Anna Kulhavy
Senior Economist – GB Markets
Ofgem
9 Millbank
London, SW1P 3GE

11 March 2008

Dear Anna

DISTRIBUTED ENERGY – INITIAL PROPOSALS FOR MORE FLEXIBLE MARKET AND LICENSING ARRANGEMENTS

EDF Energy welcomes the opportunity to respond to Ofgem/BERR's joint consultation on creating more flexible market and licensing arrangements for Distributed Energy (DE). The outcome of this consultation will have a direct impact on EDF Energy, as we are already a significant player in the DE market, with a number of business activities:

- Connecting DE to our electricity distribution networks.
- Owning and operating DE schemes (including Barkentine Combined Heat and Power (CHP) plant in East London).
- Exploring new opportunities for DE, independently, and through the London Energy Services Company (ESCO), our joint venture with the London Climate Change Agency (LCCA).
- Purchasing the electricity from independent DE schemes, and providing a range of support services (including to large schemes at Woking and Milton Keynes).

While we believe that the issues covered by the consultation are very important, we would stress that Government decisions and actions regarding heat, carbon pricing, and the future of renewable electricity support mechanisms, will also have a profound impact on the DE market. It is very important that Government and Ofgem ensure that all of these issues are considered in a joined up way.

The role of Distributed Energy technologies

In recent years a number of commentators have suggested that the most effective way to reduce carbon emissions arising from energy use in the UK is to replace our existing centralised electricity infrastructure with a system comprising local DE schemes.

While it is true that DE technologies can in some specific situations make a cost effective contribution to reducing carbon emissions, we do not believe that a major transition away from our existing centralised electricity system, to a system based largely on decentralised electricity, would be the most cost effective way to reduce carbon emissions, and would be unlikely to deliver the level of carbon emissions

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reductions and significant increase in renewable energy generation that the UK must deliver.

DE does have a role to play, but decarbonising the large scale electricity generation plant connected to the national electricity grid, combined with an increased uptake of low and zero carbon heat sources, will deliver the greatest long term environmental benefits at the lowest cost.

Implications for Policy Development

Government policy development should not lose sight of the primary objective of reducing greenhouse gas emissions in the most cost effective manner. A policy objective that seeks to prescribe the geographical location and scale of energy installations without a rigorous test on the long term net carbon footprint of energy provision is likely to lead to significant policy conflicts. It could also seriously undermine the UK Government's ability to meet its declared emission reduction targets, or could have a negative impact on the UK's international competitiveness.

Wide ranging and fundamental energy market reform to facilitate a significant increase in DE as a policy objective is unwarranted. However, we do see several areas in which Government and Ofgem can take action to ensure that the 'best' opportunities for DE solutions are identified and exploited. The first three below are covered by this consultation, the last two are additional.

- Rationalisation (but not an increase) of supply and distribution licence exemption limits, and review of arrangements governing Independent Distribution Network Operators (IDNO's) affiliated to the host Distribution Network Operator (DNO)'s, in order to ensure that all players, including the large incumbent energy companies can compete in all areas of the DE market.
- Removal of market barriers. We are in favour of making changes to 'cash out' arrangements and developing more cost reflective distribution network charging.
- A national DE Delivery Agency should be created to 'shine a light' on the market, provide information and help open doors for new entrants.
- The value of carbon emissions abatement should be recognised in all sectors, including the heating sector (the majority of emissions from heat are not covered by the European Union Emissions Trading Scheme, (EU ETS)).
- UK specific carbon price mechanisms may be required to support the EU-ETS and deliver long term pricing signals for investors in low carbon technologies.

We do not support regulatory intervention in the market for provision of services to DE schemes (such as 'consolidation' or 'exempt supplier services'). It is not clear to us that any such proposal would provide greater value to DE schemes than they currently receive via the market, unless service provision were subsidised. We oppose such

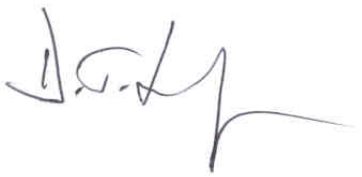
market distortion, which would undermine the existing competitive market, and is clearly unsustainable in the medium term as the DE market grows.

In addition, we oppose any proposals to remove a large number of customers from the protection of the competitive market, even if this was only a temporary arrangement.

Our full response to your consultation is attached. Please do not hesitate to contact me on 0207 752 2200, or my colleague Matthew Nunn on 0207 752 2194 if there are any queries arising from our comments or if you think that further discussion would be useful.

Please note, our response to Q7 is provided in confidence

Yours sincerely



Denis Linford
Director of Regulation

Attachment: EDF Energy's response to the Ofgem/ BERR consultation on Distributed Energy

EDF Energy's response is structured as follows:

- **Section 1** – Our views on the role Distributed Energy (DE) technologies can play within the UK's energy mix.
- **Section 2** – Our views on amendments required to the 2001 Class Exemptions Order. We have provided a general overview rather than individual answers to questions 1-4.
- **Section 3** – Our detailed responses to questions 5 – 28. We have answered most, but not all of the questions raised.

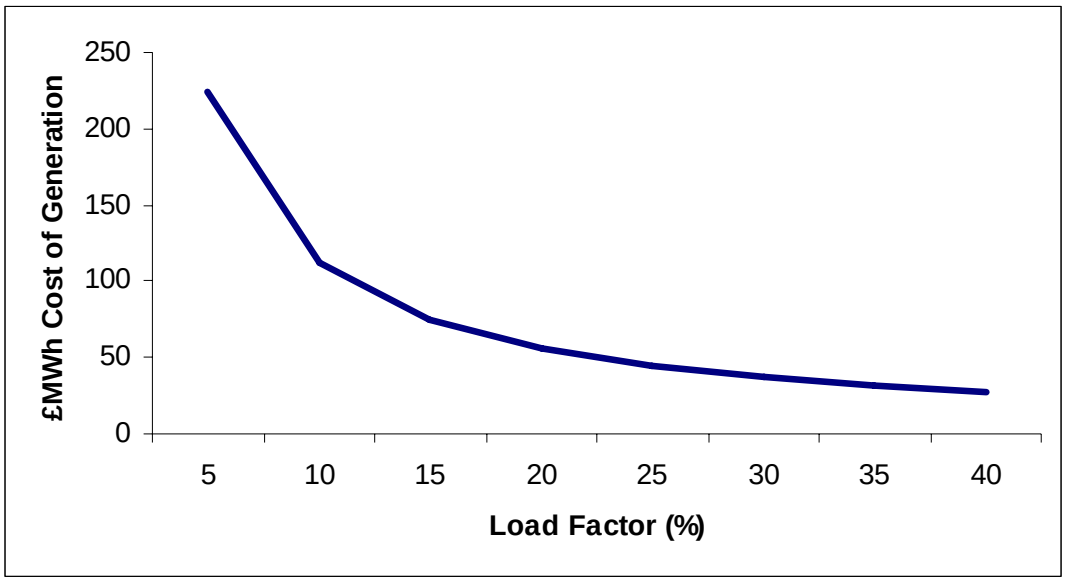
Section 1: The Role of Distributed Energy Technologies

Electricity only Generating Technologies

Zero carbon electricity only generating technologies, such as wind power, do not deliver additional environmental benefits simply because they are located close to demand. In fact, the opposite is frequently true - wind turbines deliver more output, at lower cost (£/MWh), when they are located in areas with high average wind speeds, which are in general, remote from the main centres of demand.

