

Planning our electric future: technical update

December 2011

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Executive summary

1. The aim of Electricity Market Reform is to meet the significant long-term challenge of decarbonisation and to deliver our renewable energy targets, while maintaining secure and affordable electricity supplies.
2. The current electricity market has served us well – ensuring secure and affordable electricity for around two decades. However, we now face new challenges:
 - we face risks to security of supply in the medium term with around a fifth of existing capacity closing in the next decade;
 - we must decarbonise electricity generation rapidly to reach our low-carbon and renewable targets – meaning much of the replacement capacity will be intermittent or less flexible; and
 - the demand for electricity may rise if wider parts of the economy (heat and transport) increasingly rely on low carbon electricity as their fuel source.
3. All of these factors give rise to a major investment challenge – an estimated £110 billion¹ of investment is needed in electricity generation and transmission this decade alone. The Government is committed to reducing the impact on consumers by making sure that the necessary investment happens in the most cost-effective way. We do not believe that the current market arrangements will be able to achieve this.
4. Under Electricity Market Reform, we will confer power on a delivery organisation with the ability to contract for reliable capacity and low-carbon generation, and to advise Government on the parameters of these contracts. The Government will continue to set the policy framework and will be the ultimate decision-maker on the key parameters of these contracts.
5. The Electricity Market Reform White Paper – ***Planning our electric future: a White Paper for secure, affordable and low-carbon electricity***² – set out a large part of the strategic framework, particularly the nature of the low carbon contracts regime and wider regulations and incentives.
6. This Technical Update completes this framework, setting out the institutional arrangements and the form of the capacity mechanism. We intend to introduce legislation to implement Electricity Market Reform in spring 2012.

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.

² <http://www.decc.gov.uk/assets/decc/11/policy-legislation/emr/2210-emr-white-paper-full-version.pdf>

PURPOSE OF THIS DOCUMENT

7. This Technical Update includes:
 - our view that the System Operator best meets our criteria for the delivery of both the Feed-in Tariff with Contracts for Difference (FiT CfD) and capacity mechanism;
 - our decision to implement a capacity mechanism in the form of a Capacity Market (i.e. a mechanism which will contract for the required volume of capacity needed to deliver security of supply);
 - more detail on the criteria and process for low-carbon projects seeking a Final Investment Decision during the transitional period; and
 - the next steps for the Electricity Market Reform programme.

Institutional framework

8. In the Electricity Market Reform White Paper we set out the criteria against which we would assess potential delivery organisations: accountability; independence; credit worthiness; technical expertise; commercial and financial skills; and value for money. We also outlined the key functions through which the new institutional arrangements would administer the Electricity Market Reform mechanisms, to provide clarity and certainty for investors.
9. This document sets out how the System Operator best meets these criteria. The System Operator will be endowed with the ability to offer low-carbon and capacity contracts and will advise Government on the key rules and parameters. Government will continue to set the policy objectives and approach, and take decisions on the key parameters for the contracts (such as the strike price for the FiT CfD). Industry will have visibility of the contracting framework and rules for the coming period through a published delivery plan.
10. We will provide a further policy update by May 2012 in line with our intended timetable for primary legislation.

Ensuring security of electricity supply

11. In the Electricity Market Reform White Paper we committed to introducing a capacity mechanism to ensure resource adequacy – that is, to ensure there is sufficient reliable and diverse capacity to meet demand. We consulted on two options: a targeted mechanism in the form of a Strategic Reserve (a development of the lead option from the December 2010 Electricity Market Reform consultation document); and a market-wide mechanism in which all providers willing to offer reliable capacity are provided incentives to do so. The consultation ended on 4 October.
12. This document forms the Government response to that consultation, setting out our decision to implement a market-wide Capacity Market. This will involve contracting the level of diverse capacity required to meet peak demand through a central auction. This choice offers the surest way to ensure security of supply against a range of scenarios. The Capacity Market will provide incentives for adequate reliable capacity to be available when needed. This could include both generation and non-generation forms of capacity such as demand side response and storage. Given the uncertainty over long-term projections of security of supply, and the fact that the market has delivered strong reliability to date, Ministers will take the decision on when to run the first auction process based on future estimates of security of supply.

13. We will work with stakeholders on the detailed mechanism design and provide a further policy update by May 2012 in line with our intended timetable for primary legislation.

Enabling investment decisions for early projects

14. In the Electricity Market Reform White Paper we committed to work actively with relevant parties to enable early investment decisions to progress to timetable wherever possible, including those required ahead of implementation of the FiT CfD. To deliver this commitment DECC is prepared to enter into discussions with relevant developers with a view to considering what form of comfort might be given to support the taking of such investment decisions.
15. This document sets out: the characteristics which DECC will expect to be exhibited before it is able to take a decision as to whether to enter into discussions with a potential developer; the broad process that the Government will adopt to govern and progress any such discussions; and further information about limiting factors that affect what may be made available to developers to enable early investment decisions. A further update will be published in spring 2012.

Update on Renewables Obligation transition

16. In the Electricity Market Reform White Paper, we announced our intention to fix the price of a Renewables Obligation Certificate (ROC) from 2027, in order to provide generators with the certainty that there will be a market for ROCs, and to ensure that generators are able to receive the full value of their certificates.
17. Annex C of this document sets out further detail on how the fixed ROC mechanism will work, including how the fixed price will be set at the buyout price plus 10 per cent, how the ROCs will be purchased, and how this will be funded.

Next steps

18. This document also sets out the timetable for providing more detail on policy design issues. Key next steps over the next six months will be:
 - technical details on FiT CfD and EPS (early 2012);
 - we will publish an Electricity Market Reform policy update, in line with our intended timetable for primary legislation (spring 2012);
 - further update on enabling investment decisions for early projects (spring 2012); and
 - Electricity System Policy (summer 2012).
19. The Government intends to legislate for key elements of the Electricity Market Reform package through primary legislation in the second Parliamentary session. We intend that this legislation will reach the statute book by spring 2013. These dates, as well as the enactment of the Bill, are subject to Parliamentary time being available and the will of Parliament.
20. Stakeholder input has been invaluable and we will continue to engage stakeholders throughout the detailed policy development phase. Further details of stakeholder events and working groups for collaboration with industry on detailed policy design will be included

in Electricity Market Reform e-bulletins and published on our website before the end of January 2012.³

³ http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/emr_wp_2011.aspx

Chapter 1 – Introduction

21. This chapter sets out the background and context to the Electricity Market Reform programme, and summarises progress to date.
22. UK energy policy since the early 1990s has been based on developing liberalised markets, using competition to drive down energy prices. This has led to the UK benefitting from low average prices, high levels of reliability resulting in secure electricity supplies, and greater choice. This broad approach of greater liberalisation has been adopted across Europe, through the EU's Internal Energy Market Packages, resulting in more open, transparent and competitive energy markets.
23. 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.
24. Our assessment, as we set out in the Electricity Market Reform White Paper – ***Planning our electric future: a White Paper for secure, affordable and low-carbon electricity***⁴ – is that the existing market arrangements will not deliver the scale of long-term investment at the pace that is required or at least cost.
25. To meet these challenges at least cost, our long-term aim is to move to a world where different sources of low-carbon generation can compete fairly on cost. However, this will take time. Technologies are at different stages of development, and the current market design does not enable low-carbon generation to compete fairly with fossil fuels. In addition, with around a fifth of existing generation closing over the next decade and with new intermittent sources of generation, there is an increased risk to security of electricity supply in the medium-term.
26. We therefore need to build new market arrangements to make this long term transition. Electricity Market Reform aims to achieve this by allowing the wholesale electricity market to function while providing the additional support necessary to allow a level playing field between low and high carbon technologies and incentivise the necessary investment.

OVERVIEW OF ELECTRICITY MARKET REFORM

27. Through Electricity Market Reform, we will confer powers on a delivery body to contract for capacity through a Capacity Market and for low-carbon generation through a Feed-in Tariff with Contracts for Difference (FiT CfD). Our view is that the System Operator best meets the criteria to fulfil this role. The Government will retain overall accountability; set the policy objectives for the electricity sector; and take decisions on the key rules and parameters of the mechanisms.
28. We are considering the application of Electricity Market Reform in the Devolved Administrations with the relevant Governments, reflecting the Devolution settlements.

⁴ <http://www.decc.gov.uk/assets/decc/11/policy-legislation/emr/2210-emr-white-paper-full-version.pdf>

29. The FiT CfD is a long-term contract which stabilises revenues and reduces risks to support investment in all forms of low-carbon electricity generation. If the wholesale electricity price is below the price agreed in the contract, the generator will receive a top-up payment to make up the difference. If the wholesale price is above the contract price, the generator pays the surplus back.
30. The Capacity Market is designed to ensure sufficient reliable capacity is available to ensure security of electricity supply in times of system stress, for example during a cold, windless period. It puts in place contracts to incentivise providers of reliable capacity to be available when needed. This could include both generation and non-generation forms of capacity such as demand side response and storage.
31. These mechanisms are complemented by:
 - the carbon price floor, which provides greater certainty of the carbon price and thereby strengthens low carbon investment signals; and
 - the introduction of an Emissions Performance Standard (EPS) , which provides a regulatory backstop on the amount of emissions new fossil fuel plants can emit.
32. Through the Electricity Market Reform White Paper, we fixed a large part of the framework, including the design of the FiT CfD and EPS, building on the announcement of the carbon price floor at Budget 2011.⁵ This technical update completes the strategic framework, setting out:
 - our view that the System Operator best meets the criteria for the delivery of the Electricity Market Reform mechanisms, and the high-level institutional framework for the administration of Electricity Market Reform; and
 - our decision to legislate to introduce a capacity mechanism in the form of a Capacity Market.

Demand reduction and system policy

33. We recognise the importance of the demand side in delivering our objectives. As set out in the Electricity Market Reform White Paper, we are working on two large related projects, which are considering the scope for electricity demand reduction and the impact of Electricity Market Reform on the wider electricity system.
34. Energy efficiency lies at the heart of DECC's agenda, driven by key policies such as the Green Deal and ECO⁶, and is a critical part of the UK's low-carbon transition. In the context of Electricity Market Reform, we recognise that reducing demand for electricity is likely to be a more cost-effective way of reducing carbon emissions than supporting new generation. Driven by our desire to achieve least-cost decarbonisation, we committed in the Electricity Market Reform White Paper to assess whether there is sufficient support and incentives to make efficiency improvements in electricity usage and consider whether there is a need for appropriate additional measures. DECC's Electricity Demand Reduction Project is progressing this commitment and will complete its assessment by summer 2012.

⁵ http://www.hm-treasury.gov.uk/consult_carbon_price_support.htm

⁶ http://www.decc.gov.uk/en/content/cms/tackling/green_deal/green_deal.aspx

35. In addition, as stated in the Electricity Market Reform White Paper, the changes driven by Electricity Market Reform will have a significant impact on future networks and the way supply and demand is balanced. We are therefore taking forward work to develop an electricity system policy that will focus on the challenges around balancing, and the system flexibility needed for the more integrated electricity system required to support the Electricity Market Reform programme. It will cover the whole electricity system and consider the impact of our current generation and demand-side policies on the efficient balancing of supply and demand. It will look at policy options required to ensure the electricity system can connect and balance supply and demand in a way that minimises cost and makes efficient use of assets. This will include consideration of the extent to which different non-generation solutions such as demand side response, storage and interconnection might contribute to balancing the electricity system. It will also link the existing work on networks and smart meters into a longer term strategy.
36. The package of reforms outlined in the Electricity Market Reform White Paper, combined with our development of a comprehensive electricity system policy, will mean that by the 2030s we will have: a more balanced, flexible, smart and responsive electricity system, powered by a diverse and secure range of low-carbon sources of electricity, with a full part played by demand management, storage and interconnection; competition between low-carbon technologies that will help to keep costs down; a network that will be able to meet the increasing demand that will result from the electrification of our transport and heating systems; and we will have made this transition at the least cost to the consumer.

COSTS AND BENEFITS OF ELECTRICITY MARKET REFORM

37. Delivering the Electricity Market Reform proposals at least cost to consumers is key to the success of this programme.
38. The Government recognises that electricity bills are likely to rise relative to today with or without reform. This is due to potential increases in the wholesale price of gas, the carbon price and network costs and other policies. However, an updated assessment of the costs and benefits of the programme has demonstrated that average domestic consumer bills after the implementation of Electricity Market Reform are expected to be, on average, four per cent lower than they would have been without the reforms in place over the period up to 2030. Consumer bills will be significantly lower towards the later years as the proposals begin to take effect. Average domestic consumer bills are expected to be 15 per cent lower in the five-year period up to 2030 than they would be under current policies. As indicated in the Electricity Market Reform White Paper, there will be an assessment in 2016 which will consider whether the new contract structure for low carbon is delivering all the benefits we expect, especially for consumers.
39. Implementing these reforms will require a significant increase in skilled professionals and will support the creation of jobs in the sector. Initial estimates suggest that the infrastructure investment enabled by these reforms could lead to as many as 250,000 more people being employed in the energy sector.

EUROPEAN CONTEXT

40. The UK approach sits within a wider European framework for energy policy, that shapes the way in which we meet these energy objectives. While we await with interest the findings of the Energy 2050 Roadmap, which will set out a long-term vision for how Europe should address the challenges, we consider that action is needed now for the UK electricity

market. As the European Commission notes, the transition to carbon-free electricity generation ‘requires choices to be made by policymakers, investors, educational institutions and scientists today’.⁷

LIQUIDITY

41. The Government considers improved power market liquidity to be essential to reducing barriers to entry, improving competition and to ensuring the Electricity Market Reform mechanisms operate efficiently. Ofgem is taking forward a programme of work to improve liquidity. The Government will work with Ofgem and industry to ensure liquidity improves and will act if necessary where barriers to entry are not addressed through Ofgem’s actions.

⁷ Second Strategic Review: EU Energy Security and Solidarity Action Plan, p15.

Chapter 2 – Institutional framework

Summary

- A transparent, enduring, robust and credible institutional framework is crucial to ensuring that Electricity Market Reform drives investment in low carbon generation and ensures security of supply at an affordable price to consumers.
- The System Operator best meets the criteria for delivering the Feed-in Tariff with Contracts for Difference (FiT CfD) and the Capacity Market.
- The institutional framework will comprise three key players:
 - **Government** will be responsible for setting out the policy approach and objectives, and for taking final decisions on key rules and parameters;
 - the **System Operator** will provide expert independent advice to Government on key rules and parameters and administer the FiT CfD and Capacity Market; and
 - **Ofgem** will continue its independent regulation of the market incorporating the new instruments.
- Government will set out and periodically revise a delivery plan with advice from the System Operator. This delivery plan will contain a vision and objectives, enduring design elements that will last the life of the delivery plan, and design elements that will need to be more frequently revised.
- The credit worthiness of the payment models is a critical part of making the FiT CfD and Capacity Market mechanisms attractive to investors. Government will establish a robust legal framework to protect investors against unilateral changes to the FiT CfD and ensure that revenue flows are secured through suppliers who can pass costs on to consumers.

