologies; and the capital cost challenges of new nuclear and CCS-equipped plant at significant scale mean that building a market that leads to over-reliance on any single technology carries risks.

[6] The Stern Review: The Economics of Climate Change. http://www.hm-treasury.gov.uk/sternreview_index.htm

Electricity Market Reform

Objectives of Electricity Market Reform

9. Electricity Market Reform will secure the investment needed to deliver a reliable diverse low carbon technology mix.

10. Our long term vision is a market where low carbon generators compete fairly under a robust and stable carbon price. Given that many low carbon technologies are at a different stage of development, this long term vision remains at least 10-15 years away.

11. Therefore, Electricity Market Reform provides the process and mechanisms to enable us to make this long term transition. EMR will progress through four stages from the current market interventions to this long-term vision of low-carbon generation competing fairly on price.

Figure 2: The four stages of EMR

Stage 1 To 2017	Stage 2 2017 – 2020s	Stage 3 2020s	Stage 4 late 2020s/beyond
Current arrangements (RO) alongside new Contracts for Difference with prices set administratively. Capacity auctions could be initiated depending on the security of supply outlook	Technologies mature (but at different rates) and some are able to enter competitive, technology-specific auctions. The Capacity Market could be fully operational if initiated	All technologies have matured and move to technology-neutral auctions. Demand side response, and additional storage and interconnection, will play an increasingly large role in managing supply and demand	Technologies are mature enough and the carbon price is high and sustainable enough to allow all generators to compete without intervention
Capacity auctions run if needed			

12. As outlined above the EMR objectives align with the three objectives across the energy sector:

    i. **Ensuring a secure electricity supply.** Market reform will deliver this through: providing a diverse range of energy sources, including renewables, nuclear, CCS equipped plant, unabated gas and demand-

side approaches; and ensuring we have sufficient capacity to meet demand at all times to minimise the risk of blackouts.

ii. **Ensuring sufficient investment in sustainable low-carbon technologies** to put us on a path consistent with our 2020 renewables targets and our longer-term target to reduce carbon emissions by at least 80% of 1990 levels by 2050. Analysis published in the December 2011 Carbon Plan suggests that the most cost effective paths to deliver the 2050 target require the electricity sector to be largely decarbonised during the 2030s.

iii. **Maximising benefits and minimising costs** to the economy as a whole and to tax payers and consumers - maintaining affordable electricity bills while delivering the investment needed. EMR minimises costs compared to the current policy trajectory. In delivering more low carbon generation and maintaining security of supply, average household bills after the implementation of market reform are expected to be, on average, 4% lower than what they would have been without EMR in place over the period up to 2030. A competitive and efficient electricity market will underpin delivery at least cost to consumers. Improved wholesale market liquidity is likely to be critical to ensuring effective competition. Government recognises the impact that policies have on electricity cost for energy intensive industries. The 2011 autumn statement included a £250 million package to shield British businesses from potentially costly environmental legislation. It also committed Government to explore options for reducing the impact of electricity costs arising as a result of electricity market reform policies, including the Feed-in Tariffs with Contracts for Difference, on these industries, where this significantly impacts their competitiveness and subject to value for money and state aid considerations.

13. EMR needs ultimately to deliver on all objectives. In terms of decarbonisation it will be important to ensure that the policy and its delivery are consistent with meeting our longer-term targets, in particular a trajectory for electricity sector decarbonisation which is consistent with our carbon budgets. We are considering how best to ensure this, including whether, how and when further targets might be necessary. Any such approach would need to take account of the need for flexibility in how we meet our carbon budgets in order to minimise costs to the economy.

14. While considerable investment is needed in electricity supply, there are also significant opportunities to meet our goals through changes to electricity demand. Demand side response including that facilitated by smart metering and smart grids can help flatten the peaks in demand that are currently seen at particular times of day and year, and which will be particularly challenging as demand for electric heat and transport increase. EMR will support the development of demand-side response (DSR) through

allowing the demand side to bid into capacity auctions (see below). The Green Deal will support reductions in demand in the household sector. In addition we are currently reviewing the potential for incentivising further demand reduction in the electricity sector. This work will report over the summer, in time to fit with legislative timetables, should that be required.

15. The Government is putting in place the framework to incentivise the right level and kind of investment needed. The proposed market reforms are being developed to be robust to a range of future scenarios, such as developments in technology; future Government objectives; and changes in prices and demand.

What is Electricity Market Reform?

16. The Government will set the overall policy for EMR (including setting key parameters for capacity auctions, price setting for low carbon during the first phase and key parameters for low-carbon auctions in the later phases), informed by evidence and analysis from the System Operator (National Grid).

17. The System Operator will administer two new market mechanisms which will be played into the existing wholesale market:

- *Feed-in Tariffs with Contracts for Difference (CfDs)* – long-term contracts which provide revenue certainty to investors in low-carbon generation such as renewables, nuclear and CCS-equipped plant.

