

## Distributed Energy - Initial Proposals for More Flexible Market and Licensing Arrangements

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**Target audience:** Owners and operators of distributed energy schemes, electricity suppliers, generators, distribution network operators, consumer groups, local authorities, property developers, and manufacturers and suppliers of small-scale renewable generation and CHP plant.

### Overview:

This document sets out Ofgem and BERR's initial proposals for introducing greater flexibility to the market, regulatory, and licensing arrangements for distributed low-carbon electricity, as signalled in the Energy White Paper. Our work focuses on medium-sized generation for communities and larger businesses - domestic microgeneration is being considered under a separate programme of work.

This document sets out and assesses the detail of the current industry and regulatory arrangements, and is therefore quite technical in nature. We will produce a separate summary and hold a workshop early in 2008 for non-specialists. We are allowing respondents 12 weeks to respond to this document. We expect to set out a detailed implementation plan in May 2008 once we have received and considered the responses.

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## Context

Encouraging sustainable development through reduced carbon emissions is a key policy objective for the Government. Distributed energy (DE) could make an important contribution to this and other goals, including security of supply and alleviating fuel poverty. The issues facing DE are wide-ranging and touch on many aspects of energy and environmental policy and regulation. Our consultation therefore needs to be seen within a broad context of work that is underway across Ofgem and government, including:

- planning policy, in particular Government's drive towards zero-carbon development
- the EU Emissions Trading Scheme and the price of carbon
- the Heat Project being led by the Office of Climate Change
- Ofgem's review of electricity cash-out arrangements and our work on microgeneration, and
- current work on the electricity network charging regime.

## Associated Documents

- Review of Distributed Generation: A Joint Government/Ofgem Report, May 2007  
<http://www.dti.gov.uk/files/file39025.pdf>
- Energy White Paper 2007: Meeting the Energy Challenge, Chapter 3 - Heat and Distributed Generation, May 2007  
<http://www.berr.gov.uk/files/file39567.pdf>
- Supply Licence Review - Final Proposals, Ofgem, June 2007  
<http://www.ofgem.gov.uk/Markets/RETMKTS/COMPL/SLR/Documents1/SLR%20Final%20Proposals%20Decision%20Doc.pdf>
- DEWG Discussion Paper 1: Value of Distributed Energy and the Associated Issues with the Regulatory and Market Arrangements, Ofgem, May 2007  
<http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistGen/disenwg/Documents1/DG%20paper%201%20050707.pdf>
- DEWG Discussion Paper 2: The Nature of Distributed Energy, Ofgem, June 2007  
<http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistGen/disenwg/Documents1/DG%20paper%202%20050707.pdf>
- DEWG Discussion Paper 3: Supply Licensing and Exemptions, Ofgem, Oct 2007  
<http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistGen/disenwg/Documents1/DWG%20Discussion%20Paper%203.pdf>

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## Summary

The Energy White Paper sets out the potential role of Distributed Energy (DE) - smaller scale local generation including renewable and combined heat and power (CHP) - in meeting Government's energy policy objectives. DE has the potential to contribute to the energy mix and to assist with meeting greenhouse gas emission reduction targets in a variety of ways: making use of the waste heat produced through electricity generation to heat and cool buildings; reducing electricity losses through moving generation much closer to where electricity is used; reducing the need for large transmission and distribution lines with their associated environmental impact; facilitating the use of local renewable energy sources; and encouraging behavioural change through increased awareness of energy consumption.

The majority of existing DE schemes consist of a CHP plant producing for industrial and/or commercial users in the immediate vicinity. The structure of the 2001 Class Exemption Order means that most of these schemes are usually not licensed to generate, distribute or supply electricity. However, initiatives underway at both central and local government level seek to encourage further investment in DE: for example, Government's drive towards zero-carbon development and the Mayor of London's Climate Change Action Plan, which sets ambitious targets for DE in meeting London's energy supply. Alongside this, moves to establish a robust price for carbon emissions through, for example, the EU Emissions Trading Scheme may make DE more competitive relative to larger centralised generation. These initiatives are likely to lead to the development of larger-scale district and city-wide DE projects that fall outside of the 2001 Class Exemption Order and will need to be licensed.

Ofgem and the Government are committed to ensuring that regulatory arrangements do not raise any unnecessary barriers to the wider uptake of DE. We also want to encourage innovation so that new entrants and smaller suppliers, as well as the existing large suppliers, can experiment with new technologies and commercial arrangements in order to discover more cost-effective ways of reducing emissions. In the Energy White Paper we undertook to consult later in 2007 on options for more flexible market and licensing arrangements to facilitate DE, for implementation by the end of 2008. This document meets the first stage of this commitment by consulting on a range of high-level options.

In putting together these proposals, we have sought to meet two important objectives: first, to maintain effective protection for energy consumers; and second, where possible to modify the current arrangements so that they are more suitable for DE, rather than place DE outside of the arrangements. In general, this means looking for solutions that will allow DE to grow within the existing competitive market framework. Competition is one of the most important forms of customer protection: customers' ability to switch supplier if they are unhappy with the price or service they are being offered places important incentives on suppliers to offer good service at competitive prices. It also encourages the technological innovation that is needed to address environmental concerns.

Our analysis suggests that there are several ways in which DE schemes can trade and use their electricity within the current regulatory and market arrangements. In doing so, a variety of issues and problems arise, many of which relate to the small scale of many DE schemes. These issues include:

- the risks and costs of participating in the wholesale market as a small and possibly intermittent generator, and the impact that this and other factors have on the price that is paid when surplus electricity is sold to (or purchased from) third parties
- network charges potentially not fully capturing the cost savings from locating generation close to demand, thus creating incentives to bypass existing networks, and
- the poor availability and high cost of exempt supplier services (such as top-up and back-up electricity, meter registration and data processing) for DE schemes operating under the current supply licence exemption, and the costs of becoming a licensed supplier for DE schemes that exceed the exemption limits.

The high-level options in this document have been developed with the above issues in mind. They comprise a mix of short-term and longer-term measures designed to:

- support community DE in the transition to mainstream. A number of options compensate for the apparent lack of support services (such as assistance with wholesale market trading) to enable community DE schemes to operate within the existing licensed framework. If and when such schemes become more established we would expect the market to deliver these service
- encourage innovation by allowing new technologies and market arrangements to come forward on a time-limited basis. For example, we invite electricity distribution companies to suggest proposals for network trial projects that offer innovative technical and charging solutions for DE
- address barriers to entry in the current market and licensing arrangements. Proposals in this category include strengthening the requirement on distributors to develop cost-reflective charges for DE; considering the needs of small intermittent generators as part of the cash-out review; and appointing a DE representative to the Balancing and Settlement Code (BSC) panel, and
- explore longer term issues that may need to be addressed if DE is to become a larger component of the energy supply mix. For example, in this context we discuss the possibility of a dedicated wholesale market for DE.

In addition to these options, we also discuss the issues associated with raising the licence exemption limits in order to facilitate expansion of DE. This raises concerns regarding competition, maintaining effective consumer protection, and potentially compatibility with EU law, and we are not sure whether these can be satisfactorily addressed. We do however welcome further feedback on this point from industry stakeholders.

The options in this document are presented at a high level, to allow respondents to comment on the full breadth of possible measures. Over the next few months we will investigate further the implementation of these options. This work, together with responses from the consultation, will help us decide which measures to take forward and will inform our detailed implementation plan for the remainder of 2008 and beyond. We intend to share our plans in May 2008.

## 1. Introduction

**Chapter Summary:** This chapter sets out a definition of distributed energy and the different settings in which it can be used. We also explain the background to the current consultation, and discuss the drivers for uptake of DE within a wider context of other relevant policy processes that are underway.

1.1. Distributed Energy (DE), also referred to as distributed generation or decentralised energy, is defined in our work as renewable electricity generation which is connected directly into the local distribution network, as opposed to connecting to the transmission network, as well as combined heat and power schemes (CHP) of any scale. The electricity generated by such schemes is typically used in the local system rather than being transported for use across the UK.

1.2. This definition covers many technologies including wind turbines, solar photovoltaics (PV), and CHP plants - which may be installed by individuals, businesses, communities, schools, commerce or industry. DE schemes may be owned and operated independently, or they may be developed by or in partnership with larger established players in the electricity market. For this consultation process, we have attempted to limit discussion and analysis to plant with an electrical capacity less than 100MWe but greater than 50 kWe (below 50 kW, plant is categorised as micro generation and this is being considered in a parallel work stream within Ofgem). We have also not looked at heat-only technologies or the heat supply aspects of CHP schemes since this is the subject of a parallel workstream within the Office of Climate Change (OCC).

1.3. To aid discussion, we have categorised the use of DE into four key settings:

- Independent - single site generation for sale to third party suppliers: such as waste, biomass or wind schemes which are connected to the distribution network. In these circumstances the developer sells all the output to a third party (a supplier or consolidator) via a Power Purchase Agreement
- Industrial & Commercial (single site) - generation for own consumption on-site: energy plant that is built on site for own use and often includes electricity and heat. This category includes industrials such as oil refineries, chemicals and tobacco production, but we also include in this category any generation where the output is used on site – Ofgem's office, for example, has a base load CHP plant. These installations may also include third parties that are situated on the same site - for example, Slough Trading Estates has a large biomass generation plant serving industrial, commercial and domestic parties on-site
- Industrial & Commercial (multiple site) - generation for own consumption across multiple sites: energy plant that is built for own consumption but often extends over several sites. In this category we include hospitals, universities and council buildings (offices and dwellings) that have many sites in a local vicinity, and

- Community - generation of electricity (often with heat) for multiple premises and customers: energy plant that is built as part of a community scheme that supplies heat to local homes and business and also sells electricity locally to some or all of those customers or to third parties in the local area or to the wider market.

Examples of these different types of schemes are set out in the case studies that are included in Appendix 10 of this document.

1.4. DE, particularly within Industrial & Commercial settings, is an established part of the UK's energy mix: over 10GW of DE is currently installed in Great Britain accounting for just under 10% of electricity supply<sup>1,2</sup>. The bulk of this capacity consists of single generation plant installed on-site for own-use energy demands (both thermal and electricity), as set out in the second scheme category above. The industrial sector represents the majority of this plant and often includes a CHP installation. CHP schemes are particularly attractive to industrial and commercial customers with high own-use requirements that require a steady source of heat such as oil refineries.

## Background to the Current Consultation

### Distributed Generation Review and the Energy White Paper

1.5. A joint DTI/Ofgem Review of Distributed Generation (DG) was launched in July 2006, and a Call for Evidence issued in November 2006<sup>3</sup>. The Review identified a number of barriers to DG - including cost, a lack of reliable information, electricity industry issues (particularly around networks), and regulatory barriers. The report of the Review of Distributed Generation was published in May 2007 alongside the Energy White Paper<sup>4</sup>. A recurring theme in the Review was that the UK electricity regulation system was designed with the needs of large centralised generators in mind, and aspects of the system may therefore disadvantage smaller players.

1.6. The Review stated that, within the context of the Government's overall energy policy goals, any action to assist the development of DG should:

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<sup>1</sup> It should be noted that this figure includes all generation connected to the distribution network, regardless of size or fuel type. It is therefore a broader definition than that set out in paragraph 1.1 above.

<sup>2</sup> In 2005 there was 5,792MWe of installed CHP electrical capacity with around 94% of this capacity spread between the chemicals, oil refinery, beverages and tobacco industries. The remaining 6% is used for agricultural, commercial, public administration, residential and transport sectors. (Source: DUKES)

<sup>3</sup> <http://www.berr.gov.uk/energy/review/implementation/distributed-energy/page35076.html>

<sup>4</sup> <http://www.berr.gov.uk/energy/whitepaper/consultations/distributed-generation/page39557.html>

- stimulate cost-effective low-carbon forms of DG
- provide a means of enabling distributed generators to realise a reasonable economic value from their schemes
- reduce the complexity involved in setting up as a distributed generator
- ensure requirements on these smaller players are proportionate to their size and the use they make of the wider licensed distribution network, and
- encourage, where possible, further growth of DG within the licensed framework, rather than outside it.

1.7. The DG Review highlighted the range of Government and Ofgem initiatives already in place to facilitate distributed generation, and identified four key areas for further action. These were set out in the Energy White Paper and comprise:

- more flexible market and licensing arrangements for DG
- more clarity on the terms offered by energy suppliers to reward microgenerators
- improving information, advice and guidance on options in DG, and
- making it easier to connect to and use the distribution network.

1.8. This consultation paper addresses the first of these areas. Specifically, it meets the commitment made in the White Paper that Ofgem and BERR would consult later in 2007 on options for more flexible market and licensing arrangements for distributed low-carbon electricity, within the licensed framework, to be implemented by the end of 2008. The paper sets out our initial proposals in this area, with the expectation that these will need to be refined and fleshed out based on responses to the consultation and further analysis.

### **Distributed Energy Working Group**

1.9. A key element of our work programme to meet the commitments made in the Energy White Paper has been the establishment of the Distributed Energy Working Group (DEWG). The overall objective of the Working Group, as set out in its Terms of Reference (attached at Appendix 2), is to advise on the development of measures that address the key barriers within the market or licensing arrangements to the greater take up of DE projects - without compromising the integrity of the competitive market, or imposing unnecessary costs or complexity. The DEWG comprises representatives from a broad range of industry sectors and stakeholders, with an interest in DE.

1.10. The DEWG has met four times this year and has engaged in wide-ranging discussions regarding both the problems facing DE schemes and possible solutions. The group's input has been very valuable to us in developing the analysis and

proposals set out in this paper. It should be stressed however that this consultation document represents the views of Ofgem and BERR, rather than of the DEWG as a whole.

### **DE Scheme Visits / Case Studies**

1.11. In addition to seeking input from industry stakeholders via the DEWG, Ofgem and BERR have also carried out a number of site visits to existing DE schemes, with a view to understanding better the nature of these projects and the issues they face. To date, we have met with representatives from the following organisations involved in the running of DE schemes:

- Ineos Chlor
- Mackie's
- Slough Heat and Power
- Lancaster City Council
- Aberdeen City Council
- Ashton Hayes
- Pimlico District Heating
- Gigha Renewable Energy
- FontEnergy
- Utilicom, and
- Woking Borough Council.

1.12. All of these visits and meetings have been highly informative, and we are grateful to those involved for giving up their time to meet with us. Case studies of several of the schemes have been included in Appendix 10 of this document for illustrative purposes.

### **Drivers for the Uptake of Distributed Energy**

1.13. DE is attracting increasing attention, both commercially and politically. A key reason for this is the potential DE has to address environmental concerns and Government policy objectives related to reducing carbon emissions. Specifically, DE can yield benefits due to:

- the lower level of electricity losses that occur when generation plant is situated close to demand sites<sup>5</sup>. These reduced losses directly translate into lower

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<sup>5</sup> In relation to the local use of the electricity it is worth making the distinction between physical and commercial flows. When DE is connected to the grid the laws of physics determine where that electricity flows and is subsequently consumed. In practice, consumers close to the DE plant are likely to consume the electricity it produces irrespective of the commercial arrangements that have been established by the developer to construct the plant - be they with local or national customers. However, the implications of an increased amount of

generation requirements (and consequently lower carbon emissions). They can also help to avoid the need for expensive investment in large central energy networks that have their own carbon and environmental footprint

- use of renewable energy. While the majority of DE schemes are currently gas-fired CHP, DE schemes can also be fuelled by low-carbon renewable energy sources such as wind, solar, or biomass - producing significant carbon savings
- improved thermal efficiency. Even where DE is based on gas or other fossil fuels, CHP technologies are much more energy efficient as they use the heat produced through electricity generation to heat and cool homes and other buildings. CHP schemes can achieve thermal efficiencies of up to 90% through this means, a significant improvement on electricity-only generation plant. In addition, supply of low carbon heat to consumers from CHP or other sources through district heating could play a key role in reducing emissions from existing communities
- Energy Services Companies (ESCOs) – which tend to operate many community DE schemes - can deliver energy supply solutions (hot water and electricity) alongside energy efficiency improvements and advice to householders, and
- there is some evidence that situating generation close to demand may also give consumers a greater awareness of their energy consumption, and thereby induce behavioural changes that further contribute to reducing carbon emissions.

1.14. In addition to environmental benefits, DE may also help to reduce dependence on imported fuel, through both increased fuel efficiency and further diversification of the UK's energy mix. DE can potentially also play a role in addressing fuel poverty issues at a local level - for example by providing low cost heating to social housing via community-based CHP schemes, as currently happens in Aberdeen.

### **Planning and Local Government Requirements**

1.15. Developments in the housing and planning system, which are motivated in large part by the environmental concerns outlined above, are likely to increase the demand for and uptake of DE. Most notably, the Government's zero-carbon homes policy - as stated in the *Building a Greener Future Policy Statement*<sup>6</sup> - sets out that all new homes in England should be zero-carbon from 2016. The definition of zero carbon set out in the policy statement allows for development-wide solutions and connections to local DE systems to count towards the zero carbon homes standard. Final conclusions have not yet been reached on the extent to which zero-carbon can be achieved using off-site generation, if at all.

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intermittent generation sources on the system is likely to increase the ancillary service costs (and by consequence the amount of carbon emitted) related to balancing system demand.

<sup>6</sup> <http://www.communities.gov.uk/publications/planningandbuilding/building-a-greener>

1.16. The final definition of zero carbon for homes will set the context by which this policy will bring forward investment in DE<sup>7</sup>. This will be further enhanced by the outcomes of Government thinking on improving sustainability in new non-domestic buildings<sup>8</sup>. We recognise that moves towards zero-carbon development may bring new players into the energy market. It is therefore important that the costs and complexities of participation are not prohibitive.

1.17. Many local planning authorities have already taken active steps to encourage local energy schemes via planning rules. Planning authorities can set targets for the use of on-site renewables in new developments in line with the Planning Policy Statement on Renewable Energy (PPS 22) - the so called 'Merton Rule'. The new Planning Policy Statement on Climate Change confirms what is expected from both regional and local planning on tackling climate change. This will require all planning authorities to set target percentages for the use of distributed, renewable or low-carbon energy in new developments<sup>9</sup>.

