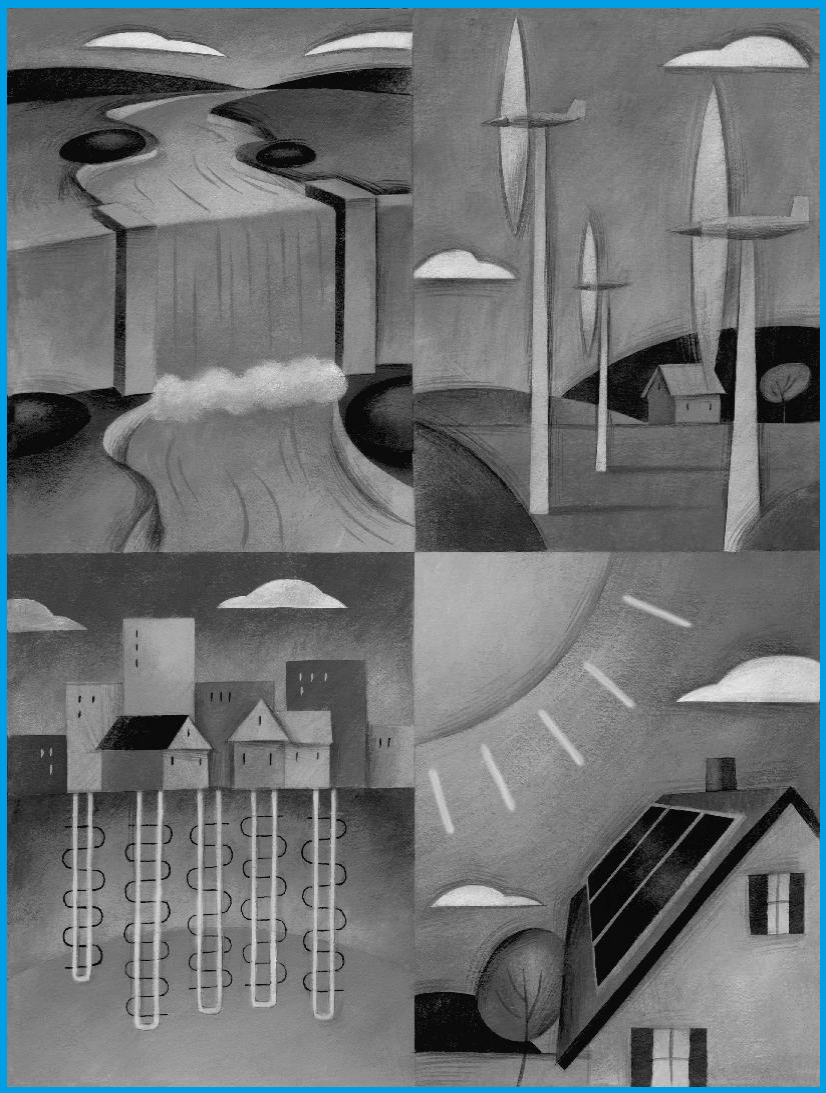
DEPARTMENT OF ENERGY & CLIMATE CHANGE

Microgeneration Strategy



June 2011

Contents

Ministerial Foreword

A Strategy for the Microgeneration Industry

i. Meeting our climate change and energy goals will require a transformation in how we produce and use energy. Onsite small-scale renewable and low carbon technologies - microgeneration - will be an important part of our energy future.

ii. In recent years, the microgeneration sector has grown rapidly. This strategy sets out actions to address the non-financial barriers to realising the deployment of microgeneration technologies.

iii. The financial incentives that Government is putting in place will play an important part in driving growth in this sector. But in parallel, the industry must achieve cost reductions to ensure that this support is affordable and offers real value for money as we create a cost-effective low carbon energy mix.

iv. To ensure the incentives work as effectively as possible, and to assist the delivery of these cost reductions, we also need to tackle the non-financial barriers that this sector faces.

v. Where these require Government action, we will act. But the majority need to be tackled by the microgeneration industry itself, with our support. This Strategy which is produced in full cooperation with the industry presents an action plan to do just this. It offers not merely warm words, but a programme of concrete actions: who will do what, and by when.

vi. Our shared objective is to see the microgeneration sector move into the energy mainstream, offering consumers affordable, and cost-effective low carbon energy products. Eventually we expect that the industry can do this without the need for additional support. This will require the sector to draw both on the expertise in our universities and the business knowhow of current industry players.

vii. We have a vision of consumers and communities able to access effective, reliable and affordable small scale renewable energy, served by a motivated industry with creativity and tenacity that is growing strongly in a sustainable and responsible way.

viii. Throughout the consultation process I have been delighted by the enthusiasm and commitment of the sector's representatives, to whom I am grateful. They have shown a genuine desire to take responsibility for their industry and to make the changes needed to allow the sector to flourish in a cleaner, greener Britain.

Greg Barker
Minister of State
Department of Energy and Climate Change

Executive Summary

Our Strategy for the Microgeneration sector is built on two core principles:

PRINCIPLE 1

As the microgeneration sector develops, the Government is providing financial incentives to support the growth of local small-scale renewable energy generation. In time, this support will be reduced as the sector achieves critical mass and innovation drives down costs.

For small-scale electricity, the financial incentive is provided by the Feed-in Tariff, and for heat by the Renewable Heat Incentive which currently covers commercial and multiple heat installations. The Renewable Heat Incentive will cover domestic heat from 2012. Ahead of its expansion to the domestic sector, the Government is also providing £15 million of support through Renewable Heat Premium Payments.

PRINCIPLE 2

Financial incentives alone will not guarantee the growth in small-scale onsite renewable and low carbon energy, because there are also a number of non-financial barriers facing the sector. Government, the industry and consumers need to continue to work together to identify these barriers and find ways of addressing them. **The onus is on the industry itself** to make the most of the opportunities presented by the financial incentives. This will require improvements in quality, performance alongside the drive for cost reductions. The Government's role is to streamline regulation while ensuring that consumers continue to be robustly protected.

As part of its commitment to tackling climate change and ensuring energy security, the Government is putting in place a range of financial incentives to encourage the deployment of small scale, onsite, renewable energy. To ensure that these incentives work to their full potential, the non-financial barriers that affect the microgeneration sector need to be tackled.

This Strategy sets out actions in order to do this - who will do what, and by when. It is the product of an innovative consultation process based on extensive collaboration involving Government, the microgeneration industry, and other stakeholders. This included the establishment of the Microgeneration Government Industry Contact Group (GICG), which included a range of trade associations from across the

microgeneration industry, and consumer facing organisations. The work of this group, which met four times, has helped to deepen the links between DECC and the industry.

Our shared objective is to see the microgeneration sector move into the energy mainstream, offering consumers affordable, and cost-effective low carbon energy products. As well as delivering economic benefits, this will give consumers and communities much greater opportunity to generate their own renewable heat and electricity, and play their own part in tackling climate change.

In many cases, the non-financial barriers to microgeneration uptake are best tackled by the industry itself, with Government support where required. This is the basis of the action plan in the Strategy, which set out key deliverables, milestones, and responsibilities in the following areas:

- The **Microgeneration Certification Scheme (MCS)** will be made more effective, through simplified processes, improved governance and better alignment with existing certification schemes and testing requirements at the European and international level;

- Changes to **SAP** will make it reflect more accurately the potential of microgeneration technologies; and how SAP is used to produce Energy Performance Certificates (EPCs) will be considered.

- On **insurance and warranties**, actions will be taken to help policy makers and the industry better understand the consumer protection structure, so that this is accurately reflected in regulation and the industry's everyday processes. This should lead to consumers making better informed choices.

- The Strategy sets out a range of actions to deliver a competent workforce with the **skills and knowledge** to meet the demands of a rapidly growing sector

- **Technology** – the Strategy emphasises the importance of taking a 'whole system' approach to microgeneration deployment, and commits the industry to produce clear guidance on the available technologies, including control systems. The way grid and connection issues are managed will be improved.

- **Communications** – the Strategy's aim is to achieve consensus on the core information requirements on microgeneration. Building on learning over the past few years, Government and the industry will adopt a new approach to providing advice and information to consumers, communities and businesses. Particular emphasis will be placed on ensuring that the Green Deal initiative includes information on microgeneration. Links with that programme have been established, and the Green Deal business plans include provision for providing information on microgeneration.

The Action Plan has been published in parallel to this document. Progress under the Action Plan will be overseen by the GICG, which will act as a Steering Board.

Introduction

1. The exciting and innovative consultation process has proved a demonstrable success with over 140 responses to the document and the establishment of the Microgeneration GICG. Members of the GIGC include a range of trade associations operating in the microgeneration industry and consumer facing organisations. The consultation process has allowed us to build strong links between DECC and the industry.

2. The Government is committed to the establishment of a vibrant low carbon and renewable energy sector in the UK that is economically sustainable, attractive to consumers and able to play a full part in meeting our goals on tackling dangerous climate change and enhancing energy security.

3. In order to ensure that the microgeneration sector contributes to these goals, Government has set in place a framework of financial and other incentives and, where necessary, regulation. This provides a solid platform for the industry to move forward.

4. The Government recognises that the Microgeneration sector also faces a range of non-financial barriers, and identifying what these are and how they should be tackled is the principal objective of this Strategy.

5. Taken together, financial support and actions to tackle non-financial barriers will provide a springboard for the deployment of microgeneration. It will be necessary for the industry to achieve significant cost reductions to ensure that continued support remains affordable and justifiable, as part of a cost-effective low carbon energy mix in the longer term.

Background to the Consultation Process (6 pages)

6. The Government published a consultation document on the Microgeneration Strategy on the 22 December 2010. The consultation process closed on the 16 March 2011.