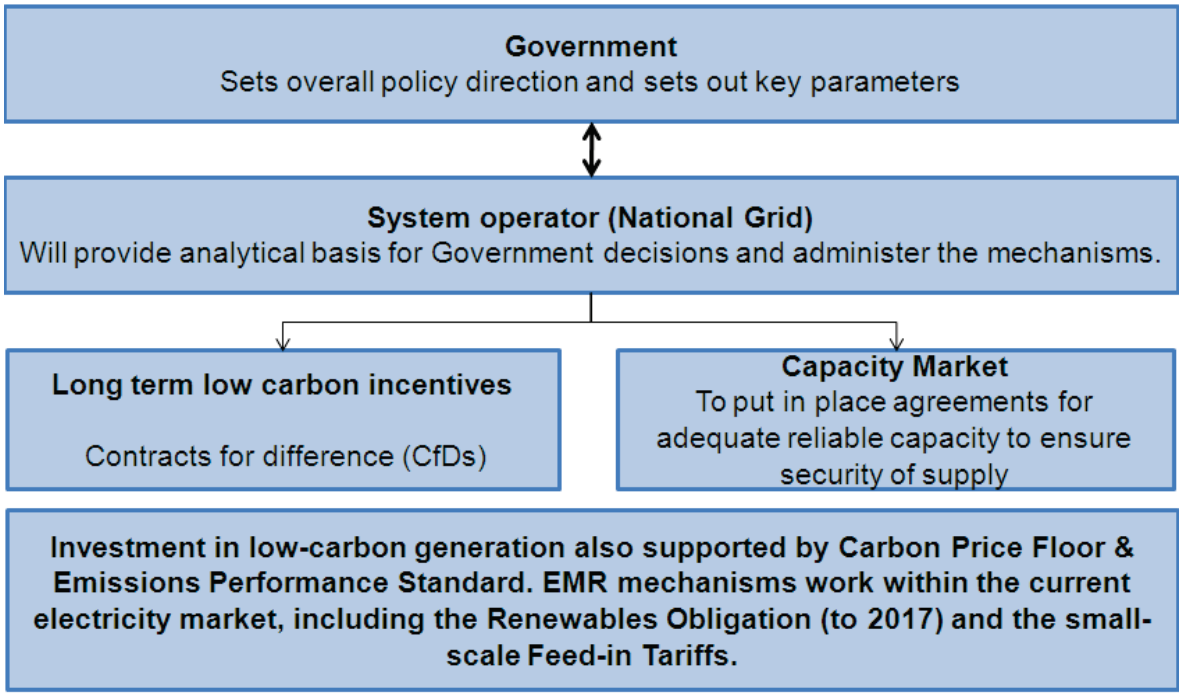
- *Capacity agreements (within a Capacity Market)* – payments for reliable capacity to be available when needed, helping to ensure security of supply.

18. These mechanisms will be supported by:

- *The Carbon Price Floor* – a tax to underpin the carbon price in the Emissions Trading Scheme; and

- *An Emissions Performance Standard* – a regulatory measure which provides a back-stop to limit emissions from unabated power stations.

Figure 3: How the market reform instruments will be administered:



19. Figure 3 shows in high level how the EMR mechanisms will be directed and administered. These mechanisms will work within the current electricity market, including Ofgem's role as energy regulator, the current Renewables Obligation (until 2017), and the current small-scale Feed-in Tariffs scheme.

20. The Energy Bill published alongside this document makes provision for the EMR programme as follows:

Structure of Part 1 of the Draft Energy Bill – Electricity Market Reform

- Chapter 1 – Contracts for Difference
- Chapter 2 –Investment Instruments
- Chapter 3 – Capacity Mechanism
- Chapter 4 – Conflicts of Interest
- Chapter 5 – Contingency Arrangements
- Chapter 6 – Renewables Obligation: Transitional Arrangements
- Chapter 7 – Emissions Performance Standard
- Chapter 8 – Strategy and Policy Statement

EMR Institutional Framework

21. A robust, transparent and credible institutional framework is crucial to the success of EMR, and is important to provide investors with the confidence they need to invest. The Government, the System Operator and Ofgem will have clear and distinct roles to ensure effective delivery of EMR:

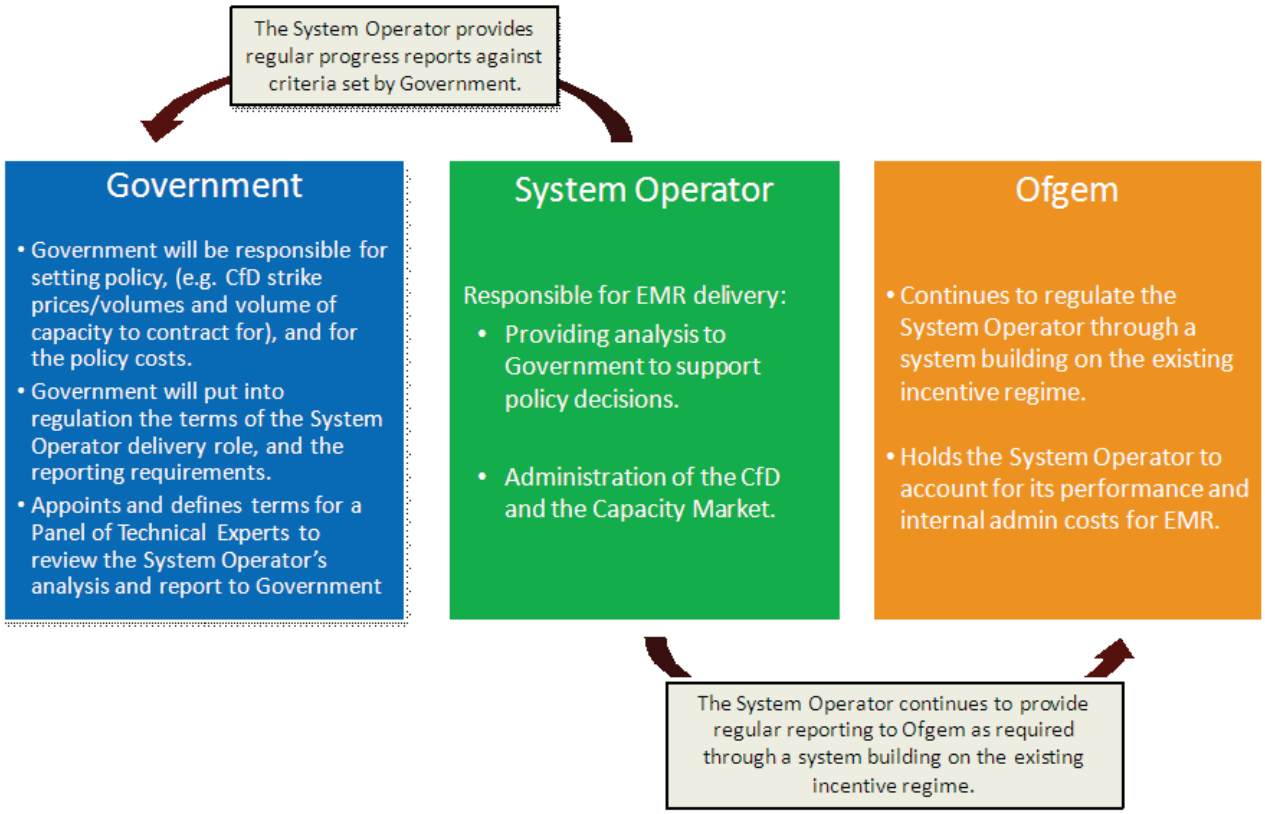
    - Government will retain control of the policy approach and decisions - such as the CfD strike prices during administrative price-setting and then auction volumes during competitive price setting, and any security of electricity supply objective as well as the volume of capacity to contract for the Capacity Market (these mechanisms are explained in more detail later in this document). Government will also be responsible for defining the terms of the System Operator's delivery role.