1.18. The Mayor of London's Climate Change Action Plan<sup>10</sup> sets a target for London of a 60% reduction for CO<sub>2</sub> levels compared to 1990 levels by 2025. The key proposal for achieving this is to move away from reliance on the national electricity grid and towards decentralised (distributed) energy, including CHP networks, energy from waste, and on-site renewable energy. The aim, reinforced by the Further Alterations to the London Plan<sup>11</sup> and the forthcoming Climate Change and Energy Strategy, is for more than one quarter of London's electricity supply to come from distributed systems by 2025, and more than half by 2050. The Mayor has established the London Climate Change Agency (LCCA) to implement high impact CO<sub>2</sub> reduction projects, with a focus on DE.

1.19. Additionally, the Olympic Delivery Authority (ODA) is proposing that the energy supplied to the Olympic Park and Village for the 2012 games in London will be

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<sup>7</sup> The Code for Sustainable Homes Technical Guidance ([http://www.planningportal.gov.uk/uploads/code\\_for\\_sustainable\\_homes\\_techguide.pdf](http://www.planningportal.gov.uk/uploads/code_for_sustainable_homes_techguide.pdf)) and the Regulations for Zero Carbon Homes Stamp Duty Relief (<http://www.opsi.gov.uk/SI/si2007/draft/20078879.htm>) both currently set out definitions of zero-carbon. These existing definitions are tight and focus on on-site or direct connection to zero-carbon sources of energy. They offer an opportunity for learning about application, but will not necessarily form the basis of the 2016 definition. The final 2016 definition is still to be consulted on.

<sup>8</sup> The Planning White Paper (<http://www.communities.gov.uk/publications/planningandbuilding/planningsustainablefuture>) stated that Government would explore the potential for all new non-domestic buildings to achieve substantial reductions in carbon emissions over the next decade and for many to achieve zero carbon on non-process related emissions and further details will be forthcoming shortly.

<sup>9</sup> <http://www.communities.gov.uk/publications/planningandbuilding/ppscclimatechange>

<sup>10</sup> <http://www.london.gov.uk/mayor/environment/climate-change/ccap/index.jsp>

<sup>11</sup> <http://www.london.gov.uk/mayor/planning/strategy.jsp>

supplied through a gas-fired combined cooling heat and power (CCHP) system. The heat network within the Olympic park will be shared with the Stratford City development, and after the Games, this network may be extended to incorporate other areas. This CCHP scheme will allow for a further reduction in carbon emissions of 20-25% over the current buildings regulations and industry standards.

1.20. Given the size of its population, the Mayor's targets for the expansion in DE in London alone will, if met, represent a significant shift in the UK's generation mix.

### **Price of Carbon**

1.21. The market price for carbon could be a critical factor in the uptake of DE schemes. While DE technologies can offer substantial carbon savings, the benefits of these savings will not be fully realised unless there is a robust price that reflects the costs to society from carbon emissions. The EU Emissions Trading Scheme (ETS) sets a carbon price currently for those sectors covered by the scheme. While most distributed generators fall below the size limit for inclusion within the ETS, DE will nonetheless benefit through the impact that the scheme has on the market price for electricity.

1.22. In phase two of the EU ETS scheme, good quality CHP is also incentivised through the New Entrant policy in recognition of its potential environmental benefits. Some ETS allowances are set aside specifically for new good quality CHP plants. In addition these plants will receive more allowances, relative to their size, than equivalent boilers and generators.

1.23. The Government stated in the Energy White Paper that it will be working with the UN to develop a global emissions agreement to extend beyond Phase II of the ETS, which comes to a close at the end of 2012. As this and other related processes move forward, it is likely that the full social value of carbon will increasingly be factored into energy generation costs - potentially making DE technologies more cost-effective relative to less efficient centralised generation.

### **Technological Development**

1.24. Advances in technology are certain to play an important role in the further development and uptake of DE. Over the last fifteen years we have seen considerable growth driven by renewable technologies and CHP. It is expected that this trend will continue although the rate of growth will depend essentially on the overall competitiveness and environmental performance of DE compared with larger generation technologies. While technological progress is by its nature very difficult to predict, the fact that some forms of DE are relatively immature technologies suggests that there is potentially significant scope for innovation. It is therefore particularly important to create an environment in which this new technology can come forward and be tested.

1.25. Growth in DE together with the potential for demand side management and electricity storage are expected to require distribution networks to be transformed

from being essentially passive to being more actively and intelligently controlled. This represents a radical change for distribution networks and will present challenges relating to the primary plant itself but more importantly the control and communications systems required to achieve safe and secure operation.

1.26. The developments outlined in this chapter suggest that the contribution of DE to the UK's energy mix is likely to increase in future. This raises the question of whether the current regulatory and market arrangements in electricity are appropriate, in terms of both facilitating the uptake of DE where this is cost-effective, and safeguarding protection for customers in a scenario where increasing numbers of them may be receiving their energy supply from localised sources.

1.27. Ofgem and the Government are committed to ensuring that new generation technologies are able to come on-stream to reduce carbon emissions in the most cost-effective manner, and that any unnecessary regulatory barriers to distributed electricity generation are removed. In doing so however, we need to ensure that competition in the GB electricity market remains vibrant and that distributed energy schemes can grow and thrive within a competitive framework. In our view, competition remains the most effective form of protection for customers, and is also a key driver for encouraging technological innovation to address environmental concerns.

## Other Relevant Policy Work Underway on DE

1.28. The work undertaken for this consultation is only one element within a wider context of policy processes that are underway related to distributed energy. This includes work that is being led by both Ofgem and BERR, as well as other government departments such as the Office of Climate Change (OCC). In the course of this consultation process, where issues are raised that we consider would be more appropriately dealt with in other fora, we will endeavour to reflect this in our analysis - and where necessary, engage with other policy teams to ensure that DE issues are being addressed.

1.29. While not an exhaustive list, we think that the following policy processes are particularly relevant to DE:

- the **Heat Project** currently being undertaken by the OCC, which is focused on assessing the carbon impact of heat generation (and cooling), and identifying policy mechanisms to reduce it. The Prime Minister announced that a Call for Evidence on Renewable Heat would be published in January 2008
- **Ofgem's electricity cash-out review**, which is considering how well the current arrangements meet objectives of transparency, cost-reflectivity, non-discrimination, and promoting competition in the electricity market
- current work underway on the **distribution and connection charging regime**, including the Distribution Charging Methodologies Forum (DCMF) and recently

introduced Distribution Network Operator (DNO) licence obligations with respect to new connections

- the **Transmission Arrangements for Distributed Generation (TADG)** working group, which explored issues of cost-reflectivity and access with respect to the treatment of DG within the transmission arrangements
- **Ofgem's work on microgeneration**, which is considering whether suppliers' export tariff offers are sufficiently accessible to consumers and are a fair reflection of the underlying value of microgeneration
- Government's drive towards **zero carbon for new developments**, and the Planning Policy Statement on Climate Change, as mentioned above
- the **Carbon Emission Reduction Target (CERT)** and **Supplier Obligation**, which may encourage suppliers to work with partners to fulfil their regulatory obligations by choosing distributed energy measures, where this offers cost-effective carbon emissions reductions, and
- Ofgem's proposed **review of industry code governance**, which should make it easier for small players and new entrants to propose and secure changes to the market rules and arrangements.

1.30. A more detailed discussion of these policy areas and their relationship with DE can be found in Appendix 6 of this document.

## Overview and Structure of the Document

1.31. In the remainder of this Consultation Document we set out 16 options for initial consideration to improve flexibility and remove any obstacles to DE within the market and regulatory arrangements. These options comprise a mix of short-term and longer-term measures, which are designed to:

- support community DE in the transition to mainstream. A number of options, such as the proposal to re-introduce an Exempt Supplier Services obligation within the supply licence, compensate for the seeming lack of support services required particularly by independent community DE schemes to operate within the market and regulatory framework. Once DE becomes more established we would expect the market to deliver these services
- allow new technologies and market arrangements to come forward on a time-limited basis, in order to encourage innovation and continue to expand the knowledge base around DE. For example, building on the Registered Power Zone (RPZ) incentive in the last Distribution Price Control Review, we invite DNOs and DE schemes to come forward with proposals for network trial projects that offer innovative technical and charging solutions for DE
- address the key barriers to entry in the market and licensing arrangements. We are conscious that some of the issues that have surfaced within the DE debate

are long standing issues that relate to determining the barriers to entry of small suppliers (and generators). We do not expect all these issues to be fully resolved within the timeframe that has been allotted to implementing measures (by end 2008), but nonetheless hope to make significant progress through our work in this area. Options raised in this context include allowing for the delegation of high-cost aspects of the Supply licence to third parties; considering the needs of small intermittent generators as part of the ongoing cash-out review; and appointing a DE representative to the Balancing and Settlement Code (BSC) panel. We also propose strengthening the requirement on DNOs to implement more cost-reflective charging for DE, which is likely to be of benefit to DE regardless of scale, and

- explore longer term issues that need to be addressed if DE is to become a larger component of the energy supply mix and part of the answer to reducing carbon emissions. For example, in this context we discuss the possibility of establishing a dedicated wholesale market for DE.

1.32. It should be noted that a number of these options have been developed based on the assumption that DE schemes will be set up and operated independently, as small-to-medium sized businesses or local authority-based projects. It is however possible that larger established players in the electricity market will become increasingly involved in DE in the future - either in their own right, or in partnership with local enterprises. If this occurs, many of the issues facing DE schemes are likely to be significantly mitigated, since large suppliers and generators already have the expertise necessary to engage with the market and regulatory arrangements, and are able to spread any risks and overheads associated with DE across a much wider portfolio.

1.33. Chapter 2 of this document deals with issues around exemptions from the requirement to hold supply and/or distribution licences. There has been much discussion at the DEWG about the need to raise the exemption limits to accommodate larger scale DE. Such a step raises significant concerns over competition, consumer protection, and potentially compatibility with EU law, and we are not sure whether these can be satisfactorily addressed. We are also conscious that if steps were taken to raise the exemption limits, the impetus for proceeding with other measures may be weakened, at least in the short term. We do however welcome further feedback on the merits of raising exemption limits, and also whether the options we have proposed within the licensed framework adequately address the issues faced by DE schemes.

1.34. Chapters 3 to 6 of the document discuss the issues faced under different settings by DE schemes who are not fully exempt from the current license arrangements, and the options for addressing these problems, as follows:

- in Chapter 3 we cover the problems faced by smaller generators that want to trade directly in the wholesale electricity markets
- Chapter 4 sets out the issues surrounding obtaining a fair value for exports when generators want to sell to a third party

- in Chapter 5 we address the issues of operating as an Exempt Supplier on the licensed distribution network, and
- Chapter 6 discusses issues in relation to operating as a licensed supplier.

It is worth noting that the options set out in each of these categories are not mutually exclusive, but rather are cumulative in most cases. For example, addressing issues around the wholesale market will not just benefit distributed generators that trade energy directly, but is also likely to result in benefits to the prices available to DE schemes that sell to a third party.

1.35. Finally, Chapter 7 of the document sets out the way forward for this workstream through the consultation period and beyond.

## 2. Background and Discussion of Exemption Limits

**Chapter Summary:** This chapter provides an overview of the 2001 Class Exemption Order under which operators of DE schemes may be exempted from the requirement to hold generation, distribution and/or supply licences. We discuss the issues associated with increasing the supply and distribution exemption limits to facilitate the development of larger DE schemes, and constraints on our approach at this time. We then set out alternative ways of accommodating such schemes within the licensing framework.

### Question box

**Question 1:** If the exemption limits for supply and distribution to domestic customers were to be raised, what measures would be required to ensure ongoing and effective protection of energy customers, and how would this be enforced or monitored?

**Question 2:** Should the existing per company maximum exemption limit be removed allowing one company to develop a number of different sites?

**Question 3:** We welcome evidence on the size of DE scheme that would be considered economic and efficient in different settings if exemption thresholds were not an issue. We also seek views on what the appropriate exemption limits should be across generation, supply and distribution.

**Question 4:** We welcome views on the 2001 Class Exemption Order, and areas where there could be more clarity in particular.

## Introduction

2.1. Licences are required for the generation, distribution and supply of electricity.<sup>12</sup> In some circumstances exemptions from the requirement to hold a licence are available from the Secretary of State.<sup>13</sup> The *Electricity (Class Exemptions from the Requirement for a Licence) Order 2001*<sup>14</sup> (the "Class Exemption Order") grants exemption from the requirement to hold a generation, distribution and/or supply licence to persons of various classes. In other cases the Secretary of State may grant individual exemptions. Provided they do not exceed the exemption thresholds, and comply with all relevant conditions, parties who qualify under the Class Exemption Order or an individual Exemption Order can generate, distribute or supply electricity without the need for any licence.

2.2. As discussed in Chapter 1, the majority of DE in the UK currently consists of on-site generation plant in industrial and commercial settings, often including a CHP

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<sup>12</sup> See section 4 of the Electricity Act 1989.

<sup>13</sup> See section 5 of the Electricity Act 1989.

<sup>14</sup> SI 2001/3270

installation. The structure of the Class Exemption Order means that the operators of such schemes are usually not licensed to generate, distribute or supply electricity. However, it is increasingly expected that DE will play an important part in our future energy mix, and that there will be an increase in the local supply of electricity to domestic customers in order to maximise fuel efficiency and reduce carbon emissions. The London Climate Change Agency, in particular, has estimated that it will require in excess of 1GW(e) of DE to meet the Mayor's target of up to 60% reduction in carbon emissions (on 1990 levels) by 2025. Such targets are likely to require the development of larger-scale district and city-wide DE schemes that fall outside of the scope of the existing Class Exemption Order on supply and/or distribution, and consequently require licensing.

2.3. This Chapter sets out the circumstances in which DE schemes do and do not require licences and outlines the debate around raising the exemption thresholds in order to facilitate greater take up of DE schemes.

### **History and Operation of the Class Exemption Order**

2.4. The Class Exemption Order has developed over time to minimise the burden of regulation on schemes which operate on a limited scale in the generation, supply and distribution of electricity. It was last amended in 2001, *inter alia* to cover:

- smaller generators simply wishing to sell their output to local suppliers
- industrial suppliers with generation plant at one site wishing to use the licensed distribution network to supply excess electricity for equivalent consumption at another of their own sites
- generation or distribution operators based on industrial estates, wishing to operate their own distribution network providing electricity to other parties on the same estate, and
- local authorities that operate CHP plants at one location, for instance, a swimming pool, wishing to supply without a licence other premises such as libraries, hospitals or community housing.

2.5. Environmental benefit was a key driver for change in 2001, and it was envisaged that the 2001 Class Exemption Order would encourage more CHP and more use of renewable energy sources. It was recognised that exemptions might have negative implications for domestic consumers on private networks who would not have access to the competitive retail market, and for this reason certain conditions were attached to some categories of exemptions to prevent exploitation. These are:

- certain suppliers must not supply electricity to domestic customers at a price which exceeds a set maximum level, to be established by means of a direction given by Ofgem (note that such a direction has not been issued to date)

- some small exempted suppliers are required to provide a pre-contract notice to customers alerting them to the fact of the exempt status of the supplier and to some of the consequences.

While these conditions provide some backstop protection for consumers, it must be recognised that they are minimal compared with the requirements contained within the Supply Licence<sup>15</sup>.

2.6. The 2001 Class Exemption Order is applied on a class basis, and it is for scheme operators themselves to decide if they fall within the exempted class or should apply for a licence. The way the Class Exemption Order has developed over time can make it difficult to interpret, particularly as schemes seeking to make use of exemptions have become more complex, often including a range of sites and customers. Whilst general principles on the interpretation of this order and its application to DE schemes are open to interpretation, our best analysis is set out below. Anyone else considering generating, distributing and/or supplying electricity without a licence should seek their own legal advice on the interpretation of the Order.

2.7. Under the terms of the 2001 Class Exemption Order, our best understanding is that operators of community-based DE schemes need not seek a licence, *inter alia*, as long as:

- **for generation:** the plant does not provide more than 10 MW (or 50 MW where the plant has a net declared capacity of less than 100 MW). Power supplied to and used by a single consumer (or certain qualifying groups of consumers) on the same site as the plant may be disregarded in calculating the 50 MW figure. There is an additional exemption for generators no more than 100 MW capacity which were connected to the total system on 30th September, 2000
- **for distribution:** distribution of electricity for supply to domestic customers does not exceed 2.5 MW<sup>16</sup>. Distribution for supply to domestic customers on-site does not exceed 1MW. There are certain other extensions for non-domestic and offshore distribution, and
- **for supply:** supply of electricity may not exceed 5 MW in aggregate of which no more than 2.5 MW can be supplied to domestic customers. In addition there are some further exemptions available for supply to one customer (or small groups of several customers) on the same site<sup>17</sup>.

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<sup>15</sup> Ofgem's Supply Licence Review, which came into force on 1 August this year, succeeded in halving the number of licence conditions and simplifying the remaining rules to make it easier for new entrants to come into the market. Nonetheless, the new licence runs to around 40 pages – much of it focused on consumer protection issues.

<sup>16</sup> As a rough rule of thumb, 2.5MW of supply, distribution or generation equates to around 2,500 residential properties, while 1MW equates to around 1000 properties.

<sup>17</sup> Specifically, this includes where customers are supplied on-site or via private wires to secondary (non-adjacent) sites with a total of up to 100 MW of electricity and where the total amount of electricity so supplied to domestic customers does not exceed 1 MW.

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In some cases the supply and distribution exemption limits apply on a corporate basis, so that if a DE scheme operator wished to develop a number of separate schemes in different locations the sum of the domestic load across all the schemes would still need to be below the relevant limits, and the scheme would need to otherwise comply with the provisions of the relevant exemptions<sup>18</sup>.

