Distributed Energy Working Group

Discussion paper 3: Supply licensing and exemptions

11 October 2007

1 Introduction

1.1 This is the third in a series of discussion papers exploring the obstacles and inefficiencies in the market and regulatory arrangements that might impact on the development of Distributed Energy. It sets out our first thoughts on possible proposals to increase the flexibility of the market and regulatory arrangements to accommodate Distributed Energy Schemes. We would emphasise that this paper is designed to create a discussion on the various issues and possible proposals and it does not necessarily amount to a statement of the measures that we will consult on later this year. We would particularly welcome evidence that supports, supplements or contradicts our analysis of the issues.

1.2 Distributed Energy schemes are currently envisaged as small scale local developments driven by planning requirements. They typically involve a combination of heat and electricity supply as well as demand side management incentives to encourage efficiency. They are often vertically integrated involving the generation, distribution and supply of energy to local customers.

1.3 Throughout discussions held by the DEWG the point has been made that such schemes are unique in the development of the broader energy supply industry and need special treatment within the licensing framework. They offer the potential to deliver new and innovative solutions to the problems of combating climate change and in reducing CO2 emissions. The efficiencies inherent in exploiting the value of the electricity by-product from heat-led distribution schemes could make a significant contribution to Government aims to reduce emissions by 60% by 2050.

1.4 It has been argued that existing arrangements add disproportionate and unfair cost to these schemes which reduces their economic viability. In undertaking this assignment we have not, as yet, conducted any economic or financial analysis of a specific or typical DE scheme. Our primary aim, and given the timetable constraints of consulting on measures later this year, is to focus on identifying and addressing any obstacles presented by the arrangements that are inhibiting growth in this area. That is not to rule out the possibility of conducting financial analysis to assist in understanding the contribution and needs of these schemes at a later stage – perhaps early in 2008.

1.5 This paper addresses the two main options to accommodate DE within the arrangements that have been proposed by the DEWG:

- **raising the exemption limits** to allow DE schemes to operate outside of the existing arrangements; and

- **becoming a licensed supplier** – perhaps combined with some opt-outs – to incorporate DE schemes within the market and regulatory arrangements.

Distribution License Issues

1.6 The main consideration of this paper is to first and foremost, address the issues associated with becoming a licensed supplier. However, in our discussion, particularly in regard to raising the exemption limits, there are some implications for the distribution exemption limits, as follows:

- the ability to lock customers into a long term agreement to take their energy from an exempt supplier is primarily dependent on them being situated on a private wire. In this situation the owner of the network can restrict access to a third party supplier by refusing to provide terms for use;

- it is not possible to be a holder of both supply and distribution licenses. The option of exploring the value to DE of becoming a licensed supplier needs to take into account that the developer/operator may also, then, need to be an iDNO license holder. The vertically integrated utilities hold these licenses in different affiliates to overcome this constraint;

- we have not explored the option of raising the supply exemption limits on their own. There is an assumption in this paper that raising the supply and distribution limits go hand in hand. However, this may not be the case and this option needs further consideration.

1.7 We also do not give consideration to the implications for generation licensing due to the current exemption level of 50MW (provided that the declared net capacity of the generating station does not exceed 100MW) being above the size of schemes currently being proposed. More generally, this has not been raised as an issue by the DEWG in our discussions to-date.

1.8 In the rest of this paper we set out:

- our understanding of the challenges facing DE schemes, namely the problem of scale, the cost of participating in the market and regulatory arrangements and the cost of licensed supply (Section 2);

- in Section 3 the two routes to market that have been raised by the DEWG namely, raising the exemption limits and becoming a licensed supplier which would assist in addressing the issues outlined in Section 2; and

- other issues and measures that have been identified as being key to the development of DE (Section 4 and Annex A).

2 The challenges facing Distributed Energy

2.1 The members of the DEWG and our own discussions with industry over the summer have indicated DE schemes face four key challenges, as follows:

- **the problem of scale**: DE schemes tend to be small to meet the demands of local customers;

- **the cost the arrangements impose on schemes**: it has been claimed that up to 30% is added to the costs of operating within the arrangements as opposed to operating on an exempt basis;

- **the cost of becoming a licensed supplier**; and

- **the costs and risks of operating in the competitive market as a licensed supplier**.