The graph below (figure 1) shows how the cost of generating 1MWh of electricity from a 1MW wind turbine changes depending on the load factor achieved.[1]

Figure 1



[1] Source: EDF Energy. Key assumptions based on the Renewables Advisory Board (RAB) report 'The role of on-site energy generation in delivering zero carbon homes'. Capital costs £1.5m per MW, Maintenance costs £23,000 per annum, Life time of 20 years.

In a windy area, such as Northern Scotland, load factors can be in excess of 30% - at this load factor, turbines can generate at around £37/MWh. In comparison, a wind turbine located in an urban environment, where load factors in many cases are likely to be less than 10%, will generate at a cost in excess of £112/MWh (at least 3 times more expensive). It must also be considered that locating a wind turbine of any real size in an urban environment may not be possible due to planning and space constraints, thus requiring the use of smaller, and more expensive turbines.

However, a small part of the benefit gained by locating a turbine in the most suitable areas will be offset by the fact that when generation is located far away from demand, power losses occur when transporting power over the transmission and distribution networks (on average 2% and 5% respectively). In our example, this would increase the cost of generating from £37/MWh to £40/MWh.

It should also be noted that when generation is located far from demand, the operator will also incur the costs of using, and potentially reinforcing the transmission and distribution networks. However, even if every house in the country had a micro-wind turbine, we would still be required to maintain the distribution and transmission networks on the same scale in order to supply power from back-up centralised generation at times when it is not windy.

Other electricity only technologies such as solar photovoltaic (PV) are largely indifferent to geographical location and could be deployed locally where they can provide cost effective solutions. In most urban areas solar PV will provide a more cost effective solution than wind, but this will still be more expensive than large scale wind power located in windy, rural areas.

We strongly believe that government policies must seek to encourage the most efficient utilisation of the UK's renewable resources without being prescriptive on the scale of deployment or geographical location of installations and retain the primacy of the objective to reduce greenhouse gas emissions.

Gas Fired Combined Heat and Power (CHP) Schemes

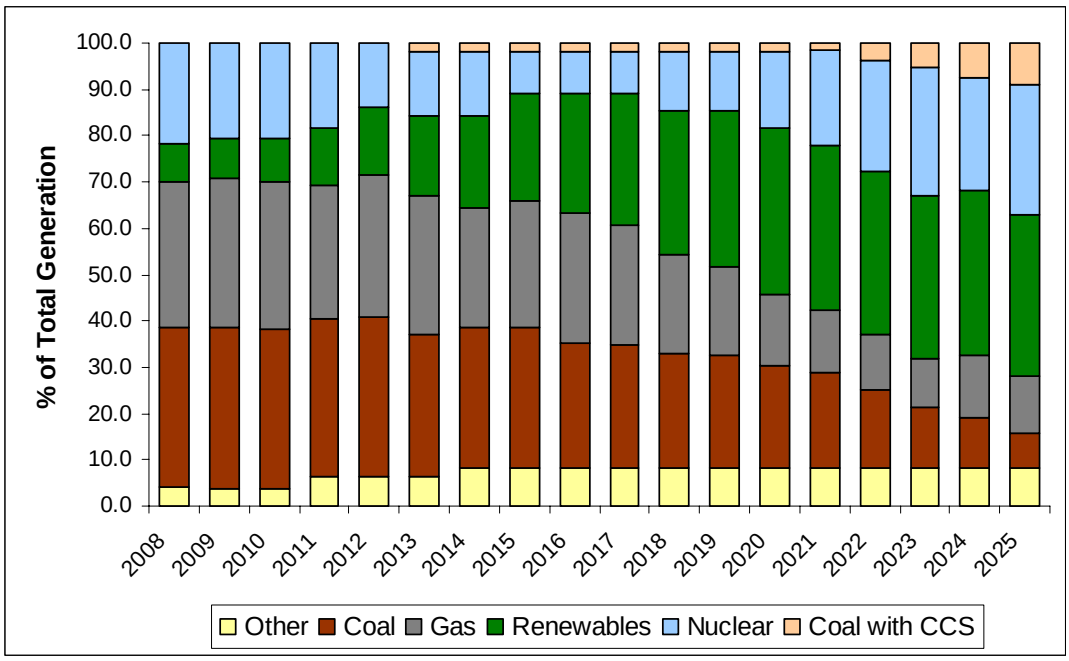
One of the potential benefits of locating electricity generation close to demand is that this presents the opportunity to capture and make use of the heat generated as a by-product of energy generation, as in CHP schemes. Utilising this heat efficiently allows us to reduce the energy consumption in other sources of heating, and therefore reduce carbon emissions.

In the short to medium term nearly all CHP plants in the UK will be fuelled primarily by natural gas. The carbon benefits of using this technology should be assessed against the potential alternatives for generating electricity and heat separately. It is also important that we assess these options over the medium and long term to ensure that we are choosing solutions that will deliver sustained reductions in carbon emissions over their entire asset life cycle.

At present, when comparing gas fired community scale CHP to the alternative of electricity taken from the National Grid and gas boiler heating, CHP can be a 'lower carbon' solution, due to the current high carbon intensity of the centralised power generation.

However, in the near future, European targets for emissions reductions and renewable energy generation will result in a significant reduction in the average carbon intensity of electricity taken from the national grid. The most significant impact will come from the UK's commitment to achieve its share of the EU 20% renewable energy target. While the UK share is not yet agreed, an early view shared by many commentators is that this will require the UK to generate around 40% of our electricity from renewable sources by 2020. The graph below (figure 2) shows one of EDF Energy's scenarios for likely changes to the UK's electricity generation mix between now and 2025.