    - The System Operator will provide evidence and analysis to inform Government's decisions. The System Operator will also administer the CfD and the Capacity Market and report to the Government on delivery.

    - Ofgem will regulate the System Operator and oversee its performance in delivering the CfD and Capacity Market, to ensure value for money and incentivise effective performance. We propose that the System Operator recovers its administrative costs through a system which builds on the existing incentive regime.

22. Further details on the respective roles and responsibilities of the Government, the System Operator and Ofgem will be set out later in the Autumn and in secondary legislation in 2013-14. The further definition of the roles will take into account the joint work by DECC and Ofgem to assess synergies and any potential conflicts of interest for the System Operator in delivering EMR policies and to devise any necessary mitigations.

Figure 4 : An overview of the roles and responsibilities within the Institutional Framework.



23. Before making key policy decisions, the UK Government will consult with and involve the Devolved Administrations as appropriate, ensuring respect of each Devolution settlement. Further detail on the application of EMR in the Devolved Administrations is set out later in this document.

24. The Government will appoint a Panel of Technical Experts to scrutinise the System Operator's analysis to ensure that it uses the most up to date and objective evidence. The panel's role will not include commenting on the Government's objectives or policy. The Government will also work with other bodies, such as Ofgem and the Committee on Climate Change, prior to making these policy decisions. The Government supports a role for the Committee on Climate Change as early in the process as appropriate to ensure that decarbonisation is properly considered.

25. Every five years the Government will publish a delivery plan to provide certainty and clarity on its long-term objectives; key policy decisions to support the effective delivery of the mechanisms; and supporting analysis including the impacts of policy decisions on Government objectives and illustrative scenarios for meeting those objectives. The first delivery plan will be published in 2013. Further details on the process and milestones for the first delivery plan are set out in Annex A, and more information will be published later in 2012.

26. There are valuable synergies from the System Operator taking on the EMR delivery role. However, there is potential for conflicts of interest to arise with the System

Operator's existing roles in the energy market, for example as owner of the electricity transmission network in England and Wales, and its other commercial interests. DECC is working with Ofgem to assess any conflicts of interest[7] and propose mitigating measures if they are shown to be necessary. This work will report at the end of 2012.

27. Without pre-judging the result of this work, through the draft Energy Bill the Government is seeking powers to ensure that an adequate range of mitigating measures are available. The Bill also contains contingency arrangements and powers to transfer the delivery functions to another delivery body, should this be necessary.

Powers in the Draft Energy Bill in relation to the EMR institutional framework

- Powers for the System Operator to administer FiT CfD and Capacity Market mechanisms.
- Reserve powers to deal with potential conflicts of interest within National Grid, if needed.

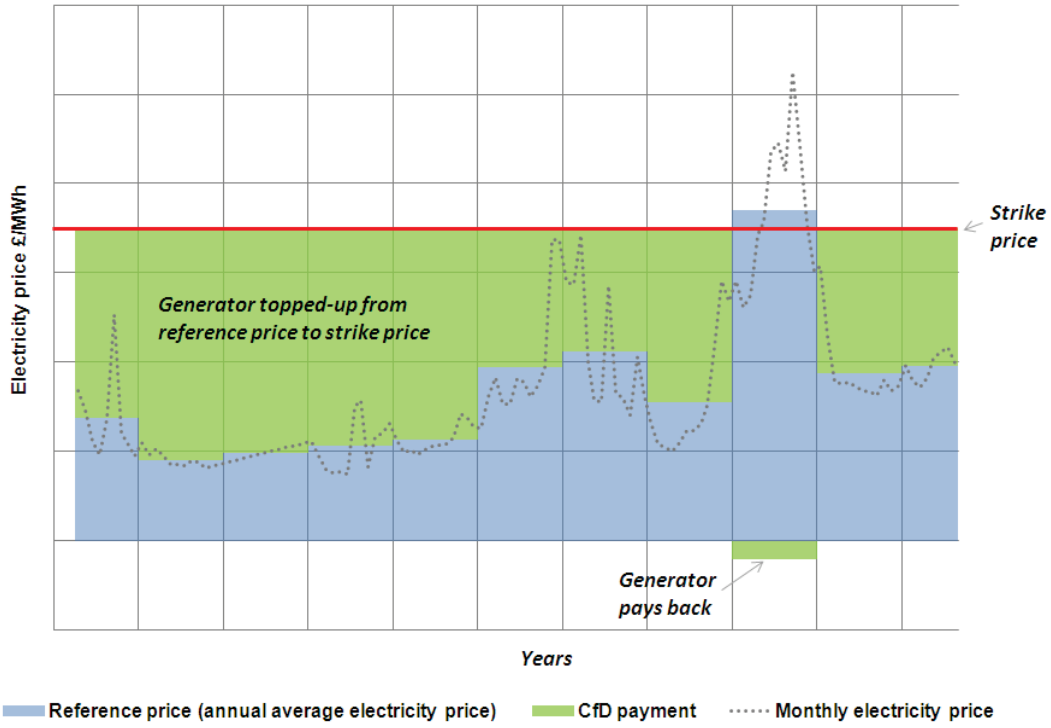
Contracts for Difference (CfDs)

28. The Government set out in the EMR White Paper in July 2011 its decision to provide increased revenue certainty to low-carbon generation through use of a Feed-in Tariff following the structure of a Contract for Difference (CfDs).