7. The consultation document set out a range of proposals to tackle non-financial barriers facing the microgeneration sector. Four working groups were set up to look at key policy areas. The process was facilitated by the Energy Efficiency Partnership for Homes and each working group comprised representatives from trade associations, consumer bodies and other representative groups (rather than individual companies). The four groups covered the following four themes:

    - **Quality**: To ensure consumers have confidence that equipment and installation is reliable and adheres to the highest standards;
    - **Skills**: To develop the microgeneration supply chain to ensure it is properly equipped with the right people to meet the expected rise in demand, as well as creating and sustaining jobs in the UK;

- **Technology**: To look at technology development, a systems approach and performance improvement.
- **Information and Advice**: To provide more accessible advice and information about microgeneration to consumers.

8. The Government's collaborative approach to consultation ensured that key stakeholder groups with an interest in the microgeneration sector were able to make a significant contribution to process and this has led to the establishment of the Microgeneration Government Industry Contact group (GICG). The GICG has met twice since the consultation closed and has been instrumental in supporting the development of this Strategy.

9. The Strategy is an Action Plan primarily to help industry address the non-financial barriers that they face, enabling faster growth in the uptake of small scale renewable and low carbon technologies.

10. The Strategy sets out a number of actions with key deliverables, milestones, and responsibilities, based on the following work streams:

    - MCS - maximise the effectiveness of the MCS scheme in ensuring high-quality design and installation of microgeneration systems and build consumer confidence.
    - SAP - create regulatory environment and assessment framework that enables accurate representation of contribution of microgeneration technologies to low carbon homes and buildings.
    - Insurance and Warranties - enable policy makers and industry to understand the consumer protection structure and suitably sign post schemes in policy.
    - Skills and knowledge – to ensure that there are sufficient levels of skills and knowledge in the industry to meet the demands of a rapidly growing sector in line UK carbon reduction and green economy policies.
    - Technology - promote a systems approach to microgeneration technology deployment, produce clear guidance on the various technologies, improve consideration for grid and connection issues, and encourage a reliable market growth for microgeneration.
    - Communications with the public – to achieve consensus in the industry on core messaging and promote a collaborative approach to dissemination, enabling greater reach.

11. In each of these areas we are clear who will do what and when because we want to ensure the actions are completed. These Action Plan is set out in detail at the end of this document. Progress under the action plans will be overseen by the Microgeneration GICG who will act as a steering board.

12. As it develops over the next few years the UK's microgeneration sector will benefit from a range of financial support measures. The Government is providing £15 million of support through the Renewable Heat Premium Payments scheme, and electricity microgeneration already benefits from Feed In Tariffs.

13. The Government is also creating a favourable environment for domestic microgeneration through changes to Building Regulations and the 'Green Deal' policy which is designed to transform the energy efficiency characteristics of the UK's existing housing stock.

14. The Green Deal will provide financing for households to upgrade their energy efficiency performance, creating dwellings that are more suitable for microgeneration and focussing house owners on the potential to take advantage of green technologies.

Context: Secure, Safe, Low Carbon and Affordable Energy

15. This document is one element of a wide range of measures the Government is taking to transform the way we heat and power our homes and communities in the UK .

16. Our aim is ultimately to deliver a secure, safe, low-carbon and affordable energy system – and significant progress has already been made with the development of key policies such as the Green Deal and the Renewable Heat Incentive.

17. The 2050 Pathways Analysis shows that some small scale solutions such as heat pumps will make a crucial contribution in helping the UK meet our legal target of an 80% reduction in domestic greenhouse gas emissions by 2050, and all can play some part in hitting our target of 15% renewable energy by 2020.

18. Government committed in the annual energy statement 2010 to roll out of a smart grid. A smarter grid will facilitate management of the two way flows on the local network which come from microgeneration. It will also provide better visibility across the network and the means to integrate distributed low carbon generation into a broader low carbon electricity system. The first step to a smart grid is the installation of smart meters, which will be rolled out to people's homes over the next decade. Network companies are trialling new ways of operating the network through the £500 million Low Carbon Network Fund which runs until 2015. In 2011, we will be setting out a high-level strategy for future networks and system flexibility as part of the Electricity Market Reform White Paper.

19. A suite of incentives and policy measures are supporting this transition to a low-carbon and less centralised energy economy. The Spending Review agreed over £850 million funding for the Renewable Heat Incentive which will be introduced in June next year. This will drive a more than tenfold increase of renewable heat over the coming decade, shifting renewable heat from a fringe industry firmly into the mainstream. Feed-In Tariffs will continue and will be refocused on the most cost-effective technologies saving £40 million in 2014-15. All of this activity needs to be considered alongside the essential work to create certainty and security for large scale electricity which remains the most important component of meeting our renewables and carbon targets at the national level.

Background to the Strategy

20. The aim of both the Government and industry is to support further growth in microgeneration as it moves from a niche market to the mainstream in the UK, and as part of a wider set of energy policies.

21. Following the Energy Act 2004, the then Government brought forward a Microgeneration Strategy in March 2006 with the aim of identifying obstacles to creating a sustainable microgeneration market. The Strategy contained 25 actions to tackle the barriers to widespread uptake. A report evaluating the Strategy's recommendations was produced in June 2008 .

22. This first Strategy had cross-party support and helped to galvanise support and take-up of microgeneration technologies. However, it also highlighted the need for long-term financial support. Building on the learning of Government-backed funding programmes, including Clear Skies and the Low Carbon Buildings Programme, the Energy Act 2008 introduced powers to develop a Feed-In Tariff for small scale renewable electricity and a Renewable Heat Incentive for renewable heat technologies at all scales.

23. This led to further work on the remaining barriers to the wider roll-out of microgeneration. The Green Energy (Definition and Promotion) Act 2009 was introduced as a private members Bill. The Bill won the support of the then Government and came into force in January 2010. Central to the purposes of the Act are provisions to promote development, installation and usage of microgeneration. One such provision (Section 2 of the 2009 Act) is a requirement for the Secretary of State to prepare and publish a Strategy for the promotion of microgeneration in England. This Strategy fulfils that requirement.

24. This Strategy is limited in scope by the definition of microgeneration under the terms of the Green Energy Act 2009 – up to 50kW for electricity and up to 300kWth for heat. This differs slightly from the legal definitions of microgeneration (up to 50kW for electricity and up to 45kWth for heat). This recognises that microgeneration technologies can be installed at scale above domestic - namely community and small commercial sites.

25. The Strategy primarily covers England only in line with the legal requirements, however, some aspects have a UK wide impact. The Devolved Administrations will be taking forward work on microgeneration in the respective regions.

26. There are a range of low carbon and renewable microgeneration technologies available at a domestic or small community and commercial scale. These include:

- solar photo-voltaic panels (PV)
- solar thermal panels
- ground and air source heat pumps
- wind turbines
- hydro (including water mills)

- combined heat and Power (CHP) units
- fuel cells
- heat and power generation from biomass, bio-liquids and biogas including from anaerobic digestion.

27. The Strategy considers issues across all these technologies but does not prevent new technologies entering the market. Indeed, the Government believes that innovation in the sector is essential to achieve the reduction in costs that is required to ensure that continued financial support from consumers and taxpayers is affordable and justifiable as part of a cost-effective low carbon energy mix.

28. This Strategy forms the Government's vision for microgeneration, which has been informed by an extensive consultation process involving the wide range of stakeholders and sets out an action plan that should make that vision a reality.

Chapter 1 – Quality and Standards

Introduction

1.1 There is general recognition across the industry and consumer organisations that we must continue to improve microgeneration products as well as the way they are designed and installed. Investors in microgeneration need to be confident they are getting a high performing and durable product, and that they will be protected if anything does go wrong. This is the objective of the Microgeneration Certification Scheme (MCS).

1.2 The majority of respondents to the consultation supported the Microgeneration Certification Scheme (MCS) and its continued operation, admittedly with a variety of views on how it should be developed. At present the MCS focuses on certifying microgeneration products and their installation, underpinned by a consumer code which meets Office of Fair Trading (OFT) requirements. The OFT codes are due to be altered as part of Government changes to the consumer landscape. The Department of Business, Innovation and Skills (BIS) is aiming to create a simpler structure with a single competition authority and a stronger role for front-line consumer services. Our proposals on microgeneration and the development of MCS will need to take account of these potential changes.

1.3 We therefore believe that the MCS should continue to play a key role in supporting the way microgeneration is sold and used, by consumers, communities, small business and the public sector. However, until the finance of the scheme is on a stronger footing we do not see scope to extend it to cover larger scale technologies. Recent changes to the financial structure of MCS is already beginning to bear fruit and we are confident that within the next 12 months the scheme will be in a much stronger position.

Heat pumps and the MCS

1.4 Field trials can provide useful information about microgeneration technologies and how they perform in situ. They have a key role to play in the continuous improvement of microgeneration installations and performance. The recent heat pump field trial led by the Energy Saving Trust (EST) produced valuable learning which we are using to help revise and improve the MCS requirements for heat pump standards (MIS 3005).

1.5 Heat pumps have an important role to play in delivering localised renewable micro-heat, and it is therefore essential that the MCS gives consumers assurance that they are buying a high performing, reliable and well-installed product. DECC has convened and chaired an informal group of approximately 14 specialists in heat pump systems to improve installation (not product) standards. The group contains expertise on heat pumps and their effective functioning and installation.

It incorporates members of all the relevant trade associations as well as those involved with the MCS.

1.6 Underpinning the group's work was agreement that MCS standards must be able to overcome the short-comings identified in the EST field trial including, if necessary, by becoming more prescriptive. The work is evidence-based, using data from the field trials to rate the deficiencies in heat pump installations and to check whether the MCS is effective in protecting against them. This work is close to recommending revisions to the MCS heat pump standard, which would allow the amendments to be adopted in time to support the roll out of the Renewable Heat Premium Payment scheme.