2.2 DE also faces a range of other issues relating to realising the maximum value of exports, obtaining imports at least cost and ensuring cost reflective charging for use of networks. The treatment of these issues is discussed later in Section 4.

2.3 Each of the four challenges is discussed in more detail below.

The problem of scale

2.4 At present, the most likely driver for the development of DE schemes is the possible requirement on developers to ensure that a proportion of the energy needs of any site are met by local energy sources. The exact criteria for what constitutes "local" is still being developed but the expectation is that planning requirements, particularly within London, will result in the need for energy solutions – including the use of combined heat and power - being constructed for each site. It is not clear what the typical size of one of these sites is, but from our discussions we understand that it might include between 5,000 and 10,000 residential properties. In this situation the generation capacity to meet peak demand would be at least 5-10MW. In electricity terms, at least, this is a small scale development.

2.5 This lack of scale has implications for anyone considering entering the supply market. Commercial viability in the supply market is dependent on acquiring high volumes of customers at typically low margins. The high volumes of customers are required to cover the upfront investment in systems to meet trading, billing and settlement requirements. When the retail market was first liberalised, it was suggested that the major suppliers would require 5m customers in order to realise a sustainable position in the market and there followed a period of consolidation in the market where all majors achieved this critical mass.

2.6 New entrants are particularly well placed at reaching a critical mass to cover the investment costs of supply before 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. Not a few thousand – which we understand is the typical size of a DE scheme.

2.7 If, as we suspect, planning regulations are encouraging the use of small on-site generation, then this could result in a multitude of independent developers each with the overhead of developing systems to meet licensing requirements (discussed later). This would be extremely inefficient.

2.8 In relation to the development of systems required to meet the license conditions (such as the BSC and MRA), we note that the capital cost can vary significantly depending on the standard adopted by the developer. **We would welcome information from DEWG participants on the costs of start-up for small suppliers.**

2.9 In addition to the supply side scale issues, we are less clear about the economic drivers for constructing CHP plant as opposed to boiler-only developments. We understand that most schemes are heat-led with the size of the plant being determined by the hot water requirements with the size of the combined power plant being driven by the size of the boiler. We are unsure if, when taken in isolation, the additional capital cost of the CHP plant, above that of the boiler, can be justified by the earnings generated by the electricity output. **We would welcome any thoughts on this issue by the DEWG.**

Cost of the market and regulatory arrangements

2.10 In discussions held at the DEWG it has been claimed that the existing arrangements can add up to 30% to the costs of an exempt supplier if forced to operate within the industry regulatory framework. While we accept that the cost of becoming and operating as a licensed supplier does add costs to a scheme (discussed later) we have been unable to verify that the arrangements add such an overhead.

2.11 We described in Discussion Paper 2 a number of "settings" which cover a range of situations where distributed energy is used. There is no doubt that the value of electricity varies 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 reinforcing connection to the local network[1];

- **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 when DUoS and metering charges[2] have to be covered;

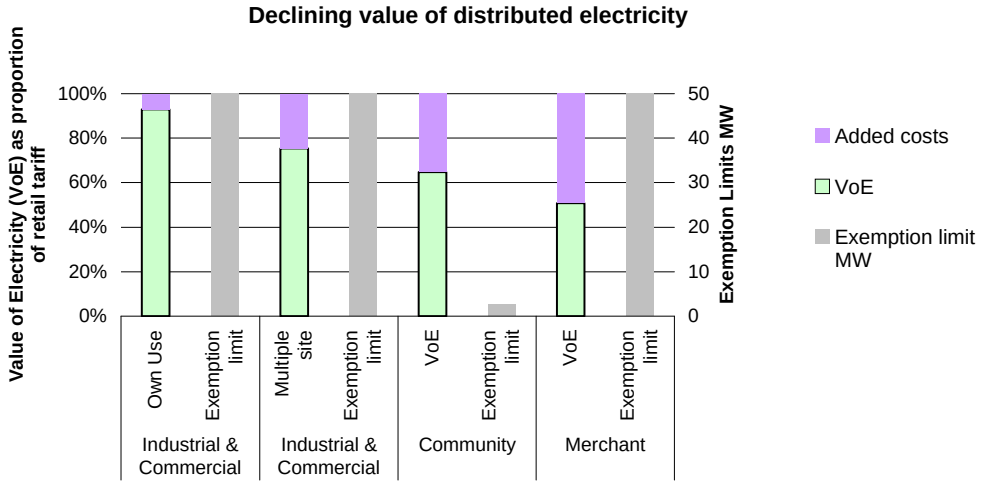
[1] We would also argue that the value of electricity is discounted by the higher import retail tariff that would be incurred if the new generation risk and lower import volumes are taken into consideration. However, all the evidence received during our recent discussions suggests that suppliers do not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

[2] A substantial part of distribution charges (capacity charges are not avoided) 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. .