2.8. We also note that there are potential ambiguities in the interpretation of the exemptions provided by class A of schedule 4 to the Class Exemptions Order and the three categories of exemptions provided by paragraph 2 class C of schedule 4 to the Order. Regarding the former, the exemption provided by class A of schedule 4 is available only where not more than 2.5 megawatts of electricity is supplied to domestic consumers. However where the supply is to a single large consumer which in turn provides electricity to a number of domestic and non-domestic end users it is potentially unclear how much of this would qualify as supply to domestic consumers for the purposes of the 2.5 MW limit. Regarding the latter, the exemption provided by paragraph 2(c) of class C is (unlike those in paragraphs (a) and (b)) subject to a 100 MW limit. There is therefore a potential incentive for an operator to claim that the supply in question is actually to a single large consumer rather than to a larger group of end users, in order to escape the 100 MW limit.

2.9. Some parties have argued that the need for larger schemes to be licensed is an obstacle to the take up of DE. In the DG Review and the Energy White Paper we recognised that licensed parties have to comply with a range of licence conditions. These ensure, amongst other things, the safe distribution and supply of electricity, and provide consumer choice and protection (particularly for vulnerable customers) and third party access to transmission and distribution infrastructure. Licences also require the licensee to be a party to relevant industry codes, which are technically complex and therefore require significant expert resource to understand and comply with. Many smaller distributed generators do not have access to this expertise.

2.10. The policy as set out in the Energy White Paper is that the licensed framework is the preferred mechanism for delivering the incentives desired for DE as it safeguards consumer choice and protection and encourages competition. As such our approach at the outset of this workstream was to focus on facilitating development of DE schemes **within the licensed framework**, and the options set out in this consultation are in keeping with that approach.

2.11. However, at the DE working group there have been calls for increases to the licence exemption limits to allow more and larger schemes to operate outside the licensed framework. Key proponents argue that DE is by its very nature different, and does not fit into the wider arrangements. They would argue that the separation of competitive activities such as generation from the ownership of monopoly networks, which is a key principle of the licensing system, conflicts with the benefits of local generation and consumption. However, as noted below, for any particular

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<sup>18</sup> For example, it is our understanding that a subsidiary set up by a licensee could not be exempt.

project the physical flows of electricity will not be determined by the commercial arrangements. The key objective throughout this document is to ensure that the regulatory environment is fit for purpose for DE.

2.12. Arguments for raising the exemption limits have also been supported to some extent by the large suppliers, who state that the economics of DE and the uncertainty about its role in the future energy mix do not yet make it an attractive investment for them, so raising exemptions in a limited way (especially the aggregate 2.5MW limit on serving domestic customers which could bite particularly on large suppliers with several DE schemes) may be an appropriate way forward.

2.13. In the remainder of this chapter we will set out the discussion around raising exemption limits and the issues that arise. We will also discuss the wider context and the constraints placed on our approach by a case currently before the European Court of Justice (ECJ).

### **The European Context**

2.14. Directive 2003/54 EC of the European Parliament concerning common rules for the internal market in electricity (the IMED) requires that Member States take appropriate measures to protect final customers. In particular, Article 3(5) of the IMED states that:

“Member States shall ensure that the eligible customer is in fact able to switch to a new supplier.” An eligible customer is defined in the IMED as including all customers.

2.15. Article 20 of the IMED requires that Member States implement a system of third party access to the transmission and distribution systems on a transparent and non-discriminatory basis – although the system operator may refuse access where it “lacks the necessary capacity.”

2.16. Late last year a German court referred a case (the case is referred to below as “Citiworks”) to the ECJ for a preliminary ruling. The case concerns the compatibility of an exemption under German law from third party access requirements with the IMED. The case raises questions about the role and nature of exemptions in electricity licensing and whilst focussed on distribution is also potentially relevant to supply and generation.

2.17. The Advocate General gave an opinion on this case<sup>19</sup> on 13 December 2007, which we are currently considering. However, it must be noted that this is only a pointer to the likely outcome and the ECJ will not rule until around Easter. It is likely

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<sup>19</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62006C0439:EN:HTML>

that the ECJ's ruling will clarify the extent to which national governments may permit exemptions from the requirements of the 2003 Electricity Directive as regards consumer choice of supplier and third party access to networks.

2.18. In the absence of a decision from the ECJ on the case we are not able to consult definitively on clarification of the 2001 Class Exemption Order, or on further widening of the exemptions regime for DE, at this time. We set out a number of questions where we would welcome views, but must note that the discussion and any responses are subject to the substantial caveat that the ECJ's decision may prevent any widening of exemptions, and may in fact require us to revisit existing policy.

### **Benefits and Costs of Raising Exemption Limits**

2.19. The claim that the requirement to be licensed results in an additional and unnecessary layer of cost and risk, with implications for the commercial viability of DE schemes, has resulted in a request to raise both the supply and distribution exemption limits for domestic customers to 5MW.

2.20. Being exempt enables the operator of a DE scheme to avoid the direct costs and risks of participating in the competitive market. When operating as an exempt supplier/distributor the DE scheme interacts with the market through a licensed supplier which will provide the additional electricity that it needs if demand exceeds generation output or if there is a generation failure. This fixed priced "top-up and back-up" service means that the operator of a DE scheme does not face the direct risk of charges when consumption does not equal generation output<sup>20</sup>. The exempt DE scheme also benefits from avoiding the direct costs of licensing, since third-party licensed suppliers that provide the top-up and back-up tariffs can spread the overhead of participation in the market and regulatory arrangements (discussed further in Chapter 5) over their entire customer base, leaving the operator of a DE scheme exposed to only a fraction of the costs that they would face if interfacing directly with the industry arrangements. Significantly, an exempt operator also has certainty over revenues as customers can be tied to purchasing from the scheme, especially if the scheme operates its own licence exempt distribution network which is exempt from the requirement to grant access to other suppliers. As noted above, raising the distribution exemption limits would also mean that larger schemes would be more likely to be able to generate, supply and distribute as one corporate entity.

2.21. Making changes to allow more DE schemes to be exempt from the supply and/or distribution licence would bring benefits to the DE developer by shielding appropriate categories of DE schemes from complex arrangements and competition, and would arguably also be comparatively simple and quick to implement. Such changes would facilitate the development of greater numbers of DE schemes and the chance to better understand the role DE will play in future – thus giving better

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<sup>20</sup> This is termed being out of balance. Refer further to Appendix 5 which sets out an overview of the Balancing and Settlement Code.

evidence of the relative cost and benefits of DE, which would in turn allow a more considered assessment of the case for further change.

2.22. However, we are concerned that whilst the 2001 Class Exemption Order gives recognition to operators in a community setting wishing to supply to domestic customers, it was not primarily designed with such schemes in mind, or to accommodate widespread take-up of DE. As such a number of significant issues are raised:

- customers need ongoing protection. The existing regulatory framework, with consumers able to switch supplier easily, exerts downward pressure on prices and means suppliers also have to compete on customer service and innovative tariffs to ensure they maintain market share. The Supply Licence also provides energy customers (particularly vulnerable customers) with important protections over and above that provided by customers' ability to choose their suppliers, and the regulator is able to take enforcement actions against energy businesses that violate their licence conditions<sup>21</sup>. We therefore have reservations about any option that results in a significant number of customers falling outside of the licensed framework. While there may be scope for (and there has already been some work on) a code of practice to provide protection for customers of exempt schemes, it is unclear how this would be enforced or monitored. There is no obligation on exempt distributors to provide terms of access to third party suppliers. This limits the ability of customers to switch suppliers; a key plank of our consumer protection policy and that of the European Union, and leaves them exposed to risks such as being tied into long-term deals that may not offer good service or value for money. In addition, it has become clear during discussions with developers and industry practitioners that the interests of the various parties vary significantly. It is likely that many future DE schemes will be established to comply with planning and building requirements. We are concerned that the developer's interest is in ensuring that the requirements are met on day one, but that the level of accountability thereafter is less clear. The development of the Energy Service Company (ESCO) model<sup>22</sup>, which could play a role in ensuring that customers are provided with a continual level of expected service, is at an early stage. It is as yet unclear how the risks and costs of maintaining plant and providing service to customers will be managed, particularly outside a local authority setting, although there are successful models of ESCOs such as Woking

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<sup>21</sup> Ofgem consulted extensively on consumer protection issues as part of the recent Supply Licence Review. While the Review significantly reduced the size of the licence and the number of obligations it contains, Ofgem concluded, with the support of consumer groups and most other stakeholders, that certain key customer protection measures should remain.

<sup>22</sup> An Energy Services Company (ESCO) is a company that provides a customer with energy supply solutions (such as heating and lighting) rather than simply gas and electricity. Under this model, an ESCo would take over the ongoing management of all aspects of a DE scheme once it had been installed by the developer. Such companies already exist in the market although to date their primary focus has been on energy efficiency.

- there is no upper limit on the scale of the DE scheme that can be accommodated within the licensed arrangements whereas there is always going to be a size constraint within the terms of the Exemption Order. At present we do not have sufficient evidence upon which to base a new limit, or a real sense of the size of future DE schemes. We note the call for a 5MW limit, but anticipate that this may not be sufficient to accommodate the aspirations of some local authorities or developers. Therefore we may see calls for further even higher limits in future. This is not desirable, given the scale of the challenges ahead, notably the drive to zero-carbon homes. Investors, local authorities and operators in the nascent DE market are seeking longer-term regulatory certainty
- raising the exemption limits merely moves the “problem” to a different level. The proposal to lift the existing supply and distribution limits for on-site supply to domestic customers from 1MW to 5MW<sup>23</sup> only moves the problem above the typical size of site that we understand is being driven by current planning policy proposals. Schemes above that threshold will still be relatively small in electricity terms, and will continue to face cost and complexity issues, if these are not resolved, and
- raising the exemption limits does not easily square with the participation of licensed suppliers in DE projects. The rationale for raising exemption limits – that being licensed imposes unnecessary costs on small DE schemes - may not apply to larger (already licensed suppliers) who can, by definition, bear the cost and risk of participation in the market. This suggests that the aggregate exemption limits should stay the same. However, this may deny DE schemes access to the capital and expertise that licensed suppliers can bring.

2.23. In circumstances where DE schemes are being developed in a community setting in order to achieve climate change and efficiency goals, we believe that larger schemes can be accommodated within the current licensing regime, in particular schemes may:

- **trade the electricity in the wholesale market or sell 100% to a third party supplier.** It is not necessary to have commercial supply arrangements between the generator and a local customer in place for the environmental and economic benefits of DE projects to be realised. Electricity moves across the network according to the laws of physics, and it is therefore makes little difference in real terms if the electricity is traded in the wholesale market or sold to a third party supplier, rather than directly to customers. However, we accept that DE schemes that operate in this way will miss the opportunity of making a supply margin on the sale of electricity
  - operate as an **exempt supplier but on the licensed distribution network across a number of sites.** For small generators within the relevant thresholds, this immediately increases the amount of domestic load that can be served to
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<sup>23</sup> This is generally considered to equate to, at most, 5,000 customers.

2.5MW under the terms of the existing Class Exemption Order. This would accommodate a development of around 2,500 properties, and

- **become a licensed supplier.** This gives unlimited scope to the size of DE scheme that can be constructed, provided it is operating over the licensed distribution network.

2.24. We accept that in all four commercial arrangements identified above there are issues that need to be addressed to remove any obstacles in the current arrangements and increase their flexibility to accommodate a range of different types of DE. In the following Chapters we consider each of these commercial arrangements in turn and propose options for addressing the issues that they raise for DE.

### 3. Wholesale Market Trading

**Chapter Summary:** Larger scale DE generators can participate in the wholesale markets to sell their power as an alternative to participating in the supply market (discussed in Chapters 5 and 6). In this chapter, we set out the risks associated with this approach and how they might be reduced for DE generators. Two options for reform are considered that would reduce these risks and encourage DE operators to come forward with their own proposals to address the issues they are facing.

#### Question box

**Question 4:** Do you consider it appropriate to use the provisions of the BSC to increase the representation of DE schemes in BSC governance processes?

**Question 5:** Do you consider that there is a case for allocating funding for DE representation in BSC governance? If so, do you have views on where the funding should come from?

**Question 6:** Have we considered all the options to address the risk DE schemes are exposed to if trading in the wholesale markets? We welcome any other proposals to accommodate the needs of DE schemes selling their electricity in this way.

3.1. Larger scale generators that exceed the exemption limits for supply and distribution to domestic customers can, instead, participate in one of the wholesale markets to sell blocks of power such as base or peak loads during the summer or winter. These trades can be with another generator, supplier, trader or via one of the power exchanges such as UKPX. The generator needs to be a signatory to the BSC and other industry codes to fulfil their requirements under the terms of any trade. Shortfalls in production are covered by other trades or otherwise generators are exposed to imbalance cash out prices. These imbalance prices are designed to reflect the costs that the system operator incurs in balancing the system every half hour.

3.2. The risks involved are such that this option would not necessarily be recommended for generators smaller than say 10MW. Small single plant such as that typically associated with Distributed Energy schemes would be exposed to significant risks if trading in the wholesale markets. In particular:

- prices in the wholesale markets can, and have, varied significantly over time;
- the cost of exposure to the balancing mechanism (BM) is significant given the differential between system buy and system sell prices for imbalance. This cost would normally be limited given that exposure to the BM typically amounts to a few percent of output; but
- the risk of exposure to imbalance prices is high for single plant generators that can not always guarantee output and are subject to the possibility of technical failure.

3.3. There are currently three main ways for smaller generators to reduce their exposure to imbalance prices:

- accurately predict the level of output on a half hour basis, with trading to fine tune contractual positions;
- contract conservatively and ensure output remains below this level ensuring that only a small proportion of output is exposed to the Balancing Mechanism; and
- contract out imbalance risk to another party such as a consolidator (discussed in the next Chapter "Sell to a third party").

3.4. Although we do not necessarily advocate this trading arrangement for smaller DE, addressing the underlying risk related issues in respect of small non-firm output may result in making this option more accessible or alternatively, improve the prices offered by market intermediaries (covered in the next Chapter "Sell to a third party").

### Options for reform

3.5. To accommodate the needs of small generators within the wholesale markets we propose to:

- consider the needs of small intermittent generators as part of the ongoing cash-out review;
- consider appointing a DE representative to the BSC modifications panel.

3.6. Each is discussed in further detail below.

#### **Option 1: consider the needs of small intermittent generators as part of the ongoing cash-out review**

3.7. Initial findings from Ofgem's cash-out review were presented to an industry forum on 26 September 2007<sup>24</sup>, in which Ofgem put forward the view that the large and variable spread between system buy and sell prices, the "pollution" of the cash-out price by actions taken for system balancing reasons, and incomplete recovery of the costs of reserve in cash-out prices were potentially leading to distorted cash-out price signals. The first two issues may particularly disadvantage smaller and/or intermittent players in the market, since they typically have greater forecast errors than larger players. (On the other hand, incomplete recovery of reserve costs could

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<sup>24</sup><http://www.ofgem.gov.uk/Markets/WhlMkts/CompandEff/CashoutRev/Documents1/industry%20meeting%2026-09-07%20presentation%20FINAL.pdf>

mean that smaller players are not making a proportionate contribution to the costs of reserve.)

3.8. Recent modelling undertaken by Ofgem's cash-out team<sup>25</sup> estimates that small independent suppliers are on average £0.05/MWh worse off due to system pollution and a further £0.09/MWh worse off as a result of dual pricing (relative to a single price). The equivalent figures for an intermittent renewable wind generator are £0.14/MWh and £0.50/MWh respectively<sup>26</sup>. These figures relate purely to direct cash-out exposure; there could also be knock-on impacts on contract premia in the market that amplify these effects.

3.9. Several options were discussed at Ofgem's industry presentation for addressing these concerns, including moving to a smaller symmetric spread around a pure energy price, and implementing a "balancing market".

3.10. The cash-out rules sit within the Balancing and Settlement Code (BSC), and therefore changes to the rules can only be proposed by a limited group of persons (primarily code signatories). Since the cash-out review was launched, three modifications have been raised with the primary intention of addressing issues around system pollution in the cash-out price. Ofgem is currently carrying out impact assessments on two of these modifications while the third is in an early stage of development. An Issues Group has also recently been established by the BSC panel to consider cash-out in greater detail, with a view to arriving at an enduring long-term solution.

3.11. Although most DE schemes do not face cash-out prices directly, we believe that improvements to the cash-out regime could potentially have a significant impact on DE via the prices offered for DE output by third parties. We propose to continue our cash out review mindful of the issues being faced by small intermittent generators, and would encourage DE schemes to engage with the review and the BSC Issues Group as it moves forward.

### **Option 2: consider appointing a DE representative to the BSC modifications panel**

3.12. As many DE schemes are currently operating on a licence exempt basis, they are not signatories to the BSC and other industry codes and do not have the power to propose code modifications. This could mean that if there are specific code requirements that have an adverse impact on DE and deter these schemes from

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<sup>25</sup> A detailed description of the cash-out model and its underlying assumptions (along with further results from the modelling) can be found in Ofgem's impact assessment on BSC modification proposals P211 and P212, which is due to be published shortly.

<sup>26</sup> Arguably a gas-fired CHP plant is likely to have lower forecast error than a wind generator, and therefore this might represent the most extreme case for DE as a group.

becoming licensed, there is insufficient representation in the code governance process for bringing forward change proposals.

3.13. Under the terms of the BSC there are currently two routes whereby this governance issue could be addressed. The first, in Section B2.6.1 of the BSC, allows the Panel Chairman to appoint a Panel Member to represent parties who are supplying or generating electricity under a licence exemption but have interests in respect of the code. The second, in Section F2.1.1(c), allows the Authority to designate representatives of interested third parties as having the power to raise code modification proposals.

3.14. In addition, positions on the BSC panel, occupied by industry participants are non-salaried. Providing dedicated resource to participate for DE schemes, that tend to be smaller in size, may represent a disproportionate cost.

## 4. Selling to Third Parties

**Chapter summary:** Generators of any size have the option of selling all their output to a third party such as a supplier, consolidator or a financing party typically on a long term power purchase agreement. However there are concerns that insufficient competition for the output is resulting in this generation being undervalued in the market. In this Chapter we propose a number of initial options for addressing these issues.

### Question Box

**Question 7:** Do you consider that third party purchasers undervalue exports from DE schemes? We would welcome information from both generators and purchasers on prices that have been agreed for electricity from small generators. If necessary, the information can be provided in confidence.