1.7 This is an excellent example of the industry working together with others having the relevant expertise to deliver better quality installations for consumers and it is an example of how we can strive for quality and improvement in all parts of the microgeneration supply chain.

Action 1

- MCS to clarify and communicate to the full range of microgeneration stakeholders the current developments taking place with the MCS scheme and its future objectives.

1.8 The MCS is making good progress in improving its governance. The scheme will be re-established as a free-standing, not-for-profit company, limited by guarantee. The MCS Steering Group should be in a position to report shortly on what the MCS company and its associated governance procedures will look like. In addition, the MCS Steering Group is currently reviewing the MCS installer requirements (MCS 001). MCS 001 sets out the requirements that installer companies must meet to receive certification. This covers relationships with customers and contractual requirements. As a result of the introduction of Feed-In Tariffs new business models for selling and installing microgeneration technologies have emerged which do not maintain the principle that the microgeneration technology vendor should hold the contract with the consumer. The MCS needs to consider how to take account of this. This is important to ensure that the consumer code requirements are adhered to and can be enforced in cases of mis-selling.

1.9 It is crucial that contractual arrangements protect consumers effectively. MCS 001 is also being revised to take account of the needs of small companies wishing to become MCS certified. Evidence to date has shown that, despite the significant effort required to achieve MCS accreditation, SMEs recognise that it leads to improved business processes and quality assurance. This helps them to better manage their businesses as well as ensuring that installations repeatedly meet MCS requirements and others such as compliance with Building Regulations.

1.10 Another key development is the recent change to the MCS fee structure. This should ensure that the scheme is put on a sound financial footing for the future.

Action 2

- MCS and wider stakeholders to discuss and make recommendations on sizes of installations (limits) for product and installation certification.

1.11 At present the MCS covers heat technologies up to 45kWth and electricity technologies up to 50 kWe. This is adequate to cover most domestic installations. Contributors to the consultation discussed whether the MCS should support larger units, which would extend the protection the scheme offers to some community scale installations, small business and the public sector where it may be required.

1.12 We could question the degree to which community groups and small business need protection. The MCS is primarily about residential consumers, and that should remain its focus. However, we are not ruling out an option for the MCS to offer certification services to installations above the domestic scale but we believe that this needs further consideration and testing in the marketplace.

Action 3

- MCS working with Government to establish the scheme as a company limited by guarantee.

1.13 Responses to the consultation were fully supportive of establishing the MCS as a free standing company and improving its governance. Furthermore, transparent governance is seen as crucial to the scheme's smooth running.

1.14 A sub-group of the MCS Steering Group has accordingly been looking at options to set the MCS up as a company limited by guarantee. Discussions so far have focussed on the constitution of the company's board. Other issues include the roles of the Chairperson and Chief Executive, a vision of the company's structure, and the role of DECC. The consultation suggested that DECC should continue to have a limited role.

Action 4

- The MCS to market the scheme to consumers, industry and wider stakeholders, communicating its benefits, including its primary aim of offering protection to residential consumes, and raise its profile.

1.15 There is a significant need for better communications on the benefits of small scale micro-technologies and on how consumers can get started when they wish to install them. Chapter 4 covers actions to improve information and advice in more detail.

1.16 The MCS should be an integral part of that marketing message. Many residential consumers are still not aware of MCS and it is debatable whether those that are aware of it, really understand what it delivers. We therefore need to explain the scheme better, and to articulate what a MCS-approved installation offers. It is important for consumers to be aware of the different ways they can generate their own localised energy, and the role of the MCS in that process, not least because installations must currently be MCS compliant to be eligible for Feed-In Tariffs or a Renewable Heat Premium Payment once that scheme is in place. The MCS is also likely to support delivery of the Renewable Heat Incentive to the domestic sector in 2012.

1.17 We will also clarify the complaints procedures for consumers who are not satisfied with the MCS process, and establish a single point of contact for initial queries.

1.18 The Government will use opportunities such as the Feed-In tariffs Review and the launch of the domestic Renewable Heat Incentive to underline the important role of the MCS in providing assurance to residential consumers.

Action 5

- Government to ensure the MCS, Green Deal and Building Regulations Competent Person Scheme accreditation are compatible.

1.19 The roll out of the Green Deal will involve a accreditation by the United Kingdom Accreditation Service of a number of certification bodies who will quality assure the work of member companies/organisations, who provide the services of a Green Deal assessor or installer. The initiative is aimed at cutting energy use by homes and businesses. Microgeneration will be an integral part of the information and advice element of Green Deal from its launch. There are also powers in the Bill currently before Parliament to extend the Green Deal to

incorporate microgeneration into its financial 'offer' to householders. Whatever the structure of the certification put in place by the Green Deal, it will need to be fully compatible with the MCS. Development of the Green Deal's certification schemes is therefore following the 'EN45011' accreditation route, as did the MCS. The Competent Person Schemes are also working towards similar accreditation.

Action 6

- The MCS to incorporate the national competencies for microgeneration technologies into Appendix A of the MCS standards.

1.20 The microgeneration sector has already adopted a competence based approach to the training and development of heating engineers, plumbers and electricians. The MCS having made reference to competence now needs to formally include this into the Microgeneration Installation Standards (MIS) documents as part of the MCS installer scheme requirements as soon as possible. The same installer competences are being adopted by Building Regulations Competent Person Schemes. The sector needs to ensure that competence requirements are clear and precise and describes evidence to support competence of individuals to Level 3 as defined in the Qualification Credit Framework. Since MCS is a company based certification scheme, the industry needs to consider how these requirements will be smoothly integrated into the scheme.

1.21 Installer certification is a requirement under Article 14, Annex 4 of the Renewable Energy Directive, and the UK Government will need to report on this at the end of 2012.

SAP and Related Assessment Tools

1.22 The Consultation exercise focused on identifying the barriers that may prevent microgeneration from reaching its full potential, even when the full set of current financial incentives are in place.

1.23 Some commentators have suggested that one barrier to microgeneration is the shortcomings of the National Calculation Methodologies, particularly SAP and RDSAP, which the Government employs to measure building performance. The consultation document asked stakeholders a number of questions in order to better understand the concerns being expressed.

1.24 The Government has developed energy performance tools to assess the energy performance of dwellings over time, to deliver its domestic energy efficiency and climate change policy initiatives and its European obligations. Of the tools:

- The Building Research Establishment Domestic Energy Model (BREDEM) is the base model, which provides a framework for calculating the energy performance of dwellings;
- The Standard Assessment Procedure (SAP), first published in 1992 and has been updated periodically, is the Government's principal methodology for assessing the energy and environmental performance and the compliance of new and existing dwellings;
- The Reduced Data SAP (RDSAP), published in 2005, was developed to assess existing dwellings cost-effectively and produce Energy Performance Certificates.

1.25 SAP and RDSAP are a major element of the UK's National Calculation Methodologies. These are the tools we need to deliver accurate and reliable performance assessments to underpin building regulations compliance, the production of Energy Performance Certificates (EPCs) and also underpin some of the financial incentives for renewable energy. SAP is also likely to have an important role to play in delivery of the Green Deal. SAP and RDSAP assessments are based on standard assumptions for occupancy and behaviour, which were developed from monitoring actual occupancies and behaviour patterns. The use of such standard assumptions is necessary to ensure that dwellings are assessed on a like-for-like basis.

1.26 Contributions to the Consultation expressed concern about the way SAP and RDSAP accounted for some microgeneration technologies. This is partly due to the fact that these tools are often used for a purpose which is not their primary design aim.

1.27 They are compliance tools, designed to assess a building at the point when it is newly built (or newly designed) to establish whether they are compliant at that point. They are not, therefore, intended to be tools to design dwellings or to determine which heating technology is the most suitable for any particular configuration. It is therefore important that we consider how these assessment tools are being employed, and what changes might be needed to better meet the Government's broader policy objectives.

Action 7

- Industry to complete an "issues list" ("snag list") on the concerns industry have in regards to SAP and RDSAP.

1.28 A number of specific issues have been raised about SAP. In order to tackle those issues in a systematic way, the industry will develop a 'snag list' based on working through detailed feedback to be provided by the industry. These issues will be considered by Government as part of the formal SAP review that is currently underway. For example, some respondents have pointed out that the present practice of using short-term forecasts of carbon emission factors does not reflect the full carbon impact over the lifetime of a microgeneration installation.

This is because the purpose of compliance assessments is to confirm that dwellings comply with current regulations now. Ensuring that this is the case now, does not stop the carbon impact of a dwelling decreasing as the fuels being used (e.g. grid electricity) decarbonise.

1.29 Another specific concern that has been raised is the reliability of the hot water performance assumptions used by SAP. A small number of respondents also suggested more should be done to improve our modelling of heat demand. Alternative approaches, such as the use of technology specific heat patterns, would however affect SAP's ability to deliver compliance and comparative energy assessments.

1.30 A number of respondents thought that SAP was simply too complicated. However, assessing a dwelling's energy performance is by its nature a complex undertaking. While SAP is a simplified assessment, and can still be undertaken by a 'hand calculation', commercial pressures and calls for more transparency have led to increased complexity. Further changes such as using technology specific patterns would also add to that complexity. Part of the SAP review will therefore consider transparency issues and the simplicity/complexity balance.

1.31 These issues will be considered in the review of SAP. It is expected that the review will also cover the requirements of the Energy Related Products Directive (ERPD), particularly Lots:

- Lot 1 Space Heating Products
- Lot 2 Water heating products
- Lot15 Solid fuel products

1.32 This directive supports domestic product policy initiatives, on which the Department for Environment, Food and Rural Affairs leads, on behalf of the Government. The ERPD will set minimum product performance requirements and should remove the least efficient products from the marketplace. The directive will enable A to G energy labelling of heating related products such as micro CHP and heat pumps.