29. CfDs will facilitate investment in low carbon generation through removing long term exposure to electricity price volatility. CfDs stabilise returns for generators at a fixed level known as the strike price. Generators receive revenue from selling their electricity into the market as usual. In addition, when the market price is below the strike price they also receive a top-up payment from suppliers for the additional amount. Conversely if the market price is above the strike price, the generator must pay back the difference. Low carbon generators will remain active participants in the wholesale electricity market. The operation of the Feed-in Tariff with Contracts for Difference is outlined in Figure 5.

[7] Electricity Market Reform (EMR): Potential synergies and conflicts of interest: Outcome of the 27 March 2012 workshop and responses to the 8 March 2012 open letter
http://www.decc.gov.uk/en/content/cms/consultations/emr_coi/emr_coi.aspx

Figure 5: Illustration of the operation of the Feed-in Tariff with Contracts for Difference



30. The EMR White Paper set out our rationale for choosing CfDs as the mechanism to support low-carbon generation. CfDs improve long-term revenue certainty, lowering the cost of capital for low-carbon generators; they retain short-term market signals for efficient operation of low-carbon plant; and as a result, they are more cost effective than other options for support, reducing the cost to consumers.

31. In principle, the CfD will be largely standardised across technologies. This provides a stable basis for investment, and makes it easier to compare costs of different technologies as we move to technology-neutral auctions in the longer term.

32. In the short term, however, we may need some variation in CfDs for some technologies – within intermittent and baseload classes – in recognition of their different risk profiles (for example early stage CCS projects, due to their demonstration status), to ensure they come forward at a reasonable cost. Any variations agreed will have to represent value for money and maintain a level playing field in line with our approach to securing state aid clearance.

33. The Government supports the principle of 'grandfathering' CfDs to provide investor certainty, so a CfD cannot be changed retrospectively once issued, other than under pre-agreed circumstances.

34. EMR will support moving to competitive processes such as tenders or auctions as early as 2017 for some technologies deploying after 2020.

35. The draft CfD Operational Framework (at Annex B) sets out further detail on the operation of the CfD, for discussion with industry and other interested parties. This detail will largely be implemented through secondary legislation and changes to codes and licences, and will be confirmed in the autumn.

36. The CfD legal framework and payment model outlined in the draft operational framework and the draft Bill reflects our current preferred option. In essence the legal framework puts in place a set of regulations which in effect act like a contract. The Government recognises that industry has strong concerns about this model and has suggested alternatives. Using a single counterparty we are seriously considering these concerns and the alternatives and it is expected that there will be further detailed consideration given to these questions as part of the pre-legislative scrutiny process. A final decision on the framework and payment model will be made by the autumn.

37. Our intention is that CfDs are available to low carbon generators from 2014. To address the risk of a hiatus in investment in low carbon generation until such time as the CfD regime is fully implemented, we will work with developers who need to make early final investment decisions with a view to enabling such decisions to be taken in a timely manner where possible (see below).

Powers in the Draft Energy Bill in relation to Contracts for Difference

- Powers for Ministers to establish CfD regulations, including provisions for:
  - Eligibility
  - CfD terms (such as duration)
  - the level of low-carbon support provided through CfDs (the “strike prices”)
- Powers for the System Operator and Secretary of State to issue CfDs
- Powers to set maximum costs and targets relating to CfDs
- Powers to make changes to license conditions to enable the System Operator to carry out its functions in relation to delivering CfDs.

Capacity Market

38. Ensuring security of electricity supply is a Government priority. This means ensuring that there is enough capacity in place to meet demand.

39. While there is no immediate threat to the security of electricity supply, there is a potential risk in the future as a large amount of plant is closed and energy sources which are likely to be increasingly intermittent (wind) or inflexible (nuclear) are brought onto the system. Low carbon plant has lower operating costs meaning fossil fuel plant such as gas will operate less often than now and be less certain of its revenues. This could lead to under-investment and uncomfortably low levels of reliable capacity.

40. The Government will therefore legislate to introduce a Capacity Market to provide an insurance policy to reduce the likelihood of future blackouts – for example, during periods of low wind and high demand – with the aim of ensuring that consumers continue to benefit from reliable electricity supplies at an affordable cost.

41. The proposed capacity mechanism, as set out in the December Technical Update, would work as follows:

    - A forecast of future peak demand will be made;
    - The total amount of capacity needed to ensure security of supply will be contracted through a competitive central auction a number of years ahead;
    - Providers of capacity successful in the auction will enter into capacity agreements, committing to provide electricity when needed in the delivery year (in return for a steady capacity payment) or face penalties;
    - Existing and new providers of capacity will be able to enter capacity auction in order to incentivise extra investment now and in the future and to incentivise good repair and maintenance practices where it would be more cost effective to ensure existing plant remains open;
    - In the delivery year, providers will be paid for their capacity, and the costs shared between electricity suppliers.

42. The Capacity Market will provide support to generation and demand-side forms of capacity, such as demand-side response and storage.