**Question 8:** We would welcome views on whether there is a lack of competition in the market for small generator output?

**Question 9:** Have we considered all the reasons for the lack of development of consolidation services in the market? We welcome views on whether further changes to the market rules may be warranted to remove any barriers to entry that continue to exist for consolidators.

**Question 10:** Do you think there is a case for a specialist Energy Trader? What are your views on the scope and functions the specialist agency could perform as an interface between DE generators and the current trading arrangements?

**Question 11:** An Energy Trader option could be implemented by allowing the market to deliver, placing an obligation on suppliers or by tendering for the role. We welcome views on these suggested routes and any others we have not considered in this consultation document.

**Question 12:** Do you have any views on how the understanding and forecasting capability for DE technology could be improved?

**Question 13:** What are your views on the implementation of a dedicated wholesale market for DE?

**Question 14:** Have we considered all the options to address the lack of competition in the market for small generator output?

## Introduction

4.1. Generators of any size have the option of selling all their output to a third party such as a supplier, consolidator or a financing party<sup>27</sup> typically on a long term Power Purchase Agreement (PPA). However concerns have been raised by the DEWG that the value of output from small scale generators is undervalued in the market.

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27 Who in turn would most probably sell-on the power to a supplier or consolidator.

4.2. In discussion at the DEWG we have explored why generators should not expect the retail value of the electricity when selling it wholesale to third parties. The value of electricity does vary depending on where it is produced and who consumes it (Figure 1). The electricity is worth the most when production is used to offset a specific customer's own use, and worth the least when it is sold to a third party supplier. This variation is due to the additional costs of electricity supply that are incurred as an inevitable consequence of producing and distributing electricity and result regardless of whether a supplier is licensed or not, as follows:

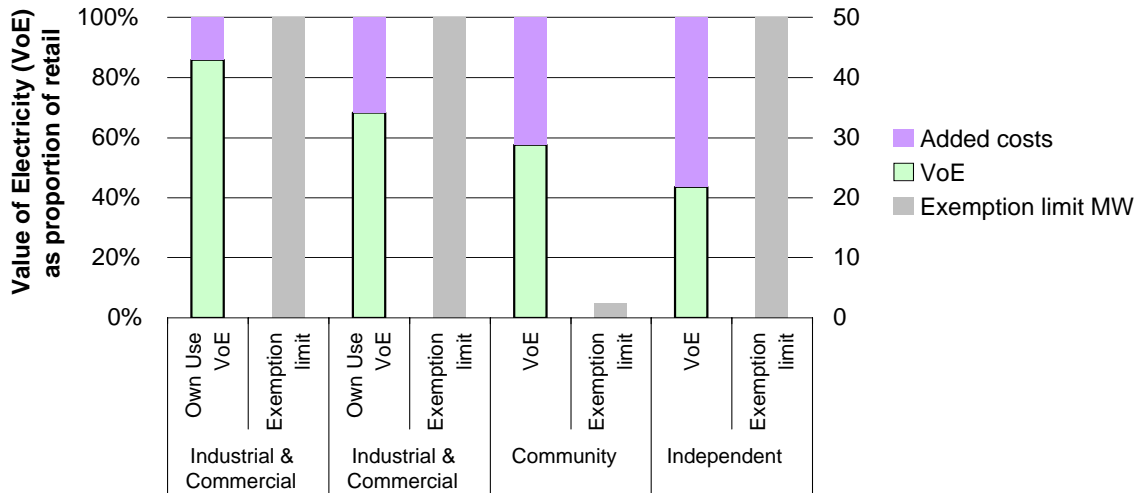
- Industrial & Commercial, own use: the business case for own-use generation consumed on-site rests on the amount of import consumption that can be avoided at the prevailing retail tariff. This value is slightly discounted due to the costs of connection to the local network<sup>28</sup>
- Industrial & Commercial, own use multiple-site: the retail value realised in the first setting above is further discounted if the electricity has to be "wheeled" to one or more secondary sites in which case DUoS and metering charges<sup>29</sup> have to be covered
- Community schemes: the value is further diminished if the electricity is not for own-use but for supply to third parties. In this instance the scheme incurs costs in providing a contact centre for customers, billing, settlement, demand balancing and metering. In normal market conditions these schemes would expect to realise a margin for undertaking the supply function and would therefore realise more for the electricity than the final setting described below, and
- Independent or Merchant plant: the least value is realised if 100% of the electricity is sold to a third party supplier as is typical in the construction of merchant plant. In this instance all the added costs (that reduced the value in the settings described above) are incurred by a third party supplier selling the electricity on to customers.

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<sup>28</sup> We would also argue that the value of electricity is discounted by the higher import retail tariff that would be incurred if the new generation risk and lower import volumes are taken into consideration. However, all the evidence received during our recent discussions suggests that suppliers do not take this into consideration.

<sup>29</sup> A substantial part of distribution charges (capacity charges aside) can be avoided if private wires are constructed. In this situation distribution charges are largely substituted for the capitalised cost of constructing private wires between the generation and demand sites.

**Figure 1: Illustration of how the value of electricity (VoE) declines between settings**



**Note:** Figures are for discussion purposes only and are based on the domestic retail tariff and other known information about connection, use of system and supply costs.

**Source:** Ofgem

4.3. Note that the exemption limits drop from 50MW<sup>30</sup> to 2.5MW<sup>31</sup> when the setting changes from own-use to the exempt supply of domestic customers. This reflects the added level of protection required for domestic customers as opposed to large Industrial and Commercial customers.

4.4. We note that there may still be an issue with the price being offered in the market for the wholesale electricity, and whilst we have explored this to some extent, more needs to be done. The debate at the DEWG has largely focussed on raising the exemption limits and alternative licensing arrangements, and we have sought to reflect that discussion in this Consultation Document. However, given the possibility of constraints in that area we anticipate that the issues around selling small scale output could, in future, become a more significant part of the debate over DE.

4.5. In the rest of this Chapter we set out our view of this market and a number of initial options for addressing the issues that arise. Further work will be required if the focus of the debate on DE shifts to the export price offered to DE schemes.

<sup>30</sup> Where the declared net capacity of the generating station is less than 100MW

<sup>31</sup> Where total supply is no more than 5MW

### The value of distributed electricity

4.6. We recognise that valuing DE electricity is a complex process of forecasting generation output and wholesale market prices and, as such, we do not have a view on what is an appropriate value for the electricity from these generators. However, we note that it will depend on a number of factors, including:

- **the predictability of the generation:** this is largely dependent on the reliability of the plant and the predictability of its output profile. For example, wind generation is less predictable other than in the very short term, while CHP used in district heating, especially when supported by heat storage, is much more manageable, which should increase its value in the market
- **supplier transaction costs and expected margin:** it is relatively expensive for suppliers and consolidators to compete in a tender for the export of small amounts of electricity. These costs have to be spread over the expected exported units. These third parties will also expect to take a margin on the transaction further reducing the value of the export electricity
- **the embedded benefits** which include avoided network losses, avoided Transmission Network Use of System (TNUoS) Charges and avoided Balancing Services Use of System (BSUoS) Charges. The size of the embedded benefits can vary depending on where the DE scheme is located
- for renewable energy schemes any **carbon related benefits** realised via Renewable Obligation Certificates (ROCs) and Levy Exemption Certificates (LECs), and
- the value could also be influenced by the **size of the purchaser's existing generation portfolio**. If the generation amounts to a small part of an existing portfolio the generator may well get a different price than if it amounts to a relative large purchase.

4.7. The Office for Climate Change has developed a range of estimated values that attempts to quantify the final value of distributed generation output under different settings. These estimates are included in Appendix 4.

4.8. While we do not have a view on the appropriate value of this electricity we are concerned if it can be shown that the market for this electricity is not competitive. For the purposes of this Consultation Document we have not conducted an in-depth review of the market. However we are aware that:

- the vertically integrated nature of the industry means that many of the major suppliers are virtually self sufficient in terms of the amount of generation they require. And when they do contract with third parties it tends to be with fairly substantial plant
- Suppliers do bid for smaller generation through the Non Fossil Purchasing Agency (NFPA) but we understand that the main driver for these purchases is the ROCs

that accompany the output which assists in meeting their obligations under the terms of the RO

- there is only one dedicated consolidator in the market
- smaller suppliers such as Green Energy and Good Energy are active in the market and purchasing or offering trading services for similarly small scale renewable generation, and
- the NFPA provides a key route for selling, primarily – but not exclusively, renewable generation. NFPA's most recent auction realised figures of between 9.10p/kWh and 9.77 p/kWh (including the value of ROCs) depending on the type of renewable generation technology.

### **The role of consolidators**

4.9. During the development of the New Electricity Trading Arrangements (NETA), it was hoped that smaller participants, particularly those who had unpredictable output, would contract with existing suppliers or new 'consolidators' who would be able to aggregate the output of a number of generators and/or demands and manage the unpredictability on behalf of such participants. The benefit of consolidation arises because individual market participants may have fully or partially offsetting imbalances such that if their imbalance positions are combined the net exposure to imbalance prices is reduced.

4.10. It was envisaged that consolidators would offer a number of services to smaller market participants, including:

- trading functions to sell and buy in the forward and spot markets;
- consolidation to reduce imbalance risk through the aggregation of a number of generators and/or suppliers;
- registration in either the generation or supplier settlement system;
- energy contract notification and meter volume reallocation notification services; and
- energy purchase services.

4.11. Following the implementation of NETA a number of consolidators entered the market including Enron, Dynegy, Yorkshire Energy and SmartestEnergy. Most other large suppliers and generators also offer consolidation services of varying forms. However, since the introduction of NETA the number of independent, third party, providers of consolidation services has fallen to just one.

## Options for reform

4.12. To address these issues we propose to consider the following options:

- consider whether any further steps can be taken to improve market access for consolidators;
- introduce a specialist Energy Trader into the market to make purchases (and sales) of zero and low carbon output from small distributed generators;
- improve forecasting capability for small-scale renewable and low carbon plant;
- assess the economic case for, and explore feasibility of, a dedicated wholesale market for DE.

Each is discussed below.

### **Option 1: consider if any further measures can be introduced to improve market access for consolidators**

4.13. Much work has already been undertaken to improve the arrangements to promote consolidation. In response to a number of reviews undertaken by Ofgem<sup>32, 33</sup> and DTI<sup>34</sup> of the impact of NETA on smaller generators, a number of modifications have been made to the BSC. However, with only one consolidator in the market we are still concerned that there may be other reasons for the lack of development in this segment of the market. If we were to speculate, possible reasons might be:

- economies of scale and scope imply that there is only room for one firm to operate economically with respect to the provision of consolidation services;
- barriers to entry in this market remain with respect to market rules and further changes to the current trading arrangements may be required to encourage entry – we are not aware of any particular issues that fall into this category and would welcome industry views on this issue;

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[http://ofgem2.ulcc.ac.uk/temp/ofgem/cache/cmsattach/104\\_31aug01\\_pub.pdf?wtfrom=/ofgem/whats-new/archive.jsp](http://ofgem2.ulcc.ac.uk/temp/ofgem/cache/cmsattach/104_31aug01_pub.pdf?wtfrom=/ofgem/whats-new/archive.jsp) and

[http://ofgem2.ulcc.ac.uk/temp/ofgem/cache/cmsattach/102\\_24july02v2.pdf?wtfrom=/ofgem/whats-new/archive.jsp](http://ofgem2.ulcc.ac.uk/temp/ofgem/cache/cmsattach/102_24july02v2.pdf?wtfrom=/ofgem/whats-new/archive.jsp)

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[http://ofgem2.ulcc.ac.uk/temp/ofgem/cache/cmsattach/379\\_31aug01\\_pub.pdf?wtfrom=/ofgem/whats-new/archive.jsp](http://ofgem2.ulcc.ac.uk/temp/ofgem/cache/cmsattach/379_31aug01_pub.pdf?wtfrom=/ofgem/whats-new/archive.jsp)

34[http://www.ofgem.gov.uk/Sustainability/Environmnt/Policy/SmallrGens/CommArrg/Consolidation/Documents1/105\\_7feb02.pdf](http://www.ofgem.gov.uk/Sustainability/Environmnt/Policy/SmallrGens/CommArrg/Consolidation/Documents1/105_7feb02.pdf)

- the costs and complexity of consolidation mean that it is not economic to offer imbalance risk services (particularly to smaller generators), i.e. the benefit of reducing imbalance exposure is more than offset by fees charged by consolidators – and consequently the demand for such services is reduced;
- given uncertainty over imbalance risk, due to changes in cash out rules, consolidators may be reluctant to invest in imbalance risk management tools.

**Option 2: introduce a specialist Energy Trader into the market to make purchases (and sales) of zero and low carbon output from small distributed generators**

4.14. We propose to consider ensuring that appropriate Energy Trading services are available to smaller exempt generators. If these are insufficient to meet the developing needs of DE we will consider whether intervention is required in the market.

4.15. Should intervention be required we will set about designing an Energy Trader for smaller generators. There are a number of functions that such a service could perform:

- **full consolidator:** the entire generation output from various qualifying schemes is purchased at an agreed price (a minimum price would constitute the spill price plus any relevant embedded benefits less an appropriate margin). The Trader would also interact with the central systems with respect to meter registration and notification on behalf of the generators
- **partial consolidator:** require qualifying schemes to declare the expected profile of generation from their assets to the agent. Here the agent would not purchase the volume of generation but instead consolidate the output of qualifying schemes and notify this volume into central systems. This approach is likely to reduce imbalance costs albeit possibly not to the same extent as the first option, and
- **facilitator:** the agent could consolidate the output from a number of generators (less on site demand) and offer this volume to third parties, which may include the large suppliers. In this model responsibility for delivery of power will remain with the generator – this is likely to include imbalance risk.

4.16. In addition to the determining the scope of the Energy Trader a number of other issues need to be resolved:

- would a single or multiple traders be required: there could be one trader per region, a single central trader or numerous traders competing to provide these services
- would the trader need to be regulated in terms of price and service or could appropriate incentives be placed on it to realise the same outcome

- who would qualify to use the trader's services. An Energy Trader should not undermine incentives for existing consolidators, or potential new entrants, operating in the market. This could be achieved by restricting access to schemes below a certain threshold or taking care in setting any administered price. Any restriction of access would have an impact on the most appropriate means of recovering the cost of the trader (discussed above – first bullet).

4.17. We also need to consider the best means of delivering such a service. Possible options include:

- **allowing the market to deliver:** Through current Government policies, it is expected that the development of more DE schemes will be driven by planning/building regulations (i.e. requirements for moving towards low and zero carbon development). As such we anticipate that bringing these schemes online as economically as possible is likely to result in opportunities for the private sector, e.g. energy service companies. We have already had indications that some companies are considering moving into this space in response to the expected increase in demand for consolidation services
- **placing an obligation on suppliers to provide some or all of these services** if the market is not forthcoming in the next [2] years: One option might be to impose the obligation on suppliers with immediate effect but include a sun-set clause that allows this to fall away if the market develops, and
- **tendering for the role:** there are a number of parties that would be in a position to offer some or all of these services to the wider market without too many set up costs.

### **Option 3: improve forecasting capability for small-scale renewable and low carbon plant**

4.18. The value of generation is critically dependent on how well it can be forecast. This is a function of how reliable the plant is and whether its output under normal conditions is predictable. With much DE the electricity output tends to be driven by the need for heat or is generated as a consequence of the weather. This contrasts with plant that can be dispatched at will such as Combined Cycle Gas Turbines. The ability to accurately forecast the amount of generation reduces the unplanned exposure to the Balancing Mechanism and is likely to have an impact on its expected value.

4.19. There could also be a case for assisting DE operators in improving the way they manage their plant to maximise the value of their output. The case for investing in heat storage facilities, for example, may be improved if operators recognise that when they generate has a direct impact on the value of the electricity they produce.

4.20. Improving the understanding of DE technology could be realised:

- as a natural consequence of implementing Option 2 (above): To make the best offers in the market the specialist agent would have to have a good understanding of the risks associated with each type of technology;
- by encouraging investment in load research.

**Option 4: assess the strength of economic case for, and explore feasibility of, a dedicated wholesale market for DE**

4.21. It has been suggested that there may be a role for a new wholesale market that is tailored to the needs of small distributed generators and small suppliers. The purpose of the market would, to some extent, represent an alternative to introducing an Energy Trader, in that it may improve the liquidity for selling and purchasing electricity, reduce the risks of trading and reduce the transaction costs.

4.22. More specifically there are concerns that:

- the current balancing mechanism is not appropriate for small generators and requires intermediaries to trade for them on their behalf to manage the risks. These intermediaries require a margin that diminishes the value of the electricity;
- it maybe difficult for developers/operators to provide zero or low carbon energy sources to meet pre-specified energy requirements entirely on-site or locally. Meeting the demand profile of any given scheme requires a mix of base and peak load plant, or, alternatively, constructing a sufficiently large plant so as to meet peak demand and export during off peak periods. It maybe a more economic proposition for scheme developers to balance demand by purchasing top-up and back-up from secondary sources. A dedicated market could play an important role in providing such a source;
- enabling small generators and suppliers to trade with each other may improve the liquidity in the wholesale electricity market for these independent participants;
- creating a single market for these small volumes and standardising the terms and conditions may result in lower transaction costs.

4.23. Such a market might work in a number of ways including:

- to trade energy contracts between small generators and suppliers. The NFPA acts as a similar market for the sale of renewable electricity from small schemes. The resultant non firm contracts are then included in the portfolio of generation notified to settlement to assess the residual exposure to the Balancing Mechanism; or
- to extend the role of the Balancing Mechanism to that of a Balancing Market where there is a single price to create a more liquid market for the sale and purchase of small amounts of electricity.

4.24. Further work is required to develop these options and determine whether they would satisfactorily address the small generator issues raised by the DEWG. We propose to appoint consultants to address all the market related issues in this Chapter during the consultation process.

## 5. Operating as an Exempt Supplier on the Licensed Distribution Network

**Chapter summary:** This chapter discusses the issues facing smaller DE schemes considering using the licensed distribution network (sometimes referred to as the public network) to distribute energy to customers - namely the price and availability of Exempt Supplier Services, and the incentives that exist to operate on private wires instead. A number of options are proposed to improve the accessibility of the licensed distribution network to DE schemes.