Action 8

- Government to produce timetable for revision (including consultations) of SAP

1.33 The timetable for the SAP revision was communicated to industry contacts during the recent Part L stakeholder workshops. A public consultation of possible changes to SAP is expected in the latter part of 2011 and publication of the new version of SAP circa mid 2013. This will give stakeholders the opportunity to consider how they want to engage in the process and ensure that the SAP consultation highlights all the relevant and important issues.

Action 9

- Industry to prepare a document outlining issues of concerns and potential changes to SAP for consideration before the Consultation Document is published, due to be in September 2011.

1.34 The Microgeneration Consultation explored the governance, transparency and flexibility of SAP. Some respondents felt it was costly to add new products to the tools as well as time consuming. However this is a crucial process. The accuracy of the tools is dependent on the quality of the product performance data and other information, that is supplied by manufacturers and other parties.

1.35 Against this, there was concern from some on the reliability of the information on product performance provided by industry . This was substantiated by a recent field trial which examined the performance of micro CHP, boilers, heat pump performance and controls and raised questions about performance claims.

1.36 Microgeneration products can be incorporated into SAP through the Appendix Q methodology which was introduced in SAP 2005. Work is ongoing to better align the testing and certification requirements for SAP and the MCS to avoid duplication and reduce the overall burden on [manufacturers]. Some respondents to the consultation would like to see a more flexible approach which relies on manufacturer's claimed performance[, interim values, harmonised standard – need to clarify].

Action 10

- Government working with stakeholders to evaluate the potential of including financial incentives information in EPCs to ensure they accurately recognise the performance and value of microgeneration technologies.

1.37 There have been a number of instances where RDSAP has been inappropriately used as part of the Energy Performance Certificate (EPCs) assessments. This could be due to assessor competence as well as the competitive market in which they operate creating cost pressures. It is therefore proposed to review the way EPCs are delivered, particularly as they are expected to be used to deliver the Green Deal and the Renewable Heat Incentive.

1.38 An example of work that looked at the impact EPCs on consumer decision-making is research carried out, in early 2011, by Consumer Focus. The results showed 14% of respondents considered energy to be an important issue and EPCs influenced 18% of investment decisions. Only 6% used EPCs as part of

price negotiation. The consumer watchdog undertook further research to see how changes to the content and format of EPCs could empower consumers in the property market. Feedback suggested potential for improving the clarity, credibility and comparability of information, including the presentation of the costs and benefits. The strongest message from respondents was that 'money talks': they were less motivated by carbon emissions or energy consumption information. Consumer Focus has therefore recommended the incorporation of financial incentive information into the presentation of costs and benefits in the EPC to encourage the consideration of micro-generation technologies either at the point of property sale or rental or as part of the Green Deal advice process. The use of this information could help property sellers and their agents to better present the value of such micro-generation technologies to potential buyers. This consumer focus study will be considered with other sources of information as work on EPCs and microgeneration develops.

1.39 The consultation considered whether RDSAP would be effective in assessing microgeneration technologies once it was aligned with SAP 2009. Responses were broadly split between those who agreed and those who thought further improvements were required e,g, micro CHP was not included in RDSAP 2005, because the technology was still being developed. That situation is being addressed. Whilst RDSAP can now assess the full range of microgeneration technologies it is not suitable, for example, where multiple renewable technologies are deployed. In these instances a full SAP assessment is required.

Warranties & Insurances

1.40 The REAL Assurance Scheme Consumer Code is backed by the Office of Fair Trading as part of its self-regulation initiative: the Consumer Codes Approval Scheme is the only code currently approved for MCS. The REAL code provides protection and redress for consumers, with a particular focus on addressing mis-selling. The durability of microgeneration technologies is becoming an increasingly important issue, for example, as a factor in considering ongoing income from financial incentives. Installation performance over time is also critical, both in terms of generation to optimise tariff payments and also its carbon savings. The market offers consumers a variety of warranty and insurance schemes, and the Consultation responses highlighted the fact that consumers often do not know what these schemes offer or where to go for reliable information The situation regarding maintenance, after-sales service and warranties is complex.

1.41 Under the REAL Assurance Scheme Code , MCS certified companies are required to provide basic information on warranties. However, more needs to done to inform consumers about the different schemes, including the period they cover, which is a feature that needs to borne in mind as well as what will be covered. The REAL Consumer Code obliges members who offer ongoing maintenance and service agreements to clarify the conditions, charges and procedure for cancellation to consumers, in advance of any agreement being signed. In addition, members are obliged to issue 'workmanship warranties'. Typically these warranties are valid for two years, but in some cases installation

companies offer up to five years. Members must ensure that these warranties are insured so that consumers are covered should the company go into receivership. Manufacturers' warranties are distinct from workmanship warranties, so consumers may receive a number warranties in respect of their systems. For example, in the case of solar PV, both the panels and the inverter should be guaranteed.

1.42 More work is therefore required on understanding the durability of microgeneration installations, including their key components. We want consumers to be aware, at least in general terms, of the minimum requirements for aftercare service and maintenance for each microgeneration technology.

1.43 Quality and maintenance of some microgeneration equipment can also have a bearing on the noise impact. It will therefore be important for industry to consider maintenance requirements and product development. The proximity of sensitive receptors, competence of installers and public information are also important factors in addressing the noise impact of these technologies.

1.44 The domestic element of the RHI could potentially involve 'deeming' – the use of assumed standard characteristics based on size of installation and other initial factors. A deeming approach to incentive payments would require claimants to adhere to a strict maintenance regime to avoid inaccurate claims, avoiding a situation, for example, where RHI payments remained static, while a system's performance significantly deteriorates over time. We therefore need to scope maintenance requirements in detail.

Action 11

- Industry to carry out an analysis of the whole product lifecycle for each microgenration technology to identify maintenace/servicing requirements and the distribution of risk between suppliers and consumers.

1.45 To ensure consumer protection, greater clarity is required on who bears the various risk over the life cycle for a microgeneration product. This would benefit manufacturers and installation companies, as well as consumers.

1.46 Clarifying the level of maintenance service required for microgeneration technologies in general terms, as well as by technology, should benefit consumers and avoid creating unrealistic expectations. A product 'whole life cycle analysis' could help to identify where the risks for maintaining high performing installations lie.

Action 12

- Industry to carry out a scoping and mapping exercise of current warranty and insurance schemes, and produce a guide for consumers.

1.47 There is a difference between warranty and insurance schemes. By law, consumers are entitled to minimum levels of warranty cover, both for installations and products. Consumers should be made aware of what protection they may need above the minimum legal requirements and of its indicative costs. This should help to build consumer confidence when buying extended warranty or insurance cover.

Chapter 2 - Skills and Knowledge

Introduction

2.1 Rolling out the Green Deal and expanding the microgeneration sector will require a highly skilled workforce. They must be able to deliver whole house assessments and to design, install and maintain microgeneration technologies and energy efficiency measures effectively and on a large scale. If the units they install are not well designed and do not perform as predicted we will not be able to persuade the public to invest in them.

2.2 A huge challenge faces employers in ensuring that a competent workforce is in place. But we are making encouraging progress. For example, a framework is being developing that should shortly be in place to specify, design, install and maintain renewable technologies. Alongside skilled installers there will be a greatly increased need for expert advice to empower consumers and communities to play their full part as intelligent customers. There are also other intermediaries that will need new skills to support the roll-out of microgeneration, including planners and building regulation inspectors.

Engineers at work installing a range of heat pumps

2.3 This new world of skills will be far from ‘business as usual’. While there is an overlap with the existing skill sets of heating, plumbing and electrical engineers, there are significant differences which we must address. Outside the sector itself, we need to upgrade the knowledge of planners and other intermediaries who make decisions on microgeneration installations. Although work has taken place to do this in the past more still needs to be done. ‘Training the Trainers’ about microgeneration, and giving them the knowledge base required to support

Continuous Professional Development is another area where SummitSkills and the Sector Skills Council for Building Services Engineering, working with industry will need to take action.

Installers at work fitting solar PV panels on a roof

The Green Deal Skills Alliance

2.4 Recent developments include the partnership between three Sector Skills Councils (SSCs) - Asset Skills, ConstructionSkills and SummitSkills - under the banner of the Green Deal Skills Alliance. This will deliver an 'Action Plan' that will be a major step towards providing the skills needed to support the Green Deal, and enabling it to be delivered on time by a competent and safety aware workforce. The Action Plan will read across to the microgeneration sector, where National Occupational Standards (NOS) and a national competency framework are already in place.

2.5 The Green Deal Skills Alliance will carry out the following:

- Development of a Green Deal Competency Framework - (an integrated portfolio of National Occupational Standards and Green Deal-ready qualifications) - in time for the official launch of the Green Deal in October 2012;
- Delivery of an effective Green Deal awareness raising programme to employers, trade unions, learners and providers to ensure maximum take up of the opportunities for business growth and job creation; and
- Development of an approved network of Green Deal training providers to ensure that provision matches demand.

Specific actions on skills and training

2.6 At the heart of skills development for the low carbon workforce will be SummitSkills, Government, MCS and Building Regulations Competent Person Scheme Operators, sector employers from within building services engineering and wider stakeholders. Summitskills and its partners will be working to ensure that delivery networks such as the Skills Academy actively develop high quality solutions to produce a sustainable workforce through upskilling existing apprentices, technicians and professionals.

2.7 We need to build on the high quality training of manufacturers to support the delivery of an appropriate training environment, whilst broadening access opportunity for mainstream delivery through Further Education and Higher Education provision.

2.8 The Government sees SummitSkills and the Green Deal Skills Alliance as clarifying and supporting development of a variety of routes for installers to enable their operatives to meet the required level of competence, which is currently level 3 and above.