Figure 2

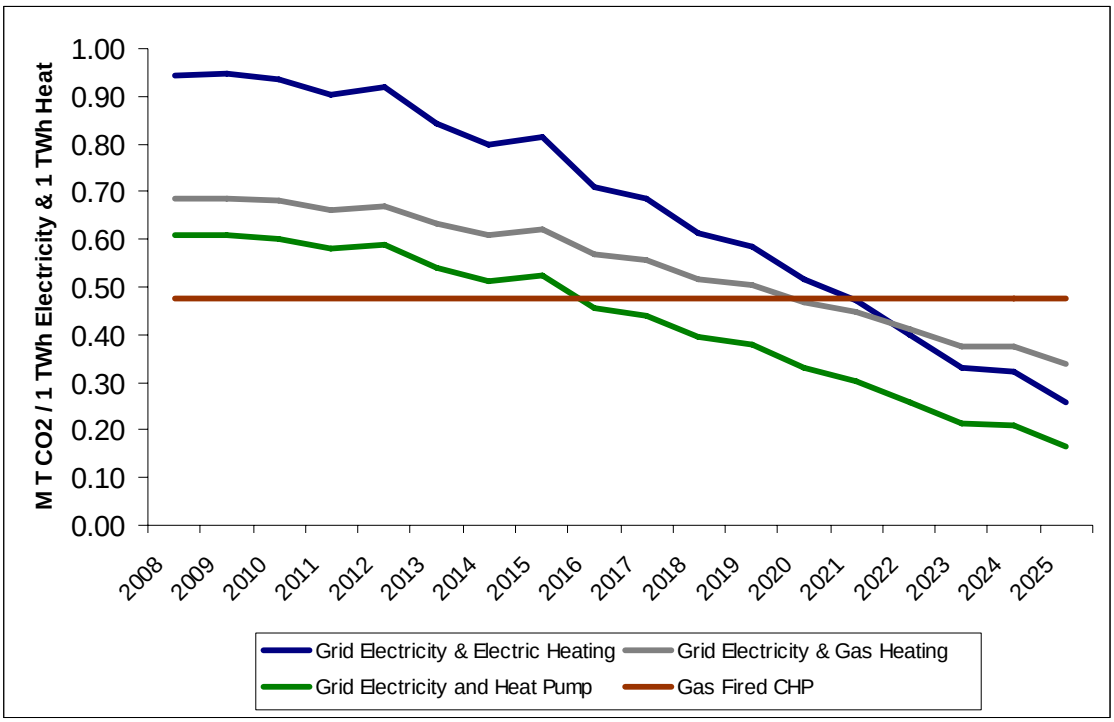


As centralised power generation decarbonises the carbon saving potential for gas fired CHP will reduce. The next graph (figure 3) clearly shows what we have termed 'switching points', that is when gas fired CHP is no longer a 'lower carbon' solution than the alternative of grid electricity[2] and a variety of different heating solutions.

Full details of our assumptions are listed in Appendix 1. Network losses associated with grid electricity have been taken into consideration (c2% transmission and 5% distribution). We have assumed that the CHP solution does not incur any network losses.

[2] Assuming the changes to central power generation shown in figure 2

Figure 3



The main conclusions are:

- By 2021, generating 1TWh of electricity/and heat from a gas fired CHP will generate more carbon than 1TWh of grid electricity and 1TWh of heat from a gas boiler.
- By 2016, a mere 8 years from now, generating 1TWh of electricity/and heat from a gas fired CHP will generate more carbon than 1TWh of grid electricity and 1 TWh of heat from a heat pump.

This analysis shows that building a substantial amount of gas fired CHP plant today that will generate for 15-20 years, will actually lock in higher carbon emissions over the long term, as lower carbon solutions become available.

However, this is not to say that we believe gas fired CHP has no role to play in the short term. Some new Combined Cycle Gas Turbine (CCGT) plant will be built in the UK over the next 5- 7 years in order to fill the short term capacity gap that renewables and new nuclear cannot fill.

Decentralised gas fired CHP plant may be able to displace a small portion of this capacity, and deliver carbon savings. Our analysis shows that a gas fired CHP plant could deliver up to 20% carbon emissions savings compared to a new gas fired CCGT and gas fired boiler (see Appendix 1 for assumptions). However, this will only be an economic solution in particular situations when applied to a site with a high, fairly constant heat demand, which will allow the plant to be operated continuously – generating a significant amount of electricity. Applying CHP to a site with a lower,

intermittent heat load will mean that electricity generation would be limited, and the economics less attractive. It is for this reason that Government will find it difficult to meet its CHP target, despite the additional benefits CHP receives from the EU ETS and Climate Change Levy (CCL). The fuel savings (and therefore carbon savings) simply do not justify the extra capital cost in these situations.

In many cases, other, more cost effective options may be available to deliver the same level of emissions savings. For example, a CCGT with a heat pump will generate around the same level of carbon emissions as a gas fired CHP (see Appendix 1 for assumptions).

This latter solution also has two potential further upsides: 1) It may still be possible to capture a proportion of the heat from the CCGT for a useful purpose and 2) In the longer term it may be possible to retrofit fossil fuel plant with carbon capture and storage technology. This will only be viable for large scale centralised plant, and not possible on a local DE scale.

Renewable Combined Heat and Power Technologies

Biomass or biofuel CHP may also offer a realistic opportunity for lower carbon CHP generation, provided that significant challenges around the sustainability, supply chain and relatively high costs of biofuels can be resolved.

The role that this technology can play will also be influenced by developments in other sectors. For example, it may prove better (from an emissions reduction perspective) to divert biofuels to transport, where unlike the electricity and heat sectors, there are limited other options for low carbon fuels.

Section 2: Supply and Distribution Licence Exemption Limits

The section below details EDF Energy's view on licence exemption limits. We are conscious of the fact that this issue was debated at length in the Distributed Energy Working Group (DEWG) and will therefore present our views concisely.

Increasing Exemption Limits

At present, the 2001 Class Exemption Order allows licence exempt schemes to distribute and supply only very small amounts of electricity to domestic customers; a maximum of 2.5MW (approximately 2,500 homes) in the case of distribution, and 2.5MW supply.

Licence exemptions are attractive for several reasons, the key ones being:

Supply: Being exempt from the requirement to hold a supply licence allows smaller suppliers to avoid the complexity of administration and cost of obligations such as the Carbon Emissions Reduction Target (CERT) and the Renewable Obligation (RO).

Distribution: The consultation correctly identifies that one of the benefits to the developer of operating on private wires is that it can be made difficult for customers to switch supplier. The purpose of this approach is to ensure that the on-site generator is

able to earn retail rather than wholesale market prices for the electricity he generates, as customers are unable to switch to alternative suppliers.

Other options to reduce the risk of customer switching, such as long term contracts are untested in the market and may not reduce risk sufficiently (for example, the contract would terminate when a customer moves house).

We do not believe that a case has been made to justify an increase in the supply and distribution licence exemptions limits. While in the short term an increase may drive an increase in the number of DE schemes, in the medium term this approach would not be sustainable and would work against other government policy objectives. We see the two most serious problems as follows:

- Increasing the supply licence exemption limit would mean that an increasing number of customers would not be required to contribute to funding Government mechanisms to deliver an increase in renewable energy generation (currently the RO). This would reduce the number of customers over which to share the cost (a cost which is likely to increase significantly anyway in future years as the UK is required to achieve its share of the EU renewable energy target).
- Increasing the distribution licence exemption limit could lead to a significant increase in the number of customers who cannot access the competitive market, and would therefore no longer enjoy the benefits of price and service competition.

Rationalisation of Exemption Limits

While we do not believe that current supply and distribution licence exemption limits should be increased, we do believe that some amendments are required to the current exemption rules.

The most serious practical problem with the exemptions order is the limitation imposed on both exempt supply and exempt distribution by the rules applying to intra-group company relationships. These rules have the following consequences:

Supply

In the Class A supply exemption under Schedule 4, the company supplying up to 2.5 megawatts of self-generated power to domestic consumers cannot be 'associated with' a licensed supplier. Because of the way in which this particular intra-group relationship is defined under the order, the effect of this prohibition is that no such company can be a Companies Act subsidiary of either (i) any of EDF Energy's licensed supply companies or (ii) of EDF Energy itself.

In addition, whilst other organisations (non licensed suppliers) entering this market would be able to obtain licence exemptions for one or more schemes up to a cumulative total of 2.5MW, once they reach this threshold, they will not then be able to own another unlicensed scheme.