### Question Box

**Question 16:** DE schemes face a trade-off between carrying the cost and ongoing maintenance of a private wire network linking their sites, and the direct and indirect costs of using the licensed distribution network. We are keen to better understand circumstances that lead a scheme to favour the private wire option and how incentives vary depending on the distance of the second (or multiple) sites?

**Question 17:** Is there adequate availability of Exempt Supplier Services in the market place? If the demand for such services is likely to increase with expected development of DE, we welcome views on whether the market will respond appropriately or whether intervention is required to ensure the availability of these services.

**Question 18:** We welcome views on whether an Exempt Supplier Services obligation (similar to the former Standard Condition 53) should be imposed on all suppliers and whether any specific additional requirements are now necessary.

**Question 19:** We welcome views on the feasibility of Exempt Supplier Services being provided at system cost – i.e., merely the costs incurred by suppliers from third parties in registering meters, using the network, etc. Are there ways of integrating with supply systems such that Exempt Suppliers do not create any overhead on Supplier operations?

**Question 20:** Is there a case for DE representation at the Energy Network Association working group examining the technical standards for connection? If so, do you have views on how representation might be funded?

**Question 21:** We welcome examples of where technical standards may be unduly onerous and discourage connection to the network for small generators.

**Question 22:** We welcome views on the proposed options to improve the accessibility of the licensed network to DE schemes, and whether there are any other relevant options we have not considered.

## Introduction

5.1. Generators with plant of installed capacity of no more than 5MW can supply customers without needing a licence as long as domestic customers do not represent more than 2.5MW of total demand. In practice we understand that this exemption allows small generators within these thresholds to supply customers across a number of sites from the same generation source without requiring a supply licence.

5.2. There are two key issues that confront a DE scheme that is contemplating operating in this way:

- the price and availability of Exempt Supplier Services that are required to conduct commercial transactions on the licensed distribution network;
- aspects of the current arrangements may actually encourage DE to operate on private wires rather than on the licensed distribution network.

### **Price and availability of Exempt Supplier Services**

5.3. To operate on the licensed network Exempt Suppliers require the availability of a range of services from a licensed supplier (known as Exempt Supplier Services) which include:

- providing top-up and back-up to meet any shortfalls in production relative to customer demand and to cover plant outages due to a failure or maintenance;
- meter registration, data collection and processing;
- settlement of the charges incurred by the licensed supplier on behalf of the Exempt Supplier such as energy, metering, network charges, etc.

5.4. Under Standard Condition 53 of the previous supply licence, former public electricity suppliers (PESs<sup>35</sup>) were obliged to provide these services. No condition with this effect was included in the new standard supply licence which took effect from 1 August 2007. It was not a requirement on all suppliers and no demand for such a condition was expressed during consultation on the new supply licence.

5.5. It is not clear if the demand for such services is likely to increase with the expected development of DE. Neither can we tell if the market will respond appropriately or if intervention will be required to ensure the availability of these services.

### **Incentives to construct private wires rather than use the licensed distribution network**

5.6. It has been suggested there are a number of incentives to construct private wires rather than use the licensed distribution network. This section sets out our understanding of the existing benefits of operating on private wires. However, this is against the background of legal questions raised in Chapter 2, which may impact on schemes' ability to realise these benefits in future

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<sup>35</sup> One of the fourteen regional integrated supply/distribution companies that existed prior to liberalisation of the GB electricity market

5.7. One of the obvious benefits to a DE scheme of operating on private wires is that it can be made difficult for customers to switch to another supplier as third party access can be refused. This eliminates the risk of lost revenue due to customer switching.

5.8. We would argue that there are other options available to manage the risk of customers switching to another supplier:

- the 28 day notice period formerly required from customers to terminate a domestic supply contract has been removed as a result of the Supply Licence Review. This means that licensed suppliers can enter into long-term contracts with customers that might cover the life of the project or even just the early years to cover the payback period. However, transferring long term contracts between owners of a new development when selling-up is not straightforward
- for CHP based systems there is a low risk that customers will switch their hot water and heating requirements given the high upfront cost of installing a boiler. The boiler and pipes of a district heating system represent a significant proportion of the total investment which is then largely secure given the high switching costs
- for customers that do switch to another electricity supplier, the surplus electricity can be exported wholesale to a third party supplier. The value of the scheme could be further enhanced by supplying customers on another site that are not served by the heat network. The flexibility of the existing electricity arrangements mean that the location of the customer is not the primary factor in determining their viability for commercial supply
- innovative pricing mechanisms or add on services (such as energy management advice) can be introduced that encourage customer loyalty, and
- it is possible to finance the energy scheme on the back of the development and include the cost of the plant in the sale price of the housing. There after, customers may then get the benefit of only paying the marginal cost of their energy generation – assuming that an on-site ESCO was responsible for ongoing supply – further limiting their incentive to switch.

5.9. These options are particularly appropriate when considering the retro fitting of DE to existing buildings. In these situations we note that certain types of customers may wish to voluntarily give up the right to switch to another supplier for the duration of the generation asset's commercial life. These types of customer include: owners purchasing for own use such as councils and industrial and commercial sites; ad hoc customers identified in the vicinity of the scheme who are in a position to commit for extended periods of time such as hotels, offices or local industrial sites; and groups of residents that want to self-generate.

5.10. In addition there are a number of other incentives to construct private wires:

- **all the embedded benefits are not fully recovered when using the licensed network:** realising the full value of the embedded benefits within the

settlement process depends on similar demand and generation Line Loss Factors (LLFs) being applied to the site. These LLFs are critical to ensuring that the generation is attributed the benefits of being connected to the distribution as opposed to the transmission network. To do this the demand and generation LLFs have to be similar if not the same. We have anecdotal evidence for a few sites that there is a 2% differential for some same site customers (which we estimate would be similar to the level of losses that would be experienced on a private wire), but we are not sure that such differentials apply universally or when sites are geographically close but, nonetheless, not on the same site. Stand alone generators that do not want to supply customers can obtain their embedded benefits (excluding distribution losses) by contracting directly with National Grid

- **suppliers take a share of the embedded benefits:** where the generator sells surplus electricity to a third party supplier, it seems to be market practice for the supplier to take a share of the embedded benefits in the transaction. It has been suggested that this may be due to the unequal size of the parties involved in the transaction. Building a private wire enables the generator to negotiate with the demand sites a tariff that is attractive to both parties. Given that the generator and consumer are likely to be of similar size this gives more negotiating power to the generator
- **constructing short distance private wires may be cheaper than paying DNO Distribution Use of Service (DUoS) charges:** we have anecdotal evidence that the annuitised cost of constructing private wires is less than the generation and demand DUoS, which suggests that over short distances, distribution charges may not be fully cost-reflective. If this is the case then there is most likely a distance threshold at which DUoS becomes cheaper
- **using the local distribution network exposes the DE operator to network pricing risks:** the charges for use of the network are reviewed at least annually. This can result in variations in the charges over the lifetime of the DE assets and impact on the business case for investment, and
- the 2001 Class Exemption Order allows consumption at secondary non-adjacent sites connected using private wires to be considered as part of what can be exempted under the terms of the Order.

## Options for reform

5.11. We propose a number of options to improve the accessibility of the licensed network to DE:

- impose an Exempt Supply Services obligation on suppliers
- create innovative arrangements for DE schemes to supply electricity to local customers over licensed networks (sometimes termed a "Virtual Private Network")

- request Suppliers and Distributors to come forward with proposals to trial ideas that benefit distributed generators, networks and customers
- encourage licensed networks to develop a methodology for calculating Line Loss Factors for DE that reflects the close location of demand and generation within 12 months
- encourage licensed networks to develop cost-reflective DUoS charges for distributed generation within 12 months, and
- Ofgem to monitor development and review of technical standards for connection to the distribution network.

Each is discussed in turn.

### **Option 1: impose an exempt supply services obligation on suppliers**

5.12. As already discussed Exempt Suppliers that want to operate on the licensed network need a number of services to be provided to them by licensed suppliers so that they can use and pay for the network and pay their share of the balancing costs that their generation/demand imposes on the system.

5.13. We know of a number of schemes that are currently operating in this way proving that it is possible to strike a commercial arrangement with a licensed supplier. However, we have heard mixed reports about the ability of Exempt Suppliers to get access to these kinds of services; some DEWG members have expressed frustration at not being able to negotiate commercially viable deals, yet suppliers themselves have indicated that they have not been asked to provide such services.

5.14. There is nothing within the arrangements to prevent a DE developer from negotiating an agreement with suppliers to use the licensed network. However, we recognise that there may be problems of accessibility. If we find that suppliers are not forthcoming with these services we will consider the case for imposing an obligation on them in the Supply licence.

### **Option 2: explore the validity and feasibility of innovative arrangements (such as a "Virtual Private Network") for DE schemes to supply electricity to local customers over the licensed network**

5.15. To improve the organisation and transparency of the market arrangements for Exempt Suppliers it has been proposed to make available either Demand Balancing Mechanism Units (DBMU) or a Vertically Integrated Meter Point Administration Number (VIMPAN) both of which would aggregate all demand and distributed generation within a single unit, so that schemes interact with the electricity system on a net basis.

5.16. These proposals are designed to formalise access to the industry trading arrangements for smaller participants. Currently, Exempt Suppliers are dependent on the major suppliers to pass through the structure of the commercial arrangements of the industry in any agreement they reach to provide exempt services. We have anecdotal evidence that these terms are not always forthcoming.

5.17. However, even with BMUs or VIMPANs, Exempt Suppliers still require a licensed supplier to settle charges (DUoS, energy, metering, etc) and provide top-up and back-up services.

**Option 3: request Suppliers and Distributors to come forward with proposals to trial ideas that benefit distributed generators, networks and customers**

5.18. Registered Power Zones were first established in April 2005 and are intended to encourage DNOs to develop and demonstrate new, more cost effective ways of connecting and operating distributed generation to the benefit of the generators and customers.

5.19. These zones, to date, have had limited uptake and we now ask for Suppliers and Distributors to come forward with proposals that will explore the value of DE schemes to the network and develop ways of enabling them to integrate commercially with the market systems and develop workable contractual arrangements. Experimenting with Virtual Private Networks might be one suitable candidate for such a trial.

**Option 4: encourage licensed networks to develop a methodology for calculating Line Loss Factors for DE that reflects the close location of demand and generation within 12 months**

5.20. We are concerned that one of the incentives to operate on private wires is the wide differential in the Line Loss Factors of same or near-by secondary sites. This has an impact on the level of embedded benefits that can be recovered via this route by distributed generation. Anecdotal evidence that there is a 2% difference between demand and generation LLFs for same site operations. This may be equivalent to the level of losses that would normally be experienced with an on-site private wires scheme. However, we do not have information on how sites located in the same vicinity are treated.

5.21. Should wide variations exist, that can not be justified, we would look to the industry to develop a suitable methodology for calculating LLFs that reflect the close location of generation and demand.

**Option 5: encourage licensed networks to develop cost-reflective DUoS charges for distributed generation within 12 months**

5.22. We are concerned that using the licensed network to supply primary or secondary demand sites in close vicinity to the energy plant can be less commercially

attractive to DE schemes than a private network. We are not clear, yet, if the source of any disproportionate cost is in the cost of system settlement (incurred as a consequence of having to register and settle metered generation and demand within the system arrangements) or whether it is a function of the DUoS charging (or both).

5.23. In regard to DUoS, the costs of connection and use of the network is not just a function of the capacity required but also the location of the generation. A long spur required to connect a wind turbine on a windy site to the low voltage network, for example, is likely to add to network costs, whereas generation situated in an urban setting could well result in avoided network reinforcement elsewhere.

5.24. Participants of the DEWG have expressed interest in the development of distance related tariffs that are payable on the proportion of the demand that is met by local generation with normal tariffs applicable for any top-up and back-up.

5.25. However, much work has already been conducted on developing cost-reflective DUoS charges for distributed generation through the Distribution Charging Methodologies Forum (DCMF). To our knowledge only one DNO now offers negative charges for DE and we are concerned at the slow pace of progress in this area. If network companies do not deliver more cost-reflective tariffs quickly we will consider taking action.

#### **Option 6: Ofgem to monitor development and review of technical standards and practice for connection to the distribution network**

5.26. The technical standards for connection are published and contained in Engineering Recommendations (G75 & G59) that support the Distribution Code - available from the Energy Networks Association. These standards should be applied consistently across all licensed networks, but there are areas where different interpretations are possible. It has been indicated to us by some DE operators that these standards appear disproportionate, but it is difficult to gauge how widespread this view is. We would welcome any examples where small generators think that technical standards are unduly onerous and discourage connection to the network.

5.27. The Energy Networks Association Working Group is currently reviewing G75 & G59. Further details of this work can be found on the D Code website <http://www.dcode.org.uk/>. We would encourage generators to get involved in this work.

5.28. Small generators that have an issue with the technical standards that are being imposed on them by the DNO can appeal to Ofgem. Ofgem publishes its determinations on these cases.

## 6. Becoming a Licensed Supplier

**Chapter Summary:** Operators of DE schemes who, within their capacity as suppliers, are too large to operate within the terms of the 2001 Class Exemption Order should apply to become licensed suppliers. This chapter outlines the costs of becoming licensed and how these can raise issues because of the relatively small-scale of some DE schemes. A number of options for reform which are intended to reduce the costs of becoming a licensed supplier are discussed.

### Question box

**Question 23:** What are the costs of start up for small suppliers? What is the break even point for small suppliers?

**Question 24:** Do the economics of CHP justify the additional investment over and above that of a boiler based system? What are the contexts where CHP might be chosen over heat-only schemes?

**Question 25:** Is there a case for granting a limited number of supply licences to new entrant DE schemes that restrict customers switching to an alternative supplier for a period of, say, [5] years?

**Question 26:** We welcome views on what types of advice and information would usefully help DE schemes start-up and interact with the wider electricity system, and who should provide this?.

**Question 27:** Do you consider that there is a case for a new DE supply licence? If so, do you have views on its key terms? Please explain your reasoning in detail.

**Question 28:** We welcome views on the proposed options for reducing the costs of becoming a licensed supplier and any other options that we have not considered in this consultation document.

## Introduction

6.1. Operators of DE schemes who, in their capacity as suppliers, are too large to operate within the terms of the 2001 Class Exemption Order need to apply to become a licensed supplier<sup>36</sup>. The key issue raised by such a move is that it tends to involve a step change in the level of costs incurred as a result of complying with the licence conditions and these costs are spread over relatively low quantities of electricity output.

6.2. Most new entrants in the supply market start small but have an ambition to become much larger. DE schemes, by contrast, may need to be licensed to provide

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<sup>36</sup> It should be noted that under current legislation, companies are not permitted to hold both a supply and a distribution licence within the same legal entity. The discussion in this chapter around becoming a licensed supplier therefore assumes that the scheme in question is not also a licensed distributor (because they fall below the distribution exemption limits or because they are operating on the licensed network or because they are holding supply and distribution licences in separate businesses).

the energy requirements of a specific site with no growth ambition in respect of that site. Some of the costs resulting from licensing are incurred irrespective of scale of the operation and represent a proportionately larger overhead for smaller schemes when compared with larger schemes. To address these issues we expect specialist energy companies to enter the market (or new branches of existing companies) to provide licensing services to DE developers. Companies such as FontEnergy will be able to spread the licensing costs over a number of sites thereby reducing the overhead for their clients.

6.3. A common theme in our discussions has been the information barrier DE operators face in trying to set-up and operate their schemes. We recognise that new players are coming into contact with the electricity market and licensing arrangements for the first time, and they need help to navigate the system. We would welcome views on what practical advice and information would be most useful in these circumstances, and who is best placed to provide it. This could be basic information such as identifying a contact within DNO, on the one hand, to making introductions to obtain top-up and back-up deals, or even provide administrative assistance in the form of managing ROC applications.

#### **The cost of becoming a licensed supplier**

6.4. Figures submitted by the London Climate Change Agency suggest that additional operational and capital costs required to comply with a supply licence (i.e. as compared with operating as an exempt supplier) can range from £4.8/MWh to £3.4/MWh for a small or large scheme respectively (see Table 1 below)<sup>37</sup>. Of this £2.7MWh amounts to the cost of meeting the Renewables Obligation.

6.5. The Renewables Obligation works by obliging licensed suppliers to supply a proportion of the electricity supplied to customers in GB from renewable sources. They evidence this by presenting ROCs, or by paying the buyout price (for 2007/08 £34.30 per MWh), or by a combination of the two. The money in the buyout fund is then recycled to those suppliers who presented ROCs.

6.6. It is interesting to note that whereas the set up costs between the two schemes shown in the table differ by a factor of 1.3, the output from the large scheme is ten times that of the smaller one. The larger scheme therefore has a larger number of units over which to spread the overheads.

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<sup>37</sup> Figures provided by LCCA to illustrate the costs involved in becoming a licensed supplier. These are subject to an ongoing discussion and have not been verified by Ofgem or BERR.

**Table 1: Illustrative cost of supply licensing for a small and large scheme**

Cost of licensing	Size of scheme		Small £/MWh	Large £/MWh
	Small Total pa	Large Total pa		
Output MWh	23,500	235,000		
Licence Set up £	115,426	153,826		
Annual Licence Costs £pa	36,550	140,150		
Total Licence charge £pa	50,108	158,218	2.1	0.7
Renewables Obligation £pa	63,678	636,780	2.7	2.7
Total Regulatory Costs £pa	113,786	794,998	4.8	3.4

Source: Figures courtesy of the LCCA

Notes:

- (a) set up costs annuitised over 20 years at 10%
- (b) the RO figures used here assume there is no income derived from ROCs by the scheme ie it is a non renewable generator
- (c) set up costs annuitised over 20 years at 10%. "Network charges" removed from LCCA's analysis – figures provided assume gross line loss factors rather than net which occurs in practice
- (d) mid range estimates used where a range is indicated.