Engineer putting finishing touches to a micro-CHP installation

Solar slate installer at work

Action 13

- Transform the way the UK plans, develops and delivers skills in small scale renewable technology sector through organisations such as the National Skills Academy for Environmental Technologies.

2.9 As we set out in the consultation, the UK Government, along with other Member States, must report under the EU Renewable Energy Directive 2009/28/EC on certification schemes for microgeneration installers. Under Article 14- (Annex 4) of the Directive, by the end of 2012 we should have installer schemes in place that include training and practical assessments. The certification should be time limited which means the requirement for refresher training must also be in place.

2.10 The foundation for the development of qualifications is the National Occupational Standards (NOS). These are now in place. It is imperative that we build on this strong foundation to ensure that all approved training provision is derived from the NOS. In practice, this means that all training should be mapped to the NOS and completion of such training should determine installer competency.

Action 14

- SummitSkills to lead on mapping of all competence based training across England.

2.11 Currently there are many providers of training operating in the microgeneration field who are offering a variety of non competence based courses. It is not easy for installers, designers and other groups to easily identify what competency development is required or how to get it. Therefore SummitSkills working with the variety of training providers need to map those courses against the competency framework in order to be satisfied that they offer modular training which meets the competence requirements. Once courses are mapped against the national competency framework, there needs to be a robust process to validate them. We also want to encourage manufacturers who deliver training courses to participate in this process.

2.12 Presently there is some variation in how assessments are carried out following the completion of courses. One solution may be to move to an EN 17024 certification for installer training, where the assessment of installers as part of a training course is carried out by an accredited organisation. This will, however, create additional costs and burdens on the industry, and the Government sees this as a longer term vision.

Action 15

- Government, industry, MCS and Summitskills to undertake review of the MCS and those Competent Persons Schemes relevant to microgeneration to ensure they are fully fit for purpose.

2.13 The MCS and Competence Person Schemes (CPS) are now working towards the same technical competency framework. We should note that CPS schemes are purely concerned with meeting building regulation requirements so that competent installers can sign off work as complying with those regulations and the work does not need to be notified. It saves consumers time and money and offers assurance to the Department of Communities and Local Government on compliance with building regulations. The MCS goes further than buildings regulations, putting a greater emphasis on performance, seeking to prevent mis-selling and provides means of redress in cases of disputes. The CPS and MCS schemes will be critical to improving installer skills in the sector. The MCS certification bodies are accredited by the United Kingdom Accreditation Service (UKAS) and the CPS scheme operators will be working towards this. UKAS will continue to monitor and evaluate the effectiveness of both the MCS and CPS

accredited certification bodies against respective scheme requirements. Where possible we are seeking to ensure commonality of criteria across the schemes.

Action 16

- Sector Skills Councils working with industry and Government to put in place a skills strategy to ensure an effective and joined up approach across the relevant industry sectors on decarbonising homes.

2.14 Those industries with an interest in decarbonising buildings need to work together to ensure a coherent and efficient approach to the development of a low carbon building stock. Microgeneration clearly has a part to play, but so do other industry sectors, including the energy efficiency sector. As discussed, a 'joined up' skills strategy working through the relevant Sector Skills Councils is paramount to our success.

Action 17

- SummitSkills working with partners to ensure that high quality design is integral to every microgeneration installation.

2.15 During the consultation the issue the competency of designers and operatives across the microgeneration sector was raised. Some people contend that installers should also act as designers, while others see designers as having a higher level of competence and should operate as a specialist function within the industry. Nevertheless it is generally recognised that installers should have a basic level of knowledge about designing effective systems. More work needs to be done on design competency and on how design expertise should be integrated within the current sector.

2.16 SummitSkills will lead work to decide on how the sector should manage design. Once this is agreed they will develop a plan, in agreement with the industry, on how and when it will be delivered.

Chapter 3 - Technology

Introduction

3.1 We are beginning to see rapid increase in interest in microgeneration technologies based on the Feed-In Tariff and the proposed heat incentives. Another driver that is becoming increasingly important is development in the 'new build' sector.

3.2 The Government's policy on zero carbon is that all new homes will be built to a zero carbon standard from 2016, and new non-domestic buildings to zero carbon standard from 2019. Part of the standard requires challenging amounts of carbon reduction to be delivered on the site of the home, and microgeneration will have an important role in delivering this. Actions taken in this Strategy, particularly in the context of addressing coordination and skills barriers, will therefore have an important positive effect on the construction sector in a way that will support the market to grow and flourish. Government, the microgeneration industry and the construction sector will need to continue to work together to encourage innovation, improve efficiency and drive down costs.

3.3 Solar PV has shown strong growth in the installed capacity at the domestic level since the introduction of the Feed-In Tariffs. Solar PV prices have begun to fall, which is a promising development. The overall cost of installing solar PV is made up of product and its installed cost. The product cost is coming down as panel, mounting frame and inverter sales volume increases, and also UK market penetration increases. UK market penetration also influences overall installed cost. Much of the installation cost goes on roofing and access equipment. As installation companies gain experience in this sector, they are expected to develop productivity improvements that feed through to reductions in the overall installation costs. Training, both in technology and business systems, can also facilitate reductions in costs.

Installers fitting solar PV panels

3.4 Micro/small wind is also growing, if at a slower pace, to solar PV. But with the increased availability of more MCS certificated turbines, we should see further development in that market, over the coming months . NEL, BRE and BBA have recently completed a research and development project, looking at bringing efficiencies to the MCS requirements for micro wind. This work has pulled together useful learning which should be beneficial to the industry in the future. Further work, which would be led by industry, is required to take forward the recommendations from the study. Development of the UK's testing facilities at Myres Hill near East Kilbride has also proved useful and it ensures a greater capacity of world class wind testing facilities is available to industry.

Installer fitting an array of solar slates

3.5 Standards development for the global micro wind industry is making good progress and the UK industry is playing its part, based on international co-operation.

3.6 The UK micro wind industry is keen to see greater integration and harmonisation of wind testing standards at an international level. MCS micro wind testing requirements refer to IEC61400-2 and IEC 61400-11 and to IEC 61400-12-1. There are revisions currently under consideration to IEC 61400-2. The committee draft (CD) of the third revision following 2-years of intensive work should be released shortly. This has built upon many of the lessons learnt in implementing the MCS scheme and has been in cooperation with many EU countries (UK, Netherlands, Spain, Sweden, Germany, Italy, Greece, France, Denmark) as well as non-EU countries (Korea, Australia, USA, Canada, Israel, China, Japan). It is a good model of international co-operation.

3.7 The UK requirement for IEC 61400-2 is in line with other EU countries similar requirements, all of whom have cooperated in the IEC 61400-2 revision process and who have been benefiting from the MCS implementation.

3.8 For example, Germany and Denmark require compliance with IEC 61400-2, and as a minimum Greece, France, Spain, Sweden, and the Netherlands are moving in this direction. Outside the UK, both Canada and the USA have adopted IEC61400-2, again, in a way that is harmonised with the UK MCS scheme, and Japan is moving in this direction.

3.9 Within IEC 61400-2, there is a requirement for quality assurance, and MCS delivers this through the annual review by the EN45011 certification body.

Wind testing Myres Hill Near East Kilbride

3.10 The numbers of micro CHP units installed under the Feed-In-tariff has risen to 140. Micro CHP is a relatively new technology which is now available on the market. The next phase of micro CHP development is to confirm the most suitable buildings for this technology, building on what we have learnt from previous field trials. Results have shown that it provides its best performance in those properties with a high or constant heat load. Further work is required to establish if the technology is flexible enough to be applied in situations with a variable heat load. The Government understands the UK is one of the world leaders in this technology and we want to see the industry address as an action point the best applications. It is important that industry are seen to provide the necessary technical, marketing and training support

Installation of an air-source heat pump

3.11 The importance of heat pumps at the domestic and community level is now widely accepted. While heat pump technology is well developed, application in the UK is not so developed and we are therefore still learning about the installation of heat pumps. The UK heat pump manufacturing capability is developing and plans to introduce the Renewable Heat Incentive next year for the domestic market is creating significant interest. However, the heat pump market in the UK is still relatively small, compared to many other European countries. We need to invest in up-skilling our existing heating engineers and designers in this important technology. A well designed and installed heat pump could offer running costs and carbon emission reduction benefits compared with technologies that burn fossil fuels. But if the heat pump system is poorly designed, installed, commissioned or maintained, the potential benefit may not be realised. This is because heat pumps, which generally operate at lower operating temperatures than fossil fuel fired technologies, are less tolerant to variations in installation practice and design parameters, particularly if they are undersized. A good quality installation is a prerequisite, if the full benefits are to be obtained.

3.12 There is scope for innovation in heat pump design and installation. Areas such as developments in compressors and absorption chillers, operation and maintenance could lead to significant savings up to 2050. We want to see the heat pump industry investing in research and development so that the UK economy can benefit from innovations in this technology.

3.13 Biomass developments in the UK continue to make good progress. Globally, the small scale biomass sector is developing a number of innovative new products, predominantly in Europe. These range from biomass condensing boilers, with higher efficiencies and lower emissions, to biomass micro CHP, direct fired integrated biomass systems, emissions abatement technologies and technologies for integrating biomass systems with other renewable technologies, such as, solar thermal and heat pumps. The UK needs to keep abreast of these developments and develop closer partnerships with European partners in these developments to ensure their integration into the UK market. An example of where this is working is the UK partnering in a Framework Seven (FP7) funded project – BioMaxEff, cost efficient biomass boiler systems with maximum annual efficiency and lowest emissions.