Distribution

On the distribution side, the Class A exemption for small distributors of power to domestic customers under Schedule 3 requires the company in question not to be 'associated with, connected to, or related to' any licensed distributor. The practical effect of this legal rule is that, in assessing whether the new distributor distributes more than 2.5 megawatts of power and whether this Class A exemption will be available, it is necessary to take into account all of the power distributed to domestic consumers by companies which are members of the same corporate group as the new distributor.

Therefore, because EDF Energy owns and operates three licensed distribution businesses, no company associated with EDF Energy would qualify for a Class A licence exemption.

This effectively means that, in relation to distribution to domestic consumers, the only exemption available to an EDF Energy-related company is Class B under Schedule 3. This exempts on-site distribution of up to 1MW of power for domestic purposes from a generator embedded in the distributor's system.

Conclusions

We see two significant problems:

1) Licensed suppliers and distributors are disadvantaged compared to other organisations.

EDF Energy competes for DE projects against a number of other organisations, many of whom are not associated with licensed distributors or suppliers. These companies will therefore be able to secure licence exemptions in situations where we could not, therefore reducing their costs and risks and increasing the value / appeal of the offer they can make to the developer (in comparison to the offer made by EDF Energy).

In fact, avoidance of the cost of the RO alone will provide a significant advantage. According to the consultation document, the LCCA estimate this to be worth £2.7/MWh (this is equivalent to more than 5% of current electricity wholesale prices).

2) No organisation can gain scale.

No one organisation will be able to gain scale (in terms of operating a number of discrete schemes) in the unlicensed DE market. Even new entrants (non licensed suppliers) will be prohibited from supplying more than 2.5MW to domestic customers (c2,500 customers). This restriction on scale limits the appeal of market entry.

Both of the concerns noted above will limit the creation of large players at the smaller end of the DE market. We believe that this is detrimental to the future development of the Energy Services market, as the involvement of large businesses would bring many potential benefits, notably financial strength, investment in research and development,

and the ability to drive down costs, which is crucial if DE is going to play any meaningful role in our future energy mix.

Remedies

We believe that there are two potential remedies to the problems noted above:

1) Freeze the existing regime and grant no further licence exemptions to DE schemes.

2) Revise the exemptions order to simply set a single 2.5 MW limit for supply and distribution, set by site and not company.

Either of these solutions would mean that all organisations are competing on a level playing field, and will ensure that large, strong players can emerge and compete in all parts of the DE market (including the smaller end).

The option selected by Ofgem/BERR may be influenced by the outcome of the Citiworks case (as referenced in the consultation document), currently before the European Court of Justice.

Customer Protection

EDF Energy believes that any customer who is unable to change supplier requires additional protection from Ofgem. Ofgem should be able to set a maximum tariff for this customer, that is in-line with tariffs in the competitive supply market. In addition, suppliers to customers who are unable to change supplier, should be required to sign up a simple code of conduct guaranteeing service standards.

Section 3: EDF Energy's Response to Questions 4 – 28

Chapter Three: Wholesale Market Trading

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?

The interests of DE schemes are already represented in BSC governance processes through participation by existing BSC signatories, many of whom own, operate, develop and contract with DE schemes. The BSC panel only recognises the category of "industry representatives" and does not explicitly mention any particular industry participants. We would note that the BSC Panel reference document states-

"BSC panel members are required to act impartially and not in the interests of, the body or person to whom they are appointed. All panel members are to provide a written undertaking to this effect prior to taking office" (Section 3.5.2 BSC Reference Document v8.0 2006)"

The appointment of a DE specialist could be considered discriminatory when compared with other competing low and zero carbon technologies, as the panellist might naturally vote against modifications which favour non DE technologies.

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?

It would not be appropriate for BSC funding for non-BSC signatory DE representation on the BSC Panel to be sourced directly from BSC signatories. Funding should be derived from a relevant trade association or company.

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.

We agree that the cashout review should consider the issues faced by small intermittent generators. It is worth noting that the recent Impact Assessment for P211, raised by EDF Energy and which Ofgem is minded to approve (but is now delaying) has identified that it benefits small intermittent generators relative to the existing baseline.

Chapter 4: Selling to Third Parties

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.

No evidence has been presented in the consultation document that proves that the electricity purchased from DE has been undervalued and that there is not a competitive market. EDF Energy is very active in this market, and our experience is that the market for DE purchases from both renewable and non renewable generation is highly competitive.

[OUR ANSWER TO QUESTION 7 IS PROVIDED IN CONFIDENCE AND CAN BE FOUND IN APPENDIX 2]

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

As noted in our response to Question 7, we do not believe that there is a lack of competition in the market for small generator output.

While there may be only one independent consolidator operating in the market (Smartest Energy), several other companies act as consolidators, including all six of the major suppliers.

In 2007, EDF Energy contracted with circa 30 different counterparties which involved over 200 small / medium size renewable and non renewable generators ranging from 20 kW to 90 MW installed capacity. Purchases were made through bilateral contracts with generators, NFPA auctions and OTC trades.

We are seeing several factors driving demand and competition for electricity from DE schemes:

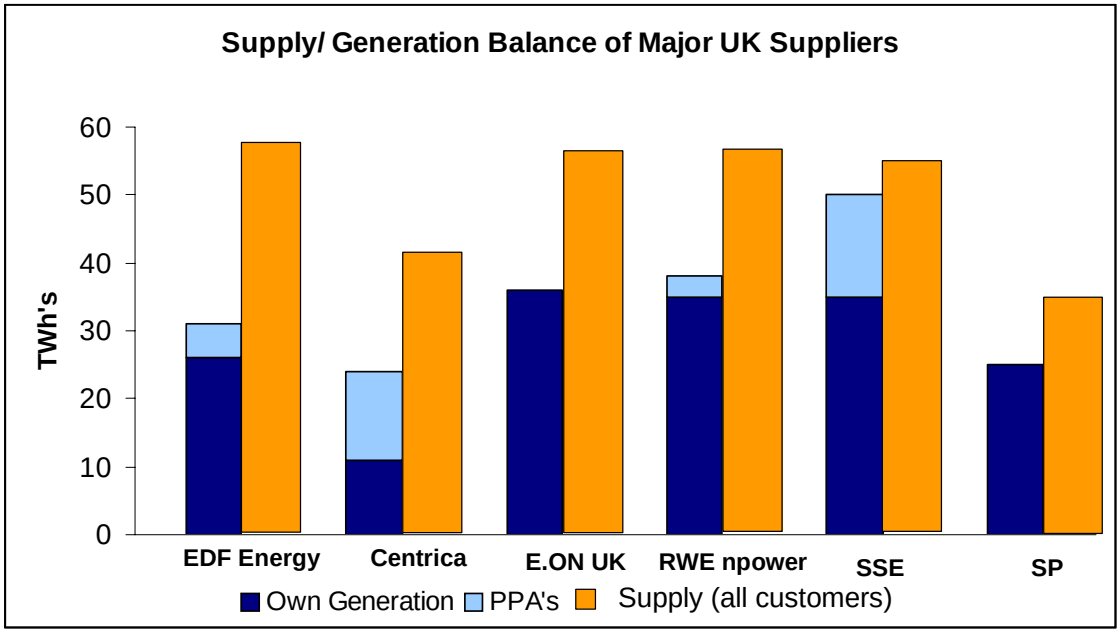
- It is becoming increasingly important to be able to offer a competitive price for DE schemes to secure the associated electricity supply contract for many large industrial, commercial customers and government purchasing agencies.
- For political reasons, suppliers may wish to secure sufficient ROCs to meet a certain percentage of their obligation under the terms of the RO.
- As described in our response to question 7 there is insufficient LEC-backed electricity to satisfy customer demand.