### The problem of scale

6.7. A key issue facing developers of small schemes is that the economics of the industry are geared toward acquiring large numbers of customers each contributing a small margin. To enter the market suppliers incur a number of overheads in relation to licensing that need to be spread over the largest number of customers possible to realise low per unit costs. A number of overheads (both in relation to licensing and otherwise) need to be spread over the largest number of customers possible to realise low per unit costs. Certain licensing costs e.g. the RO are scalable, the smaller the scheme, the smaller the cost. However certain costs e.g. software for participation in the Balancing Mechanism are the same whatever the size of the operator.

6.8. We anticipate that the main driver for greater take-up of DE schemes in the near future will be requirements on developers to ensure that a proportion of the energy to be used in new development comes from decentralised and renewable or low-carbon sources where viable, and beyond that, there will be a drive towards zero-carbon development. DE schemes will also provide opportunity for retrofit development, which will help cut carbon emissions from existing building stock. These drivers, reflected in planning and building requirements, will result in a greater need for local energy solutions – including the use of combined heat and power. It is not clear what the typical size of one of these sites will be, but from our discussions

we understand that the ten proposed new eco-towns expected by 2020 will be in the order of between 5,000 and 10,000 residential properties. Whereas other new developments will be much smaller in size perhaps only amounting to around 25 homes per site, although it may be possible for one DE scheme to serve a number of developments in a local area. The size of retro fit installations will be dependent on the specifics of the local situation.

6.9. This lack of scale has implications for anyone considering entering the supply market. As mentioned, commercial viability in the supply market is normally dependent on acquiring high volumes of customers at typically low margins. High volumes of customers are required to cover the upfront investment in systems to meet trading, billing and settlement requirements.

6.10. New entrants are particularly well placed at reaching a critical mass to cover the investment costs of supply at lower levels than the major players who have expensive legacy systems. Even so, we estimate that a start up supplier, for example, does not become competitive until it has acquired several hundred thousand customers. We accept that niche suppliers offering a unique, perhaps "renewable" customer proposition, are in a position to charge a premium for their services and may hit profitability before they have acquired these levels of customers. Customer volumes have been indicated of around 20,000 before profitability is achieved.

6.11. If planning regulations do encourage the use of small on-site generation, then this could, in extreme, result in a multitude of independent developers each with the overhead of developing systems to meet licensing requirements. In the next section we propose a number of options to address this potential duplication of effort.

6.12. In relation to the development of systems required to meet the licence conditions (such as the BSC and MRA), we note that the capital cost can vary significantly depending on the standard adopted by the developer.

## **Competition**

6.13. As discussed in the last chapter, Exempt Suppliers operating on private wires for new developments are in a position to refuse to offer terms for access of the network to third party suppliers - effectively making them monopoly suppliers. This would be particularly valuable for new build developments where it may not be possible to sign up prospective owners on long-term energy supply contracts in advance of the properties being sold. In retrofit situations the developer is in a position to agree terms with the potential customers in advance of making the investment.

6.14. To provide for this benefit within the licensed framework and as an alternative to raising the exemption limits, we could consider allowing a limited number of new entrant DE Suppliers the option of blocking customer switching for a limited period of time. This would provide a window of respite from the competitive market for small-scale schemes during which they can recover elements of their fixed costs.

Customers would automatically return to the competitive market after the opt-out period. This arrangement would be a way of assisting innovation, rather than an enduring arrangement available to all DE schemes.

6.15. One way of achieving this would be to allow suppliers the right of objection to customers switching if they form part of a set of MPANs that relate to a particular geographical site. The suspension would be subject to price/service benchmarks (or price cap) designed to protect customers from this monopoly provider. It may also be necessary to put an expiry date on the ability to make objections on any scheme with the licence to reflect when we expect the technology to have proven itself.

6.16. We are mindful of the drawbacks of this approach in terms of retail market competition and the customer protection it provides, and have set out our concerns in paragraph 2.21 above under the discussion of exemption limits. An option of this nature would only make sense as a temporary measure intended to encourage new entrants and to provide space in which new technology and new commercial arrangements can be tested. If we were to take this forward we would propose that only a limited number of licences be made available, perhaps between 10 and 15, to be awarded, on application, on a case-by-case basis. As with the discussion around exemptions from the requirement to hold a licence for supply or distribution, it is likely that our actions in this area will be impacted by the outcomes of the Citiworks case. For this reason we are unable to consult definitively on options of this nature at this time.

### Options for reform

6.17. The options presented here are designed to explore the scope for reducing the costs of becoming a licensed supplier and include:

- allow for the delegation of the high-cost high-competency aspects of the Supply licence to third party agents, who can spread the costs of compliance across a number of schemes
- ensure the provision of a Licensed Supplier agency in the market that can spread the costs of licensing over a large number of DE schemes
- review the BSC and MRA to determine if there are any disproportionate or unfair costs being levied on DE, and
- consider the case for new DE-specific licence conditions.

Each is discussed in turn.

#### **Option 1: allow for the delegation of the high-cost high-competency aspects of the Supply licence to third parties**

6.18. The high-cost high-competency aspects of the licence primarily relate to the requirement to comply with a number of industry codes such as the MRA and the

BSC. Compliance tends to require investment in systems and specific expertise. Delegating responsibility for these requirements shifts the investment burden to established licensed players serving larger numbers of customers.

6.19. Under standard licence condition 11 electricity suppliers must be signatories to a number of codes and agreements. However Ofgem considers that delegation of these obligations can already be achieved using bi-lateral contracts that back-off these requirements with another licensed supplier prepared to take on these responsibilities. However, formalising this arrangement within the regulatory instruments as opposed to allowing the market to determine how this is achieved, may ease the process for those not familiar with all the complexities of the industry and how best to manage them.

**Option 3: ensure the provision of a Licensed Supplier agency in the market that can spread the costs of licensing over a large number of DE schemes.**

6.20. As discussed under Option 1, delegating responsibility for licence and code compliance to a third party agent could spread the overheads of providing these systems across a wide range of customers. However, we are concerned that such a third party may not be forthcoming and that some form of intervention may be required to ensure these services are available to DE operators.

6.21. We have already discussed the possibility of introducing:

- an Energy Trader into the market to assist in trading (see Section "Sell to a third party"), and
- an Exempt Supplier services obligation on Suppliers (see Section "Being an Exempt Supplier").

6.22. In relation to the Exempt Supplier services we would see no reason why these could not also be offered to small licensed suppliers so that they can avoid investing in their own systems to support meter management, settlement, etc.

6.23. However to support licensed DE Suppliers it may be necessary to go further and offer other services necessary to fulfil their obligations under the terms of the licence, for example, meeting the administrative needs of the Renewables Obligation.

6.24. As for the Energy Trading agency option discussed in Chapter 3, a number of implementation options are available including allowing the market to deliver, placing an obligation on suppliers or tendering for the role.

6.25. We stress that we do not address all the implementation issues of this route to market in this paper. This option involves fundamental changes to the licensing regime and other regulatory instruments which would need further consideration to establish all the requirements necessary to realise our objectives, and to ensure that there are no unintended consequences.

**Option 4: review the BSC and the Master Registration Agreement (MRA) to determine if there are any disproportionate or unfair costs being levied on DE**

6.26. Under current governance arrangements Ofgem does not have the power to raise code modifications. We are however interested in canvassing industry participants as to whether there could be gains available from modifying particular code requirements that impact on distributed energy schemes.

6.27. The feedback we have obtained from discussions with the DEWG suggests that there are not any obvious "quick wins" to be had from delving into the detail of industry codes. In general, the codes reflect the complexity of the electricity system that results from facilitating competition and system balancing within specific physical constraints. As discussed in Chapter 1 however, the cash-out arrangements within the BSC are currently the subject of an Ofgem review and an Issues Group under the BSC Panel. The impact of cash-out on smaller and/or intermittent players on the system who may have more difficulty forecasting their positions is one of the issues being considered in this debate. Another BSC requirement that may be relevant to DE is the threshold below which exports can be metered on a non-half hourly basis – this is currently being considered under a BSC Issues Group relating to microgeneration.

**Option 5: consider case for new licence conditions**

6.28. Interest was expressed at the DEWG in creating a new DE licence. If any of the options presented above are pursued then special terms could apply to DE schemes within the electricity supply licence framework. Although there have been requests for a combined generation, distribution and supply licence, we note that under the current provisions of the Electricity Act 1989 it is not possible for a single legal entity to conduct both the latter two activities. Vertically integrated utilities can avoid this constraint by operating each licensed activity within a separate affiliate.

6.29. With respect to generation, the existing 2001 Class Exemption Order appears to offer significant scope before the threshold to be licensed is crossed. It has been argued at the DEWG that the generation licence imposes disproportionate obligations and costs on smaller plant. An independent Distribution Licence already exists for the regulation of network provision. It is possible that any special conditions may best be accommodated within this licence.

6.30. The case for new supply licence conditions is largely predicated on the validity and appropriateness of the options presented above. If these options were proven to be required to facilitate the development of DE, a number of modifications would be required to the regulatory framework. In regard to the licence, it would be necessary to take a view on how best to introduce licence conditions particular to DE schemes.

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## 7. Conclusions and Way Forward

7.1. A 12 week period has been allowed for this consultation in order to meet best practice on consultation timeframes, and to allow for a full discussion and exchange of views with all stakeholders. Once the consultation has closed, we will analyse the responses and consider the way forward. We therefore anticipate publishing a report on the results of the consultation sometime in May 2008. This report will aim to distil the wide range of options presented in the current consultation document into a more focused package of measures to facilitate DE, and will set out a timetable of actions for the remainder of the year.

7.2. In terms of the timeframe for implementation of measures after the initial consultation period closes, we see these falling into three categories:

- “quick wins” that could be put in place relatively quickly, without the need for further consultation on the detail of the proposals. Options in this category include facilitating the appointment of a DE representative to the BSC panel
- measures that could be implemented by the end of 2008, in line with the commitments made in the Energy White Paper. The majority of the options discussed in the paper fall into this category, including strengthening the requirement on DNOs to implement cost-reflective charging for DE; re-introducing an exempt supply services obligation on licensed suppliers; and providing derogations from licence requirements (possibly through new licence conditions) for certain DE schemes. While in most cases we expect to make a yes/no decision on measures in this category in the May report, further consultation is likely to be required on the detail of the proposals (including implementation options) over the course of the year. If changes are made to the licensing regime and/or to the Class Exemption Order, this will need to be done through formal statutory consultation processes as set out in legislation, and
- longer-term and/or ongoing measures to pave the way for more widespread uptake of DE, where implementation may stretch into 2009 and beyond. Options in this category include reviewing the detail of industry codes to ensure there are no disproportionate or unfair costs being levied on DE; improving forecasting capability for small-scale generation plant, e.g. through better load research; considering the issues facing small and/or intermittent generators in the context of the ongoing cash-out review; and exploring the possibility of a dedicated wholesale market for DE.

7.3. The options in this document relating to the provision of agency services – such as a specialist Energy Trader for DE schemes – could fall into either the second or third of the above categories, depending on the method of implementation. Approaches that rely largely on existing mechanisms (for example, a licence obligation on suppliers, or delivery via the market) could be implemented by the end of 2008. However, if an entirely new institution is required then implementation some time in 2009 may be more realistic.

7.4. Uncertainty also exists over the timeframe for “trial zones” to explore the network benefits of DE. We hope to be in a position to approve projects that are proposed as part of the consultation process when our report is issued in May 2008, but the implementation date of any particular trial is likely to vary depending on the nature of the project.

7.5. An important question that will need to be resolved as part of the current consultation is the case for changes to the 2001 Class Exemption Order, in particular to the level of the exemption limits on supply and distribution. A number of the options proposed in this document – including the creation of simplified supply licence conditions for DE, exploring the feasibility of a Virtual Private Network for DE schemes, measures to encourage the provision of agency services, undertaking a more detailed review of industry codes, and considering the case for a dedicated wholesale market for DE – are primarily designed to reduce the costs faced by DE schemes in interfacing with the current market and regulatory arrangements. If the exemption limits were raised, the impetus for proceeding with these measures may be weakened, at least in the short term. However, as discussed in the document we do not currently believe that raising exemption limits represents a viable and robust long-term solution to the problems faced by DE schemes. We therefore consider that we should proceed with the design of alternative measures at this stage.

7.6. Table 2 below summarises the timeframe for implementation and the potential impact of each proposed option, in terms of improving the economics of DE schemes, facilitating new entry, and reducing carbon emissions. This evaluation is tentative at this stage given the high-level nature of the proposals, and is not based on a quantitative assessment procedure but rather a qualitative assessment of whether the potential impact in each area is high, medium or low. We would welcome views from respondents on our assessment.

7.7. While the current consultation period is open, Ofgem and BERR will continue to move ahead with areas of work that have been highlighted as requiring further analysis, so that we are in the best possible position to take decisions once the consultation responses are received. These areas of work include:

- more detailed economic and financial modelling of the costs that the market and licence arrangements impose on DE schemes. We have been given access to data from Woking Borough Council and the LCCA on a confidential basis, which we hope will help us to improve our understanding in this area and to prioritise measures for implementation. We would also welcome any further information from respondents that they believe is relevant to this question
- exploring with energy companies how trial network zones might operate for DE schemes – for example, this could involve experimenting with VPNs and alternative DUoS and connection charging arrangements
- considering the legal aspects of creating a supply licensing regime for certain DE schemes

- looking in more detail at the design and implementation issues associated with encouraging the provision of additional agency services for DE and other small players – in particular, how any form of intervention would work, and
- Considering the ECJ judgement on the Citiworks case, and its implications for our current and future approach to exemptions issues, and customer switching.

7.8. To assist us with our analysis we propose to hold at least one workshop with DE stakeholders during the consultation period. Details will be forthcoming, but we welcome any feedback at this stage as to whether you would be interested in attending such a workshop and also any additional issues that you believe should be aired in such a forum.

**Table 2: Summary of Options and Potential Impact**

OPTION	TIMEFRAME	POTENTIAL BENEFICIAL IMPACT		
		Economics of DE schemes	Number of new entrants	Carbon emissions reductions
<b>Wholesale Market Trading</b>				
<b>Option 1:</b> consider the needs of small intermittent generators as part of the ongoing cash-out review	2009 and beyond	High	High	Medium
<b>Option 2:</b> appoint DE representative to the BSC modifications panel	Quick win	High	Low	Unknown
<b>Selling to a Third Party</b>				
<b>Option 1:</b> consider if any further measures can be introduced to improve market access for consolidators	End of 2008	Low	Low	Low
<b>Option 2:</b> introduce a specialist Energy Trader into the market to make purchases (and sales) of zero and low carbon output from small distributed generators	End of 2008	Medium	Medium	Medium
<b>Option 3:</b> improve forecasting capability for small-scale renewable and low carbon plant	2009 and beyond	Medium	Medium	Medium
<b>Option 4:</b> assess the strength of economic case for, and explore feasibility of, a dedicated wholesale market for DE	2009 and beyond	Medium	Medium	Medium

<b>Operating as an Exempt Supplier on the Licensed Distribution Network</b>				
<b>Option 1:</b> impose an exempt supply services obligation on suppliers	End of 2008	Low	Medium	Medium
<b>Option 2:</b> explore the validity and feasibility of innovative arrangements (such as a "Virtual Private Network") for DE schemes to supply electricity to local customers over the licensed network	End of 2008	Low	Low	Unknown
<b>Option 3:</b> request Suppliers and Distributors to come forward with proposals to trial ideas that benefit distributed generators, networks and customers	End of 2008	Medium	Medium	Medium
<b>Option 4:</b> consider encouraging DNOs to develop a methodology for calculating Line Loss Factors for DE that reflects the close location of demand and generation within 12 months	End of 2008	Low	Low	Low
<b>Option 5:</b> encourage DNOs to develop cost-reflective DUoS charges for distributed generation within 12 months	End of 2008	High	High	Medium
<b>Option 6:</b> Ofgem to monitor development and review of technical standards for connection to the distribution network	End of 2008	Medium	Medium	Low
<b>Becoming a Licensed Supplier</b>				
<b>Option 1:</b> allow for the delegation of the high-cost high-competency aspects of the Supply licence to third parties	End of 2008	Low	Low	Unknown
<b>Option 2:</b> ensure the provision of a Licensed Supplier agency in the market that can spread the costs of licensing over a large number of DE schemes.	End of 2008	Medium	Medium	Medium
<b>Option 3:</b> review the BSC and MRA to determine if there are any disproportionate or unfair costs being levied on DE	2009 and beyond	Medium	Medium	Low
<b>Option 4:</b> consider case for new supply licence conditions	End of 2008	High	High	Medium

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## Appendices

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## Appendix 1 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of each chapter heading and which are replicated below.

1.3. Responses should be received by 11 March and should be sent to:

Anna Kulhavy  
Senior Economist - GB Markets  
Ofgem  
9 Millbank, London SW1P 3GE  
020 7901 7390  
[Anna.kulhavy@ofgem.gov.uk](mailto:Anna.kulhavy@ofgem.gov.uk)

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website [www.ofgem.gov.uk](http://www.ofgem.gov.uk). Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.6. Next steps: Having considered the responses to this consultation, Ofgem intends to publish a report on the results in May 2008, setting out a timetable of actions for the rest of the year. The majority of options could be implemented by the end of December 2008, although some longer-term measures may stretch into 2009 and beyond. Any questions on this document should, in the first instance, be directed to:

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9 Millbank, London SW1P 3GE  
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### **CHAPTER: One**

There are no specific questions in this chapter.

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**CHAPTER: Two**

**Question 1:** If the exemption limits for supply and distribution to domestic customers were to be raised, what measures would be required to ensure ongoing and effective protection of energy customers, and how would this be enforced or monitored?

**Question 2:** Should the existing per company maximum exemption limit be removed allowing one company to develop a number of different sites?

**Question 3:** We welcome evidence on the size of DE scheme that would be considered economic and efficient in different settings if exemption thresholds were not an issue. We also seek views on what the appropriate exemption limits should be across generation, supply and distribution.

**Question 4:** We welcome views on the 2001 Class Exemption Order, and areas where there could be more clarity in particular.

**CHAPTER: Three**

**Question 4:** Do you consider it appropriate to use the provisions of the BSC to increase the representation of DE schemes in BSC governance processes?