43. The need for and timing of the first capacity auction will be decided by Ministers based on advice on the security of supply outlook and analysis provided by the System Operator and possibly other technical experts (including Ofgem)[8]. The Capacity Market will only be run if it is needed. Our analysis[9] suggests that capacity margins will tighten significantly over the second half of this decade. Under some scenarios a shortfall might not arise until the next decade, however other credible scenarios suggest a problem could occur toward the middle of this decade. Given this uncertainty, the legal framework for the Capacity Market will be put in place as soon as possible and the first capacity auction could, if needed, be run by the System Operator as early as 2014 for capacity to be in place by 2015/2016 if necessary.

44. Some stakeholders have raised the question of how energy and capacity payments will interact and suggested that we should consider whether we could integrate capacity and energy payments more effectively – possibly by using CfDs to ensure reliable capacity. We, and the System Operator, are looking closely at how the different mechanisms will interact and will ensure that the Capacity Market and the CfD work in an integrated and complementary manner to deliver our goals of ensuring security of supply, decarbonisation of the electricity system and minimising costs to the consumer.

45. We will publish emerging design choices on the issues most important to investors by the end of the year. We expect to have completed the design by March 2013 and will formally consult on the full detailed design later in 2013.

Powers in the Draft Energy Bill in relation to the Capacity Market

- Powers for the Secretary of State to design and introduce a Capacity Market;
- Powers to confer functions on National Grid to enable delivery of the Capacity Market.

[8] As required by the Energy Act 2011, Ofgem will produce its first annual capacity assessment this September. It may be necessary to make some amendments to these statutory reporting requirements to ensure that reports in future years provide Ministers with the best possible information.

[9] DECC, Dec 2011, *Capacity Mechanism Impact Assessment*: http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/tech_update/tech_update.aspx

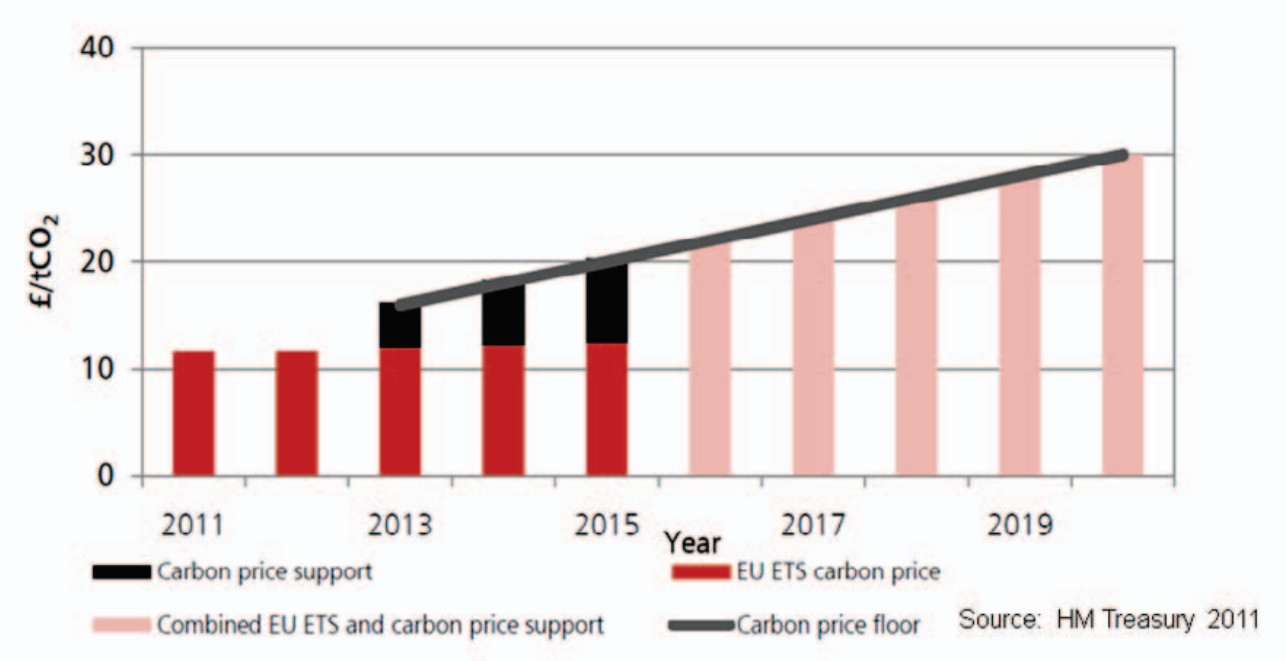
Supporting mechanisms

46. Underpinning these arrangements are other key elements that will drive investment in low-carbon power generation: the carbon price floor; and the Emissions Performance Standard; as well as measures to improve market liquidity and consideration of how to ensure independent generators can find a route to market for their power. These are outlined in the following sections.

Carbon Price Floor

47. A Carbon Price Floor (CPF) will provide clear economic signals to move away from high carbon technologies, by increasing the price paid for emitting carbon dioxide.

Figure 6: Carbon price floor illustration (in real 2009 prices and calendar years)



48. By putting a price on carbon emissions, the Carbon Price Floor will provide long-term certainty about the cost of carbon. The Carbon price floor was legislated for through the Finance Act during 2011. It will be introduced from 2013 at around £15.70/tCO2 and follows a straight line to £30/tCO2 in 2020, rising to £70/tCO2 in 2030 (real 2009 prices).

Emissions Performance Standard

49. An Emissions Performance Standard (EPS) will provide a regulatory back stop on the amount of emissions that a new fossil fuel power station can emit. This will help deliver the Government's commitment to preventing coal-fired power stations being built unless they are equipped with CCS.

50. The EPS will initially be set at a level equivalent to 450g/kWh for all new fossil fuel plant, except those that form part of the UK's CCS Commercialisation programme or benefit from European funding for commercial scale CCS. This exemption will provide flexibility in order to support the development of CCS, and will be applied on a case-by-case basis.

51. The Government has recently announced that power stations consented under the 450g/kWh-based level would be subject to the level until 2045. This 'grandfathering' will provide long-term certainty to investors, particularly in relation to new gas generation that is needed to ensure security of supply.