In addition, we do not agree with the statement in the consultation document 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 electricity generation they require'.

In fact, all of the major suppliers generate only a proportion of the electricity they need. The graph below (Figure 6) compares the TWh's generated by each supplier in 2006, with their total supply commitments. EDF Energy generated a quantity of electricity equivalent to 43% of the electricity supplied to its customers.

In addition, even when known long term electricity Power Purchase Agreements (PPA's) are taken into account all suppliers are still 'short' generation and have a requirement to purchase electricity from the market.

Figure 6 (Source EDF Energy analysis – based on publicly available information)



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.

As previously stated, we believe that suppliers provide effective consolidation services and offer fair prices for electricity output.

The main barrier to new entrants in the consolidation services market is likely to be the lack of potential margin available (as demonstrated in our answer to Question 7). We do not consider there to be any unfair barriers to entry.

We believe the main issue affecting small and medium sized DE is their ability and limited resources to make contact with suppliers. We see two possible ways to resolve these issues:

- Encourage more small generators (renewable and non renewable) to participate in NFPA auctions. This will allow generators to reach a number of potential buyers at the same time, therefore ensuring that they achieve best price. An additional benefit is that average auction prices are made publicly available, therefore reassuring Ofgem and Government that DE generators are achieving fair value.
- Provision of better information is crucial. Many DE operators may not be aware of the products and services offered in the marketplace. This responsibility could form part of the remit of a newly formed DE Agency.

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?

We do not support the introduction of a specialist energy trader into the market to make purchases (and sales) of zero and low carbon output from small distributed electricity generators. We do not really understand why this is being considered as an option, as a number of companies including one independent (non supplier) already offer consolidation services.

It is not clear to us that either imposing an obligation on suppliers to offer consolidation services, or creating a national/ regional consolidator(s) would provide greater value to DE schemes than they currently receive via the market, unless the purchase price (paid by the consolidator) was regulated. Regulating prices that the consolidator is required to pay DE generators could lead to the consolidator making an annual loss, requiring some form a cross subsidy from other customers to break even. We do not favour this form of market distortion, which is unfair and clearly unsustainable as the DE market grows.

The presence of a non-commercial (price regulated) Energy Trader, or an obligation on suppliers to provide consolidation services at a regulated price, even as a short term solution, would also undermine incentives for existing consolidators, and prevent new

entrants from entering the market. We believe that this will be counter productive and keep long term costs higher than they would be in a competitive market, particularly as we are likely to be on the verge of a significant increase in the number of DE schemes – which will increase opportunities for new entrant consolidators.

Rather than intervention and regulation, we believe that government and the regulator should focus on supporting the development of the DE market by establishing a national DE Agency to provide information to DE, including details of available auctions, and companies who will purchase their output. This will also help bring DE operators together and enable them to trade with each other if this can deliver additional value.

We have the following comments on the specific options for a specialist energy trader proposed in the consultation document:

Option 1 – full consolidator

- It is unclear to whom power bought by the Energy Trader is then sold or whether it simply spills the power.
- Price = spill + embedded benefits less margin appears to offer a lower price than would be obtained currently in the market (as demonstrated in the recent NFPA auctions).

Option 2 – partial consolidator

- Generation is consolidated but not purchased by the Energy Trader which seems to imply that the power is spilled unless DE schemes can separately contract bilaterally with a supplier and just reduce their imbalance exposure via this arrangement.
- If the power is simply spilled, then: Price = spill + embedded benefits less margin appears to offer a lower price than would be obtained currently in the market (as demonstrated in the recent NFPA auctions).

Option 3 - facilitator

- In this option presumably there must be a contractual algorithm to share imbalance costs from the consolidated portfolio amongst all those DE schemes that have been consolidated.
- It is not clear exactly how this would work simply, and without adding significant transaction costs.

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.

As discussed in our answer to Question 10, we believe that the market already delivers sufficient 'energy trading services'. New entrants will emerge and competition will increase further as the number of DE schemes increase substantially over the coming years.

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

There are several ways in which the understanding and forecasting capability for DE technology could be improved:

- Real time data feeds between generator and supplier would enable greater value to be extracted from the generation. This is already done with some larger distributed generators.
- Projects such as the Fenix project are also exploring how small scale distributed generators can be aggregated and operate as virtual power plants.
- A national windspeed forecasting system could enable better prediction of the output of smaller wind generators.

We believe that a national DE Agency as mentioned previously could also be tasked with investigating and potentially funding suitable projects. This could be funded directly from Government and act as a very beneficial 'kick start' to the DE industry.

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

We do not believe that the creation of a dedicated wholesale market for DE will deliver additional value for DE generators, as the margin currently required by intermediaries to help smaller players would simply be replaced by the costs of the dedicated wholesale market. It would seem unlikely that the costs associated with creating a new market would be lower than the margin paid to intermediaries.

More specifically, we see several key problems

- Set-up and ongoing operational costs would be significant - IT systems, costs of establishing new standardised contracts, time costs for DE participants of active market participation (trading).
- Participants would understandably be concerned about counterparty credit risk. A loss stretching in to tens of thousands of pounds can be absorbed by a consolidator or energy supplier, but a smaller DE company could not risk this kind of loss. This may limit market liquidity.

We would argue that at present there is nothing to stop small generators and suppliers from trading with each other bilaterally in the current market, and recommend as suggested previously that Government creates a DE agency to bring DE parties and other supplier together, and provide information on other routes to market such as the NFPA auction.

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

As described previously we consider the market for DE is highly competitive.

Chapter 5: Operating as an Exempt Supplier on the Licensed Distribution Network

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?

We note that private wire solutions are only available when the volume of power supplied to domestic customers falls under the current distribution licence exemption limits (as discussed in section 2 of our response). Therefore the answer to this question is relevant only to schemes who would be eligible for a licence exemption.

EDF Energy, through our involvement in the London ESCO have experience of working with the developers of DE schemes in London. In our experience, the 'network solution' selected by developers will result from a trade off between a number of factors, including: cost, capital funding potential, levels of service provision required, and the demands of customers connected to the scheme.

Incentive to choose private networks

1) We agree with the consultation document that in some situations (even where existing network infrastructure exists), constructing a short distance private network may be cheaper than paying Distribution use of System (DUoS) charges (and any associated connection costs). This does suggest that there may be a strong case for looking into more cost reflective network charging. This is discussed further in our answer to question 22.

2) The consultation correctly identifies that one of the obvious benefits to the developer of operating on private wires is that it can be made difficult for customers to switch supplier – The purpose of this approach is to ensure that the on-site generator is able to earn retail rather than wholesale market prices for the electricity it generates – as customers are unable to switch to alternative suppliers. In theory the higher operating margin this should realise is then available to fund a larger proportion of the capital costs of the on-site infrastructure (generation assets and/or electricity network).