INTRODUCTION

42. As set out in the Electricity Market Reform White Paper – *Planning our electric future: a White Paper for secure, affordable and low-carbon electricity*⁸ – the Government is committed to putting in place a transparent, stable, robust and credible institutional framework to deliver Electricity Market Reform. This is critical if we are to give confidence to industry and investors and successfully deliver Government’s objectives of secure, low carbon, affordable electricity supplies.
43. This chapter sets out the Government’s decisions on its preferred institutional framework: the role of the designated delivery organisation; the functions that will be conferred onto it; and the approach we will take to providing a robust and credit-worthy contracting and payment regime. A more detailed description of the institutional framework will be set out alongside the introduction of legislation.

⁸ <http://www.decc.gov.uk/assets/decc/11/policy-legislation/emr/2210-emr-white-paper-full-version.pdf>

44. The Electricity Market Reform White Paper identified the following options for delivery organisations:
- a new Executive Agency or Non-Departmental Public Body (NDPB);
 - an existing public body;
 - a new public corporation; and/or
 - an existing private sector body.
45. We have engaged with a wide range of stakeholders to gather views and evidence on the range of delivery organisation options and related questions. We sought views on the criteria used to judge them, and the split of roles and responsibilities between Government and the delivery organisation.
46. This analysis and engagement has led us to conclude that the System Operator within National Grid best meets the criteria for the implementation of both the FiT CfD and Capacity Market. Discussions between Government and National Grid are underway with a view to agreeing precisely how the System Operator will fulfil this role and the exact nature of the relationship between Government and the System Operator.

OVERVIEW OF THE INSTITUTIONAL FRAMEWORK

47. The institutional arrangements must strike the right balance between independence and accountability. Government must remain clearly accountable for public expenditure, for the policy outcomes such as the explicit objectives it sets in law (Carbon Budgets⁹ and renewables target¹⁰) and for security of electricity supply. At the same time, for industry and investor confidence it is important that decisions are based on independent expertise. An independent delivery organisation will also be able to attract and retain the necessary technical skills and expertise over the long term that will help to drive commercial efficiency and innovation.
48. To achieve this balance and meet the objectives of Electricity Market Reform through efficient delivery of the FiT CfD and Capacity Market, we must be clear about the roles and accountabilities of Government, the System Operator and Ofgem.
49. The roles of these three key players are as follows:
- **Government** will be responsible for setting the policy approach and objectives and for taking final decisions on key rules and parameters. Government will also monitor the System Operator's performance against the objectives set for it;
 - the **System Operator** will provide independent, expert advice to Government on key rules and parameters, and administer the FiT CfD and Capacity Market; and
 - **Ofgem** will continue its independent regulation of the market, incorporating the new instruments. This could include monitoring the compliance of generators and

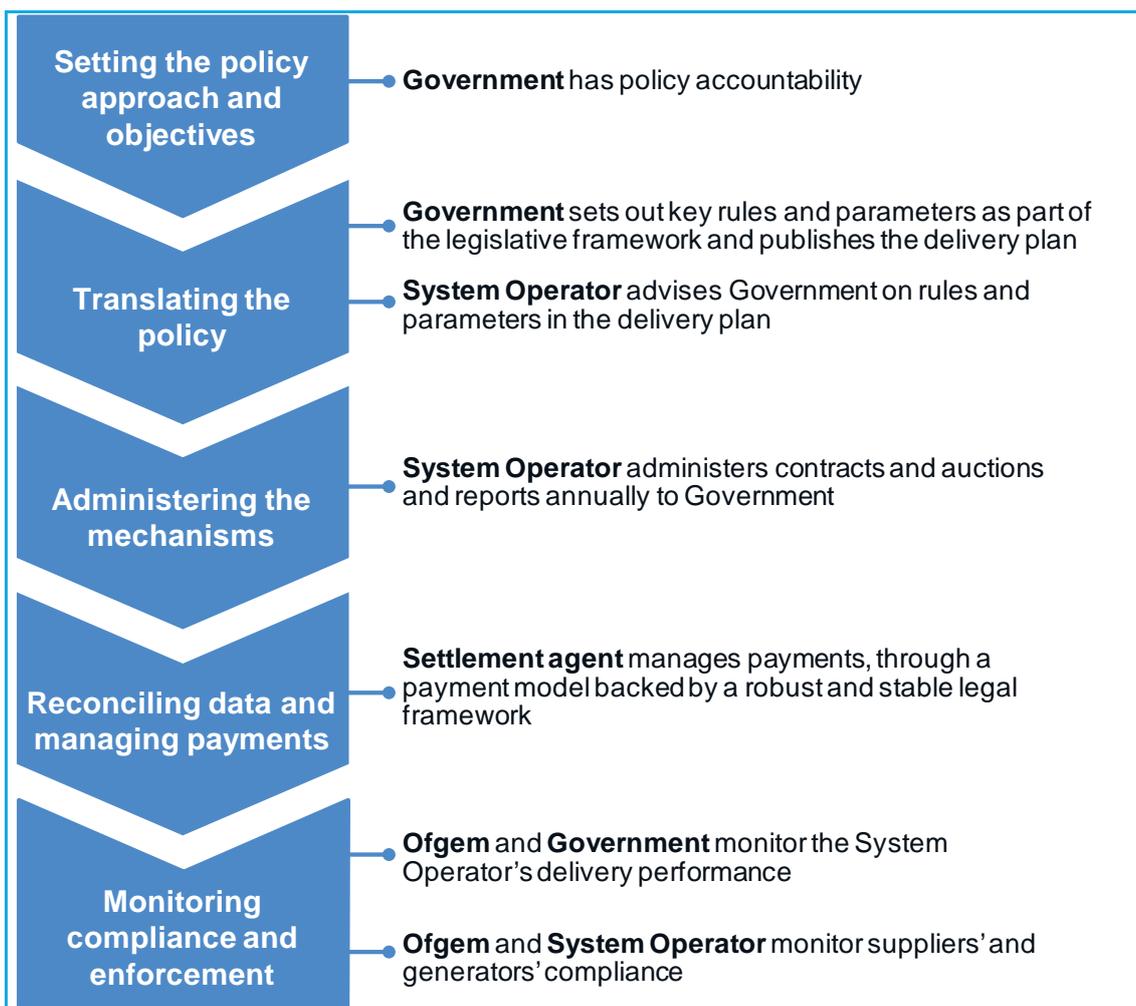
⁹ Through the 2008 Climate Change Act, the Government sets legally binding emissions reduction targets through Carbon Budgets covering a five year period. The level of the fourth Carbon Budget for the period 2023-27, was set in June 2011 at 1,950 MtCO₂.

¹⁰ Through the 2009 Renewable Energy Directive, the UK has a target for 15 per cent of energy consumption to come from renewable sources by 2020.

suppliers with their new obligations and overseeing how the System Operator implements its new functions.

50. This split of functions will be established through primary and secondary legislation and potentially through non-statutory arrangements, and is likely to include:
- primary and secondary legislation or licence changes to confer the functions on the System Operator, and set out what the System Operator must have regard to in exercising these functions; and
 - provision(s) to set the objectives, detailed methods and principles for the System Operator, so that it can exercise its functions and duties in the administration of the mechanisms.
51. In the Electricity Market Reform White Paper we listed the five broad functions necessary to deliver the FiT CfD and Capacity Market. Figure 1 summarises how these functions will be divided between Government, the System Operator and Ofgem.

Figure 1: The high-level functions required to deliver the Feed-in Tariff with Contracts for Difference and Capacity Market



52. Further detail on who will undertake each function under our proposed institutional framework is set out below.

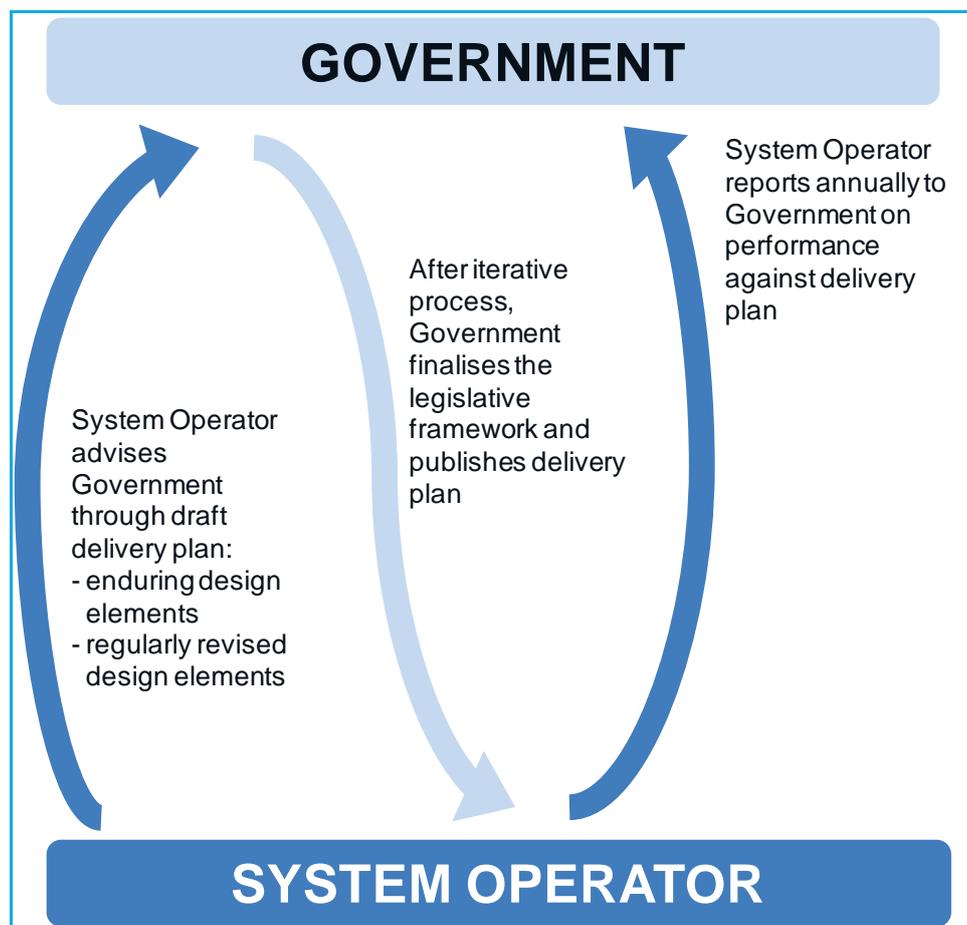
Setting the policy approach and objectives

53. To retain clear accountability Government will set the policy approach including the roles and responsibilities of the organisations involved; details of the payment mechanism; how to manage interactions between the FiT CfD, Capacity Market and Renewables Obligation; and the detailed design of the two mechanisms, including standard contract terms for the FiT CfD and the level of capacity to be commissioned through the Capacity Market. Government will decide when to move to auctions as the price setting mechanism for the FiT CfD.
54. Government will also set the high-level objectives for delivery of the FiT CfD and the Capacity Market. The objectives could include, for example:
- making an appropriate contribution to delivering security of supply;
 - making an appropriate contribution to Carbon Budgets;
 - making an appropriate contribution to meeting the renewable energy target; and
 - minimising the cost of delivering these policies, ensuring value for money for consumers and sustainability.

Translating the policy

55. Translating the policy involves setting the key parameters and design details necessary to administer the mechanisms. Making these decisions within a transparent and robust institutional framework will ensure the mechanisms can operate efficiently and effectively.
56. The System Operator will advise on the key rules and parameters to achieve the objectives set by Government, working within the policy approach set by Government. Figure 2 shows how the Government will set out the key rules and parameters within a legislative framework, including publishing a delivery plan. The System Operator will report to Government annually on its performance against the delivery plan.

Figure 2: Translating the policy: how this function will work



57. The System Operator could present its advice to Government in the form of alternative scenarios that make clear the associated trade-offs between objectives. Government will take the final decisions on the key rules and parameters. Government will need to consider the full range of policy objectives in making its choice, including impact on consumers' bills, economic growth, and sustainability.
58. The Government's decisions could be informed by further independent advice, including from Ofgem. For instance, we could convene a panel of experts to provide further input.
59. The Government will publish the delivery plan that will give clarity on key parameters for contracts over the next period, for example for the next five years. The delivery plan could be made up of separate documents, for example one for each of the mechanisms, but the System Operator and Government will ensure that the interactions between the mechanisms are taken into account. The delivery plan will include: vision and objectives; enduring design elements; and regularly revised design elements.

Vision and objectives

60. Government will set out the broad decarbonisation and security of supply objectives (see 'Setting the policy approach and objectives' above) that the System Operator will be tasked to deliver. This will include Government setting out how it envisages the market functioning in order to meet these objectives.

Enduring design elements

61. For the FiT CfD these enduring design elements could include rules and parameters such as eligibility criteria for the mechanism and possible changes to the detailed contract terms of the FiT CfD for new projects. For the Capacity Market, these could include details of exactly how the auction will be run. The aim would be to provide the clarity that investors need to plan investments. Both the FiT CfD and Capacity Market design details will be set out within a legislative framework and reviewed at regular intervals, for example every five years.

Regularly revised design elements

62. Certain aspects of the Capacity Market and the FiT CfD schemes may need to be revisited more frequently to reflect significant changes in market conditions. We will work to ensure these changes do not affect investor certainty. Such changes could include, for example, advice on how much capacity to contract for and technical parameters. These changes would not apply retrospectively.

Administering the mechanisms

63. Once Government has finalised the legal framework and published its delivery plan, the System Operator will have operational independence to administer contracts and auctions in accordance with the statutory framework and the published plan, including any agreed revisions.
64. The System Operator will be required to report back to Government annually on its progress against the delivery plan, for example on the amount of capacity that has been contracted for under the Capacity Market and the amount of capacity being developed under FiT CfD. This annual reporting process could also be used by Government, with the advice of the System Operator, to make changes to any design elements that need to be regularly revised.

Reconciling data and managing payments

65. The credit worthiness of the system is critical to making the FiT CfD and Capacity Market mechanisms attractive to investors to achieve the aims of Electricity Market Reform. The FiT CfD will be underpinned by a strong, secure flow of revenues. Government will establish a robust and stable legal framework that adheres to the following principles:
- there should be **no unilateral changes** made to the FiT CfD contractual terms once signed, except where the circumstances for doing so are explicitly defined in advance. This provides the same safeguards as any contract;¹¹
 - payments will **flow from counterparty (or counterparties) to generators** (or vice versa) as defined in the contract. These contractual rights will be supported by **primary and secondary legislation** and generation and supply licences. This provides a very strong basis for investments; and

¹¹ More details on the circumstances in which changes can be made to the contractual terms will be set out as part of the technical detail on the FiT CfD design in early 2012. These may include responding to changing market conditions by amending reference prices to ensure that they remain highly reflective of the average market price. Should any such change be required, it would be made following clear and transparent procedures known to generators prior to signing a FiT CfD.