- **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;

- **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.

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



2.12 Note that the exemption limits drop from 50MW[3] to 1MW when the setting changes from own-use to supply of residential customers occupying premises on the same site (within the meaning of the Exemption Order) as the premises where the generating station is situated.[4] This reflects the added level of protection required for residential customers as opposed to large Industrial and Commercial customers.

The cost of becoming a licensed supplier

2.13 As we have outlined above the single biggest 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.

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[3] Where the declared net capacity of the generating station is less than 100MW
[4] It is not clear from the Exemption Order, however, when supply would be said to be to domestic consumers in a DE type scheme

2.14 Figures submitted by the London Climate Change Agency suggests that licensing costs can range from 1.6% to 2.1% of capital costs for a small to large scheme (Table 1). **Please note we have not verified these costs with the exception of what is referred to as "Network Charges" which we have removed from the analysis.**

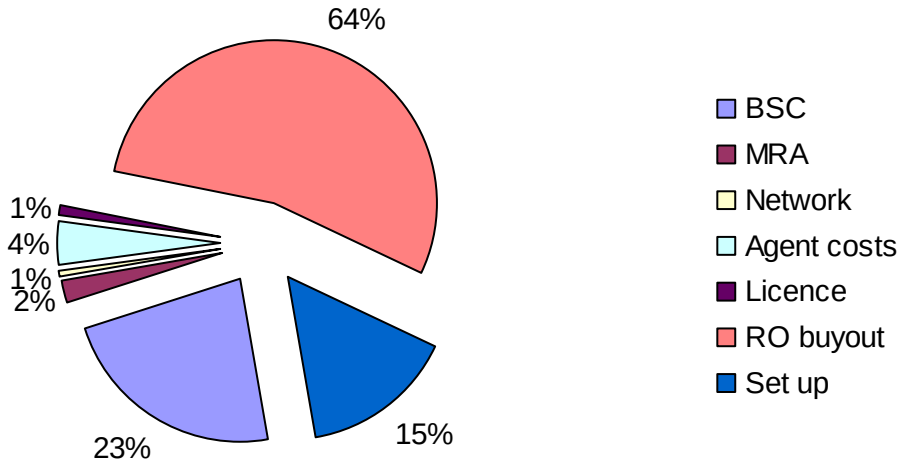
Table 1: Estimated cost of supply licensing for a small and large scheme

Licensing costs	Ongoing £pa	Set up £	Total £ pa	Size of plant MW	Cost per kW	Proportion of plant capital
Small scheme	152,226	105,134	12,349	5	£ 2.47	2.1%
Large scheme	153,826	779,796	91,595	50	£ 1.83	1.6%

Source: Figures courtesy of the LCCA
Notes:
(a) Capital costs annuitised over 20 years at 10%;
(b) DUoS charges removed from LCCA's analysis;
(c) Upper range estimate used where indicated;
(d) Capital costs assumed to be £1000 per kW for generation component of scheme – guesstimate. Same estimate used for both small and large scheme.

2.15 The main aspects of the license that that create cost relate to the compliance of industry codes such as the BSC, meter reading and processing costs[5] and meeting the terms of the Renewables Obligation (Figure 2).

Figure 2: Operating costs of a small licensed supplier (5MW)



Source: figures provided by LCCA. Figures have not been verified.
Note: (a) the RO buyout only applies to non renewable schemes;
(b) set up costs annuitised over 20 years at 10%.

Costs and risks of operating in a competitive market

2.16 One of the main benefits to the developer of operating as an exempt supplier on a private wires network is that the customers are unable to participate in

[5] For the sake of including these figures in this report in time for circulation to the DEWG we have taken all the figures provided by LCCA at face value. However, it is unclear that an exempt supplier would avoid the costs of meter reading and data processing.

the broader competitive market. These schemes are then not under the same pricing and customer service pressure brought about by the necessity to retain customers and avoid any consequent acquisition costs incurred when replacing a customer that has switched to another supplier.