3.14 We recognise that biomass has an important role to play beyond the small scale sector, particularly for large-scale 'biomass electricity' and heat as well as transport biofuels. Recognising the strategic importance of biomass, the Government is developing a Bio-energy Strategy, for publication later this year, which will set out the UK government's strategic direction for bio-energy to 2020 and beyond. This will include an assessment of the long term availability of sustainable feedstocks and the best uses of these for biomass heat, electricity and transport biofuels.

Demonstration of a biomass boiler

3.15 Both the microgeneration installation process and product technology present opportunities for innovation and these opportunities are yet more diverse in the renewable heat sector. Installation technology such as fast-to-fit access and integrated systems can considerably improve the installation time and quality. Both heat and electrical technologies have many subsystems such as inverters, pumps, compressors, transfer fluids, pipes, insulation, cables and connectors. The UK has a good track record in this subsystem component innovation and this can bring new manufacturing jobs.

3.16 There has also been a sea-change in innovation from a technology only approach to a systems and technology approach. Under the systems approach, the interface between all the various elements of the installation is evaluated and this also includes the human ergonomic interface. Such an approach can help to secure our wider climate change and energy goals. For example, the rollout of smart meters - alongside the provision of near real-time information - will play an important role in promoting greater consumer awareness of energy usage and helping consumers to reduce their consumption.

3.17 The UK, through its academic, non-government organisations and industrial networking has world leading innovation coming forward, in areas related to microgeneration. This interface between the various stakeholders will be a key element in low carbon developments. Understanding the individual component and human interfaces will promote the systems as well as the technological approach to microgeneration and so facilitate innovation and market penetration of these environmental products.

3.18 Two particular areas are important to highlight here: storage and controls. There is much talk of the smart grid whereby both demand and supply is controlled by the Distribution Network Operators. Both heat pumps and micro CHP offer some interesting possibilities in relation to this and if these technologies are further linked to advanced heat storage technologies, the possibilities are considerably extended. Biomass and solar thermal penetration could also be enhanced with improved heat storage.

3.19 Micro hydro continues to make progress. Many of the applications are unique but some of the subsystems are repeatable. As Britain acquires knowledge in this and other technology areas, there may be scope to share this information with partners overseas, to the benefit of the UK economy. A specific area for development is to increase the pool of competent engineers. In order to do that, further work is required on developing a competency framework for the micro hydro industry based on agreed industry standards.

3.20 There have been a number of complaints about the impact of micro hydro schemes (systems up to 50kW) on the local environment, and fish in particular. We are keen to encourage sustainable hydro schemes, and the Environment Agency carefully considers all aspects of environmental protection before granting a licence. They are currently updating the Hydro Good Practice Guide together with hydro developers, the fishing community and other stakeholders, and this should be published at the end of the year.

3.21 Responses to the consultation also suggested that MCS is restricting micro hydro development in the UK. MCS does play an important role in the Feed-In Tariff accreditation process in helping to simplify it. However, there is a case to treat micro hydro differently due to the special and complex nature of micro hydro development. We are therefore proposing to withdraw the exclusive link between micro hydro and the MCS for the purpose of the Feed-In Tariff eligibility. We will consider how this can be taken forward as part of comprehensive review of the Feed-In Tariff.

3.22 In conclusion the UK has established a leading edge position in the world in renewable energy training and accreditation. This is a key opportunity for both job creation and information exchange.

Action 18

- Industry to identify specific actions that can be taken over the next 12 months to promote a systems approach to installing microgeneration technologies.

3.23 To develop a systems approach to using microgeneration technologies will require better co-ordination. There are many individuals and companies carrying out research into technologies, controls, storage and integration. We need to consider how these different work streams can be better co-ordinated to create opportunities for information sharing and to encourage innovation. For example, work is taking place in areas such as micro CHP, heat exchangers, exotic heat storage materials as well as many other areas. In particular, more work is required on the efficiency with which the whole system delivers the end function. The systems approach relies on industry wide protocols and standards to ensure delivery and consistency. As a result of this Strategy, interest in co-ordinating systems and technology innovation between all the interested parties has developed and the industry will be working to build on this over the coming months.

Action 19

- Industry to develop facts sheets for each technology which includes information on maintenance and the longevity of key components.

3.24 Contributions to the consultation were not strongly in favour of developing new technology route maps. However, whilst small scale technologies face generic deployment issues, they do also have specific challenges. Industry will need to

think about how specific development issues are tackled. There is however an immediate need for technology specific fact-sheets. The audience for these fact-sheets is consumers and intermediaries with limited knowledge of the technical aspects of microgeneration technologies. They should cover key information on the performance and operation of the technology. Maintenance requirements and indicative costs would also be helpful and fill a gap that has been indentified, in terms of information provision.

Ground source heat pump and hot water storage tank

Action 20

- DECC to facilitate informal contact between the Microgeneration Government Industry Contact Group and Ofgem/Energy Network Association to consider connection issues for microgeneration technologies.

3.25 As discussed in the consultation document, consumers are required to notify Distribution Network Operators (DNOs) if a microgeneration installation changes consumption or generation to the extent it affects their connection and the surrounding network. Ofgem has been working closely with DNOs to help improve the connections process. This has resulted in a number of measures to improve transparency and customer service.

3.26 DNOs, under the auspices of the Energy Networks Association, have published a common Distributed Generation (DG) Connection Guide. The Guide includes:

- An overview of the UK power sector and the role of DG
- An overview of getting connected and the connection application process
- Details of standards that apply to DG, e.g. G59 and G83.
- Costs and charges: ongoing charges
- Selling electricity: Feed-in Tariffs
- A feedback process for improving the Guidance

3.27 In September 2010 Ofgem published a range of guaranteed standards to address delays in the connection process. For DG connections the standards cover:

- Providing the quote.
- Contacting the customer after the quote has been issued to organise dates for connections works.
- Completing the connection work on the agreed date.

3.28 DNOs who fail to meet the new performance standards will be required to make voluntary penalty payments to the affected customer. DNOs are obliged to meet guaranteed standards at least 90% of the time.

3.29 DNOs are also obliged to publish their cost methodology and charges for connection to the network. This should help to address connection cost uncertainties and allow comparison across the different regions.

3.30 Under the Distribution Price Control, DNOs are incentivised to provide good customer service. To help measure this, and identify areas of concern, Ofgem issued an Open Letter on 16 May 2011[1] requesting stakeholder views on issues and challenges in getting connected to the distribution network. The consultation closed on 31 May and will help inform a stakeholder forum that Ofgem intends to hold, to discuss the experiences of stakeholders in getting connected to the network.

3.31 We welcome the progress made in addressing distribution network connection issues and the ongoing engagement. Where useful, we will help facilitate the dialogue between Ofgem, DNOs and the Microgeneration sector, including through the Microgeneration Government Industry Contact Group. As discussed in the consultation document, consumers are required to notify Distribution Network Operators (DNOs) if a microgeneration installation changes consumption or generation to the extent it affects their connection and the surrounding network. Ofgem has been working closely with DNOs to help improve the connections process. This has resulted in a number of measures to improve transparency and customer service.

[1] http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistGen/Documents1/DG%20Forum%20Open%20Letter_May.pdf

Innovation - product/installation development

Action 21

- To explore the opportunities available to expand the microgeneration sector through engagement in EU technology development and demonstration initiatives, such as, the Strategic Energy Technology Plan and Framework Programme 7 Energy.

3.32 The EU's Strategic Energy Technology (SET) Plan outlines what needs to be done, from an EU perspective, to achieve its 2020 energy and emission targets, and 2050 vision. Its objectives are sustainability, security of supply, and retaining EU competitiveness. European Industrial Initiatives (EIIs) launched under the SET Plan are intended to strengthen European energy technology innovation and speed deployment by bringing together the key players, in a particular sector, to share knowledge and co-operate to develop these technologies, as quickly as possible.

3.33 A 'Smart Cities' Initiative is one of these European Industrial Initiatives. It will join others which are concentrating on the development of specific technologies including bio-energy, Smart Grids, solar and wind energy.

3.34 Smart Cities, scheduled to launch on 21 June, will address amongst other things, supply technologies, local production and energy networks, including electricity, heating and cooling.

3.35 The first Framework Programme 7 Energy Calls (the main EU grant funding instrument for technology development) is supporting elements of the Smart Cities agenda and will be launched this summer. In addition, a Stakeholder Platform to register interest in the Initiative and contribute to its development, is being launched in the second half of 2011. The UK aims to play a full part in the development of this and other SET Plan activity, which has the potential to assist microgeneration development and deployment.

Chapter 4 – Information and Advice

Introduction

4.1 Consumers in the UK are still, largely, unfamiliar with microgeneration. The purchase of a generating system is a significant step for most householders, not least in financial terms. It requires a significant investment whether for savings or from a loan. Lack of easily accessible and reliable information at this early stage can act as a barrier as well as a disincentive.

4.2 Currently, most householders start searching for information on the internet, but they struggle to identify accurate, unbiased information. In the absence of a widely recognised source of impartial advice, anecdotal evidence of previous grant programmes suggests that investment decisions could be taken based on inadequate information or even influenced by mis-selling. Invariably, this results in an inappropriate solution for a particular house and the possibility of a poor quality installation.

4.3 The Consultation responses revealed widespread support for delivering advice on microgeneration alongside the advice on energy efficiency envisaged under the "Green Deal". This could give consumers access to the accredited advisers trained in microgeneration technologies.

Residential consumer protection

4.4 In principle, DECC's approach at the community and commercial scale is 'caveat emptor' ('buyer beware'). The Consultation responses proposed that bodies other than DECC could be involved in the delivery of microgeneration information to householders.