- the system will **limit exposure to default**, through amongst other things an efficient and effective settlement mechanism prescribed in law and a timely process for the transfer of obligations in the event of counterparty or supplier default.
66. As per the costs of other environmental schemes, it is anticipated that the costs of meeting the FiT CfD will be borne by suppliers which, in turn, are free to pass these costs to consumers. More detailed design of the payment models for the FiT CfD will be set out in early 2012. Alongside the System Operator, there may be a role for an organisation such as Elexon, which has much of the information and skills necessary to manage the payments.
67. The financial flows for the Capacity Market will be developed during the detailed design phase in 2012 and 2013. This work is expected to be based on similar principles to those set out above. In addition, revenues from penalties will be fed back to suppliers, with the basis on which this is done to be determined as part of detailed design in time for secondary legislation.

Monitoring compliance and enforcement

68. Government will hold the System Operator to account for its progress against the delivery plan through a regular cycle of performance review meetings and annual reports. Ofgem will regulate the System Operator's costs to ensure that they are efficient and provide value for money for the consumer. Ofgem may integrate the regulation of the System Operator's role in delivering the Electricity Market Reform into its System Operator regulatory framework. Ofgem will also provide advice on any conflicts of interest and any appropriate mitigating measures.
69. Responsibility for ensuring that suppliers and generators are meeting their obligations under the policy may rest with Ofgem or the System Operator as appropriate. Under the FiT CfD obligations are principally enforceable under the contracts. The responsibilities of Ofgem and the System Operator will be subject to further design work in 2012. But Ofgem will continue to be responsible for monitoring and enforcing licence conditions.

THE RATIONALE FOR THE INSTITUTIONAL FRAMEWORK

70. The System Operator delivering both the FiT CfD and Capacity Market, with the split of functions described above, best meets the criteria for the decision set out in the Electricity Market Reform White Paper. The institutional framework meets the criteria as follows:
- the split of functions described above balances the **independence** of a private company, with clear **accountability** through Government taking final decisions on key rules and parameters;
 - the strong **synergies** with the current role of the System Operator and delivery of both the FiT CfD and the Capacity Market through a single organisation ensures **value for money**;
 - the System Operator already has the **technical expertise**, and **commercial and financial skills** necessary to deliver the FiT CfD and the Capacity Market; and
 - this framework will enable a **credit-worthy** payment model with a secure basis in a robust and stable legal framework (as described in 'Reconciling data and managing payments' above).

71. Independence is important to give investors confidence that the mechanism will be implemented transparently and predictably. This element of independence will be ensured by our intended use of a delivery organisation that is not part of Government. Moreover National Grid, as the System Operator, already fulfils a particular role in the electricity market that requires it to work independently under an appropriate regulatory regime.
72. However, independence must be balanced with accountability, and the split of roles and responsibilities described above ensures that the accountability for key policy outcomes and for a significant spending programme rests clearly with Government. The System Operator will advise Government on key parameters, such as strike prices, but Ministers will take the decisions. Accountability is also enhanced by having one organisation deliver both the FiT CfD and Capacity Market. The interaction between the two mechanisms would make accountability for outcomes difficult if they were delivered by different organisations.
73. There are strong synergies between the functions the System Operator will take on as a result of this new role and functions that the System Operator already carries out, such as assessing the capacity of the system; managing connections to the grid; and running balancing services such as STOR.¹² The System Operator's experience of running competitive tenders (for instance for a range of balancing services) makes it well placed to oversee the Capacity Market auctions and the move to and management of FiT CfD auctions. In the interim, while FiT CfD prices are set administratively, National Grid's existing revenue forecasting function will be beneficial.
74. The System Operator has existing relationships with suppliers, large generators and providers of demand side response (DSR), which will give industry greater confidence in the management of the FiT CfD and Capacity Market. It also has systems and information for accurately assessing generator availability and operation. Elexon, a subsidiary of National Grid, has a strong track record of calculating and managing complex payments and settlements in a way that minimises the credit risk and impacts for both suppliers and generators. The System Operator has the skills, expertise and deep understanding of the electricity market necessary for effective implementation of the Electricity Market Reform mechanisms within the existing market framework.
75. These synergies will help to ensure value for money in delivering the Electricity Market Reform mechanisms, and regulation by Ofgem (which already regulates the System Operator) will further protect value in money in administering the mechanisms.
76. It will be important for Government to take into account the impact of these mechanisms on the whole system, including the impact on network build and maintenance, and the impact on balancing costs. The System Operator is uniquely placed to be able to help Government understand these issues.
77. The final criterion listed in the Electricity Market Reform White Paper was credit worthiness, which is critical to the success of the mechanisms. As set out in the description of our proposed model above, this is not solely determined by the choice of contract counterparty.

¹² Short Term Operating Reserve: at certain times of the day National Grid needs reserve power in the form of either generation or demand reduction to be able to deal with actual demand being greater than forecast demand and plant breakdowns. National Grid procures part of this requirement through STOR, via additional active power from generation and/or demand reduction, where it believes it is economic to do so.

<http://www.nationalgrid.com/uk/Electricity/Balancing/services/STOR/>

It is a function of how robustly the legal framework protects the investor's right to be compensated for their investment in the terms set out in the contract. The institutional framework we propose will enable us to implement a credit-worthy payment model with a secure basis in a robust and stable legal framework.

78. This approach has received support from the National Grid Board and we will work closely with National Grid to develop suitable arrangements that meet Government's objectives whilst protecting the interests of National Grid's investors through appropriate protection from balance sheet risk.

FURTHER CONSIDERATIONS

Conflicts of interest

79. Giving the System Operator influence over the type and location of generation and the capacity margin raises potential or perceived conflicts of interest with National Grid's existing functions and businesses.¹³ Therefore, any conflicts of interest will have to be appropriately managed. The Government will need to assure itself that appropriate structures are in place to protect sensitive information and incentivise focussed commercial behaviour that promotes competition and consumer interests.
80. To this end, the Government and Ofgem will carefully consider any potential conflicts of interest and possible mitigating measures. A specific project on this will begin in January 2012, reporting in time for implementation of the two new mechanisms. Initial findings will be available in time for legislation, with the full project expected to take around a year. In parallel with this work, Government will seek the necessary legislative powers to be able to implement any appropriate mitigating measures.

State Aid

81. The Government is bound by EU State Aid rules and is designing Electricity Market Reform mechanisms and institutional arrangements to be consistent with those rules. We are working with the European Commission to ensure that our policies are compliant with State Aid rules.

DEVOLVED ADMINISTRATIONS

82. As set out in the Electricity Market Reform White Paper, we are committed to working closely with the Devolved Administrations to ensure that our policies are consistent with devolution arrangements. As the detailed institutional arrangements are developed, we will continue to work with the Devolved Administrations to consider how these will apply in each part of the UK.

Scottish Government and Welsh Government

83. The institutional framework described above is designed to work across the whole of the UK. We are working closely with the Scottish Government and Welsh Government to ensure they have an appropriate role in the institutional arrangements. As set out in the

¹³ Including National Grid's role as Transmission Owner for England and Wales (including responsibility for network build), National Grid Interconnectors Limited's existing and potential role as interconnector owner, National Grid Offshore Limited's potential role as Offshore Transmission Owner, National Grid Carbon Limited's potential role as Carbon Capture and Storage infrastructure owner.

Electricity Market Reform White Paper, any arrangements will reflect the devolution settlements.

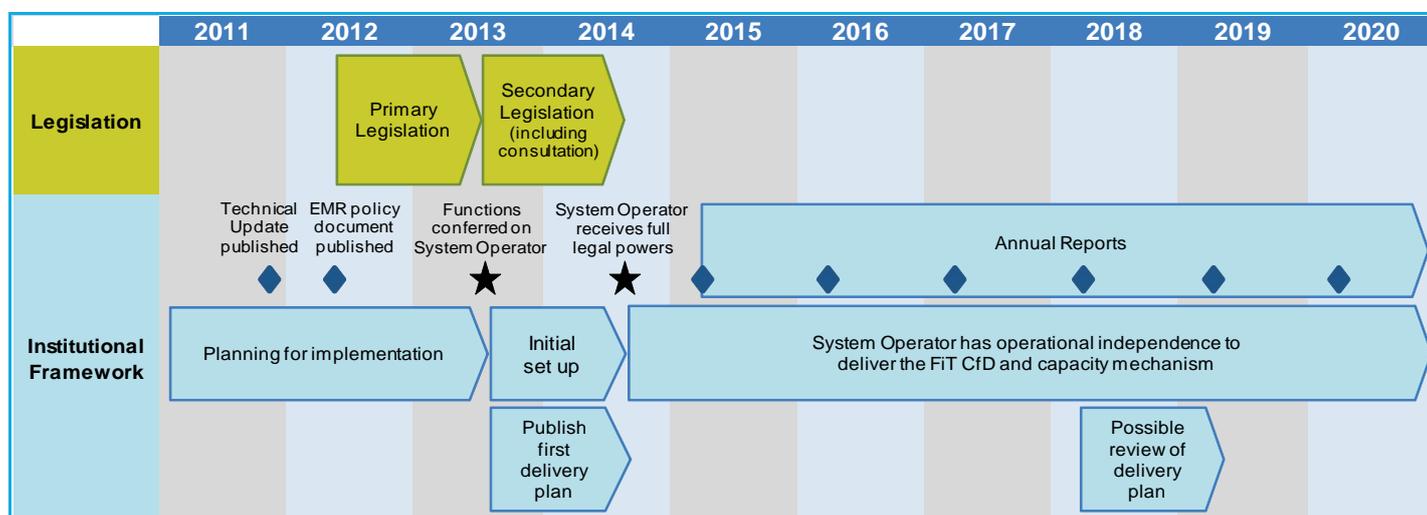
Northern Ireland Executive

- 84. UK and Northern Ireland Ministers continue to prefer a UK-wide FiT CfD and a UK-wide institutional framework. We are working closely with the Northern Ireland Executive to design the application of FiT CfD contracts in the Northern Ireland market and develop the best institutional arrangements for the whole of the UK.
- 85. Should the Northern Ireland Executive and UK Government agree on a UK-wide approach, we will seek to include UK-wide enabling powers in future UK legislation. However, more detailed legislation may need to be brought forward by the Northern Ireland Executive.

NEXT STEPS

- 86. The next steps for implementing the institutional framework include:
 - further technical details on the FiT CfD to include, details of the payment model; the price setting processes; and key terms of the FiT CfD in early 2012 leading to secondary legislation;
 - more detail on the functions of the System Operator and the role of Devolved Administrations will be set out in the Electricity Market Reform policy document will be published alongside the introduction of primary legislation;
 - the detailed design of the Capacity Market, including the payment model, will continue throughout 2012 and into 2013 leading to secondary legislation; and
 - we are aiming to publish the first delivery plan in 2013.
- 87. An illustrative longer term implementation plan is set out in Figure 3, which shows the key milestones including finalising the legislative framework; the publication of the first delivery plan; and the first review of the delivery plan (timings subject to further design work).

Figure 3: Indicative timeline for implementation of the institutional framework



Chapter 3 – Ensuring security of electricity supply

Summary

- We face significant risks to security of electricity supply in the medium term. Given the importance of ensuring we have adequate levels of reliable capacity, the Government will legislate for a capacity mechanism.
- This mechanism will be market-wide, and based on ensuring a required volume of capacity – a **Capacity Market**. At a high level, the Capacity Market we will introduce involves:
 - estimating the total volume of reliable capacity required a number of years ahead;
 - contracting for the required volume of reliable capacity from providers through a central auction process; and
 - placing incentives on providers of capacity to ensure they are available when needed.
- The Government does not underestimate the scale of intervention in the electricity market this represents. For this reason the Government has decided that:
 - at this stage, we only take high-level decisions on the type of mechanism required, and carry out detailed design in the next phase to minimise design risk; and
 - Ministers will decide when to run the first auction process based on future estimates of security of supply from the System Operator and possibly other technical experts (including Ofgem).

INTRODUCTION

88. The efficient provision of secure, reliable electricity for consumers is a key objective for Government energy policy.
89. The GB electricity market has historically delivered secure and reliable supplies. But without action there is an increased risk to security of electricity supply in the medium term. This is due to two main factors – around a fifth of existing generation is closing over the next decade;¹⁴ and a significant proportion of new generation is likely to be more intermittent and less flexible. These factors are likely to exacerbate market failures in the electricity market, in particular as the increased unpredictability of the market – for example as a result of volatility of wholesale electricity prices and concern about regulatory

¹⁴ This figure differs from the 'quarter' included in the Electricity Market Reform White Paper. The reason for this change is that installed capacity at the end of 2010 has increased to 90.2 GW from around 84.7 GW at the end of 2009; and around 19.1 GW (21 per cent of installed capacity) is expected to close by 2020 as a result of EU regulations and nuclear plants coming to the end of their regulated life.

intervention – potentially makes investment in flexible capacity more difficult. This increases the risk that there will not be sufficient capacity available to meet demand, particularly in periods of low wind and high demand.

90. New non-generation measures such as demand side response (DSR), storage and interconnection offer significant opportunities to improve security of supply and reduce the amount of generating capacity that is needed. In addition, reform of cash out,¹⁵ currently being considered by Ofgem, could help to improve security of supply. However, while these actions should improve the position, Government believes that we need to ensure that we are able to respond to secure our electricity supply if necessary.
91. As such, in the Electricity Market Reform White Paper – ***Planning our electric future: a White Paper for secure, affordable and low-carbon electricity***¹⁶ – the Government signalled its intention to introduce a capacity mechanism – that is, an intervention in the electricity market designed to ensure that sufficient reliable capacity is brought forward. In the White Paper, we published a consultation on potential models for a capacity mechanism, including a targeted mechanism (Strategic Reserve) and a market-wide mechanism (Capacity Market). The consultation closed on 4 October and we received 74 responses, covering a wide range of views.¹⁷ These responses have informed our decision on the type of mechanism to introduce.

OVERVIEW OF THE CAPACITY MARKET

92. Having considered the responses to our consultation, and carried out more detailed analysis on the relative merits of the different options under consideration, the Government will legislate for the establishment of a Capacity Market, based on the following principles:
- Government will take a decision, based on advice from the System Operator and possibly other technical experts (including Ofgem), on the volume of capacity to be contracted. This advice will form part of the delivery planning process described in the previous chapter. This should ideally be some years ahead of the year capacity needs to be in place ('the delivery year') in order to enable the construction of new capacity, though the gap between the auctions and delivery year for the first auction process could be shorter if necessary to get capacity in place earlier.¹⁸
 - Ministers will decide when to run the first auction process based on future estimates of security of supply and the potential for the market to bring forward adequate capacity without the introduction of the mechanism. There will be no delay in designing the mechanism; we propose to continue with the detailed design, and prepare for implementation, to maximise clarity for investors and ensure the auction process could be run at the earliest opportunity if needed.