Powers in the Draft Energy Bill in relation to the supporting mechanisms:

- Duty on power stations not to exceed annual CO_2 emissions limit.
- Powers for the exemption for publicly funded CCS projects.
- Powers to bring additional plant into the regime, specifically where an existing plant replaces a boiler or where a 'gasification' plant is associated with two or more generating stations.
- Powers for monitoring and enforcing the limit.

Ensuring Routes to Market

52. Independent generation developers often rely on longer-term contracts (Power Purchase Agreements or PPAs) to secure the finance they need. Developers have said that it has become increasingly difficult to attract offers of bankable PPAs. The Government believes that a competitive market should provide bankable routes to market for independent generation projects and wants to see a stronger, more competitive, PPA market that can underpin investment.

53. We want to ensure that the extent and nature of issues in the current market - and likely developments in the future PPA market - are fully understood and, if necessary will bring forward proposals to ensure that independent developers

have a viable route to market. We will therefore continue to work with investors, independent generation developers, potential PPA providers and Ofgem and we will publish a Call for Evidence which will include initial options to address the issues in June 2012, in order to ensure that the evidence base is fully developed. We also anticipate that there will be further consideration given to this as part of the pre-legislative scrutiny process. The Call for Evidence will seek to understand any barriers to a competitive PPA market in the current arrangements and in the future when EMR measures are implemented. It will also set out and seek views on options to address the barriers. We will respond to the Call for Evidence in the autumn before the Energy Bill is introduced to Parliament.

Wholesale Market liquidity

54. A liquid market means that market participants are able to quickly and easily buy or sell power at a price that reflects supply and demand fundamentals. Liquidity is essential not only to promote a competitive market and bring down costs, but also to enable efficient functioning of EMR mechanisms.

55. Poor liquidity in the GB wholesale electricity market is an important barrier to entry to independent electricity generators and suppliers. Poor liquidity may distort investment and operational signals and prevent market participants from trading in order to effectively manage their risks. A liquid market is also important to ensure that CfD strike prices are established on the basis of an efficient competitive market and to provide robust reference prices.

56. There has been some positive progress in the last six months to address liquidity concerns. Industry-led initiatives have delivered significant improvements in day ahead trading. In addition Ofgem is consulting on a proposal to require the large vertically integrated companies (‘Big 6’) to sell 25% of their generation output in a range of key products in the forward market.

57. Whilst these steps are positive, Government agrees with Ofgem that further industry commitments are necessary in addition to appropriate action from Ofgem to address poor liquidity, especially in the forward markets. We will therefore continue to work with industry and Ofgem to ensure liquidity strengthens but will act if necessary where barriers to entry are not addressed through these initiatives.

European context for Electricity Market Reform

58. The UK electricity sector faces similar challenges to the rest of the European Union. UK energy policy since the early 1990s has been based on developing liberalised markets, successfully using competition to drive down energy prices. This broad approach has been adopted across Europe, through the EU's Internal Energy Market Packages, resulting in more open, transparent and competitive markets. This has led to lower average prices and greater choice. Together with our European partners, however, we now face a new challenge of increasing renewable generation and reducing greenhouse gas emissions, while maintaining security of supply and affordability of bills.

59. The UK supports the European Commission's approach to meeting these challenges through the development of the EU Target Model (to enable the realisation of a single electricity market by progressively coupling adjacent markets, with a vision for integrated EU electricity markets by 2014). The UK welcomes the efficiencies that further links with European electricity markets through market coupling by means of day-ahead power exchanges will bring (the Commission envisages that coupling across interconnectors will occur through implicit auctions in which buyers and sellers in each market can bid into the other).

60. In addition to the expected benefits of coupling by means of day-ahead auctions, further EU initiatives to support electricity trading in forward, within-day and balancing markets align well with Ofgem and DECC initiatives on market reform. Emerging EU network codes (under development through the EU energy regulatory authorities group ACER and the EU transmission system operators group ENTSO-E) on capacity allocation and congestion management will inform EMR detailed design work and we are confident that both the CfD and Capacity Market will be robust to expected outcomes.

61. We are working closely with the Commission on the interaction of EMR with the wider EU context, and to ensure EMR policies are consistent with European legislation, subject among other things to the necessary powers being included in the legislation and any necessary state aid decisions being made.

The Move to EMR

62. As set out above, our long-term vision for the electricity market is for low-carbon technologies to compete fairly on price, and EMR will provide the transition to get to this vision. There is more detail on the transition in Annex E. This section focuses on the short term transition needed to move from existing instruments to the EMR mechanisms. Our aim is to ensure a smooth transition for investors and to avoid any hiatus in investment as a result of EMR. Again, further detail is available in Annex B and E.

Transition from the Renewables Obligation

63. We have set out in detail in the EMR White Paper and the Technical Update how the move from the current Renewables Obligation (RO) to the CfD will work for renewable generators.

64. The phased changeover arrangements from the RO to the new support mechanism aim to prevent a hiatus in renewables investment while the new arrangements are being put in place. The RO will remain open to new generation until 31 March 2017, allowing new renewable generation that comes online between 2014 (when CfDs start) and 2017 to choose between the CfD and the RO.

65. After this point, the RO will be closed to new generation and 'vintaged' (levels and length of support for existing participants will be maintained). All generation accredited under the RO will receive its full 20 years of support. We have also set out some limited flexibility around the 2017 closure date for those projects that are delayed for reasons outside their control, such as delays in grid connection or planned radar installation.

Enabling final investment decisions required in advance of implementation of CfDs

66. The Government recognises that the changes to the market proposed under EMR could lead to some investment decisions being delayed and is committed to working with relevant developers to enable early investment decisions, including those required ahead of EMR implementation, to progress to timetable wherever possible. The Final Investment Decision (FID) Enabling Project has been established to take forward this work.