Energy Saving Trust Research

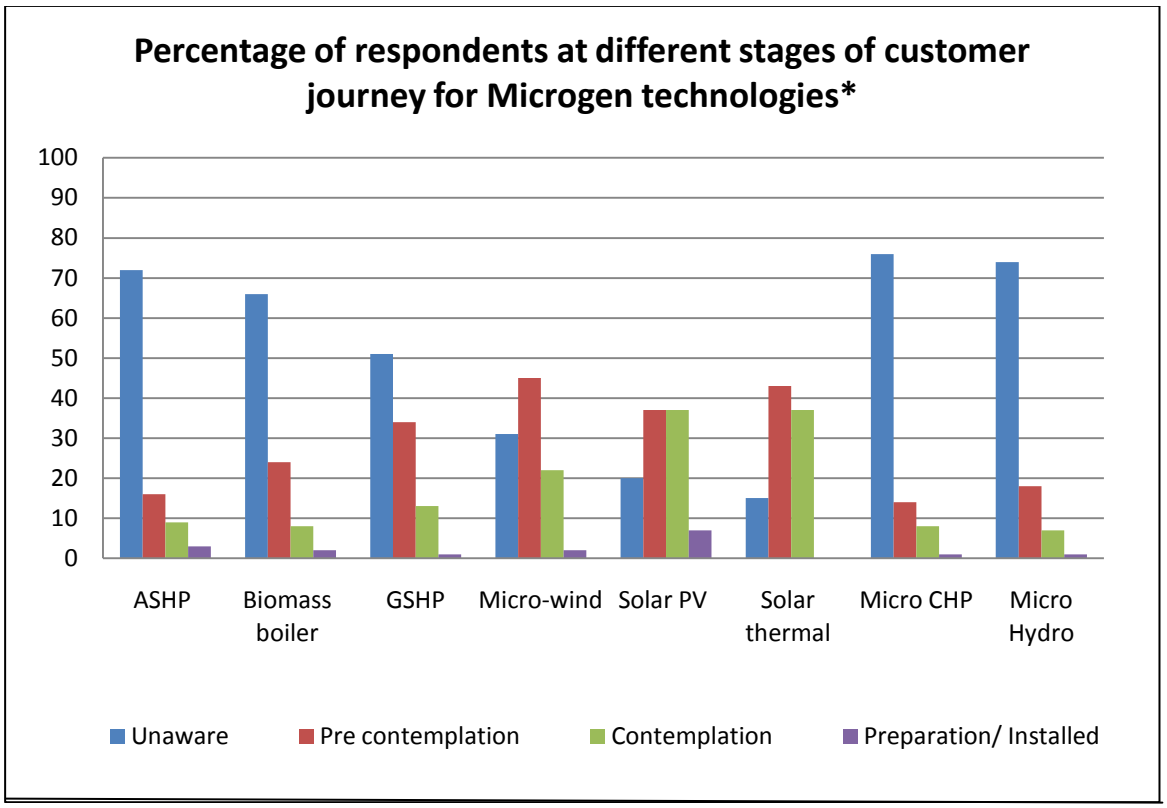
4.5 The Energy Saving Trust (EST), in conjunction with DECC, recently carried out research into customer attitudes and consumer perceptions of microgeneration. This research has given insights into non-financial barriers affecting microgeneration and how they may be tackled. [footnote to exe summary]

4.6 The project consisted of interviews with the public, focus groups and a questionnaire, as well as some secondary desk-based research. The research split householders into five main consumer groups based on stages of the customer journey:

- those who are unaware of microgeneration;
- those aware, but who have not yet started to consider microgeneration;
- those who are actively considering it;
- those who are preparing to install microgeneration; and

- those who have installed it.

4.7 The EST research found awareness of solar PV, solar thermal and wind turbines to be much higher than for the other micro-heat options such as biomass and air/ground source heat pumps (see Figure 1).



*Based on 1223 interviews with home owners or those planning to buy in the next 5 years

4.8 For these "unaware" householders, the study identified a number of barriers including language (the term 'microgeneration is unfamiliar), confusion about technologies and what they do, energy supply being taken for granted (some people do not link the energy they consume with their energy bills as well as general apathy. Barriers for the 'pre-contemplation' group include upfront costs, lack of familiarity or confidence with the technologies and suitability to their homes.

4.9 Interestingly the number of 'contemplators' for heat pumps and biomass was fairly low, but over a third of households are contemplating installing solar PV and solar thermal, whilst a fifth are contemplating micro-wind. This may have something to do with greater visibility of these technologies under previous grant programmes. Low levels of awareness about financial incentives, lack of detailed knowledge of the technologies and knowing where to get the right information as well as high upfront costs. These are all barriers at this stage of the customer journey.

4.10 High up-front costs and long payback periods were confirmed as a key barrier at the preparation stage. Financial incentives should go some way to addressing these challenges. The introduction of Feed-In Tariffs has driven an increase in the

numbers of those preparing to install microgeneration. This is supported by the study where approximately 40% of consumers interviewed who had installed microgeneration said they would not have gone ahead had Feed-In Tariffs not been available. Other barriers for those at the preparation stage are finding the right installer and concerns about whether they have the right skills, the ability to get planning permission, the lack of compatibility with the household and lack of understanding of financial incentives (Feed-In Tariffs).

Development utilising a biomass heating system

Action 22

- Industry working with wider stakeholder group to develop a plan to market the concept of microgeneration and the potential benefits.

4.11 Microgeneration as a term is not well understood and many consumers don't understand the different technologies, or what energy they can supply. We therefore need a more radical approach to the market the concept of microgeneration focused on the needs of consumers. Raising the awareness of microgeneration should be a key aim of this. This is likely to include the use of government, the media, local authorities and suppliers providing relevant information. Figure 2 provides some indications of the methods that may be used. Understanding the different consumer groups and the 'pinch points' in their decision making process should help in developing an effective plan.

Action 23

- Inustry working with Governemnt to identify communications components of all work streams within this Action Plan to design a harmonised approach to communication activities.

4.12 Communication is at the heart of this strategy and there are many different audiences who need information on skills, quality and the technologies. Developing a better understanding of these audiences and thinking about their needs and how to address them is critical to successfully tackle the non-financial barriers. In some case it may be that we use the same communication channels but with a different emphasis to suit the audience. We want to create a seamless flow of useful information about the benefits of microgeneration, how to get involved and the things that must be considered to ensure the highest possible level of performance from each installation. As well as consumers and the industry, we need to involve planners, building inspectors, designers and architects as important pieces in this jigsaw. Permitted Development Rights (PDR) need to be communicated more effectively. There is still a lack of knowledge about the existence of PDR and where restrictions e.g. for listed properties and conservation areas apply.

Fitting a solar thermal evacuated tube system

Action 24

- Empower consumers with greater knowledge and awareness of different sources of independent advice on microgeneration.

4.13 This is a specific piece of work that should help to sign post consumers to credible sources of independent advice, which we know is important of the decision making process. For example, the findings from the EST research project demonstrate that consumers perceive installer companies, whether MCS approved or not, as one resource for advice – though they think the advice they give may not be impartial. Developing the provision of independent advice is integral to this work and will be an important aspect in moving people along the customer journey.

Action 25

- Industry bodies to reach out to the small installer community who are potential advocates of microgeneration technologies as part of their everyday business.

4.14 At present, small installer companies may be not be clarifying the case for microgeneration to potential consumers. The trade associations and other industry bodies have an ideal opportunity to work with their respective members to promote microgeneration. SMEs will want clear concise information about what the opportunities of microgeneration mean for them and how they can get involved.

Action 26

- Work with consumer facing organizations such as Green Deal providers

4.15 Energy Suppliers and Ofgem to establish consistent and coherent message about the value and potential of microgeneration.

4.16 Consumer facing organizations, whom consumers trust, can help to mobilize a small scale decentralized energy generating community. Many consumers with the right advice and support may build up the confidence to move from tried and tested heating systems to generating renewable heat. We know from the EST study that ‘trigger points’ exist for householders at which they are more likely to consider installing microgeneration. These include:

- when energy prices (gas, heating oil, etc) rise sharply;
- when they need to replace a boiler;
- when engaging with architects on the design of a house;
- when refurbishing a property;

- when insulation is being installed; and
- when they move into a new house.

4.17 These trigger points present a window of opportunity for consumer facing organisations to share information with householders about the value of microgeneration and what to do if there is interest to do so.