¹⁵ Imbalance settlement or 'cash out' is the process used to settle differences between the financial contracts and the physical metered volumes of market participants (i.e. generators and energy suppliers). The Government has previously signalled its support for a Significant Code Review of cash out, and fully supports consideration of the issues outlined by Ofgem in the November issues paper.

¹⁶ <http://www.decc.gov.uk/assets/decc/11/policy-legislation/emr/2210-emr-white-paper-full-version.pdf>

¹⁷ See 'Summary of consultation responses' section.

¹⁸ For example, a capacity auction with a short lead time could stop existing plants closing, incentivise mothballed plants to re-enter the market, or encourage additional demand side response or other non-generation solutions.

- Providers of capacity – including existing and new plants, and potentially non-generation technologies and approaches such as DSR – will be able to offer the quantity of reliable capacity they can provide in a delivery year into an auction run by the System Operator. All providers of capacity will be able to participate, potentially subject to some limitations on low carbon plants.¹⁹ This central auction process will allow the System Operator to ensure adequate capacity will be available to meet demand.
- If successful in an auction, providers of capacity will receive revenue ('availability payments') for providing reliable capacity. These payments will provide a steady income stream from the delivery year. Providers of capacity will also be subject to penalties to ensure the capacity they have contracted to provide is available when required.
- The costs of capacity will be shared among suppliers, so capacity contracts will ultimately be paid for by consumers. However, consumers should benefit from lower and more stable wholesale electricity prices because the Capacity Market ensures adequate capacity is brought forward. This helps to avoid the scarcity conditions that can lead to voltage reductions or power cuts, and can contribute to high wholesale electricity prices when market conditions are tight.

What does a Capacity Market mean for market participants?

Providers of Capacity

Providers of capacity, including generation and alternative approaches such as DSR, will be able to participate in an auction, competing for contracts which commit them to make available to the electricity market a quantity of reliable capacity in a given year (the delivery year), or face penalties if they are not available. This 'availability' requirement means delivering electricity to the market or reducing consumption up to the quantity contracted for, at any time during the delivery year when the electricity market is tight.

All providers that secure contracts in an auction will receive a regular payment for their availability, and will be able to continue to sell electricity into the electricity market or reduce consumption as usual.

The additional capacity that results from the Capacity Market will have a dampening effect on electricity market prices, so the availability payment is required to compensate providers of capacity for lower electricity market revenues. In practice, providers of capacity exchange volatile revenues in the electricity market for a steady, predictable revenue flow (the Capacity Market availability payment), which enables investment.

Electricity Suppliers

¹⁹ See 'Interaction with low carbon support mechanisms' section.

Electricity suppliers will meet the costs of the capacity contracts awarded in the auction process but benefit from lower and less volatile wholesale electricity prices and higher reliability. Any non-availability penalties paid by providers of capacity will be returned to suppliers.

Electricity users

Electricity users will pay the costs of the capacity contracts awarded in the auction process via their electricity bills, but will also benefit from less volatile (and potentially lower) electricity prices, and from a higher level of reliability, than would otherwise have been the case. Any non-availability penalties paid by providers of capacity will be returned to suppliers and should therefore reduce bills for electricity users.

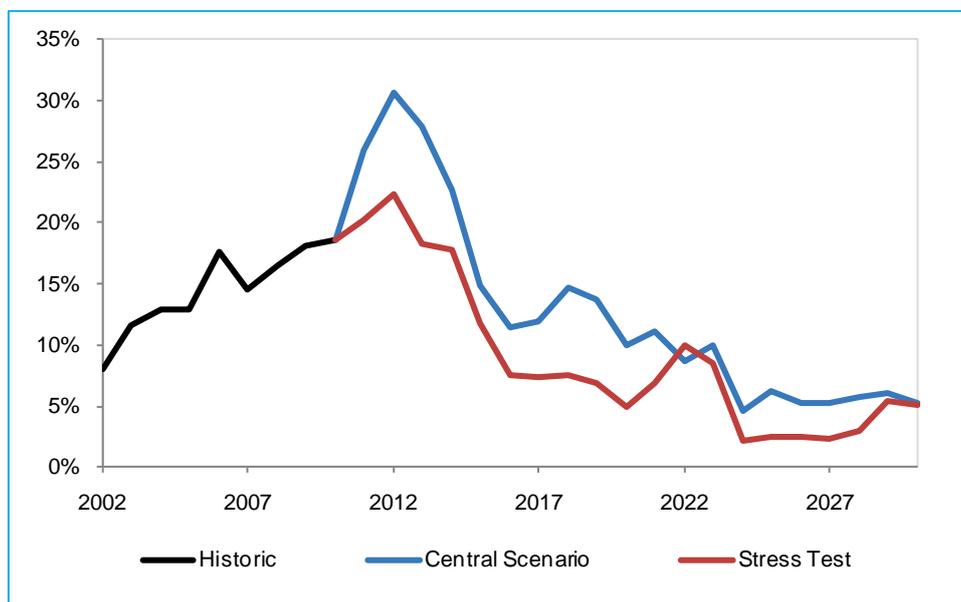
THE CASE FOR A CAPACITY MECHANISM

93. There is a risk to security of electricity supplies in the medium term, as:
- around 19 GW (a fifth) of existing capacity is expected to come off the system between now and 2020 (compared to around 6 GW of capacity coming off in the last decade), principally due to EU environmental regulation and ageing plants closing; and
 - increased levels of intermittent and less flexible capacity on the system leads to greater fluctuations in the electricity wholesale price and limits the times when flexible generation can profit from operating, but makes it important that it is ready to run when required.
94. This creates an investment challenge, in particular for flexible capacity which will increasingly serve as backup plant so will be increasingly reliant on volatile, unpredictable prices to secure the revenues needed to justify investment.
95. Even with volatile prices, a perfectly functioning market should bring forward investment. Over recent years, despite some forecasts of imminent security of supply problems, the market has delivered high levels of reliability. As we described in the Electricity Market Reform White Paper, there are a number of issues in the current market that could prevent this happening in the future:
- customers cannot choose their own level of reliability (e.g. by arranging to be cut off once the electricity price rises to a certain level);
 - prices in the electricity market may not send the correct market signals to ensure optimal security of supply. This is commonly referred to as the problem of ‘missing money’. There are at least two reasons for missing money:
 - System Operator balancing actions (such as voltage reduction) are not fully costed;
 - at times when the wholesale electricity market prices peaks to high levels, investors fear that the Government/regulator will act on a perceived abuse of market power, for example through the introduction of a price cap. Prices

historically have not risen above c£950/MWh (Balancing Mechanism, System Buy Price). In the future, if no capacity mechanism is implemented, analysis suggests they could need to rise to £10,000/MWh for short periods to allow flexible plants to recover investment. Investors are concerned that Government or the regulator would intervene if this were to happen.

- there are barriers to entry in the electricity market which may result in under-investment in capacity in both the short and long term.
96. The increased proportion of intermittency on the system will tend to exacerbate these market failures and increase the risk to security of electricity supply.
97. As set out in Figure 4 and 5, we have run further modelling to provide scenarios for de-rated²⁰ capacity margins and the amount of 'lost load' (that is, insufficient available capacity leading to voltage reductions and potentially power cuts)²¹ that result. We have modelled a market with the FiT CfD but without a capacity mechanism under a number of scenarios,²² including:
- DECC's new central forecast of energy demand and commodity prices; and
 - a 'stress test' – that is, a scenario which incorporates a number of downside risks to security of supply, including higher demand for electricity.

Figure 4: De-rated capacity margin

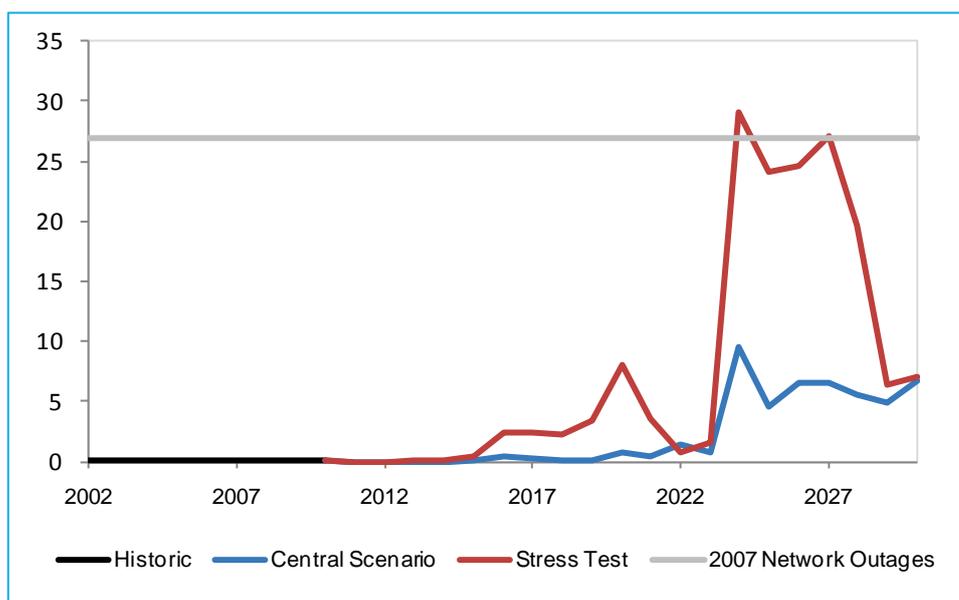


²⁰ The de-rated capacity margin is the capacity margin adjusted to take account of the availability of generating capacity, specific to each type of generation technology. It reflects the expected proportion of a source of electricity which is likely to be technically available to generate (even though a company may choose not to utilise this capacity for commercial reasons).

²¹ In practice, the System Operator runs through a series of actions before blackouts result. These include notice of insufficient margin; warning that demand control is imminent; followed by demand reduction, including voltage reductions (brownouts) and ultimately (if the situation is severe), disconnection.

²² For further detail, see the Impact Assessment published alongside this document.

Figure 5: Expected energy unserved (GWh)



Notes:

- Figure 5 includes 2007 network outage – this is a calculation of energy unserved as a result of failures on the network, the vast majority of which occur on the distribution network as a result of either bad weather or accidents. The calculation is done using Ofgem’s statistics on the average customer minutes lost together with an estimation of the average load per customer. 2007 had outages of around 27 GWh which is around the average annual figure for the period 2000-08.
- This provides some context for the expected energy unserved as a result of generation outages. Note that a key difference in how this would feel to customers is that network outages tend to occur frequently but to small numbers of people. Generation outages of the sort modelled would be likely to occur infrequently (i.e. at times of peak demand and low wind) and would be likely to affect larger numbers of electricity users simultaneously.

98. We have also modelled the real-world impacts of de-rated capacity margins falling to around five per cent, which potentially happens in 2020 in the ‘stress test’, and later in the 2020s in the central scenario. In such a year we see an average level of lost load of around 8 GWh. This would be likely to result in multiple voltage reductions in a typical year, and potentially more serious consequences (for example, power cuts affecting millions of homes) in atypical years (such as cold years with low wind), creating significant costs to the economy. Such low margins would also be likely to result in highly volatile prices in wholesale markets which would be likely to impact on consumer bills.
99. If the de-rated capacity margin were lower than five per cent, as it is in some years under some scenarios, the consequences would be more severe.
100. The central scenario indicates that a capacity problem does not arise until the 2020s, while the stress test indicates that a potential capacity problem arises in the second half of this decade.
101. It is because of the need to be able to respond to risks to security of supply that we will legislate to introduce a capacity mechanism. Given the uncertainty on the timing of a security of supply problem, Ministers will take the decision on when to run the first auction process based on future estimates of security of supply from the System Operator and possibly other technical experts (including Ofgem).

Modelling security of electricity supply

The figures provided for future capacity margins under the central estimate are different to those provided in the Electricity Market Reform White Paper. This is because some of the assumptions underpinning the modelling have changed. The biggest driver of the change in capacity margins is the assumption that electricity demand is substantially lower over the period, based on revised DECC assumptions. For example, in the previous modelling total demand was 362 TWh in 2020. In the new analysis it is 335 TWh. There are also a number of other, smaller changes, for example to the renewable mix.

Given the range of uncertainties associated with estimating future capacity margins, we have modelled a number of other scenarios, including a 'stress test' which includes a number of downside risks which could impact on security of supply. Key assumptions include higher demand (following National Grid's assumed profile from their 'Gone Green' scenario, which forecasts higher demand than DECC's central estimate); some modelling of missing money (by using a maximum price of £5,000/MWh instead of £10,000/MWh); and changes in timing for the deployment of some nuclear and offshore wind plants.²³

SUMMARY OF CONSULTATION RESPONSES

102. The Electricity Market Reform White Paper consulted on the type of capacity mechanism we should introduce, focusing on two design types – a Strategic Reserve (targeted mechanism) and a Capacity Market (market-wide mechanism).
103. A list of respondents is included in Annex A and Government is publishing all non-confidential responses alongside this document.²⁴
104. The consultation closed on 4 October. Responses have been carefully considered in developing the policy decisions set out in this document. A total of 74 responses were received. 35 per cent of respondents preferred some form of market-wide mechanism. Another 25 per cent of respondents preferred a Strategic Reserve, and 25 per cent of respondents did not express a preference on the type of mechanism. 20 per cent²⁵ of respondents did not believe any form of capacity mechanism is required.
105. Five of the six large, vertically integrated companies preferred forms of market-wide mechanism, including those which set volume (a Capacity Market) or variants where the price of capacity is set administratively. One of the six did not think a mechanism was required, but preferred a Strategic Reserve if we were to proceed with a mechanism. Four of the eight independent generators that responded preferred a Capacity Market and four preferred a Strategic Reserve if a mechanism were to be implemented.
106. A clear message from the consultation was that some respondents found it difficult to engage in discussion of the detail without high-level decisions having been taken. We are

²³ Changes in timing are an attempt to model possible downside risks and are not predictions.

²⁴ http://www.decc.gov.uk/en/content/cms/consultations/cap_mech/cap_mech.aspx

²⁵ Rounded to nearest five per cent.

also very aware of the potential scale of intervention that a capacity mechanism represents. For those reasons, this document sets out the key high-level decisions for our proposed design of capacity mechanism, but leaves the detailed design for the next phase of the work, allowing us to work with the System Operator, Ofgem, and other stakeholders to ensure we design a mechanism with the best possible fit for the GB market.

RATIONALE FOR CHOOSING A CAPACITY MARKET

107. A Capacity Market designed and implemented as proposed here offers the surest way to ensure security of supply against a range of credible scenarios. This is because it tackles at source the problem of volatile and uncertain prices, which may undermine the case for investing in capacity. It does this by providing a more stable income stream to incentivise investment in reliable capacity, while still retaining the appropriate incentives to generate and despatch electricity in the electricity market.
108. The Capacity Market works alongside the electricity market – it does not replace it. At present, capacity is paid for through the price that generators receive in the electricity market. The ability to secure revenue to pay for capacity in this way will become more uncertain as prices in the electricity market become more volatile, in particular as a result of tighter capacity margins and the increase in intermittent generation. The Capacity Market addresses this problem by enabling providers of capacity to receive a steady ‘availability payment’ for capacity through their revenues from the Capacity Market, while also securing revenues for the electricity they produce through the electricity market as now. If well designed, it should also reduce price volatility and market power in the electricity market and thus avoid the steep wholesale price spikes which may occur without a capacity mechanism.