We agree with the consultation document that there are a variety of other solutions theoretically available to secure this additional electricity supply margin (at least for a

period of time). However, with regards to the options suggested in 5.8, we have the following comments:

- On new build developments it is unlikely that an energy company could sign up customers in advance of the properties being sold (and plant constructed). Therefore there is no guarantee that all customers will select the local DE supplier.
- Long term contracts are untested in the market, enforceability is uncertain. In addition, when a customer moves home, the contract would terminate.
- Innovative pricing mechanisms and/or add on services may encourage customer loyalty. However, there is no evidence to prove this at present.
- Suppliers could target new customers (to replace those that they lose). However, this will involve acquisition costs and additional administration costs that they would have previously not incurred.
- Developers could include the cost of the plant in the sale value of the house (meaning that the home owners own the plant). However, at present we are finding that developers are very cautious about such an approach – being concerned that customers would view this as a potential liability and may be put off buying the house.

At present, 'locking in' customers by constructing a private network may well be the only solution that developers (and potentially their financiers) will consider as providing sufficient certainty of retail revenues. This situation may change as the market develops and medium sized players emerge in the DE market that are perhaps prepared to take greater risks.

3) In addition, in our experience, there is a further reason not listed in the consultation document as to why private network solutions may be preferred by some developers; Large commercial/industrial sites with a critical dependency on the availability of electricity typically seek a private wire solution that offers higher levels of security of supply through network design, and more rapid fixing of network problems through a dedicated maintenance team than are provided for by the standards of a public licensed distribution network (DNO or IDNO). Generally these solutions suit a single customer prepared to pay for a higher level of service/security of supply, such as airport operators or the MoD, and incorporate substantial performance obligations/financial availability risks.

Incentives not to choose private networks

1) Ofgem/ BERR may also be interested to know that we have also experienced situations where despite potential cost advantages, some developers are not willing to consider private networks. The main reason for this is typically that they are concerned about the impact this will have the sale price / rental value of the properties they are building.

For example, many commercial customers will insist on having a choice of supplier – to enable them to access any supplier with whom their wider organisation may have national purchasing arrangements with. They may be unwilling to rent/purchase the building if this choice is removed.

In addition, for residential developments, developers have shown concern about future complaints from home buyers locked into a supplier who has increased prices/ provided poor service levels – this could have a negative impact on the developer's reputation.

Question 16: Further Comment on potential network solutions:

Where developers are seeking a licensed solution (not a private network), if the site has limited or no existing network infrastructure, developers could chose an IDNO (inset) solution (as opposed to contracting with the regional DNO).

This may be an attractive option where the costs of operating and maintaining a new inset network are lower than the costs of maintaining the surrounding DNO network. The inset network operator could charge the DUoS prices for the surrounding DNO's network, but would have a lower cost base relative to that used to establish the level of the DNO DUoS charges.

In this case, independent network operators (unaffiliated with the host DNO) are able to make IDNO proposals to developers that use the additional DUoS revenues to fund part of the capital costs (of the network, generation etc). This could be a very attractive solution for the developer.

However, affiliates of the host DNO are unable to offer comparable proposals as a consequence of Ofgem's decision letter (dated 24 August 2006) on regulation of independent electricity distributors. This seeks to stop affiliates of host DNOs using the relatively low O&M costs of an inset network to benefit the customers or developers of the inset area – on the basis that such benefits should be shared by customers across the wider host DNO area. Any cost savings that an affiliate of the host DNO can deliver by operating as an IDNO are simply clawed back by the regulator at the next price control review.

The result is that EDF Energy is competitively disadvantaged within our distribution network areas, and less likely to be able to secure DE agreements with developers. We would ask Ofgem to look into this issue, which at present, could reduce EDF Energy's ability to support and be involved in the development of the DE market.

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.

The consultation defines exempt supplier services as:

- Providing top-up and back-up supply 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.

The reality is that there is negligible demand for these services as yet. However, where demand does exist EDF Energy is already actively involved in this market (see box below).

Woking and Milton Keynes

EDF Energy currently services two exempt supplier agreements.

One is in Woking and has been in place since 2001. There are currently sixteen import and sixteen export sites within the arrangement. It is in the SPN Network area and was put in place under the previous licence obligation. The arrangement now continues on commercial terms.

The second is in Milton Keynes and came into effect in 2007. It currently includes one import and one export site. This is in the Central network area, so outside of the EDF Energy owned distribution networks, and has been agreed as a commercial arrangement without any licence obligation.

Both are evergreen contracts with a mechanism for top up and spill rates to be reviewed annually. Both parties have the ability to serve notice at any point.

In the future, the increasing penetration of small, licence exempt DE schemes could potentially drive increased demand for these services. If this is the case, we see no reason why a competitive market will not emerge.

We do not believe it will be necessary to re-impose an exempt supplier services obligation on suppliers. This would appear to be a backward step, and not in keeping with attempts to limit direct regulation where possible.

In addition, we would strongly oppose any attempt to 'price regulate' provision of these services, which creates two key risks:

- Ofgem sets a price that is too high – reducing the benefits that DE schemes could have enjoyed in a competitive market.
- Ofgem sets the price too low – requiring suppliers to cross subsidise provision of services to DE schemes, at the expense of all other customers.

However, we know that Government/Ofgem see this as an area in which they can take action now to guarantee that this market develops. If this is the case, we see the following possible solutions:

- As mentioned earlier, a DE agency could facilitate contact between DE market participants. For example, the Agency could provide simple information (perhaps on its website) on the exempt supplier services offered in the marketplace.
- We would also be willing to provide information on these services on our own website, with information on how to contact us for further details on prices etc.

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.

As mentioned in our response to Question 17, we do not believe that a licence condition should be re-imposed.

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?

As mentioned in our response to Question 17, provision of exempt supply services should not be regulated. As the number of DE schemes increases further, competition in this market will increase. Increased competition will encourage DE schemes and larger suppliers to work together to find solutions that limit the impact on suppliers' overheads.

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?

We presume that the ENA Working Group referred to in the consultation is an intended reference to the Distribution Code Working Group currently undertaking a review of G59 and G57. There is no reason (or intent) to preclude appropriately technically qualified DE representative on the Working Group; indeed the Terms of Reference specifically

provide for Generator representation on the Group (see link[3]). The funding of such representation would of course be a matter for the DE community to resolve, though it is relevant to note that Ofgem have recently introduced an expert on Fuel Cells to the Group.

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

The current review by the ENA working Group (mentioned above) may identify opportunities for relaxation of the current requirements within G59/1 and G75/1 (and the associated ETR 113) for certain classes of generator, particularly for generation falling well below the G59/1 '5MW' threshold but above the G83/1 threshold. It would however be inappropriate to pre-empt the conclusions of the Working Group who will consider any such opportunities with full regard to any possible safety implications arising from such relaxation.

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.

Before commenting on the options proposed in the consultation document, we would like to highlight a general concern about Government policy regarding private networks.

Government's current definition of a zero carbon home (as defined in the Stamp Duty Land Tax Regulations 2007) requires any off site generation to be linked directly to the development via a private wire, even where a public network already exists. This requirement is not consistent with Government/Ofgem efforts to increase the accessibility of licensed networks, and should be removed.