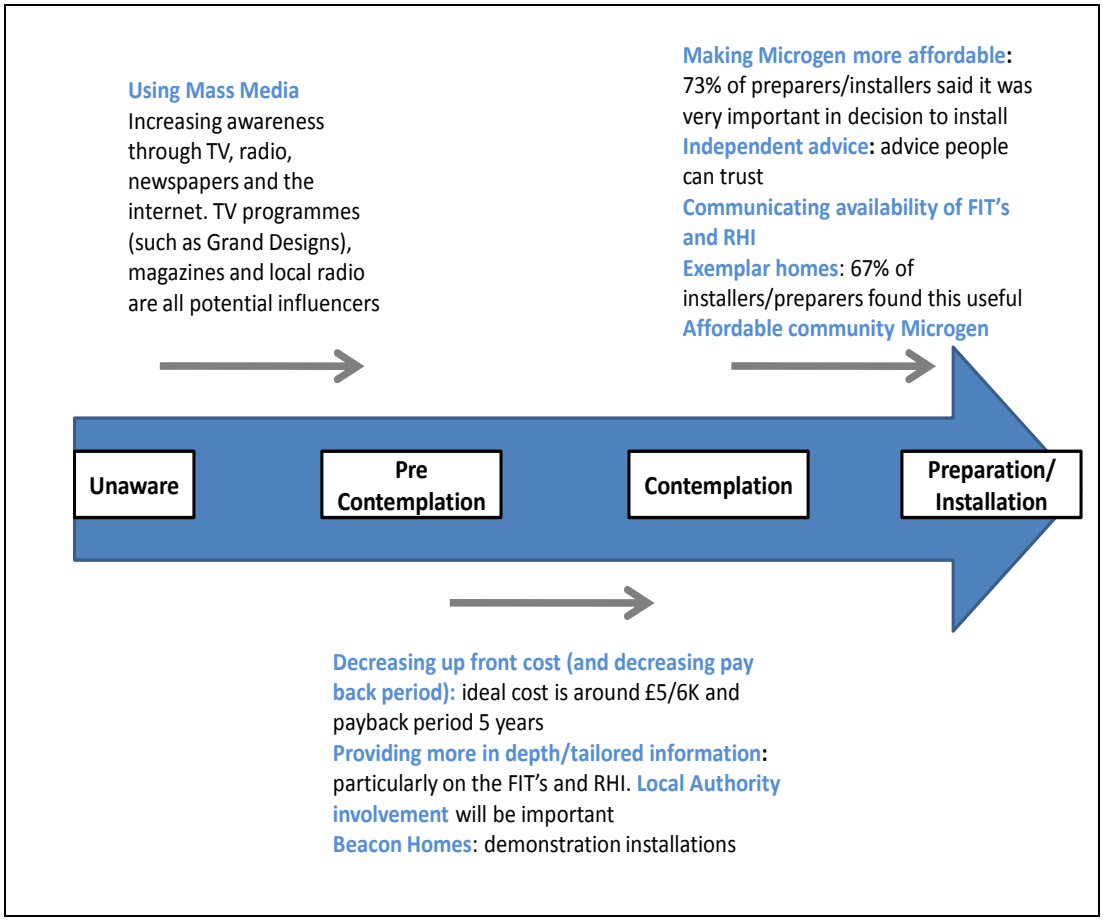
4.18 Microgeneration advertising could potentially be improved by using tailored messages to stimulate interest in technologies. The rising price of fuel (oil and gas), environmental concerns, the desire to be self-sufficient, access to the financial incentives and being a good investment opportunity were all aspects which can trigger an interest in microgeneration. More innovative techniques such as beacon and exemplar homes could also play a key role.

Action 27

- Industry working with Government to improve communication of financial incentives

4.19 Improved communication of the Feed-In Tariffs and the Renewable Heat Incentive could help the uptake of Microgeneration technologies. As documented earlier, Feed-In Tariffs were found to move customers from preparing to actually installing. Yet over two thirds of survey respondents were not aware of either Feed-In Tariffs or the Renewable Heat Incentive.

4.20 The diagram below sets out some of the aspects of our task of moving more consumers along the route towards installing microgeneration.


Using Mass Media
Increasing awareness through TV, radio, newspapers and the internet. TV programmes (such as Grand Designs), magazines and local radio are all potential influencers
Making Microgen more affordable: 73% of preparers/installers said it was very important in decision to install
Independent advice: advice people can trust
Communicating availability of FIT's and RHI
Exemplar homes: 67% of installers/preparers found this useful
Affordable community Microgen
Unaware
Pre Contemplation
Contemplation
Preparation/ Installation
Decreasing up front cost (and decreasing pay back period): ideal cost is around £5/6K and payback period 5 years
Providing more in depth/tailored information: particularly on the FIT's and RHI. Local Authority involvement will be important
Beacon Homes: demonstration installations

Chapter 5 - Beyond Microgeneration: Energy at a Community Scale

Introduction

5.1 There is an opportunity for the existing microgeneration sector to forge better links with, and take greater advantage of, the move towards developing larger community scale 'green' energy schemes. With ambitious targets for renewable deployment in 2020 and 2050, such schemes can provide significant economies of scale as well as benefits across the community as a whole.

5.2 Government recognises the need to lay the foundations for the take-up of renewable energy projects by building a more effective dialogue with communities and supporting them to take positive action on their own behalf, ensuring they derive greater benefits locally from such projects.

5.3 The term 'community energy' encompasses a range of different initiatives with the common theme that the community, and not a commercial organisation or individual, is the key beneficiary. This means that schemes could in theory be of any size, from below the microgeneration threshold of 50kW and potentially as high as 20MW.

5.4 Initiatives can include the community buying multiple units, where the community benefits from negotiating bulk order discounts; renewable energy schemes at a community scale that generate income for other community initiatives; or community generation where the community owns a significant proportion of the scheme.

5.5 We recognise that 'community' is a very broad term and can encompass local councils, residents, charities and voluntary organisations, social landlords and local businesses including farmers and other landowners. We aim to ensure that there is consistency of definition across the Department to provide clarity within the sector.

5.6 This chapter does not explore the capital funding issues for schemes with planning permission, as these are subject to current wider DECC policy development and consultations. Government recognises that there are financial issues around the 'at risk' stage of project development, and is working with communities themselves and the wider investment sector to ensure these are addressed.

5.7 There are already a significant number of communities designing, developing and delivering community-scale generation projects. Their efforts have highlighted a range of barriers and benefits which, once addressed, can make developing schemes easier for communities following this lead. We wish to ensure that the

lessons from these communities' experiences are learned and that other groups can benefit from the knowledge base they have established.

5.8 The consultation had two specific questions regarding community energy. This chapter uses the responses to those questions and wider ongoing engagement with the sector to outline the next steps for supporting and encouraging community ownership of renewable energy.

Action 28

- We will hold a roundtable on community energy at the earliest opportunity. This event will bring together key stakeholders from communities, supporting organisations, local authorities and central Government to work through the key barriers and identify, where possible, solutions and who has responsibility for taking these forward

5.9 We believe that barriers to Communities owning and generating their own renewable energy fall into six main categories: planning, financing, lack of information, lack of local awareness, lack of local skills and being a low priority. The Government is committed to encouraging community-owned renewable energy and where barrier are identified that are due to Government regulation, work to remove it . However in many cases other organisations are better placed to resolve issues and DECC will work to support them as appropriate.

Events on Planning Community Energy

5.10 The biggest barrier to community-scale energy projects identified in the Consultation responses was planning. The Government has already taken steps to address this issue: the Department for Communities and Local Government (DCLG) has already developed a resource to support communities, called 'Plan LoCaL'. It is DECC's intention to provide additional money to this programme to allow a doubling in the number of dissemination events, providing wider coverage across England.

5.11 These events, planned to start in July, will help to empower community leaders to engage and support their own communities as they take energy projects through the local planning process.

Financing Community Energy Projects

Action 29

- DECC will work with the Local Authority Group and other interested partners to identify, publicise and provide advice on current applicable funding streams available in UK and from EU.

5.12 The other key area highlighted was the difficulty of securing funding. It is clear that there is some additional work to be done around this, especially with potential investors. There are a number of EU funding streams that local authorities especially can bid into such as ELENA and Intelligent Energy Europe. It is important that the results of such programmes are also widely disseminated so all councils can benefit from these programmes. This also applies to the significant amount of research being undertaken currently both in the UK and abroad.

Action 30

- DECC will work with partners to communicate the opportunities and benefits of community energy to the investment community with a view to establishing opportunities for 'at risk' project investment and debt finance that meets community needs.

5.13 DECC will also monitor the development of new funding sources which are specifically targeting investment in developing community energy projects, not just building them. The development of a stream of finance targeted at the feasibility stages will enable the pipeline of viable community energy projects to develop.

Community Energy Online - Portal Development

Action 28

- DECC will work with the steering group which represents communities and local authorities, to ensure that the 'Community Energy Online' web portal is developed further.

5.14 Another obvious barrier is the confusing and often contradictory information available on the internet. In his first Annual Statement last July the DECC Secretary of State acknowledged the problem and announced our 'Community Energy Online' web portal. This was launched in November last year, and brings together advice and information from credible third parties on how best to take forward community energy projects, providing communities and local authorities with a one-stop shop on this issue.

5.15 It is clear from the Consultation responses that whilst the portal is already playing a strong role, communities need access to significantly more information than it currently offers.

5.16 DECC will also develop an additional area on the site to support the dissemination of research on community energy both from the UK and abroad.

Action 29

- DECC will work with existing community buying groups to develop tools and case studies to support and encourage other communities to develop similar schemes. Results will be published via Community Energy Online.

5.17 In 'Better Choices: Better Deals' the Government identified the opportunity for consumers working together to harness their aggregate buying power and create a better deal for themselves. The document highlighted areas where BIS would work to support collective purchasing and collaborative consumption.

5.18 Case studies show that collective purchasing has already been successful in the handful of communities where it has been applied to renewable technologies e.g. the 'Energise Barnet' project.

Develop wider policy understanding

5.19 Community energy schemes can deliver on more than just energy-focused policy objectives. So it is important that DECC, with the support of communities, engage with other Government Departments to ensure that policy being developed on rural issues, planning and the Big Society more generally are designed with community energy opportunities in mind.

5.20 One key area of this work will be around building community skills and capacity as more opportunities emerge after the passage of the Localism Bill. DCLG are already developing 'community leader' courses, but scope for further Government action exists around financial and business planning and in some cases community engagement, including training for community volunteers.

5.21 DECC believes that the Community Energy Roundtable will help us identify a range of information sources that are already available, and to highlight gaps where new ones need to be developed. This could include ideas such as a directory of professional support, a map of community energy projects acting as a database of case studies or a library of specimen contracts and other key legal documents

5.22 We are not proposing that Government can or should provide all such information, although dissemination would be available through Community Energy Online. However, it is important that these types of services are created and maintained and the Government wants to facilitate the partnerships to enable this to happen.

5.23 The Government is unambiguous in its commitment to encouraging community-based ownership of renewable energy. The roundtable, which we are aiming to hold in July 2011, will help us to structure this programme of actions in more detail and ensure greater policy coherence around community energy. The outcome of the roundtable event will be available on Community Energy Online.

Department of Energy & Climate Change
3 Whitehall Place
London SW1A 2AW
www.decc.gov.uk

URN: 11D/791