International context

Forms of Capacity Market have been implemented in a number of other electricity systems, for example in the United States and Colombia. In practice, each of these mechanisms has been designed differently to reflect different market frameworks, generation mixes and stakeholder interests.

A number of other European countries, including France and Italy, are in the process of introducing similar mechanisms. Experience from other markets which have implemented similar capacity mechanisms will inform GB Capacity Market design.

109. It is important to note that the revenues that providers of capacity receive from the Capacity Market are offset by reductions in electricity wholesale prices. This is a result of additional capacity being on the system and because the capacity market will incentivise the delivery of electricity at times of system stress. Both of these factors effectively reduce the likelihood of the scarcity conditions which lead to high wholesale prices.
110. A Capacity Market provides an ‘insurance policy’ against a tight future electricity generation market resulting in higher levels of blackouts. Our modelling indicates that the introduction of a Capacity Market should have a limited impact on average electricity bills, and could

lead to a small reduction as a result of avoiding very high wholesale electricity prices in scarcity periods.²⁶

111. A Capacity Market will also offer opportunities for non-generation approaches such as DSR to participate on a fair and equivalent basis with generating capacity, supporting other policies in bringing forward a more active demand side. This can reduce the need for expensive new plants and ensure the most economic mix of reliable capacity is available.

Alternative mechanisms considered

112. In reaching a decision to introduce a Capacity Market, we considered a number of alternatives. The leading alternative mechanism, a Strategic Reserve, would require wholesale electricity prices to spike to very high levels. This would mean keeping potentially efficient plants outside the market. It could also lead to concerns from investors that the Government or regulator would intervene to reduce prices. We share concerns expressed by a significant proportion of consultees that this may lead to a 'slippery slope' where more and more capacity needs to form part of the reserve, particularly if the security of supply problem turns out to be significant.
113. Further detail on the comparison between a Capacity Market and Strategic Reserve is included in the Impact Assessment accompanying this document.

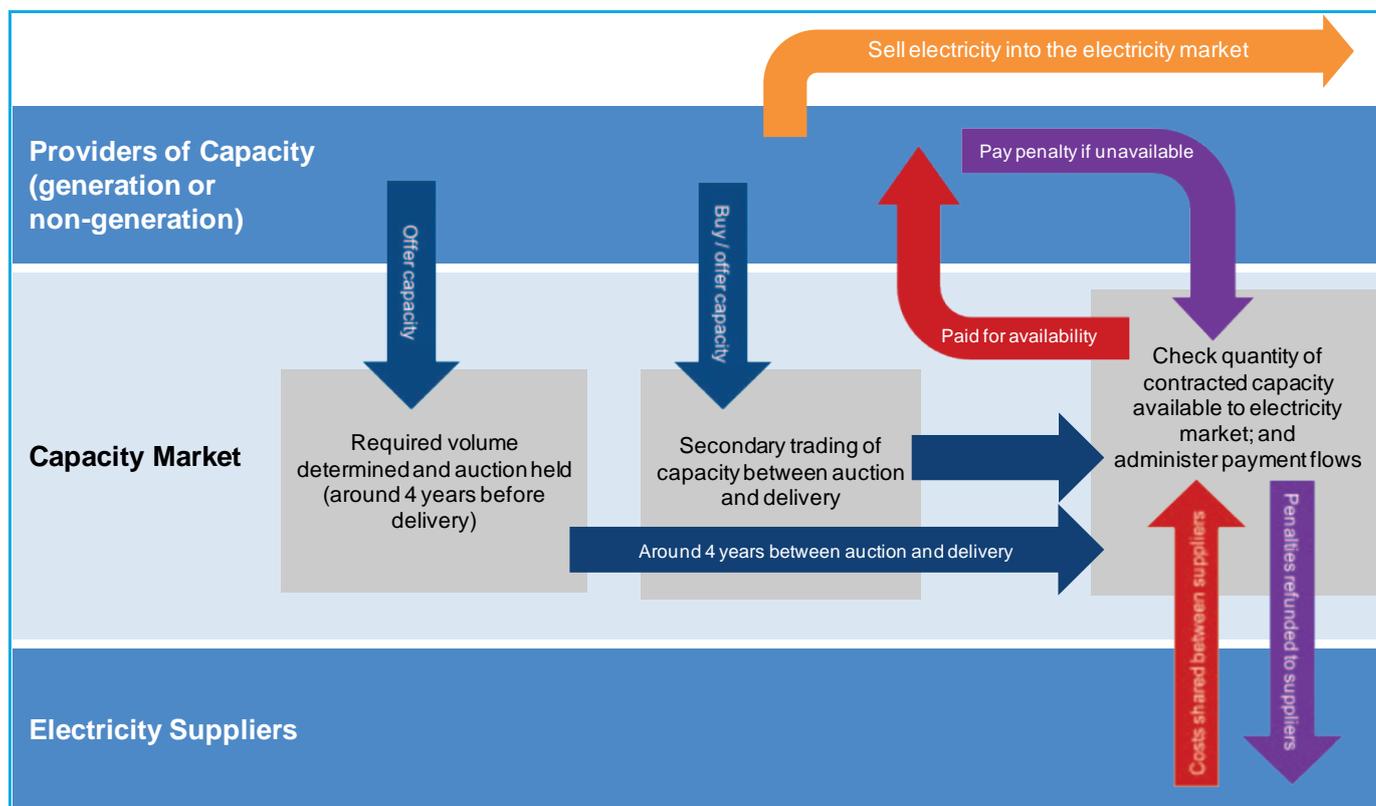
DETAILED DESIGN OF CAPACITY MARKET

Summary of Capacity Market model

114. We will legislate for the high-level Capacity Market design described above, and work with stakeholders on detailed mechanism design to ensure we implement an approach which is well suited to the GB market. Figure 6 sets out how the Capacity Market could operate.

²⁶ More detail on market failures, modelling and the economic rationale for introducing a Capacity Market, is included in the Impact Assessment published alongside this document.

Figure 6: Indicative process for Capacity Market operation



115. The following section provides more detail on the different aspects of the Capacity Market.

Detailed description of proposed model

Deciding how much capacity to contract for

116. The first decision to be taken under a Capacity Market is how much capacity to contract for through the central auction process.

117. This decision involves a trade off between the projected reliability of different levels of capacity (i.e. how much disruption to power service is expected from different volumes of capacity), and the expected cost of contracting for a given volume of capacity (including the impact on consumer bills – given that attempting to completely avoid any risk to security of electricity supply could result in contracting for too much capacity and therefore in excessive costs for consumers).

118. The decision on how much capacity to contract for will be taken by Government on an annual basis, drawing on expert advice from the System Operator and possibly other technical experts (including Ofgem).²⁷ This would include assessing impacts on reliability and cost, and could include reference to a specific reliability objective set by Government. This will form part of the delivery planning process described in the previous chapter. The criteria for making this decision will be considered as part of the detailed design phase.

²⁷ The Energy Act 2011 places a duty on the Gas and Electricity Markets Authority (GEMA) to prepare a report to the Secretary of State with an assessment of different electricity capacity margins and the risk to security of supply associated with each alternative. The first report is to be delivered in September 2012. We are considering the role that any future reports could play in the process for deciding how much capacity to contract for.

119. Ministers will decide when to run the first auction process based on future estimates of security of supply and the expected ability of the market to bring forward adequate capacity without the introduction of the mechanism. The decision to legislate for a Capacity Market at this point aims to ensure that the Government has the tools it needs to act to address a capacity shortfall if it arises.
120. This approach does not mean that we will delay detailed design of the mechanism. Detailed design is essential both to ensure the mechanism is ready to run as soon as possible if needed, and to ensure that investors have clarity on how their plants would be treated in the Capacity Market if it were initiated, in order to minimise impacts on investment.
121. We therefore propose to fully develop the parameters of the Capacity Market in the detailed design phase in 2012-13, and ensure the System Operator is fully prepared to run the auction process so that the mechanism is ready if required, so market participants understand how the mechanism will work and can make investment decisions on that basis. Implementation of the detailed design, including decisions on technical rules, will form part of the delivery planning process described in the previous chapter.

How capacity is contracted

122. There are a number of ways of contracting for the required volume of capacity, including mandatory central auctions, optional auctions, and supplier obligations.
123. Under our chosen model, capacity will be contracted for through a central auction process administered by the System Operator. This means that the System Operator ensures the required volume of capacity is available in the delivery year by entering into contracts with providers of capacity who are successful in an auction. Under the contracts, providers commit to providing a level of capacity in exchange for an availability payment.
124. The main benefits of a central buyer/central auction model are:
- a central buyer avoids the need for assessments to be made, several years in advance, of the capacity to be apportioned to each supplier. Such estimates are vulnerable to error and potentially disadvantage smaller market players;
 - a central auction model is likely to be more open and transparent, making monitoring more efficient and, if well designed, reducing the possibility of gaming and excessive cost for consumers by enabling transparent price discovery;
 - a central auction model will provide a more certain route to market for smaller generators and a guaranteed source of capacity for smaller suppliers. Smaller participants may also benefit from being able to take the price offered in the auction if unsure of the value or cost of capacity; and
 - while a capacity mechanism should have no impact on locational constraints, it may be desirable for detailed design of the mechanism to take into account locational constraints. This is to avoid having demand centres such as cities where capacity requirements cannot be met due to system constraints (i.e. capacity is located behind constraints so cannot deliver energy where it is needed). This may be a particular risk for demand centres located near intermittent generation.

125. Detailed auction design will be taken forward with input from expert stakeholders in the detailed design phase. This will focus in particular on ensuring that the scope for exercising of market power and/or gaming in the Capacity Market is limited.
126. It is likely that between the auction process and the delivery year market participants (including both the System Operator and providers of capacity) will need to adjust the quantity of capacity they have contracted for. This should be possible through a secondary market. We support the provision of secondary markets to allow the trading of capacity obligations, and will consider the best way to enable a liquid secondary market (including whether there should be any central provision for secondary trading) in the detailed design phase.

Participation of capacity in the auction

127. Successful participants in the Capacity Market auction process receive revenues for the provision of reliable capacity, in exchange for agreeing to pay penalties if unavailable (to ensure they are available when needed).
128. The Government proposes to develop the rules relating to participation in an auction in the detailed design phase. These rules will include:
- the degree of evidence that providers of capacity need to give, to demonstrate that they can deliver the capacity – that is, in the form of financial collateral and/or physical backing. The potential options range from a financial approach (where providers decide how much to offer based upon the financial penalties they face, but are not subject to physical checks) to a central determination of how much capacity providers can offer based on a physical demonstration of ability to deliver;
 - how different providers of capacity are treated – for example, whether new and existing plants are treated in exactly the same way in the auction, and/or whether new plants can receive different lengths of contracts. This will take into account the principle that the auction process should be designed in a way which enables new and existing plants to be compensated equitably for lost electricity market revenues;
 - the rules relating to technologies and approaches such as demand side response, interconnected capacity and storage; and
 - the terms of the commitment providers of capacity enter into when selling into an auction – that is, how ‘reliable capacity’ is defined, and in particular how they will be penalised when unavailable.

Demand side response

DSR has significant potential to help deliver secure electricity supplies at least cost and, in many cases, reduce carbon emissions – by reducing the amount of network and generating capacity needed, and by ensuring we use low carbon sources of electricity more efficiently.

DSR is an active, short-term reduction in consumption, for example where an energy user or aggregator guarantees to reduce demand at a particular time. We are keen that verifiable DSR can play a fair and equivalent role to generation in a

capacity mechanism, and will determine how to achieve this in the detailed design phase. DSR providers may be able to participate in the Capacity Market in three ways:

- **primary auctions** – DSR providers may be able to offer their capacity into a primary auction. The payment received from the auction may provide the funding to enable DSR, for example investment in automated equipment to reduce load when required.
- **secondary market** – DSR providers may be able to offer their capacity into a secondary market (i.e. between the capacity auction and delivery year). By allowing trading of capacity for shorter durations than might be possible to offer into a primary auction, this could provide opportunities for DSR measures that cannot guarantee delivery over long periods and/or are unable to commit over a long lead time.
- **peak price avoidance** – the cost of capacity purchased in a central auction will be allocated to suppliers in the delivery year. Depending on how these costs are allocated, suppliers may have an opportunity to reduce their share of these costs by incentivising consumers to avoid peak prices, for example by offering time of use tariffs.

Other opportunities for DSR

The Government has committed to publishing an electricity system policy in 2012. This electricity system policy will look at policy options required to ensure the electricity system can connect and balance supply and demand in a way that minimises cost and makes efficient use of assets.

It will include consideration of the extent to which different non-generation solutions such as demand side response, storage and interconnection might contribute to balancing the future electricity system.

There is also a clear interaction with opportunities for non-generation solutions such as DSR, storage and interconnection to participate in short term balancing services that we will need to take account of in the design of the Capacity Market.

Storage

A variety of types of storage could support the operation of the electricity system and network, particularly as the proportion of less flexible and intermittent generation increases in the UK's electricity mix. There is less certainty about how much storage is needed at future points in time and where on the grid it would be best placed.

We are keen that storage can play a fair and equivalent role to generating capacity in the Capacity Market, and will be developing our approach to this in the detailed design phase.

Government will also be considering the role that storage might play in the

development of our electricity system policy as well as other solutions such as DSR and interconnection. We will also carry out further work on how policy and regulation deal with the less conventional tools and technologies such as storage.

The 2010 Spending Review announced over £200 million for low carbon technologies over four years from April 2011, including up to £60 million for offshore wind manufacturing infrastructure at ports. The remaining funding will support low carbon innovation. Since the Spending Review, further work has been done to consider how that money should best be used. As part of this process, Government is considering the innovation needs for electricity storage technology, and whether there is a need for innovation funding. Further details are expected to be announced in the new year.

How capacity providers are incentivised to deliver

129. To be effective, a Capacity Market must give providers of capacity adequate incentives to fulfil their obligations under the mechanism – that is, to deliver reliable capacity when needed. These incentives are likely to take the form of penalties if providers of capacity fail to deliver. This can be done in a number of ways, including through market-based penalties with minimal central intervention, and more administrative approaches where a central body administers penalties under a set of pre-agreed rules.
130. Getting the penalties right is both essential and complex. The design of the penalties regime will form part of the next phase of work and we have not taken decisions at this stage on whether the penalties regime should be market-based, administrative, or a combination of the two.
131. While we do not intend to make decisions on the penalties regime at this stage, it should be noted that a number of consultation respondents expressed concerns about the penalties regime we set out in the consultation document; that is, a market-based penalty system or a ‘Reliability Market’. Respondents were concerned about the potential in this model to be exposed to costs even if providers of capacity had made electricity available (if they had sold it in a market other than the reference market), and about the possibility that a ‘double penalty’ could apply if they were not available (as they could be exposed to cash out and to repayment under their capacity contract).
132. If we later decide to proceed with a model which includes market-based penalties, it would be our intention to ensure that parties are only penalised when not available (i.e. not generating or available to despatch at the strike price); and penalties for non-delivery are appropriate and proportionate to ensure ‘double penalties’ are avoided.
133. Consultation respondents also raised concerns regarding uncapped liabilities – that is, whether the penalties regime potentially exposes investors to uncapped risk if their capacity fails to deliver when required. Consideration of this issue will form part of the detailed design phase.