2.17 However, we have already argued in our previous discussion papers that for developers that are operating combined a heat and electricity supply scheme that these risks can be managed:

- there is a low risk that customers will switch their hot water and heating requirements given the high upfront cost of installing a boiler;
- electricity customers can be signed up to long term contracts that cover the life of the project or even just the early years to cover the payback period. We note that longer term contracts currently in the market do not include any exit charges so this instrument may not be entirely effective in this regard;
- for customers that do switch to another electricity supplier, the surplus electricity can be exported wholesale to a third party supplier;
- the scheme operator is always free to acquire any other customer in another location to replace the one that has switched. The flexibility of the existing arrangements mean that the location of the customer is not the primary factor in determining their viability for commercial supply.

3 Two possible routes to market

3.1 In this section we set out the two options to address the challenges faced by DE that have been discussed by the DEWG:

- raising the exemption limits; and
- combining a number of opt-outs with becoming a licensed supplier.

Raising the exemption limits

3.2 Raising the exemption limits of both the supply and distribution licenses enables the DE scheme to avoid the direct costs of licensing and the costs and risks of participating in the competitive market. In such situations the DE scheme "buys-in" licensed services that cover top up and back up provision from a third party supplier. These third party suppliers spread the overhead of participation in the market and regulatory arrangements over their entire customer base leaving the DE scheme exposed to only a fraction of these overheads. Based on the figures provided by LCCA, there does appear to be a cost saving of around 2% on capital costs from taking this approach.

3.3 There are a variety of ways that the exemption limits could be raised. To advance our discussions we set out here one possible way this could be realised:

- **all DE schemes register for exemption**. We are not comfortable with not knowing how many customers are being served by exempt suppliers nor the names of the companies involved. The nature of the Exemption Order means that it is only necessary to ensure that the scheme does breach the terms of the order. If the number of companies using this route to market was to increase we would want a register established to track this activity;

- **limiting the total number of customers outside of the competitive market at any given time**. As the Exemption Order currently stands there is no upper limit on the total number of customers that can be served by exempt suppliers distributing on private wires. We would see this as unsatisfactory given the size of the ambitions of those interested. LCCA has plans to deploy DE as a major contributor to reducing carbon emissions in the capital. If their plans are fulfilled, [40%] of customers could be served outside of the competitive market by exempt suppliers providing distributed energy. And it is not just London that is considering such schemes. Plans are being developed to impose planning regulations on Councils across the country;

- **considering a time-limited exemption for [5] years from the time of the exemption being granted**. We are uncomfortable with customers being permanently removed from the competitive market and would require a time limit on the period of time that the exemption would hold for. This might be justified on the grounds to give local technology sufficient time to establish and prove itself and, by contrast, the market time to deliver the necessary support services;

- **introducing price/service benchmarks attached to any exemptions** (such as enforcing tariffs that meet some market based criteria like always being the 2nd cheapest of the available offers). These benchmarks would provide the basis of revocation if breached.

3.4 This option as set out above raises a number of issues:

- **if raising the supply exemption was accompanied by a similar raise in the distribution limit, could any form of regulation on exempt suppliers and distributors protect customers as well as the competitive market:** during our discussions with developers and industry practitioners it has become evident that the interests of the various parties vary significantly. For DE schemes that amount to fulfilment of planning requirements we are concerned that the developer's interest is in ensuring that the restrictions are met on day one, but that the level of accountability thereafter is less clear;

- **does raising the exemption limits solve the problem or merely move it to a different level**: the proposal to lift the existing supply limit to 5MW[6] only moves the problem above the typical size of site that we understand is being driven by current planning policy proposals. If this typical size of site changed in the future then the same issue would still need to be resolved;

[6] This equates to, at most, 5,000 customers.