67. Among the options available to the Government to give comfort to developers is the option for the Secretary of State to issue investment instruments (which will be similar to CfDs) in advance of the implementation of CfDs (subject, amongst other things to securing the necessary powers and any necessary state aid clearance).

68. The actual form and detail of comfort that might be offered in relation to projects will depend on the projects that come forward for the FID Enabling process and the outcome of any engagement with relevant investors and developers. See Annex B for more detail.

69. A number of developers (including new nuclear and early stage CCS developers) have expressed interest in the FID Enabling process to date and it is possible that other developers may also do so. The Technical Update to the EMR White Paper sets out the characteristics which we expect projects that come forward for engagement in the FID process to exhibit.

Implementation of CFDs

70. We are publishing a draft CfD operational framework alongside this document, and in autumn we will publish the final operational framework, which will include a firm decision on the CfD design and will give developers visibility on the CfD terms.

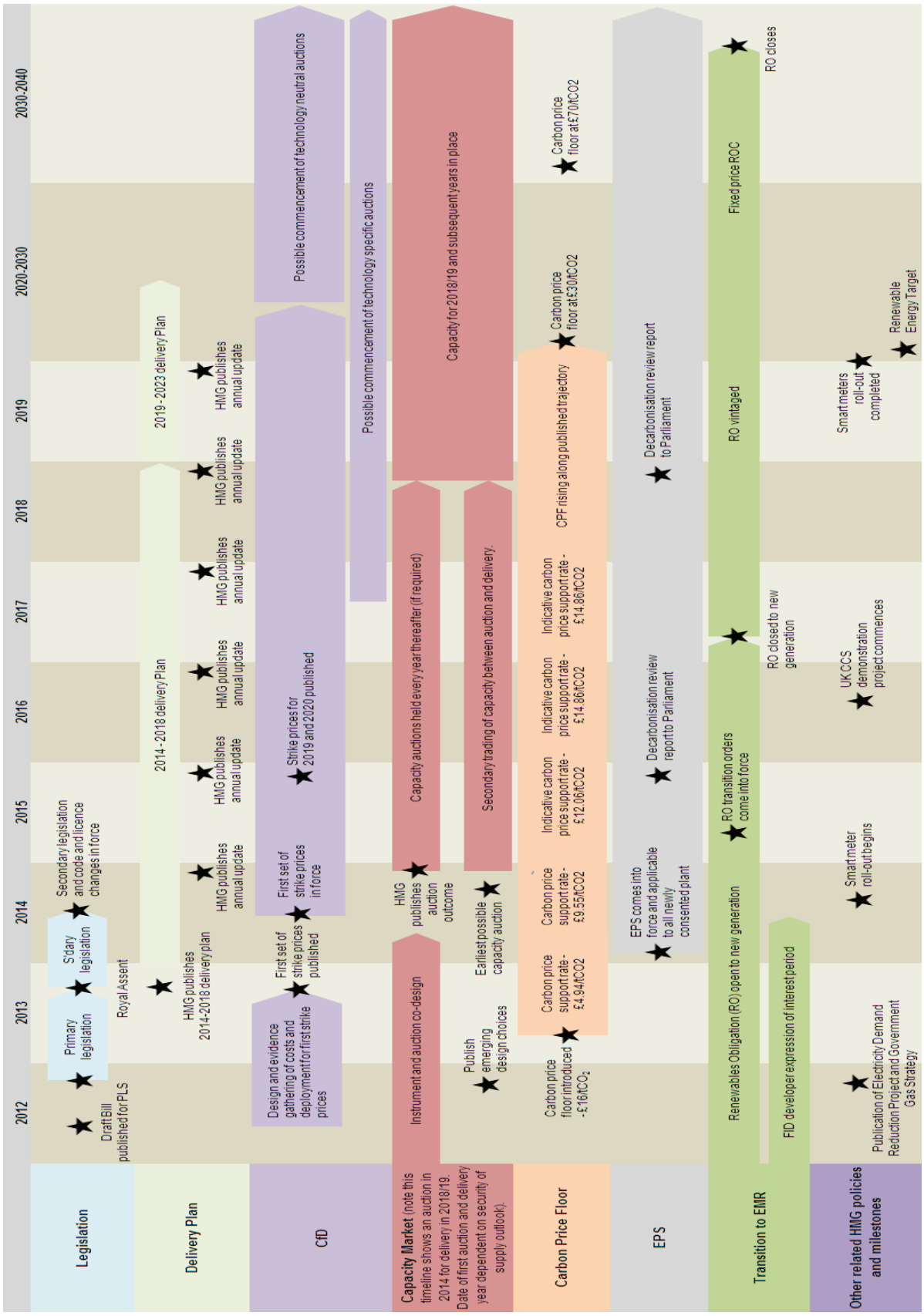
71. We intend to consult on the underpinning data for the first set of CfD strike prices for renewables as part of the draft delivery plan in 2013 and will announce prices in the second half of that year when we publish the 2014-2018 delivery plan, giving developers up to a year of visibility of prices ahead of them coming into force in mid 2014. More details on this and subsequent price setting rounds can be found in the annexes listed below.

72. Figure 7 shows at high level the indicative timeline for EMR implementation and the transition to technology-neutral auctions. This is also shown in more detail in Annex E.

Powers in the Draft Energy Bill in relation to the transition

- Powers to transition existing RO support from 2027 into a certificate purchase scheme.
- Powers for the Secretary of State to issue investment instruments in advance of the implementation of CfDs

Figure 7: Indicative EMR timeline for transition and implementation



Costs and Benefits of EMR

73. With or without reform, household electricity bills are likely to increase over time, driven primarily by rising fossil fuel prices. However, electricity market reforms will help to reduce the amount that bills will increase. As a result of these reform, electricity bills are estimated to be, on average, 4% lower over the next two decades than they would otherwise have been. Average bills for businesses and energy intensive industries will also be lower than without reform.