We agree with the consultation document that in some situations (even where existing network infrastructure exists), constructing a short distance private network may be cheaper than paying DUoS charges (and any associated connection costs). This does suggest that there may be a strong case for looking into more cost reflective network charging.

We support the development of cost reflective, and integrated network charging/ commercial arrangements for all classes of users irrespective of whether generation sources are local or more remote.

However, in recent years the side effect of Ofgem's charging methodology regulation has stifled innovation in charging. In particular, distributors are now required to obtain Ofgem approval of charging methodologies for which any material or novel aspect is subject to extensive consultation with interested parties. Indeed, much of the lead time for developing improvements to charging methodologies is taken up by the consultation and approval process. It is also worth noting that recent guidance from

[3] http://www.energynetworks.org/dcode/pdfs/Terms%20of%20Reference_%20061023.pdf

Ofgem on use of system charging suggests a move towards a central methodology which may further stifle innovation.

Furthermore, it has been a long-standing requirement that distributors do not discriminate between persons or class or classes of user in the provision of use of system or connection. Such a rule makes it difficult for distributors to introduce innovative arrangements on a restricted basis. Distribution licences do not currently contain any provision to de-activate the relevant non-discrimination requirements even for the purposes of a trial.

Below, we discuss the potential of some of the options proposed in the consultation:

Option2: Virtual Private Networks (VPN)

We would be happy to support Ofgem in exploring the feasibility of 'virtual private networks' to supply electricity to local customers over the licensed network. We recommend that Ofgem establish a working group to look at this idea in more detail.

Below we set out some of the key principles that we believe should apply to VPN's:

- An important principle to maintain is that of avoiding cross-subsidy between customers connected to public and virtual private networks.
- The sections of public networks that can be utilised as VPN's should be local, i.e. within the reasonable bounds of practicality of building a private network. There should be either a post-code defined limit on the geographic boundary of a given virtual private network or, preferably, a connectivity defined envelope; i.e. not extending beyond the LV network boundary for a given MV/LV substation.
- It needs to be recognised that whilst power flows might not extend beyond the boundary defined above, there will nevertheless be essential 'ancillary services' provided by the network operator's upstream network which local generation will not be able to provide – such as voltage control, frequency stability, reactive support, back up and standby. It is important that charges for such services, in addition to charges directly associated with power flows across public network, are appropriately recovered by the network operator.
- Local loss adjustment factors could be applied to virtual private networks reflecting the degree to which upstream power flows are avoided by the existence of local generation.
- Any VPN solution would need to ensure that it incorporated an appropriate settlement solution. This suggests a scaled down arrangement similar to that of the Trading Unit permitted under the BSC. A Trading Units type arrangement would support the locality principles. Potentially a "super MPAN" would be created to which "normal MPANs" would be assigned. Changes to MPRS on MPAN status would then allow a supplier to group together a number of "normal MPANs" under the "super MPAN" for trading purposes without losing

the physical registration, metering etc. data and settlement functionality associated with each normal MPAN.

Option 3: Proposals to trial ideas that benefit distributed generators, networks and customers

Market Based Arrangements (EHV only)

Nodal use of system pricing helps to reflect the value that DE can provide in deferring network reinforcement. However, nodal pricing is not backed up by an agreement for the generator to be despatched by the DNO at times of system peak utilisation it does not provide the optimal solution, and would in theory mean that some otherwise economic DE schemes do not go ahead.

We believe that it is possible to go further and consider more market based arrangements to incentivise both the connection of DE and demand-side management (DSM), where this a lower cost solution than network reinforcement.

The key features of such arrangements would be:

- The identification of trade-offs between network reinforcement and DE connections/DSM in selected "time slots";
- Competitive auctions/tenders for DE/DSM "time slots", including DE/DSM which is despatchable by the DNO (at times of system peak utilisation);
- Incentives for the DNO to make efficient trade-offs between DE/DSM and investment.

A precedent for such a scheme is the "capacity output incentive" that will apply to gas distribution networks (GDNs) from 1 April 2008. This scheme combines obligations on GDNs to hold auctions for interruptible network capacity and an incentive to make efficient trade-offs between buying interruptions and reinforcing networks to accommodate peak load.

There would also seem to be scope to integrate the current Registered Power Zone arrangements with a market based solution (i.e. integrate technical innovation with commercial innovation). For example, the DNO could auction DE "time slots" with varying degrees of technical innovation, with additional incentives applying to capacity released through the use of innovative technologies.

Option 5: Cost reflective DUoS charges for distributed generation

We understand Ofgem's frustration with the time taken to develop more cost reflective DUoS prices for DE. However, Ofgem appeared to have embarked on this process in the mistaken belief that each DNO maintained comprehensive load flow models for their respective networks. Such models were not in place because it is more efficient to limit load flow studies to particular groups of circuits rather than maintain a comprehensive model.

EDF Energy Networks are currently consulting on nodal DUoS pricing in respect of our SPN area, and will bring forward proposals for EPN and LPN by April 2009.

An important issue which must be addressed by Ofgem in the next distribution price control review is the balance of charges between demand and generation users. Currently, this is set by the operation of two distinct price control mechanisms. This means that because the pool of generation DUoS charges is small, negative charges (payments to generators) must be recovered from within the generator control – which has the effect of significantly dampening cost messages. In our view, there is a case for applying common scaling factors to both demand and generation DUoS prices (i.e. a single pot approach) because the environmental benefits of DG are enjoyed by all citizens and because, in any case, it is often impractical to determine the apportionment of common (upstream) assets between generator and conventional demand regulatory asset bases. This single pot approach need not preclude appropriate incentives on DNOs to connect DG schemes which reflect the higher overall level of risk associated with DG connection-related investment.

Option 6: Ofgem to monitor development of technical standards for connection to the distribution network

We welcome input from all stakeholders on the development of technical standards such as these.

Chapter 6: Becoming a Licensed Supplier

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?

We are not in favour of this proposal. We do not believe that a temporary exemption from competition for a small number of schemes will provide the anticipated 'kick start' to the DE market.

In fact, we believe this proposal could actually do 'more harm, than good' for the DE industry. If the proposal was implemented, and customers were taken out of the competitive market, there would be a significant risk that, should one or more large DE schemes fail to live up to price and service promises, customers on affected developments would have every right to be concerned, and may be able to generate significant negative publicity. This would reflect badly on the DE industry (potentially damaging its future growth prospects), the developer and potentially the regulator.

In addition, should this proposal be implemented, we have serious concerns about the impact on our business. Many DE projects will be in London and the South East (areas where EDF Energy has a strong presence in the supply market), and some could be of a very large scale (up to the tens of thousands). Granting an exemption from competition to the operator of any one of these schemes could require EDF Energy to effectively, overnight, hand over many thousands of customers to a competitor, with no opportunity to compete to retain or win back these customers. This is a significant move away from the fully competitive market customers enjoy today.

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?

We strongly agree with the consultation document that many potential DE schemes would benefit from greater information and advice. At present, lack of knowledge is a major barrier to entry.

In our answers to previous questions, we have on several occasions recommend the creation of some form of 'National Decentralised Energy Agency'. We believe that this Agency could take full responsibility for provision of information and advice to prospective and existing DE schemes. (Where other bodies currently provide information or advice, the new Agency would take over these responsibilities).