Further considerations

Interaction with low carbon support mechanisms

134. We are considering options for resolving how plants receiving support through the FiT CfD and Renewables Obligation (RO) interact with a Capacity Market, and will take decisions on this in the detailed design phase.
135. The FiT CfD will also incentivise capacity and, once built, FiT CfD plants should already have appropriate incentives to be available at times of scarcity and are rewarded for their reliability as part of the FiT CfD contract. Treatment of FiT CfD plants will be examined in more detail in the next phase of design of both instruments. Although final conclusions remain to be worked up, we are considering allowing FiT CfD plants to be exempted from any penalties under the Capacity Market for non-availability at times of scarcity and to prohibit FiT CfD plants from receiving any revenues from a Capacity Market auction.
136. However, we may want to align incentives for FiT CfD plants to be built on time with any incentives we introduce for plants participating within a Capacity Market. We do not envisage any retrospective obligations being placed on FiT CfD-supported plants.
137. Further work will be undertaken on whether RO-funded plants should be eligible to participate in the Capacity Market.
138. Decisions will be made with respect to both FiT CfD and RO-funded plants in the detailed design phase, taking into account the value of:
- avoiding overpayment of low carbon plants. This means ensuring that the design of the Capacity Market takes into account support that low carbon generators receive through the FiT CfD or RO;
 - avoiding negative impacts on our ability to meet renewables targets;
 - ensuring all plants have appropriate incentives to be available when required; and
 - knowing how much reliable capacity low carbon plants can provide when setting the volume of capacity to contract for in a Capacity Market. This will help ensure security of supply is achieved at least cost.
139. If some or all plants receiving support from low-carbon mechanisms are excluded from the Capacity Market, the reliable capacity they are expected to provide would be deducted from the total volume of capacity contracted for through the Capacity Market.

Interaction with short term balancing

140. The System Operator is responsible for maintaining the stability of the electricity system by ensuring that supply and demand are in balance at all times. It achieves this, in part, through balancing services. We recognise there will be interactions between a Capacity Market and System Operator balancing services (e.g. Short Term Operating Reserve (STOR)) and there are therefore strong synergies between the System Operator's current role and its new role delivering the Capacity Market. It will be important to minimise any adverse effects from allowing parties to participate in both markets. Balanced against this is the need to avoid inefficient procurement and use. This will mean ensuring parties can efficiently offer into both markets, and in particular recognising that flexible capacity can provide balancing services.

141. We will clarify how the Capacity Market will interact with short term balancing as part of the detailed design phase.

Levy Control Framework

142. The Government will ensure that the overall parameters within which the Capacity Market operates do not lead to an unnecessary or unaffordable impact on bills. As a policy funded through electricity bills, it is possible that the Capacity Market will fall within the scope of the Levy Control Framework.²⁸ Should this be the case then this will provide a basis for decisions on affordability.

Europe - links to other markets and State Aid

Interconnection

143. Interconnectors provide physical links between different countries' electricity transmission systems, allowing electricity to be imported or exported. GB currently has 3.5 GW of interconnection, which is around five per cent of peak GB demand. Different countries have different peak demand times, so trade across interconnectors could potentially support security of supply. With increasing levels of less flexible and intermittent generation in the GB market, interconnection could play an increasingly important role in supporting security of supply. For example, when wind output in GB is low, interconnection could provide electricity to GB from other markets that are well supplied at these times.
144. The treatment of interconnected capacity in a Capacity Market is a complex issue. We believe that, in principle, interconnected capacity should be allowed to participate to the extent it can provide the same benefits as GB capacity. This would help to ensure the efficient location of capacity.
145. However, interconnected capacity should participate on a level playing field and be required to offer the same assurance as GB-based providers of capacity.
146. If interconnected capacity was not able to participate in this manner, an alternative option could be to deduct the expected import/export from interconnectors at times of capacity scarcity from the overall GB capacity requirement.
147. We will resolve these issues in the detailed design phase in order to ensure efficient treatment of interconnected capacity.

State Aid

148. We are considering how the Capacity Market interacts with State Aid rules, and will engage closely with the European Commission to ensure the policy is consistent with the appropriate rules, where relevant.

²⁸ The control framework for DECC levy-funded spending forms part of the Government's public spending framework, which the Treasury has responsibility for. Its purpose is to make sure that DECC achieves its fuel poverty, energy and climate change goals in a way that is consistent with economic recovery and minimising the impact on consumer bills. <http://www.decc.gov.uk/assets/decc/11/funding-support/fuel-poverty/3290-control-fwork-decc-levy-funded-spending.pdf>

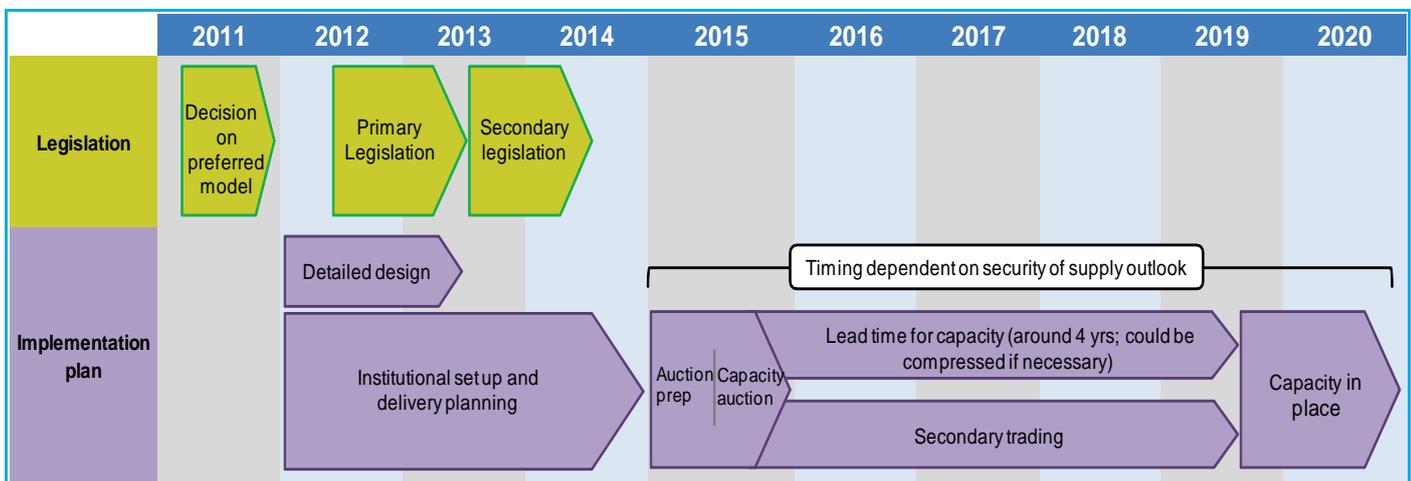
DEVOLVED ADMINISTRATIONS

- 149. Further development of the scheme will include discussions with the Scottish Government and Welsh Government to determine how the Capacity Market should apply in their jurisdictions. Included in this work will be more detailed design to ensure we implement an approach which is well suited to the GB market.
- 150. The UK Government and the Northern Ireland Executive have agreed that because the Single Electricity Market for the island of Ireland already uses a capacity mechanism, the proposed Capacity Market will apply across GB only. In principle, generation within Northern Ireland would be able to participate in the same way as other generation outside GB.

NEXT STEPS

- 151. This document sets out the key high-level decisions for our proposed design of the Capacity Market. We intend to legislate for this high-level framework, and carry out detailed design in the next phase of the work, shown in Figure 7. This gives us an opportunity to work with the System Operator, Ofgem, and industry to ensure we design a mechanism with the best possible fit for the GB market.
- 152. The detailed design phase will continue throughout 2012 and into 2013, leading to secondary legislation setting out the detailed parameters of the mechanism. Meanwhile, we intend to deliver primary legislation to enable this in the second parliamentary session.

Figure 7: Indicative timeline for implementation of the Capacity Market



Chapter 4 – Enabling investment decisions for early projects

Summary

- The Government is committed to working actively with relevant parties to enable early investment decisions for low-carbon plants to progress to timetable wherever possible.
- DECC is prepared to enter into discussions with relevant developers with a view to considering what form of comfort might be given to support the taking of such decisions. In order to enable discussions to take place, this update sets out:
 - the characteristics which DECC will expect to be exhibited before it is able to take a decision as to whether to enter into discussions with a potential developer;
 - the broad process that the Government will adopt to govern and progress any such discussions; and
 - some further information about limiting factors that affect what may be made available to developers to enable early investment decisions.

INTRODUCTION

153. The Electricity Market Reform programme aims to bring forward the investment needed to meet the Government’s decarbonisation and security of supply goals at least cost. The Electricity Market Reform White Paper – **Planning our electric future: a White Paper for secure, affordable and low-carbon electricity**²⁹ – recognised that changes to the market under Electricity Market Reform could lead to some investment decisions being delayed.
154. The Electricity Market Reform White Paper set out the Government’s commitment “to work actively with relevant parties to enable early investment decisions to progress to timetable wherever possible, including those required ahead of implementation of the Feed-in Tariff with Contracts for Difference (FiT CfD)”. To deliver this commitment, DECC will enter into discussions with relevant developers with a view to considering what form of comfort might be given to support the taking of such investment decisions.
155. Options for the form that any enabling ‘products’ or arrangements offered to particular developers may take are under review, and their refinement depends in part on the discussions referred to in this section. Accordingly, developers should not proceed on the assumption that any particular form of comfort which they may seek will ultimately be made available to them.

²⁹ <http://www.decc.gov.uk/assets/decc/11/policy-legislation/emr/2210-emr-white-paper-full-version.pdf>

156. Developers who believe that their project has the characteristics set out in this update should contact DECC with the information referred to in Annex B, which also sets out contact details to be used.
157. The Government is prepared to enter into discussions with developers in relation to significant projects with the following characteristics:
- the type of generation to which the project relates is one that is capable of benefitting from the proposed FiT CfD;
 - the developer is able to demonstrate to the satisfaction of DECC that there is a real prospect that if the project is not in receipt of some form of comfort from Government before 2014, it will be cancelled, put at significant risk or delayed;
 - the developer is able to demonstrate to the satisfaction of DECC that there are credible plans in place to progress the project in order to start generating electricity in or after 2016;
 - the project is not eligible for the Renewables Obligation (RO) or if it is eligible for the RO then the developer must demonstrate to the satisfaction of DECC that:
 - there is no realistic prospect of it being accredited as being eligible to receive ROCs by 31 March 2017; or
 - at the time an expression of interest is made to DECC (see Annex B) there is a real prospect of the project being delayed and that this delay is likely to prevent the project being accredited as being eligible to receive ROCs by 31 March 2017.
158. The continuation of any discussions with a developer about a project will be conditional on the project meeting the published FiT CfD eligibility criteria. It is also a further condition of continued discussions that no application is made during the course of those discussions for accreditation or preliminary accreditation of the project under the RO.
159. If a renewables project receives comfort from the Government under these proposals, it is intended that the project will lose its eligibility to accredit under the Renewables Obligation.
160. Separate requirements may be detailed in relation to early stage Carbon Capture and Storage (CCS) projects as part of the Government's communications on its CCS programme selection process.
161. Potential developers should note that even if DECC agrees that a project has the required characteristics, including any proposed eligibility criteria for the FiT CfD, this should not be treated as an indication that the Government will offer any comfort in relation to that project or that DECC will commence or continue discussions with the developer.
162. The final decisions on offering any comfort to developers will rest with Ministers.

PROCESS

163. If DECC determines that a project has each of the characteristics described above, it may work with the developer to establish a process to govern and progress discussions. This process will include the development of a joint timetable reflecting investment milestones and the creation of Joint Steering Committees (JSCs) and working level groups.

- 164. JSCs will be established with senior level representation as the fora in which to facilitate the development of the key project-specific elements of any potential arrangement.
- 165. A number of working groups will be established between developers and DECC policy teams to undertake any detailed work required to support discussions with the JSCs.
- 166. At this stage the Government is not in a position to provide the detail of any comfort that may be offered to developers. Options are under review and their refinement depends in part on the preliminary discussions which this update may elicit from potential developers. Any eventual offering by the Government will be considered on a case by case basis, but will so far as may be appropriate be as consistent as possible between different potential applicants, as well as complying with Government policy generally, and with the generic aspects of Electricity Market Reform.

STATE AID

- 167. Any such offering will need to be compliant with domestic law and be subject to the Government’s obligations under EU law, including the terms of any necessary state aid approvals. Any such offering may itself require state aid approvals.

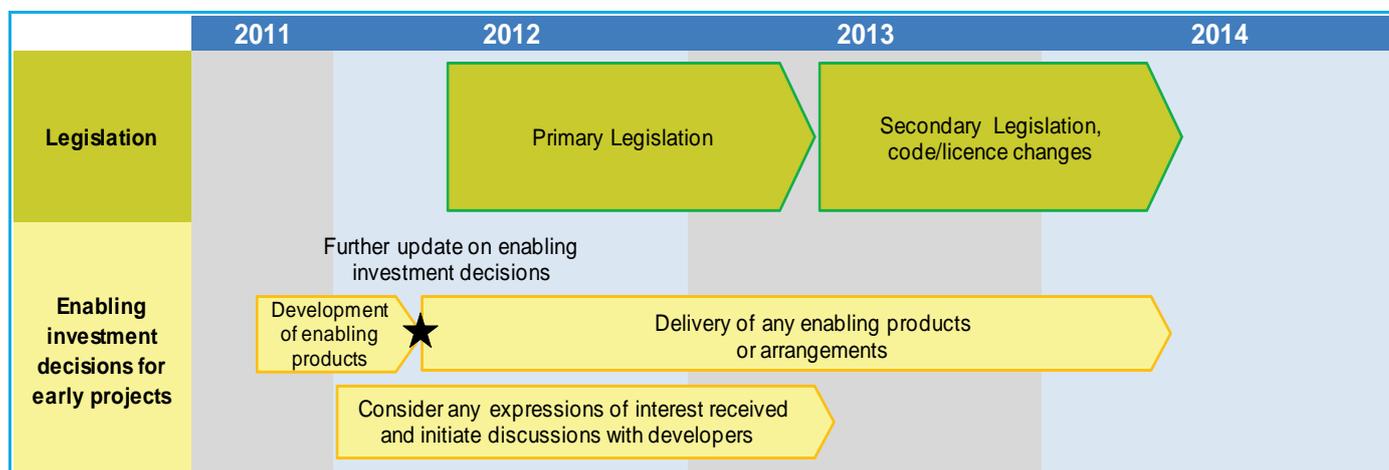
DEVOLVED ADMINISTRATIONS

- 168. We will work with the Devolved Administrations to consider how best to involve them in work on enabling investment decisions for early projects.