- **is the Exemption Order fit for the purpose of developing, what could amount to, a significant contribution to the energy mix of the system**: in particular, its de minimis origin, case-by-case development and resulting lack of clarity means it does not represent the best vehicle for overseeing the development of DE;

- **should the existing per company maximum limit be removed allowing one company to develop a number of different sites?**

- **should the raised limits only apply to DE schemes or to all suppliers?**

- **should licensed suppliers be permitted to participate in the supply of electricity under the terms of the Exemption Order?** One reading of the Exemption Order is that it prohibits a licensed supplier from participating in an exempt supply scheme. We would need to establish the justification for such an involvement;

- **how would the Exemption Order be policed?;**

- **would it be feasible and/or sufficient to raise the supply limit without amending the distribution license limits?**

3.5 It is also worth noting that not all DE developers view exemptions as the only route to go. A scheme in Southampton, for example, does not intend to get involved in supply and will sell 100% of its electricity generated from CHP to a third party supplier. Income generated by the electricity will cross subsidise the rest of the development. Such schemes take the view that operating in the competitive market is too complicated for such a small scale developments. Other developers we have spoken to in London intend to become licensed suppliers and do not consider the exemption route as an appropriate option. They are concerned that customers will not be comfortable signing up to housing developments where they are unable to switch to another supplier.

3.6 Critically this option does not address the issue of the seemingly limited provision of exempt supplier services. Exempt suppliers still require licensed supply services (such as billing, trading and settlement) to deal with the interface with the rest of the market and to serve their own customers. Raising the limits does not improve this situation.

Becoming a licensed supplier

3.7 The terms of reference for the DEWG stated that we are looking to develop solutions to the challenges faced by Community based Distributed Energy schemes within the existing licensed framework. It seems apparent that being an exempt supplier yields a number of benefits to the DE scheme and the DEWG has been considering how these benefits might be replicated within the licensing framework. The following suggestions have been proposed:

- **allow for the delegation of the high-cost high-competency aspects of the Supply license to third parties agents**. This primarily relates 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 to fulfil the requirements. Delegating responsibility for these requirements shifts the investment burden to established licensed players serving larger numbers of customers;

- **ensure the provision of agency services in the market that can spread the costs of licensing over a large number of DE schemes**. Becoming a licensed supplier does involve direct investment in systems that would otherwise be avoided if operating as an exempt supplier. An agent could spread the overheads of providing these systems across a wide range of customers thereby reducing the impact on each scheme;

- **introduce a threshold for the RO**. Licensed suppliers have obligations in regard to RO which could be ameliorated by introducing a threshold for small suppliers that have a number of customers below, say, 15,000, and that meet certain criteria (ie providing local energy supply, energy efficiency improvements and incentives, etc). However, this would remove a degree of focus on encouraging local renewable energy suppliers;

- **prevent customer switching for a period of [5] years from the inception of any given scheme.** 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. This would most likely be achieved by allowing 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 similar price/service benchmarks as set out in our discussion of raising the exemption order. It may also be necessary to put an expiry date on the ability to make objections on any scheme with the license to reflect when we expect the technology to have proven itself**;**

- **remove the option of exemption for DE schemes or for all market participants**. Removing the exemption route would create a market for agency services that could be exploited by existing players.

3.8 It is not clear to us that the market will not deliver solutions to these problems without intervention – with the exception of the RO threshold which is clearly for Government. In particular:

- it is already possible to back-off responsibility for the MRA and BSC compliance to a licensed third party via commercial contract;

- the market is capable of offering the agency services mentioned above – albeit on a limited basis to date – but if these schemes were to develop we would expect these types of service would also appear to meet demand;

- it is possible to lock-in customers now with the use of long term contracts and, for new developments, making the compulsory use of local energy supply part of the freehold/leasehold arrangements.

3.9 The key features of taking this approach to DE are:

- there is no upper limit on the scale of the DE scheme that could be accommodated;

- DE would benefit from large scale licensed suppliers or dedicated agencies providing the necessary services to support their schemes;

- customers automatically return to the competitive market after the opt-out period.

3.10 The key issues of this option are:

- the impact on the rest of the RO if certain suppliers are given an opt-out and how the limit would be set;

- would the possible inclusion of an objection clause in the license apply to all suppliers or just small DE suppliers;

- is an upper limit required on these opt-outs permitted over the next, say, five years to provide time to evaluate the contribution being made by these schemes;

- in licensing the supply activity, is there an assumption that any network required on a new development would be adopted by an existing licensed operator (there is a choice of several licensees) or would the developer want a separate iDNO licence (this is likely to be uneconomic due to fixed costs of iDNOs). If the latter a separate legal entity would be required to hold the different licenses.