74. Without reform, we estimate that on average household electricity bills could be around £200 higher in the period up to 2030 compared with current average household electricity bills, driven primarily by rising fossil fuel prices. With electricity market reforms this increase may be around £100. However, Energy prices are volatile and there are significant uncertainties around estimates in particular on wholesale electricity prices for the next 20 years, therefore these estimates may change as projections change over time.

75. EMR also contributes to the growth agenda and will provide an estimated 250,000 jobs.

EMR in the Devolved Administrations

76. Our key principle is ensuring an attractive investment environment for electricity generation in all parts of the UK, by putting in place arrangements which are as consistent as possible, while respecting devolved competencies and minimising market distortions.

77. We recognise that there is significant generation capacity within the Devolved Administrations (DAs) and in particular significant potential for low carbon generation sources, including onshore and offshore renewable resources. It is only by harnessing natural resources and technical expertise from across the UK that we will be able to deliver the required new generation of secure low-carbon power.

78. We are committed to having full and substantive engagement with the DAs on the delivery of EMR that reflects their roles and responsibility under the devolved arrangements. However, it is important for industry certainty that their role in the process is as transparent as possible. The following sections set out at high level the application of EMR in the DAs. Further information is also included in Annexes A to E.

Northern Ireland

79. Energy policy is transferred to the Northern Ireland Executive (with the exception of most elements of nuclear power). The Northern Ireland Executive has agreed that extension of the CfD, Investment Instruments and EPS provisions will apply to Northern Ireland, while taking into account both devolved competencies and Northern Ireland's position within the Single Electricity Market (SEM).

80. We will continue to involve Northern Ireland Ministers in further design and development work to ensure that the Northern Ireland Executive's devolved competency is respected. As well as involvement in decision making on the CfD strike prices, Northern Ireland Ministers will also have a consultative role set out in statute on the design and delivery of the CfD and accompanying institutional framework.

81. Market conditions within Northern Ireland are different to those in GB. UK-wide strike prices are preferable but in the event relevant differences in market conditions require it, CfD strike prices in Northern Ireland may be slightly different to those in GB to reflect those differences.

82. To reflect that Northern Ireland Ministers have full decision-making powers over the Energy Market in Northern Ireland (with the exception of most areas of nuclear power), we have

agreed with the Northern Ireland Executive that before UK Ministers set strike prices for the UK, Ministers will gain the consent of Northern Ireland Ministers for prices in Northern Ireland. Costs will be socialised across UK consumers. If Northern Ireland Ministers could not consent to proposed strike prices, then there would be a mechanism for strike prices for Northern Ireland to be determined by Northern Ireland Ministers. If this were the case, any additional costs due to differential strike prices in Northern Ireland would be met by Northern Ireland consumers.

Scotland

83. All of the policies in EMR extend to Scotland and energy, generation and supply are classed as reserved matters, though environment policy is broadly devolved. Because the interface between reserved and devolved areas of competence for Scotland is not straightforward, we will continue working closely with the Scottish Government in both finalising primary legislation and in framing further detail in secondary legislation, to deliver a coherent set of reforms and ensure a smooth transition to the new arrangements.

84. The Scottish Government will have a consultative role – set out in statute – in the design and delivery of the CfD and underlying Institutional Framework. DECC will continue to involve Scottish Government officials in ongoing policy development at working level on other aspects of EMR such as the Capacity Market and involve them in the FID Enabling process.

85. Scottish Ministers will retain their existing powers over the RO in Scotland. Scottish Ministers will work with UK Ministers on the operation of EMR in Scotland to agree the consistent transition to the CfD across the UK.

86. On the EPS, the UK Government recognises the Scottish Government's responsibilities relating to the control of emissions and consenting thermal generation. The UK Government considers this to be an electricity generation measure and would prefer to legislate for an EPS to apply UK wide. We will undertake further work with Scottish Ministers to discuss the application of the EPS in Scotland.

Wales

87. All of the policies in EMR extend to Wales and energy policy is non-devolved in respect of Wales, though environment policy is broadly devolved. Because the interface between reserved and devolved areas of competence for Wales is not straightforward, we will continue working closely with the Welsh Government in both finalising primary legislation and before setting out further detail in secondary legislation, to ensure a smooth transition to the new arrangements.

88. The approach agreed with the Welsh Government is that it will have a consultative role – set out in statute – in the design and delivery of the CfD and underlying Institutional Framework. DECC will continue to involve Welsh Government officials in ongoing policy development at

working level on other aspects of EMR such as the Capacity Market and involve them in the FID Enabling process.

89. On the EPS, the UK Government recognises the Welsh Government's responsibilities relating to the control of emissions. The UK Government considers this to be an electricity generation measure and would prefer to legislate for an EPS to apply UK wide with the level defined in Primary legislation. We will undertake further work with Welsh Ministers to discuss the application of the EPS in Wales.

Annexes

Further detail has been published today to explain how EMR will work in practice. These documents are drafts and we welcome comments. Should you wish to send us your comments please address these to elec.marketreforms@decc.gsi.gov.uk.

Documents published	Link
EMR Institutional Framework – Government, the System Operator and OFGEM	Electricity Market Reform page on the DECC website http://www.decc.gov.uk/en/content/cms/meeting_energy/markets/electricity/electricity.aspx
Feed in Tariff with Contracts for Difference: Draft Operational Framework	
Capacity Market: Design and Implementation Update	
Emissions Performance Standards (EPS)	
Indicative Electricity Market Reform Implementation Roadmap	
Draft Energy Bill	http://www.decc.gov.uk/en/content/cms/legislation/energybill2012/energybill2012.aspx
Electricity Market Reform (EMR): Potential synergies and conflicts of interest: Outcome of the 27 March 2012 workshop and responses to the 8 March 2012 open letter	http://www.decc.gov.uk/en/content/cms/consultations/emr_coi/emr_coi.aspx

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