NEXT STEPS

- 169. Legislation will be necessary to implement any comfort the Government may offer. The Government intends to legislate for this with other key elements of the Electricity Market Reform package through primary legislation in the second session. It is intended that this legislation will be capable of obtaining Royal Assent by spring 2013. These dates, as well as the enactment and content of the Bill, are subject to Parliamentary time being available and to the will of Parliament.
- 170. A further update will be published in spring 2012 as set out in Figure 8.

Figure 8: Indicative timeline for implementation of enabling investment decisions for early projects



Chapter 5 – Next steps

Summary

- The Electricity Market Reform programme has made rapid progress and is now moving to a stage of detailed policy development.
- We have worked closely with stakeholders, through the contact group and other forms of engagement. We will seek views from industry through a collaboration with stakeholders on the detailed design process in 2012.
- For transparency and investor certainty we will publish further technical details over the next few months.
- The Government intends to legislate for key elements of the Electricity Market Reform package through primary legislation in the second parliamentary session.

TIMETABLE FOR FURTHER DETAIL ON ELECTRICITY MARKET REFORM

171. Over the last year we have made rapid progress on the Government's commitment to create a policy framework for the electricity market that delivers secure, low-carbon and affordable electricity. This document answers the key outstanding policy questions from the Electricity Market Reform White Paper – *Planning our electric future: a White Paper for secure, affordable and low-carbon electricity*.³⁰
172. We are committed to providing further clarity on technical detail during the detailed design phase.
173. The Government intends to legislate for key elements of the Electricity Market Reform package through primary legislation in the second parliamentary session. We intend that this legislation will reach the statute book by spring 2013. These dates, as well as the enactment of the Bill, are subject to Parliamentary time being available and the will of Parliament.
174. We intend to publish an Electricity Market Reform policy update alongside the introduction of primary legislation. This policy update will include a detailed transition and implementation plan and long-term vision for the market, to provide investors with greater certainty over the Government's electricity market reform proposals in the longer term.
175. As set out in the Electricity Market Reform White Paper, we are also developing an electricity system policy that will focus on the challenges around balancing and the system flexibility needed for the more integrated electricity system required to support the Electricity Market Reform programme. We are also undertaking an assessment between now and summer 2012 to determine whether DECC should take further steps to improve the support and incentives for the efficient use of electricity.

³⁰ <http://www.decc.gov.uk/assets/decc/11/policy-legislation/emr/2210-emr-white-paper-full-version.pdf>

176. We will continue to work closely with stakeholders in developing our proposals and the introduction of reform over the next year and beyond. Figure 9 below sets out the timetable for further detail on the Electricity Market Reform mechanisms. This is intended to give interested parties more visibility of the process and timing going forward.

Figure 9: Timetable for further detail on Electricity Market Reform

Planned updates on Electricity Market Reform	Timing
<p>Update on technical details of the Feed-in Tariff with Contracts for Difference and Emissions Performance Standard - we will provide further technical details on the FiT CfD including details of payment models, the price setting processes and key terms of the FiT CfD. On the EPS we will provide further technical details on policy.</p>	<p>Early 2012</p>
<p>Introduction of primary legislation, accompanied by publication of an Electricity Market Reform policy document including:</p> <ul style="list-style-type: none"> • an update on the overall Electricity Market Reform framework and how it fits with the wider policy context; • high level overview of each element of Electricity Market Reform and how they fit together, including an update on the elements of the Capacity Market being covered in primary legislation and details on FiT CfD; • application of Electricity Market Reform in the Devolved Administrations; • a detailed transition and implementation plan; • a long-term vision of the evolution of the market; and • frequently asked questions. 	<p>Spring 2012</p>
Updates on related policy areas	Timing
<p>Ofgem liquidity review - we anticipate that Ofgem will reach draft decisions on their proposed interventions to boost market liquidity and support independent suppliers and generators by the end of 2011.</p>	<p>December 2011/ January 2012</p>
<p>Renewables Obligation banding review - the Government is currently consulting on proposals for the level of banded support³¹ available for renewable electricity generation under the Renewables Obligation for the period 2013-17. The consultation will close on 12 January 2012 and we plan to publish our response to the consultation in spring 2012. The new bands will come into force on 1 April 2013, subject to the Parliamentary process and obtaining State Aid approval from</p>	<p>We plan to publish our response to the consultation in spring 2012</p>

³¹ http://www.decc.gov.uk/en/content/cms/consultations/cons_ro_review/cons_ro_review.aspx

Planned updates on Electricity Market Reform	Timing
the European Commission.	
<p>Electricity demand - the Government recognised in the Electricity Market Reform White Paper that reducing demand for electricity will lower carbon emissions and is likely to be more cost-effective than building additional generation capacity. In doing so, we committed to assess whether there are sufficient support and incentives for the efficient use of electricity, and consider whether there is a need for appropriate additional measures. This assessment is ongoing and is planned to complete by summer 2012.</p>	<p>Commitment to complete assessment by summer 2012</p>
<p>Electricity system policy - as stated in the Electricity Market Reform White Paper, the changes driven by Electricity Market Reform will have a significant impact on future networks and the way supply and demand is balanced. We are therefore taking forward work to develop an electricity system policy that will focus on the challenges around balancing and the system flexibility needed for the more integrated electricity system required to support Electricity Market Reform.</p>	<p>Initial electricity system policy document in summer 2012</p>

STAKEHOLDER ENGAGEMENT STRATEGY

177. Since the publication of the Electricity Market Reform White Paper, DECC has worked closely with stakeholders on the design of the Feed-in Tariff with Contracts for Difference, capacity mechanism, Emissions Performance Standard and Institutional Framework.
178. DECC has also instigated an Electricity Market Reform Contact Group to:
- bring a wide range of stakeholders together to exchange views on DECC's Electricity Market Reform policies;
 - promote understanding of different views amongst the stakeholder community;
 - ensure DECC is informed of the impacts of its policy proposals on a range of stakeholders;
 - increase transparency and keep stakeholders informed of progress on the Electricity Market Reform programme; and
 - complement other forms of engagement.
179. Presentations and minutes of Contact Group meetings have been placed on the DECC website³² to ensure stakeholders are kept informed about progress of the Electricity Market Reform programme and we welcome stakeholders' comments on these.

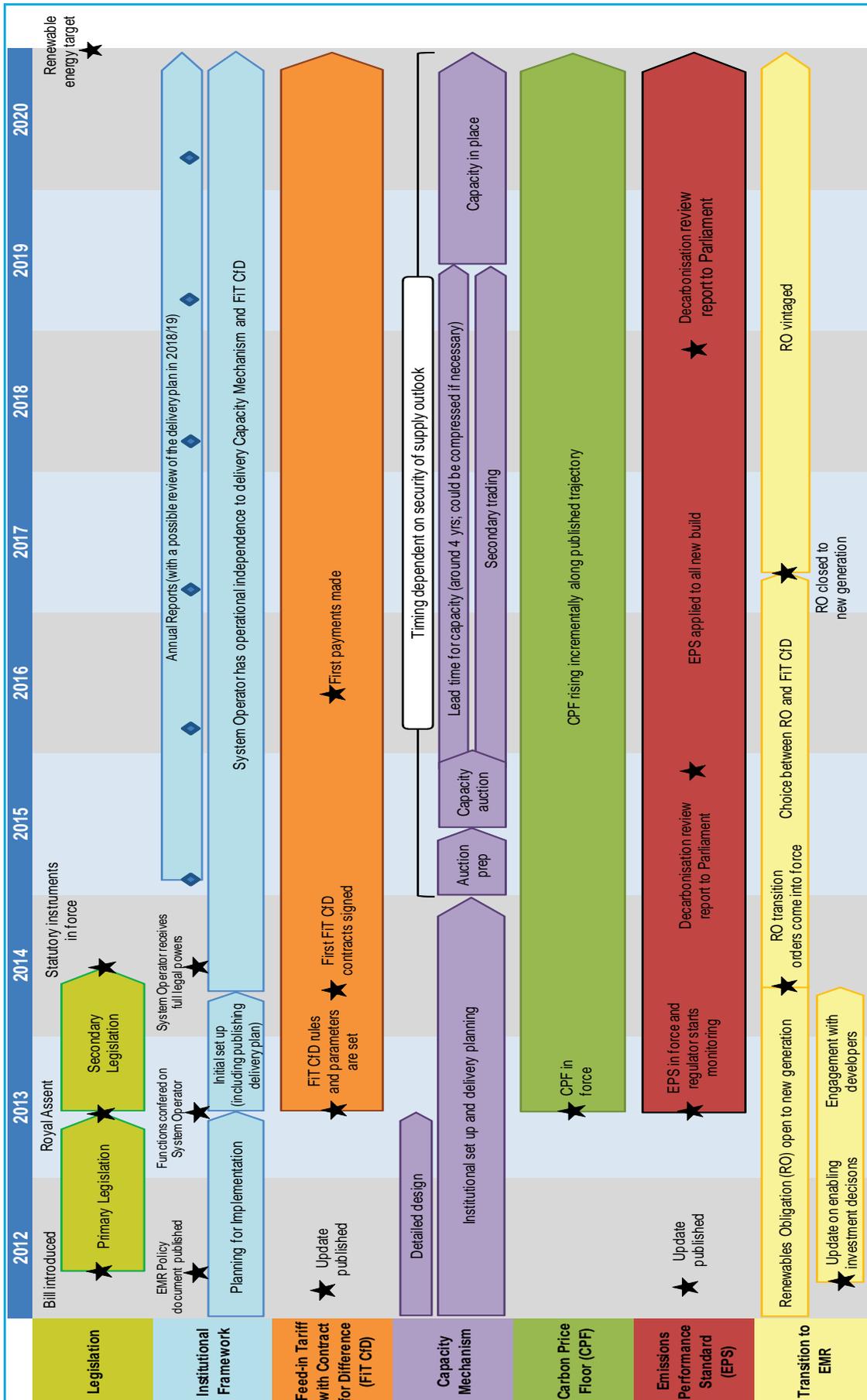
³² http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/contact_grp/contact_grp.aspx

180. Stakeholder input has been invaluable and we will continue to work with industry as we enter a stage of more detailed policy design. We are keen to involve experts from industry and other stakeholders in this detailed design stage and will be putting in place arrangements to enable a more collaborative approach to policy design.
181. We will publish more information on these arrangements before the end of January 2012, and welcome suggestions or comments from stakeholders on how they think this process should work (Email: Elec.marketreforms@decc.gsi.gov.uk).

IMPLEMENTATION PLAN

182. Figure 10 sets out an indicative implementation plan for the Electricity Market Reform programme until 2020, including primary legislation. We intend that this legislation will reach the statute book by spring 2013.

Figure 10: an indicative timeline for implementation and transition



Annex A – List of respondents to Electricity Market Reform White Paper consultation on capacity mechanism

183. DECC received 74 responses to the July 2011 consultation on possible models for a capacity mechanism, of which 9 are confidential and 3 are from individuals. Figure 11 sets out a list of respondents to the consultation. Non-confidential consultation responses are published on the DECC website alongside this document.³³

Figure 11: List of respondents to July 2011 consultation on Capacity Mechanism

Aggreko
Association of Electricity Producers (AEP)
ATCO Power Generation Ltd
BG Group
BOC
Campaign to Protect Rural England (CPRE)
Carbon Capture and Storage Association
Carlton Power
Centrica
Centrica Storage Ltd (CSL)
Chemical Industries Association
Coallmp (Association of UK Coal Importers)
Combined Heat and Power Association (CHPA)
Confederation of UK Coal Producers (Coal Pro)
Cornwall Council
DONG Energy
Drax

³³ http://www.decc.gov.uk/en/content/cms/consultations/cap_mech/cap_mech.aspx

E.ON
EDF Energy
Electricity Storage Network
ELEXON
Endesa Ireland
EnerNOC UK Ltd
ESB International (ESBI)
ExxonMobil Gas and Power Marketing
First Utility
Gazprom Marketing & Trading
GE Energy
Good Energy
GrowHow UK Ltd
Highlands and Islands Enterprise (HIE)
Highview Power Storage
Imperial College Business School
Institution of Engineering and Technology (IET)
Intergen
International Power (IPR)
KiWi Power
Low Carbon Developers
Low Carbon Finance Group (LCFG)
Mainstream Renewable Power
Major Energy Users Council (MEUC)
MMGenR8 Limited
National Grid
Nuclear Industry Association

Ofgem
Oil & Gas UK
Renewable Energy Association (REA)
Renewable Energy Systems (RES)
RenewableUK / Scottish Renewables (Joint Response)
RLtec
RWE
ScottishPower
SmartestEnergy Limited
SSE
Statkraft UK Ltd
Statnett SF
Statoil
Sustainability First
UK COAL Mining Limited
University of Birmingham
Vattenfall
Wärtsilä Corporation

Annex B – Expressions of interest to be part of DECC’s work on enabling investment decisions for early projects

184. Developers who believe that their project has the characteristics set out in Chapter 4 and who would like it to be considered to be part of DECC’s work on enabling investment decisions for early projects should write to:
- Final Investment Decision Enabling Project
Commercial Team
Department of Energy and Climate Change
55 Whitehall
London
SW1A 2EY
Email: fidenabling@decc.gsi.gov.uk
185. An expression of interest from a developer should in the first place:
- set out briefly why the developer believes the project in question has each of the characteristics referred to in Chapter 4 of this document;
 - provide supporting evidence relating to each of the characteristics; and
 - explain what the developer is seeking from DECC to enable their investment to progress.
186. DECC will expect to undertake further discussions with developers to gather further information in order to assess whether a project has met the characteristics specified in Chapter 4. In addition, when the proposed criteria for eligibility for a Feed-in Tariff with Contracts for Difference are published (or later updated) DECC will expect developers to provide any necessary information (if requested) for it to make a judgement about whether those criteria are or continue to be met, as a condition of further discussions.
187. The institutional arrangements for Electricity Market Reform are likely to be in place by April 2014. Therefore only expressions of interest received before June 2013 will be considered as part of this exercise. This date may be subject to revision.