**Question 5:** Do you consider that there is a case for allocating funding for DE representation in BSC governance? If so, do you have views on where the funding should come from?

**Question 6:** Have we considered all the options to address the risk DE schemes are exposed to if trading in the wholesale markets? We welcome any other proposals to accommodate the needs of DE schemes selling their electricity in this way.

**CHAPTER: Four**

**Question 7:** Do you consider that third party purchasers undervalue exports from DE schemes? We would welcome information from both generators and purchasers on prices that have been agreed for electricity from small generators. If necessary, the information can be provided in confidence.

**Question 8:** We would welcome views on whether there is a lack of competition in the market for small generator output?

**Question 9:** Have we considered all the reasons for the lack of development of consolidation services in the market? We welcome views on whether further changes to the market rules may be warranted to remove any barriers to entry that continue to exist for consolidators.

**Question 10:** Do you think there is a case for a specialist Energy Trader? What are your views on the scope and functions the specialist agency could perform as an interface between DE generators and the current trading arrangements?

**Question 11:** An Energy Trader option could be implemented by allowing the market to deliver, placing an obligation on suppliers or by tendering for the role. We welcome views on these suggested routes and any others we have not considered in this consultation document.

**Question 12:** Do you have any views on how the understanding and forecasting capability for DE technology could be improved?

**Question 13:** What are your views on the implementation of a dedicated wholesale market for DE?

**Question 14:** Have we considered all the options to address the lack of competition in the market for small generator output?

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**CHAPTER: Five**

**Question 16:** DE schemes face a trade-off between carrying the cost and ongoing maintenance of a private wire network linking their sites, and the direct and indirect costs of using the licensed distribution network. We are keen to better understand circumstances that lead a scheme to favour the private wire option and how incentives vary depending on the distance of the second (or multiple) sites?

**Question 17:** Is there adequate availability of Exempt Supplier Services in the market place? If the demand for such services is likely to increase with expected development of DE, we welcome views on whether the market will respond appropriately or whether intervention is required to ensure the availability of these services.

**Question 18:** We welcome views on whether an Exempt Supplier Services obligation (similar to the former Standard Condition 53) should be imposed on all suppliers and whether any specific additional requirements are now necessary.

**Question 19:** We welcome views on the feasibility of Exempt Supplier Services being provided at system cost – i.e., merely the costs incurred by suppliers from third parties in registering meters, using the network, etc. Are there ways of integrating with supply systems such that Exempt Suppliers do not create any overhead on Supplier operations?

**Question 20:** Is there a case for DE representation at the Energy Network Association working group examining the technical standards for connection? If so, do you have views on how representation might be funded?

**Question 21:** We welcome examples of where technical standards may be unduly onerous and discourage connection to the network for small generators.

**Question 22:** We welcome views on the proposed options to improve the accessibility of the licensed network to DE schemes, and whether there are any other relevant options we have not considered.

**CHAPTER: Six**

**Question 23:** What are the costs of start-up for small suppliers? What is the break even point for small suppliers?

**Question 24:** Do economics of CHP justify the additional investment over and above that of a boiler based system? What are the contexts where CHP might be chosen over heat-only schemes?

**Question 25:** Is there a case for granting a limited number of supply licences to new entrant DE schemes that restrict customers switching to an alternative supplier for a period of, say, 5 years?

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**Question 27:** Do you consider that there is a case for a new DE supply license? If so, do you have views on its key terms? Please explain your reasoning in detail.

**Question 28:** We welcome views on the proposed options for reducing the costs of becoming a licensed supplier and any other options that we have not considered in this consultation document.

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## Appendix 2 – Distributed Energy Working Group (DEWG) Terms of Reference<sup>38</sup>

### **Purpose**

1.1. The DG Review Report and Energy White Paper published on 23 May 2007 gave a commitment for DTI and Ofgem to consult later this year on options for more flexible market and licensing arrangements for distributed low carbon electricity within the licensed framework, to be implemented by the end of 2008. This Working Group will develop the options for consultation.

1.2. The overall objective is to develop measures that address the key barriers within the market or licensing arrangements to the greater take up of Distributed Generation projects. We will seek to identify workable solutions that minimise the barriers to entry for DG.

These solutions will:

- Seek to simplify the system for potential generators and suppliers
- Ensure that DG receives appropriate rewards for the benefits that it provides; and
- Ensure that consumers are adequately protected.

They will not:

- compromise the integrity of the competitive market; or
- impose unnecessary costs or complexity on DG generators, or those parties that seek to purchase from them;

### **Terms of reference**

1.3. The workgroup will explore the commercial, environmental and regulatory issues that arise in the context of small, low carbon generation (both in the case where it does and does not supply on-site demand). The work will seek to understand to what extent there are factors in the market or due to regulation that unduly obstruct the ability of these projects to be sustainable, commercial business propositions.

1.4. There will be 3 core components to this work, building on the findings of the DG Review. The Group will:

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<sup>38</sup> Further information on the DEWG and Ofgem/BERR activities in removing the barriers to DE schemes can be found at:

<http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistGen/disenwg/Pages/Disenrgworgp.aspx>

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- i. establish what drives the differential between the export tariff for DG and the import tariff, identifying:
  - o where this represents the underlying cost of electricity supply; and
  - o where there is evidence of underlying market or system failure and what measures could address this
- ii. identify the cost drivers that underpin the value of distributed generation to licensed suppliers and look at solutions that might reduce these costs.
- iii. look at the full range of solutions that have been identified and assess how these improve the value received by DG projects. At this stage the group will explore whether there is an incentive for DG to supply direct to local consumers rather than exporting to a licensed supplier and devise additional measures as appropriate

Regard will be given to a range of DG projects with different scale and profile of export.

1.5. The work may also involve looking at the effects of the industry cash out arrangements on DG. If the current cash out is not cost reflective, this may lead to electricity from DG projects not getting the value it might otherwise secure. However, to the extent the value reflects merely the unpredictability or volatility of DG sourced electricity, there may not be a case for change.

1.6. The Group will be asked to comment on the core model for understanding the export and import offers and to assist where possible in populating this model with representative costs.

1.7. The Group will evaluate the options and identify likely implementation issues, including potential costs. It will also consider potential opportunities for developing arrangements on a trial basis with a small number of parties to learn by doing.

## **Output**

1.8. The Group will assist Ofgem and DTI to produce a preferred package of measures that addresses the specific issues identified and a proposal for consultation, including implementation steps.

1.9. The package of measures is not expected to result in a new class of licence as the activities being considered are already defined as licensable activities under the Electricity Act 1989.

## **Context**

1.10. The work of the Group will build on the findings of the Distributed Generation Review. The report of the Review can be found at [www.dti.gov.uk/energy/whitepaper](http://www.dti.gov.uk/energy/whitepaper)

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1.11. The Group should have regard to other related areas of Ofgem activity including:

- Review of cash-out arrangements
- Supply Licence Review
- Microgeneration Forum
- Export reward for microgeneration
- Electricity distribution structure of charges project.

### **Principles**

1.12. The Group will:

- provide a forum for discussion but will not have formal decision making powers and will not preclude full consultation on the issues.
- conduct itself in an open and transparent manner.

1.13. Working Group members will be expected to:

- Provide expert advice based on their experience and knowledge; and
- Provide a conduit for the views of the industry sector to which they are affiliated.

1.14. Working Group members will be expected to:

- to submit papers as required, highlighting issues and identifying potential solutions.
- to share experience with developing DG schemes including bringing forward specific details of these schemes, whilst respecting commercial sensitivities.

### **Membership**

1.15. The Group will be chaired by Ofgem, supported by DTI, and will be made up of volunteers drawn from a cross-section of industry sectors.

1.16. Further specialists may be invited to attend certain meetings as deemed necessary and agreed by the group and Ofgem.

### **Administration**

1.17. Ofgem will produce a summary of key issues from each meeting. The agenda, meeting notes and associated papers will be published on the Ofgem website.

1.18. Members are not under any confidentiality requirement and will be encouraged to report back to other parties on the issues that have been discussed.

### **Timing**

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1.19. The first workgroup meeting will be on 30 May 2007 where the key areas of work and the underlying questions in each area will be agreed. The group will meet until the Autumn when there will be a wrap up meeting to agree on the package of measures for consultation and to discuss implementation matters.

## **Background**

1.20. The Energy White Paper announced that DTI and Ofgem will consult by end 2007 on options for the creation of more flexible market and licensing arrangements for distribution connected, low carbon electricity.

1.21. Prior to the Energy White Paper, DTI and Ofgem undertook a review of the incentives and barriers that impact on distributed generation and a Call for Evidence was published in November 2006. The consultation responses identified a number of barriers including issues around export reward and the regulatory framework. In particular, the complexities and costs facing small generators seeking to supply localised demand were identified as a specific barrier.

1.22. A number of models have been identified that provide for a licence exempt generator to supply a local customer located at a different site. The unlicensed generator can:

A. Contract with a licensed supplier:

- for the entire output at the generation site; or
- for top-up, standby and export where the licence exempt generator has own demand either on-site or elsewhere locally;

B. Become a licensed supplier; or

C. Construct a private network.

1.23. Many consultation responses argued that suppliers are not paying a fair price for export, and that the difference between the export and import price means that Option A above is unattractive. This has driven respondents to consider either becoming a licensed supplier, or to set up a private network in order to capture greater revenue for their generation.

1.24. However both of these routes place a significant additional burden on those seeking to become distribution connected generators. Being a supplier and participating in the wider market means exposure to imbalance and customer switching risks that are difficult and costly to manage for small schemes. Similarly, owning and operating a network of cables into homes and businesses requires a significant degree of expertise to achieve safely and efficiently and therefore itself presents a barrier to entry for Distributed Generation. It is further the case that private networks usually tie customers into long term contracts thereby removing the

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customer choice and protection that is provided through the competitive retail market.

1.25. Against this backdrop it is clear that we need to explore the market and regulatory arrangements to arrive at a package of measures that will allow small generators to obtain a proportionate reward for their output in a way that does not in itself create barriers to entry to DG, or reduce consumer protection.

1.26. In parallel with this workstream Ofgem will be conducting a review to ensure that the market for residential scale exported electricity is working effectively and to identify whether microgenerators are being fairly rewarded. The working group will have access to any relevant information from this review as it becomes available.

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### Appendix 3 – Distributed Energy Working Group Members

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## Appendix 4 - Estimated Value of Electricity from Distributed Generation

The Office for Climate Change has developed a range of estimated values that attempts to quantify the final value of distributed generation output under different settings. These are set out in the table below.

# includes imbalance risk component

<b>Price</b>	<b>£/kWh</b>
Spill#	2.9
Spill+Embedded#	3.7
Spill+Embedded+D benefit#	4.2
Wholesale Price	4.3
Wholesale + Embedded	5.2
Wholesale+Embedded+D benefit	5.7
Consolidator price (i.e. Wholesale+Embedded-consolidator margin)#	4.1
Shoulder	5.2
Shoulder+Embedded	6.2
Shoulder+embedded-consolidator margin#	5.1
Shoulder+Embedded+D benefit-consolidator margin#	5.6
Peak	6.1
Peak+Embedded	7.2
Peak+Embedded+D benefit	7.7
Peak+Embedded-consolidator margin#	6.1
Peak+Embedded+D benefit-consolidator margin#	6.6
Retail	8.5

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## Appendix 5 - Elexon Overview of the Balancing and Settlement Code (BSC) Arrangements

### Introduction

1.1. This document provides a high level explanation of the Balancing and Settlement Code (BSC) arrangements which were introduced to England and Wales in 2001, and into Scotland in 2005. Full information on these arrangements is contained in the Balancing and Settlement Code (BSC) and supplementary BSC documentation, which can be downloaded from the BSC (ELEXON) website – [www.elexon.co.uk](http://www.elexon.co.uk).

### 1.2. The British Electricity Trading and Transmission Arrangements

1.3. The BSC arrangements are a component of the British Electricity Trading and Transmission Arrangements which specify the systems and methods of sale, purchase and transmission of wholesale electricity. A principle of the design of the arrangements is that electricity should be traded bilaterally between willing buyers and sellers at prices under terms agreed between the counter-parties. Trades are carried out primarily 'Over the Counter' (OTC) and on the Power Exchanges that have developed to support the arrangements.

1.4. However, the characteristics of electricity mean it is almost inevitable that quantities of energy generated and consumed will deviate from the quantities for which contracts have been struck in advance. Consequently, central arrangements are required to: meter the quantities produced and consumed by each party; compare these with the quantities covered by bilateral contracts, and provide financial settlement for the differences (known as 'imbalances'). These functions are collectively referred to as 'imbalance settlement'.

1.5. The arrangements also introduced an additional function, referred to as the 'balancing mechanism'. The National Grid Company (NGC) as the Transmission Operator has a licence obligation to manage the Transmission System and, in so doing, may anticipate that more energy will be generated than consumed, or vice versa. Unchecked, this would result in system frequency falling or rising to an unacceptable degree. The balancing mechanism provides a means by which NGC can buy or sell additional energy close to real-time to maintain energy balance, and also to deal with other operational constraints of the Transmission System.

1.6. Specifically, the balancing mechanism allows electricity companies/traders (if they wish) to submit Offers to sell energy (by increasing generation or decreasing consumption) to the system and Bids to buy energy (by decreasing generation or increasing consumption) from the system, at prices of the company's choosing. These Offers and Bids may be submitted in respect of each unit of generation or consumption (known as a BM Unit) belonging to each BSC Party. NGC accepts Offers and Bids as necessary to balance the system and seeks to do so at least cost by taking the lowest-priced Offers and accepting the highest-priced Bids consistent with

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factors such as transmission system constraints and the ability of electricity companies to deliver within the timescales necessary. The 'cash-out' or imbalance prices – System Buy Price (SBP) and System Sell Price (SSP) – applied to imbalances are derived largely as the weighted average prices of these accepted balancing mechanism Offers and Bids.

### **The Balancing and Settlement Code**

1.7. The balancing and settlement arrangements and their governance are enshrined in the BSC. The requirement to have the BSC in force is placed on NGC through its Licence. It is a condition of a Generation and Supply Licence that licensees are bound by the BSC, and that they must become BSC Parties by signing the BSC Framework Agreement (which gives contractual force to the BSC). Other parties who are not licensees have the option to sign the BSC Framework Agreement, which affords them the right to notify energy contract volumes, register BM Units (if they are Interconnector Users or licence exempt) and exposes them to any charges and payments that result.

1.8. The BSC also defines the obligations on ELEXON, the Balancing and Settlement Code Company (BSCCo), in providing or procuring the services necessary to operate the BSC arrangements efficiently and establishes the BSC Panel and defines its various responsibilities. A set of subsidiary documents including Balancing and Settlement Code Procedures (BSCPs), Communications Requirements and the Data File Catalogue are referenced by the BSC, and compliance with these is also a condition of the BSC.

1.9. Other parties are recognised by the BSC. The Transmission Company has many obligations under the BSC and is itself a Party to it. Also the roles of various Agents are described – these Agents are not Parties to the BSC but are appointed, either by ELEXON or by BSC Parties, to fulfil certain functions. Agents to the BSC include the Settlement Administration Agent (SAA), Central Data Collection Agent (CDCA) and the Funds Administration Agent (FAA), and these functions are performed under contract to ELEXON. Party Agents include the Energy Contract Volume Notification Agents (ECVNAs) that notify bilaterally contracted volumes on behalf of Parties, and Meter Operator Agents (MOAs). Other Party Agents, specific to those Parties that are Suppliers, are Half Hourly and Non Half Hourly Data Collection and Data Aggregation Agents. Together with Suppliers and MOAs, these go to make up the 'Supplier Hubs', an important element of the arrangements for the metering of domestic and commercial customers, whereby consumption in each Half Hourly Settlement Period can be determined either using a Half Hourly meter or using a 'demand profile' which apportions Non Half Hourly metered consumptions to individual Settlement Periods. Finally, Distribution Companies are also bound by the BSC, essentially for the provision of certain metered data.

### **Changes to the BSC Arrangements**

1.10. A significant aspect of the BSC arrangements is the ability for those arrangements to evolve as improvements are identified and as new requirements

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emerge. Accordingly, the BSC has mechanisms for the consideration, approval and incorporation of changes, known as Modification Proposals.

1.11. Modification Proposals can be submitted by any BSC Party, energywatch and, in limited circumstances, the BSC Panel. The administration of the procedures for the consideration and development of these Proposals is one of the prime functions of the BSC Panel, which comprises: a Chairman (appointed by the Authority, via Ofgem); industry members (elected by Parties); a Transmission Company member (appointed by NGC); consumer members (appointed by energywatch); and independent members (appointed by the Chairman). The Modification Procedures culminate in a Modification Report to the Authority, via Ofgem, which contains the BSC Panel's recommendation as to whether or not a Modification should be made. The final decision in each case rests with the Authority.

### **Further Information**

1.12. Further explanation of the BSC arrangements can be found in the following documents, all of which can be downloaded from the BSC (ELEXON) website – [www.elexon.co.uk](http://www.elexon.co.uk)

- Balancing and Settlement Code
- Balancing and Settlement Code Summary
- Information Sheets
- ELEXON and BSC Panel Leaflets

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## Appendix 6 - Other relevant policy work underway on DE

### Heat

1.1. The OCC's Heat Project has been running since January 2007 and is focused on assessing the carbon impact of heat generation (and cooling), and identifying policy mechanisms by which this could be reduced. Analysis to date suggests that decarbonised heat could make a significant contribution to reducing UK CO<sub>2</sub> emissions by 2020, and a range of policies are under consideration for achieving these benefits. For example, the OCC is looking at options for extending carbon markets to include the UK heat sector, levelling the regulatory and support playing field between renewable heat and renewable transport and electricity, encouraging local government to coordinate the building of district heating networks where they can deliver a benefit, and incentivising large-scale CHP.

1.2. Given the importance of both heat and electricity supply through CHP technology in most distributed energy schemes, the outcome of the Heat Project could have a significant impact on the policy framework around DE; conversely the interaction with the electricity market is crucial for the success of delivering low-carbon heat through CHP.