3.11 We must 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.

Ensure provision of agency services

3.12 Establishing an agency to support small DE schemes is a major consideration for the DEWG for both routes to market. In both options there is a residual requirement of the scheme for additional services that would be best provided by a larger agency rather by each scheme individually. In this situation the costs of constructing the systems necessary to support these activities can then be spread over a larger number of customers.

3.13 In determining what services are required and how they would be provided we need to address a number of issues:

- **what is the scope of the services required**: the functionality of the agency could possibly include balancing demand, network services (facilitating the use of the public wires network), pricing, billing, settlement and metering services;

- **in respect of balancing demand would the agency purchase and sell electricity exports and imports or merely facilitate compliance with the BSC**;

- **how would the agency be paid for**: costs recovered from customers verses Government subsidy[7];

- **would a single or multiple agencies be required**: regional verses central verses numerous competing to provide these services;

- **would the agency need to be regulated in terms of price and service or could appropriate incentives be placed on it to realise the same outcome**.

3.14 There are a variety of ways for implementing the agency, including:

- **allowing the market to deliver**: if DE schemes are going to develop in anything like the quantities implied by the policy drivers then the market will find a profitable way of delivering a solution. We have already had indications that some companies are considering moving into this space;

- **placing an obligation on suppliers** to provide some or all of these services if the market is not forthcoming in the next [2] years: this would replace the Condition 53 obligation that was recently removed from licenses;

- **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;

3.15 As with the licensing option we have not considered all the implementation issues of the agency in this paper and we need to ensure in any further deliberations that this approach complies with existing legislation and that that there are no unintended consequences.

4 Other measures

4.1 In the course of discussions held at the DEWG and in our own meetings with the industry over the summer a number of other issues with the arrangements have been identified which when addressed may provide additional value to DE schemes. We think that a number of these issues will be critical in the development of DE schemes with particular regard to:

- ensuring fair and cost reflective access to the public networks;

- realising the value of distributed generation within the arrangements by ensuring that embedded benefits accrue to the scheme;

- ensuring there is a competitive market for exports and imports;

- making the balancing mechanism more favourable for small, less predictable forms of electricity.

[7] We would need to consider rules on state aid in this regard.

4.2 The issue of whether the settlement arrangements require adaptation to support local generation and demand has also been the subject of much debate at the DEWG. In particular the DEWG has discussed the possibility of single Balancing Mechanism Units (BMUs) and vertically integrated Meter Point Administration Numbers (MPANs). This discussion has been useful in providing an understanding of the settlement system to the DEWG but due to its highly technical nature we propose to continue this debate outside of this forum.

4.3 These are all significant issues for the development of DE that need to be addressed. However, our initial view is that in some cases:

- they do not represent the primary obstacles to the early development of these schemes; and

- their highly technical nature means that it may take longer than the current timeframes allow to develop and implement solutions;

- developing the proposals requires a mix of technical knowledge not currently reflected in the DEWG and that other existing groups are better placed to pursue.

4.4 Nonetheless our initial thoughts on measures to address the other issues raised above are included in Annex A of this paper and we would welcome any feedback on their validity and feasibility.

Annex A

Table: First thoughts on measures to address issues facing DE schemes

Issue / Measure	Description
Place obligation on suppliers to pass through DUOS charges at cost for use of public network for transporting electricity between generation and secondary demand sites	Although some suppliers pass through DUOS charges to DE schemes, not all DE schemes know how to negotiate on points of this nature. We propose to place an obligation on suppliers to offer standard access contracts that reflect how larger players are charged for network use.
Ensure Line Loss Factors consistently enable a scheme to recover their embedded benefits	LLFs are applied to generator output before being entered into settlement. Obtaining the embedded benefits is dependent on these being similar to those used to calculate demand losses. For schemes where generation and demand are co-located we would expect these LLFs to be similar.
Encourage cost reflective DUoS charging	There is much work already underway establishing cost reflective DUoS charges that take into account the benefits of embedded generation. We propose to promote consideration of whether short distance demand related DUoS tariffs would be more cost-reflective through the Distribution Charging Methodologies Forum. We would expect to report back to the DEWG in the spring.
Encourage single price for cash out	The value of export from small intermittent generators would be improved if there was less variation between the buy and sell prices. A single price would remove some of this uncertainty resulting in better prices paid for exports by suppliers.
Create new market for trading exports and import requirements	A variant on the purchasing agency is to create a new auction for the trading of small amounts of export and import. This might resemble scaled down version of the “pool”.