Annex C – Renewables Obligation transition

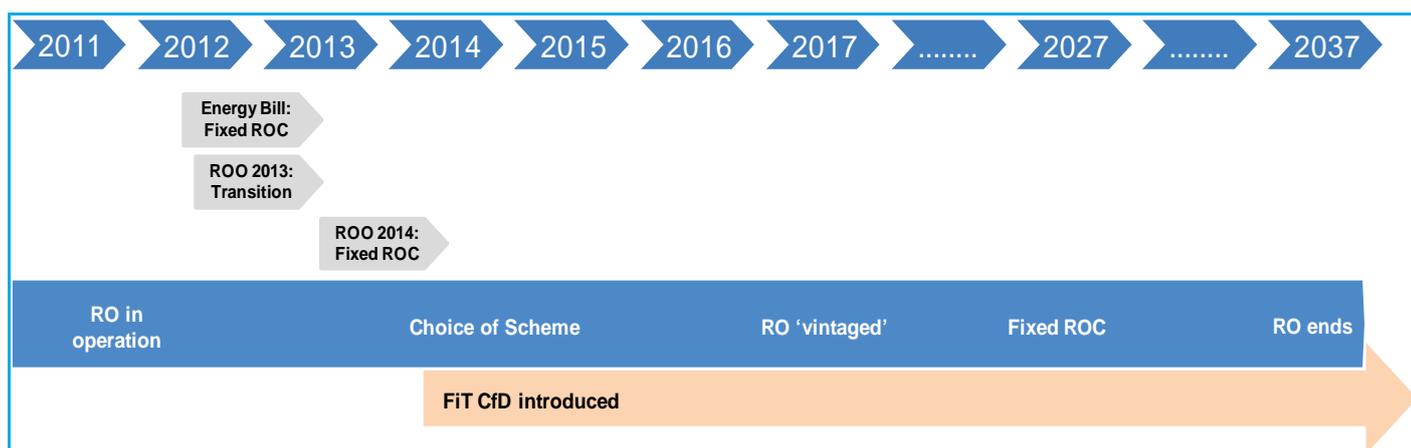
INTRODUCTION

188. The Government recognises that significant investments have been made under the current Renewables Obligation (RO), with around 9 GW of installed capacity to date, and 10 GW in the pipeline expected to be deployed before 2017. Throughout the Electricity Market Reform process, we have set out clear and transparent transition arrangements from the RO to the new support mechanism, with the aim of preventing a hiatus in renewables investment while the new arrangements are being put in place
189. The Electricity Market Reform White Paper– **Planning our electric future: a White Paper for secure, affordable and low-carbon electricity**³⁴ – set out in detail our proposals for the Renewables Obligation (RO) transition. These include:
- RO support to 2017:
 - a choice of scheme for new renewable generation projects;
 - some limited grace periods; and
 - provisions for offshore wind phasing.
 - RO support from 2017:
 - RO is closed to new generation;
 - RO calculated by headroom until 2027, then we fix the price of a Renewables Obligation Certificate – ‘Fixed ROC’ to 2037;
 - all technologies benefiting from grandfathering on 31 March 2017 will be grandfathered in the vintaged RO in 2017;
 - provisions will be made for additional capacity; and
 - Non-Fossil Fuel Obligation (NFFO) generation will be treated consistently with other RO generation.
190. The majority of these changes will be implemented through amendments to the RO legislation itself, via a future Renewables Obligation Order (ROO). However, the Fixed Renewables Obligation Certificate (ROC) proposals cannot be implemented using existing powers. Therefore we intend to seek powers in primary legislation, alongside the other Electricity Market Reform measures, to enable us to implement the Fixed ROC proposals.
191. A timeline for the RO transition implementation is shown in Figure 12. The timeline, as well as the enactment of the primary legislation, is subject to Parliamentary time being available and the will of Parliament.

³⁴ <http://www.decc.gov.uk/assets/decc/11/policy-legislation/emr/2210-emr-white-paper-full-version.pdf>

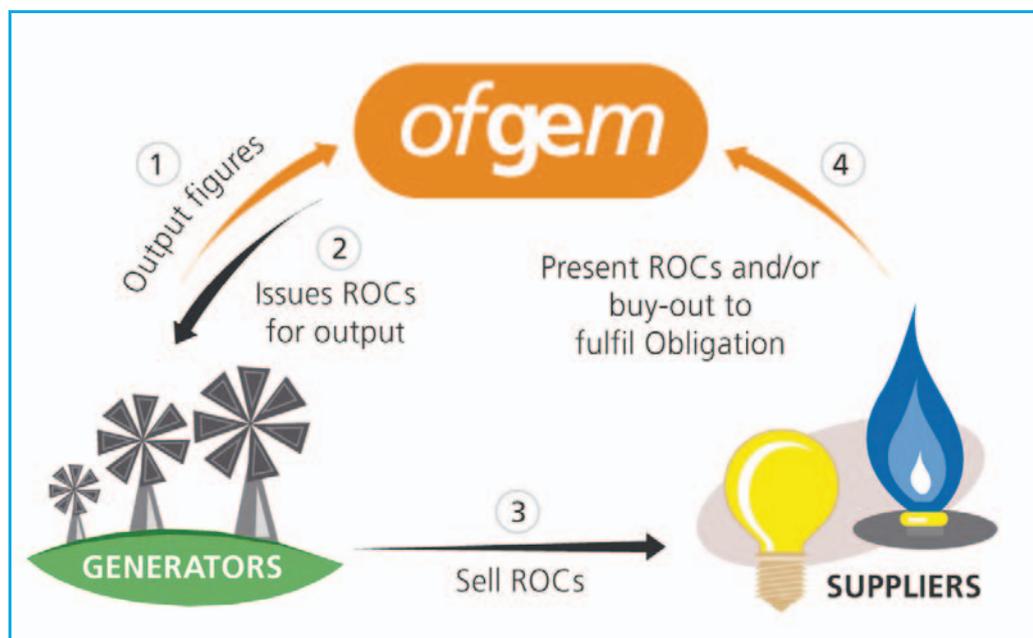
- 192. The Fixed ROC powers we propose to take in the primary legislation will not provide full details of the Fixed ROC scheme. We are aware that investors and developers taking long-term investment decisions would like more detail on how the Fixed ROC scheme will operate from 2027-37. Therefore, the aim of this update is to provide further detail of our proposals.
- 193. The RO currently operates as three separate mechanisms working together – the England and Wales RO, the Scottish RO, and the Northern Ireland RO (NIRO). All of the jurisdictions are committed to support for renewables.
- 194. The proposals for RO transition have been discussed by a Steering Group comprising policy advisors and technology experts from the UK Government and the Devolved Administrations. We will continue to work closely with the Devolved Administrations to ensure that the transition arrangements are simple and transparent across all three RO schemes. Our overall goal remains to introduce any changes on a consistent and common basis.

Figure 12: Renewables Obligation transition timeline



- 195. Under the present RO system, Ofgem issues ROCs to generators for the eligible electricity that they generate. Generators can sell these ROCs to suppliers.
- 196. In order to comply with their obligation suppliers either present the ROCs they have bought to Ofgem or pay into the buyout fund, or a combination of the two.
- 197. After deducting its administration costs, Ofgem recycle the buyout fund back to the suppliers who presented ROCs on a pro-rata basis.
- 198. The obligation on suppliers is set annually by DECC, as the higher of either a fixed target (Calculation A), or the amount of expected generation, plus 10 per cent 'headroom' (Calculation B).
- 199. As set out in the Electricity Market Reform White Paper, from the point where the RO is closed to new generation (31 March 2017), we propose to set the obligation on the basis of expected generation plus 10 per cent 'headroom' (Calculation B), until the Fixed ROC scheme is introduced (2027-28).
- 200. The current RO system is set out in Figure 13.

Figure13: Current Renewables Obligation system



THE RENEWABLES OBLIGATION 2027-2037: FIXED RENEWABLES OBLIGATION CERTIFICATE SYSTEM

In Principle

201. In the Electricity Market Reform White Paper, we set out our intention to calculate the RO on a headroom basis until 31 March 2027, when we would move to a Fixed ROC system. The reasons for this are as follows:

- gives certainty over ROC income, and enables generators to access the full value of the ROC;
- enables generators to access ROC income on a more regular basis than the current lag of up to 18 months; and
- provides confidence in the final years of ROC income from 2027-37, removing the perception that a shrinking obligation could be volatile in quantity and hence vulnerable to price volatility.

202. The Fixed ROC system would come into force in 2027. This date was chosen to avoid impacting existing Power Purchase Agreements (PPAs), the majority of which expire before 2027.

Fixed Renewables Obligation Certificate Price

203. Our intention is for the price of the Fixed ROC to be set at the long term value of the ROC. In 2027, this will be the 2027 buyout price, plus 10 per cent. The Fixed ROC price would remain inflation-linked from 2027, in the same way that the buyout price is currently inflation linked.

Fixed Renewables Obligation Certificate Institution

204. The RO is currently administered by Ofgem. We intend the role of purchasing ROCs under the Fixed ROC scheme to be carried out either by Ofgem, or by another institution appointed by the Secretary of State.

Payment Model: Options and assessment criteria

205. We looked at three different model options for raising the money to pay for the purchase of ROCs, which fitted within the Fixed ROC principles outlined above. These were:

- **Model A, Supplier Levy:** Fixed ROC Institution buys ROCs at a fixed price, and levies suppliers in line with their share of the market for electricity supplied to consumers, to recoup the cost of the ROCs
- **Model B, General Taxation Model:** Fixed ROC Institution buys ROCs at a fixed price, and the cost is recouped from Government, funded by general taxation.
- **Model C, Replicate small-scale FiT:** a pool of 'RO Suppliers' (those above a certain threshold) are obliged to purchase ROCs at a fixed price. The Fixed ROC Institution would carry out a levelisation exercise across all licensed suppliers, spreading costs according to their share of the market for electricity supplied to consumers. 'RO suppliers' would recoup the cost (above their own share) from the institution.

206. We assessed the above models according to the following criteria:

- **stability:** does the model provide a stable ROC value for generators?
- **administrative burden:** will the model increase or decrease the administrative burden on generators, suppliers or government?
- **transition:** will it be simple to move from the current RO system to the new model?
- **investment impact:** will investors and developers have confidence in the model?

Chosen Payment Model: Supplier Levy

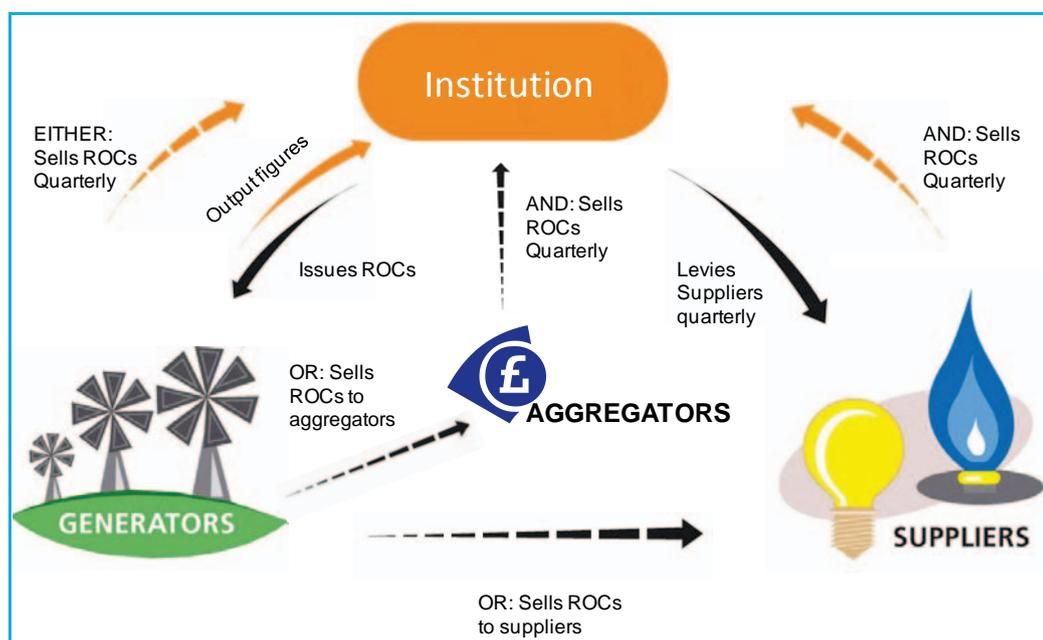
207. We have chosen to introduce Model A, the Supplier Levy. This decision was based on our assessment against the criteria, as follows:

- **stability:** this model removes the risk of a ROC price crash, and it is possible for generators to realise the full value of the ROC;
- **transition:** this model provides a simple transition for generators. There would be transition implications for suppliers and Government;
- **administrative burden:** there will be administration burdens for generators, suppliers, and Government. Generators will have the option of dealing with a single ROC purchaser. There may be some increased burden for smaller suppliers who are used to 'buying out' once a year, and may now be levied more frequently; and
- **investment impact:** preserving the ROC market makes it more likely that PPA and finance structures can continue to be used.

Proposed Fixed Renewables Obligation Certificate System: Supplier Levy

- 208. Ofgem will issue ROCs to generators in the same way as at present. The Fixed ROC Institution will then purchase ROCs at the fixed price.
- 209. Once a ROC has been issued, we intend to set an expiry date, by which time the ROC should have been submitted to the Fixed ROC institution for purchase. We also intend to set time limits on the Fixed ROC institution, for the maximum time it should take to carry out the purchase of a ROC once a request for purchase has been validly made.
- 210. Government will set the level of the levy on suppliers annually. The levy will be based on the expected costs of purchasing ROCs over the year ahead, adjusted for any shortfall or surplus expected to accumulate over the current year. The levy would then be payable to the Fixed ROC Institution on a quarterly basis. The costs will be spread across suppliers in line with their market share.
- 211. Generators can choose whether to hold their ROCs and sell to the Fixed ROC Institution, or whether to sell their ROCs to a third party, which could be either a supplier or an aggregator, who would then sell the ROCs to the Fixed ROC Institution.
- 212. The proposed Fixed ROC system is set out in Figure 14.

Figure 14: Proposed Fixed Renewables Obligation Certificate system



PROVIDING INVESTOR CERTAINTY

Maintaining the Renewables Obligation Certificate market

- 213. We intend to impose a legal obligation on the Fixed ROC Institution to purchase ROCs at a fixed price. This means that generators will be able to know the value of a ROC in advance. There are likely to be conditions that need to be satisfied before the Fixed ROC institution is obliged to purchase the ROC. For example, the Fixed ROC Institution will need to be satisfied that the ROC is valid.

214. However, by preserving the Certificate system, we have ensured that there is a market for ROCs, and that generators are able to sell their ROCs to a third party if they choose. This maintains the current 'portability' of the ROC, and allows generators to maintain a monthly income from selling ROCs either to a supplier or to a third party aggregator.
215. As with the current mutualisation arrangements, we intend to make provision for situations where there is a shortfall in the levy due to a supplier becoming insolvent.

STATE AID

216. All changes to the RO are subject to State Aid approval, which will be sought for the Fixed ROC scheme before it is brought into force. The proposals for the Fixed ROC scheme are also subject to Parliamentary approval.

NEXT STEPS

217. This document is intended to update stakeholders on our intentions with regard to the Fixed ROC scheme. The detailed regulations for the Fixed ROC scheme will be subject to a statutory consultation before they are made.