### Electricity Cash-out Review

1.3. The cash-out arrangements in electricity specify how the costs of imbalances on the electricity system are reflected back onto industry participants in the form of cash-out prices<sup>39</sup>. DE schemes that are licensed and participate in the wholesale market will face cash-out prices directly. However even if the DE scheme is licence exempt, the nature of the cash-out regime may influence the prices that are offered in the market for imports and exports of electricity, since any balancing risk created by the output of the distributed generator will be factored into the price.

1.4. Ofgem launched the electricity cash-out review in February 2007 to assess how well the current arrangements are meeting objectives of simplicity and transparency, providing appropriate signals, non-discrimination, and promoting competition in the electricity market. Initial findings from the review, and the potential implications for DE, are discussed in more detail in Chapter 3.

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<sup>39</sup> Imbalances refer to mismatches between the contract position of a generator/supplier and its physical position in terms of the energy put on or taken off the system in real time. For example, a generator may have contracted to deliver 10MW in a particular half-hour period but because of an outage is only able to produce 9MW. The additional 1MW must be called up from another generator and the costs of this are reflected back onto the out-of-balance generator via the cash-out price for that period.

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## **Distribution Connection and Use of System Charges**

1.5. The structure of charges applied by all the Distribution Network Operators (DNOs) for distributed generators has two elements. The first is the initial connection charge related to the new assets necessary to make the connection. The second element is the ongoing use of system charge. The methodology used by the DNOs to set these charges has to be approved by Ofgem.

1.6. Ofgem is encouraging the DNOs to make their use of system charges more cost-reflective. Earlier in 2007 Ofgem approved one DNO's proposal to introduce a more cost-reflective charging methodology. Ofgem is encouraging other DNOs to follow this lead. This is being progressed through the Distribution Charging Methodologies Forum (DCMF). The DCMF meets every six to twelve weeks to consider and progress policy relating to the DNOs' charging methodologies.

1.7. Cost-reflective charges provide the opportunity for distributed generators to be rewarded for the benefits they bring to a distribution network. It is possible that a distributed generator could benefit from negative charges in some situations. However, there will also be situations where a distributed generator imposes higher costs on a DNO for the use of its system than previously, resulting in higher charges. As of 1 April 2007, no DNO will make use of system charges to microgeneration exports.

## **Providing new connections**

1.8. A DNO is required by its licence to make a connection offer to a distributed generator within three months of receiving a valid application. Disputes about the design and cost of connections are usually resolved through bi-lateral negotiation with very few having been brought to Ofgem for determination.

1.9. Connection disputes cause delay and extra cost, and Ofgem recognised that there is scope for the DNOs to improve the quality of their service. Recognising these issues, Ofgem published its *Review of Competition in Gas & Electricity Connections*<sup>40</sup> proposals in February 2007.

1.10. The Ofgem proposals document outlined plans to formalise the obligations on DNOs in the provision of non-contestable services through the introduction of a new licence condition. This is intended to ensure consistency in expected levels of service and enable robust comparability of performance between DNOs.

1.11. Ofgem issued a formal collective licence modification proposal on 13 July 2007<sup>41</sup> which sought views on the draft licence condition (SLC) 4F – Standards for

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<sup>40</sup> Review of Competition in Gas and Electricity Connections Proposals Document - 26/07

<sup>41</sup> Standard Licence Condition 4F - Formal licence modification - 180/07

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the provision of non-contestable connection services and an accompanying guidance document<sup>42</sup>. SLC 4F covers key non-contestable areas including the provision of connection quotations (including point of connection information), responding to design submissions and the completion of final works and phased energisations. Each service is broken down into standards of performance based on voltage level with specific timescales assigned to each standard. The standards have been extended to cover both demand and generation connections.

1.12. The licence condition requires DNOs to use reasonable endeavours to meet the relevant timescales in every case and, without limiting the effect of this obligation, to ensure that the timescales were met for each standard in at least 90% of cases over each regulatory year. Ofgem received no objections to the licence modification and as a result both SLC 4F<sup>43</sup> and the accompanying guidance document<sup>44</sup> were implemented on all DNOs from 1 October 2007.

1.13. Ofgem has recently completed bilateral meetings with each DNO to discuss their progress against a range of other best practice areas that were outlined in the Proposals Document. An update document will be published in 2008, and will also look to publish performance figures against the new licence condition standards.

### **Relationship between DG and transmission**

1.14. Parties have raised a number of issues with the treatment of DG within the transmission arrangements. These issues included cost-reflectivity in transmission charging and the interaction with transmission access issues, particularly in the context of DG leading to exports from the distribution system to the transmission system and leading to transmission investment.

1.15. For example, unlicensed DG is treated as negative demand in the Transmission Network Use of System (TNUoS) charging, thereby avoiding the generation TNUoS charges and being paid the demand TNUoS charges. This gives unlicensed DG, in comparison to licensed generators situated in the same location, a relative benefit in TNUoS, which is known as "embedded benefit", of the order of £17/kW per year under the current TNUoS tariffs. Questions have been raised about the cost-reflectivity of the size of the embedded benefits, i.e. whether it reflects the level of cost-savings on the transmission network caused by such DG.

1.16. Since September 2005, Ofgem has consulted on various aspects of the transmission treatment of DG, including operation and planning, access and

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<sup>42</sup> Standard Licence condition 4F. Standards for the provision of non - contestable connection services ("SLC 4F") - Consultation on Draft Guidance Document version 1 - 181/07

<sup>43</sup> Standard Licence Condition 4F. Standards for the provision of non-contestable connection services ('the Condition') - Licence Modification – 229/07

<sup>44</sup> Standard Licence Condition 4F. Standards for the provision of non-contestable connection services ('the Condition') – Issue of guidance in accordance with paragraph 12 of the Condition - 228/07

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charging. In July 2006 Ofgem established an industry group - the Transmission Arrangements for Distributed Generation (TADG) working group. The Group reviewed and developed high level options for change to the existing transmission arrangements with respect to distributed generation. The Group's Report was published in July 2007, and includes the Group's assessment of the issues with the existing arrangements and of four potential options for change to those arrangements.

1.17. In an open letter accompanying this report<sup>45</sup>, Ofgem welcomed the progress made by the group and set out its provisional views. It is for the industry to take forward any particular changes through change proposals to relevant industry codes or other documents. Such proposals will be developed in more detail through the modifications processes including relevant industry consultations, before being submitted to Ofgem for decision.

### **Microgeneration Work**

1.18. Ofgem recognises the importance of microgeneration, and its own role in facilitating and enabling it to become more widespread. Ofgem's objectives with regard to this work are to ensure that obstacles to the development of microgeneration are identified and addressed, and where appropriate to work with government to ensure that any financial support is well-designed and works with the market framework. As part of these objectives, Ofgem has established a Microgeneration Forum as an opportunity for stakeholders to meet and provide input in order to ensure that concerns are addressed across relevant Ofgem workstreams, and that technical work is fully linked into wider Ofgem policy initiatives.

1.19. Additionally, in March 2007, the Treasury asked Ofgem to ensure that the market for exported electricity is working effectively and to identify barriers that prevent microgeneration from being fairly rewarded. As a result of this, Ofgem is conducting a review of the market for exported electricity to assess whether supplier offers are easily accessible and comparable by consumers, whether consumers are able to switch between suppliers and whether the offers are a fair reflection of the underlying value of microgeneration.

1.20. This review is being conducted as the powers granted under the Climate Change and Sustainability Act 2006 go 'live'. These granted the Secretary of State powers to make modifications to the supply and/or distribution licences for the purposes of increasing the amount generated by microgeneration, which would require the holder to make offers to acquire electricity from installations up to 50 kW in size. These powers do not include setting the level of the tariff.

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<sup>45</sup> Both the TADG report and Ofgem's accompanying open letter can be found on Ofgem's website  
<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=57&refer=Networks/Trans/ElecTransPolicy/TADG>.

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1.21. Ofgem presented the interim results of this review to the Treasury in November 2007, with a view to publishing a factsheet on microgeneration export tariffs once the review is complete.

### **The Carbon Emissions Reduction Target (CERT) and Supplier Obligation**

1.22. The Government committed in the 2007 Energy White Paper to an obligation on energy suppliers in the household sector until at least 2020, delivering at least 3-4 million tonnes of carbon emission reductions (7-10% of household emissions). DEFRA has laid legislation to introduce a Carbon Emissions Reduction Target (2008-11) which places an obligation upon suppliers under CERT to meet their contribution towards an overall carbon emissions reduction target for domestic homes. How they meet this target is the responsibility of suppliers, but the scheme provides additional incentives for innovative measures (for example in microgeneration) which would transform the market. Longer-term after 2011, DEFRA is looking at meeting the 2020 target through a Suppliers' Obligation, which considers a number of ways to make it more likely that the target will be met.

### **Ofgem's Proposed Review of Industry Code Governance**

1.23. Ofgem recently announced that it intends to commence a project to review elements of the industry code governance regime and identify whether improvements can and should be made to the existing frameworks that apply in the gas and electricity sectors. This reflects increasing concern that there may be weaknesses in the way the codes are governed that may be preventing both industry and consumers from getting full value from these arrangements. In addition to these factors, the entry into the market place of smaller players, such as distributed energy providers and micro-generation interests, has also led to concerns that the existing code arrangements are too complex and inaccessible. As such, Ofgem considers that it is timely to consider whether the code arrangements in their current form represent an undue barrier to entry to smaller players and whether there are changes that can be made to simplify these arrangements and reduce unnecessary regulatory burdens.

1.24. In order to fully determine the scope of the project and the issues that might be addressed, Ofgem considers that it is important to consult with and understand the views of industry participants on the effectiveness of the existing framework and whether there are particular deficiencies that need to be addressed. It has been requested that any written submissions are provided by 22 January 2008. Once the scope of the project is defined Ofgem would then propose to consider options for change and the steps and processes by which change can be implemented where necessary.

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## Appendix 7 – The Authority’s Powers and Duties

1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority (“the Authority”), the regulator of the gas and electricity industries in Great Britain. This Appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

1.2. The Authority’s powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts.<sup>46</sup>

1.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly<sup>47</sup>.

1.4. The Authority’s principal objective when carrying out certain of its functions under each of the Gas Act and the Electricity Act is to protect the interests of consumers, present and future, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the shipping, transportation or supply of gas conveyed through pipes, and the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors.

1.5. The Authority must when carrying out those functions have regard to:

- The need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- The need to secure that all reasonable demands for electricity are met;
- The need to secure that licence holders are able to finance the activities which are the subject of obligations on them<sup>48</sup>; and
- The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.<sup>49</sup>

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<sup>46</sup> entitled “Gas Supply” and “Electricity Supply” respectively.

<sup>47</sup> However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.

<sup>48</sup> under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Act in the case of Electricity Act functions.

<sup>49</sup> The Authority may have regard to other descriptions of consumers.

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1.6. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

- Promote efficiency and economy on the part of those licensed<sup>50</sup> under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
- Protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity;
- Contribute to the achievement of sustainable development; and
- Secure a diverse and viable long-term energy supply.

1.7. In carrying out the functions referred to, the Authority must also have regard, to:

- The effect on the environment of activities connected with the conveyance of gas through pipes or with the generation, transmission, distribution or supply of electricity;
- The principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and
- Certain statutory guidance on social and environmental matters issued by the Secretary of State.

1.8. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation<sup>51</sup> and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

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<sup>50</sup> or persons authorised by exemptions to carry on any activity.

<sup>51</sup> Council Regulation (EC) 1/2003

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## Appendix 8 - Glossary

### B

#### Balancing Mechanism

A market-based mechanism that enables National Grid to instruct generators and suppliers to vary electricity production or consumption close to or in real-time, in order to maintain safe operation of the system.

#### BETTA

British Electricity Transmission and Trading Arrangements: The introduction of NETA throughout Britain by combining English/Welsh and Scottish rules on 1 April 2005

#### BSC

The Balancing and Settlement Code: Industry code covering the rules for electricity balancing and imbalance charges in Great Britain

#### BSUoS

Balancing Services Use of System Charges: Charges paid by suppliers and generators based on the energy taken from or supplied to the National Grid system in each settlement period. These charges are paid to cover the cost of keeping the system in balance and maintaining the quality and security of supply.

### C

#### Cash Out Arrangements

Arrangements whereby generators and suppliers pay or are paid for imbalances i.e. shortages and surpluses of power relative to their contracted commitments.

#### CCL

Climate Change Levy: A tax on energy delivered to non-domestic users in the UK, aimed at providing incentives to increase energy efficiency and reduce carbon emissions. Energy generated from renewable sources is not taxed.

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## CHP

Combined Heat and Power: A technology where electricity is generated at or near the place where it is used, with the heat produced being used for space heating, water heating or industrial steam loads. This potentially leads to much higher efficiency than conventional generation.

## D

### DCMF

Distribution Charges Methodology Forum: A group which meets every six to twelve weeks to consider and progress policy relating to the DNOs' charging methodologies

### DEWG

Distributed Energy Working Group: A working group set up by Ofgem and BERR to discuss the commercial, environmental and regulatory issues arising in the context of small, low carbon generation, and potential solutions to these problems.

### Distributed Energy/Distributed Generation

Any generation which is connected directly into the local distribution network, as opposed to the transmissions network, as well as combined heat and power schemes of any scale. The electricity generated by such schemes is typically used in the local system rather than being transported for use across the UK.

### DNOs

Distribution Network Owners: Monopoly providers of local, lower voltage electricity networks.

### DUoS

Distribution Use of System charges: Charges paid by generators and suppliers for the use of the distribution network

## E

### ECVAA

Energy Contract Volume Aggregation Agent: Agent that receives ECVNs and MVRNs from ECVNAs and MVRNAs. The ECVAA stores and provides this data to various BSC Agents.

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### ECVN

Energy Contract Volume Notification: The notification sent for a contract between two parties by the ECVNA

### ECVNA

Energy Contract Volume Notification Agent: Agent that sends contract notifications between two trading parties to the Energy Contract Volume Aggregation Agent

### Embedded Benefits

Benefits gained by smaller generators by avoiding the charges associated with use of the electricity transmission grid and becoming signatories to the BSC.

### ESI

Electricity Supply Industry

### EU ETS

European Union Emission Trading Scheme: The EU-wide greenhouse gas emissions trading scheme, under which governments must set emission limits for all large emitters of carbon dioxide in their country. Each installation is then allocated an allowance for the particular phase in question, with the first phase running from 2005 – 2007 and the second from 2008 – 2012. Installations may meet their cap by either reducing emissions below the cap and selling the surplus, or letting their emissions remain higher than the cap and buying allowances from other participants in the EU emissions market.

### Exempt Supply Services

Services provided to exempt suppliers by a licensed supplier. These might include meter registration, data processing, and providing top-up and back-up services.

### Exemption Order

The Exemption Order 2001 allows schemes of under a certain size to operate without the need to apply for a generation, distribution, and/or supply license. For generation, the limit is 100MW when consumption is for own use, or 50MW where it is for on-site third party use. For distribution, the limit for residential load connected via a private wire is 1MW, and for supply the limit is 1MW for residential customers supplied on-site or via private wires.

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## L

### LCCA

London Climate Change Agency. An agency established by the Mayor of London as the primary delivery vehicle for reducing London's carbon dioxide emissions.

### LECs

Levy Exemption Certificates: Evidence of CCL exempt electricity supply generated from qualifying renewable sources. Organisations that pay the CCL can enter into agreements with suppliers to purchase renewable electricity which is exempt from the levy.

### LLF

Line Loss Factor: Factor that is entered into settlement as an estimate of the electricity losses in distribution network lines.

## M

### MPAN

Meter Point Administration Number: A unique number relating to a metering point under the MRA

### MRA

Master Registration Agreement: The agreement that sets out terms for the provision of Metering Point Administration Services and procedures in relation to the Change of Supplier to any premise/metering point.

### MVRN

Meter Volume Reallocation Notification: A notification of Metered Volume Reallocation in relation to Settlement Period(s) in any Settlement Day(s). Sent by the MVRNA to the ECVAA.

### MVRNA

Meter Volume Reallocation Notification Agent: An agent giving MVRNs to the ECVAA on behalf of parties.

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## **N**

### [NETA](#)

New Electricity Trading Arrangements: A system of wholesale electricity trading based on bilateral contracting between suppliers and generators, introduced in England and Wales in March 2001.

## **P**

### [PES](#)

Public Electricity Supplier: One of the fourteen regional integrated supply/distribution companies that existed prior to liberalisation of the GB electricity market.

## **R**

### [Renewables Obligation \(RO\)](#)

The government's main support programme for renewable energy generation, under which electricity suppliers must source a proportion of their supply from renewable generation.

### [ROCs](#)

Renewable Obligation Certificates: Certificates received by eligible renewable generators for each MWh of electricity generated. These can be sold to suppliers in order to fulfil their obligations under the RO.

### [RPZ](#)

Registered Power Zone: An area of the national grid network specifically designated for the research, development and demonstration of new technologies concerning the power network, specifically to develop solutions to the problems associated with connecting generating capacity at the distribution network level.

## **T**

### [Top-up/Back-up](#)

Additional electricity provided to an exempt supplier by a licensed supplier to meet any shortfalls in production relative to customer demand and to cover plant outages due to failure or maintenance.

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### [Transmission Access for Distributed Generation \(TADG\) Working Group](#)

Working Group established by Ofgem in July 2006 to review and develop high level options for change to the existing transmission arrangements with respect to distributed generation.

### [TNUoS](#)

Transmission Network Use of System Charges: Charges paid by generators and suppliers directly connected to the electricity transmissions grid for use of the grid.

## **U**

### [UKPX](#)

UK Power Exchange / APX Power UK: The main short-term trading exchange for wholesale electricity in the UK.

## **V**

### [VPN](#)

Virtual Private Network: An approach which attempts to replicate the exposure to trading arrangements faced by private wire schemes for DE schemes using the licensed distribution network.

## **Z**

### [ZCH](#)

Zero Carbon Homes: The government's zero-carbon homes policy, set out in the Housing Green Paper, "Building a Greener Future", proposes that all new homes in England should be zero-carbon from 2016.

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## Appendix 9 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

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