In addition, we also believe that the Agency could go further than that and become actively in areas such as technical research, and lobbying. We would not oppose central Government funding the activities of the agency in the early days, in order to provide a 'kick start' to the DE market.

However, we would stress that we do not see the Agency as a 'consolidator', provider of 'exempt supply services' or provider of 'high competency, high cost elements of the supply licence'. These services should be provided in the competitive market. The Agency will provide information regarding these services to DE schemes.

The box below outlines some of the key functions that the agency could provide:

UK Decentralised Energy Delivery Agency

Potential key functions:

1. Provide DE schemes will contact details for:
    - Providers of legal, regulatory, contractual advice
    - Providers of 'exempt supplier services' and 'high cost, high competency elements of the supply licence'
    - Providers of consolidation services
    - Details of auctions where DE electricity can be bought and sold
    - Purchasers of DE electricity
    - Distribution Network Operators
    - Providers of DE finance
    - Other DE schemes (to enable information sharing)
2. Provide DE schemes with details of any published prices for:
    - 'Exempt supplier services', 'high cost, high competency elements of the supply licence', 'consolidation services
3. Provide DE schemes with details of available benefits, and how to claim them; such as capital grants, tax benefits, ROCs, LECs. Administrative assistance could also be provided
4. Helping DE to identify how they can maximise embedded benefits
5. Investigate projects that could improve forecasting capability for DE technology. This could possibly be part funded by the Agency in partnership with the private sector
6. Contribute to the development of technical solutions that will benefit DE, such as Virtual Private Networks
7. Share best practice by provide DE case studies
8. Liaise with similar organisations in other countries to ensure that best practice is shared globally
9. Act as a DE trade association/ lobby group. Represent the DE community at key events / on working groups

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.

There is no case for a new DE supply licence. As explained in our answers to the previous questions we believe that Government/ Ofgem can facilitate an increase in the uptake of DE within the existing licence framework.

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.

Option 1: Allow for the delegation of the high cost, high competency aspects of the supply licence (such as industry code compliance) to third parties

We agree that formalising how and when delegation is permitted, within the regulatory instruments, would provide clarity for DE schemes, and for potential providers of these services.

Subject to the above, we see no reason why large, licensed suppliers would not want to provide the services for DE schemes on a commercial basis. EDF Energy will explore options for product offerings, and will be happy to discuss options with any potential customers.

Option 3: Ensure the provision of a Licensed Supplier Agency in the market that can spread the cost of licensing over a large number of DE schemes

The reality is that there is negligible demand for the services referred to in the consultation document. As demand increases, we would expect to see a competitive market develop for provision of these services.

It is by no means clear to us that placing an obligation on suppliers, or creating a national/ regional body to provide these services would provide any additional value for the DE scheme, unless this was subsidised by Government or by a levy on all customers (DE and non DE).

As mentioned previously, we cannot support these kinds of subsidies which do not provide long term solutions for DE and will only serve to damage the development of a competitive market for service provision.

EDF Energy

March 2008

Appendix 1:

Assumptions behind figure 2 :

The following key assumptions were made about the future of the UK electricity generation mix:

- By 2020 35% of electricity is generated from renewable sources. This is lower than the 40% mentioned in the text, as we have assumed that some of the UK's target is met by purchasing certificates from overseas.
- A new nuclear programme delivers 11GW by 2025 (roughly replacing existing capacity by that time).
- One small coal with carbon capture and storage project coming on line in 2013.
- 4GW of new coal is built in 2016, which is subsequently retrofitted with Carbon capture and storage technology between 2022 and 2025

Assumptions behind figure 3:

The following key assumptions were made regarding average emissions from electricity only generation technologies:

Technology	Million tonnes carbon dioxide (CO2) emissions/ per 1TWh of electricity generated
Existing Plant	
Interconnector	0
Oil	1.0
Coal (LCPD opt out)	0.95
Coal (LCPD out in)	0.90
CCGT	0.4
Nuclear	0
Renewables	0
New Plant	
New Coal	0.7
New CCGT	0.35

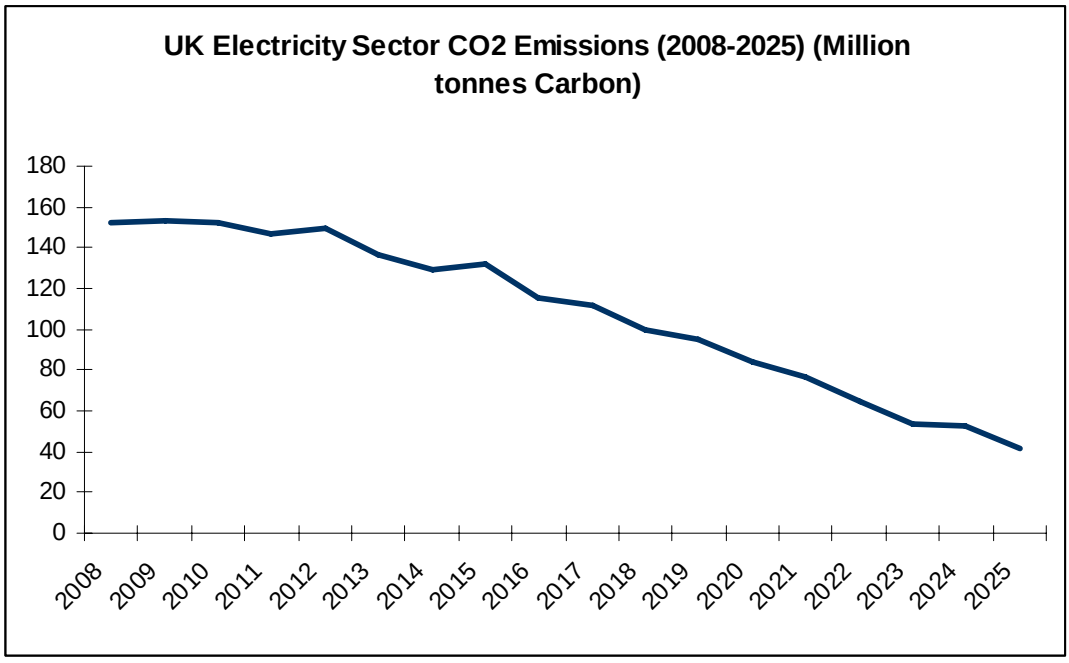
New Nuclear	0
New Coal (+ CCS)	0.1
New Renewables	0

The following key assumptions were made regarding the emissions from CHP and heat only generating technologies:

Technology	Million tonnes carbon dioxide (CO2) emissions
Gas fired CHP	0.48 / per 1TWh heat and 1 TWh electricity (assumes plant operating at 80% efficiency; 40% electrical efficiency)
Gas condensing boiler	0.21 / per 1 TWh heat only (assumes 90% efficiency)
Ground/ Air Source Heat Pump	Varies according to carbon intensity of electricity (assumes 1 unit electricity generates 3.5 units heat)

The graph below shows a view on total emissions from UK electricity generation between 2008 and 2025. This is a function of our view on plant mix (figure x in the main text) and emissions factors (previous two tables).

Note: We have assumed that demand remains flat at c347 TWh p.a



Appendix 2: RESPONSE TO QUESTION 7 - CONFIDENTIAL

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