

OfGEM

**Distributed Energy-
Initial Proposals for a
More Flexible Market
and Licensing
Arrangement**

Arup Response to
Consultation

FINAL

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Initial Proposals for a
More Flexible Market
and Licensing
Arrangement**

Arup Response to
Consultation Ref 295/07

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Summary

Arup considers that it would be inappropriate to raise the licence exception limits set out in the Class Exemption Order 2001. A distributed energy (DE) scheme being licence exempt does not eliminate the need for it to be regulated in order to maintain adequate operating standards and protect consumers. The alternative approach – for scheme sponsors to write specific rules for each scheme – is likely to continue to increase the set-up costs of DE schemes and provide less effective protection for consumers in the long run.

Moreover, we feel that raising the exemption limits would:

- Place an increased number of consumers outside of the scope of statutory regulatory protection. Many of those consumers could be at the mercy of monopoly suppliers, which could have serious implications for fuel poverty.
- Exacerbate a situation where DE schemes require the constant, expensive re-invention of surrogate, private regulation by project sponsors and their application through contractual terms and conditions.
- Create a situation where risks become self perpetuating, in that further increases in exemption limits come to be expected as the DE market expands.
- Wrongly imply that regulation is only appropriate for large scale DE schemes, when in fact it is the activities of large scale operators that can and should be supervised, even if the individual schemes that they run are small.

Allowing larger schemes to operate outside the electricity licensing framework would create a situation where more DE schemes of increasing scale were not engaged in the activities required to balance the grid, when the larger the scheme the greater the potential grid imbalance. The way in which the Balancing & Settlements Code (BSC) applies to DE schemes should be decoupled from the question of whether a DE scheme is to be licensed or exempt, so that small schemes could be licensed but not participate in the BSC or do so only to a limited extent.

Rather than exempting more or larger DE schemes from licensing, Arup proposes that licence conditions be devised that are directly relevant to the particular requirements of DE schemes. Operators should be licensed rather than individual schemes, and the licence conditions would cover generation, distribution and supply, though we expect in most cases that DE schemes would rely on public networks for electricity distribution.

We believe that there are positive advantages to incorporating DE operators into an appropriate license regime, not least of which is the professional status and credibility that it would confer on licensed DE operators and the confidence that would thereby be given to consumers and property developers.

Logically, many of the arguments that support the case for regulating the power businesses of DE scheme operators also apply to regulating their heat businesses. While this subject is outside the scope of the current consultation, it might well be considered an equally important issue.

The consultation document appears to be based on an assumption that DE is intrinsically sustainable and the Summary describes DE as encouraging “the technological innovation that is needed to address environmental concerns”. In our experience, distributed energy is not necessarily environmentally sustainable, however. We believe therefore, that that care is needed in stimulating the DE market in a way which is both environmentally and economically sustainable. The consultation makes no differentiation however, between renewable, low carbon, sustainable or unsustainable DE and we feel very strongly that this omission needs to be addressed.

The mechanisms suggested in the consultation for encouraging DE are not stated to be conditional on minimum standards of sustainability, other than the implied requirements for ‘Good Quality CHP’ which is not necessarily of itself a high performance standard for carbon efficiency or sustainability. Since the proposals to encourage DE that are contained in the consultation are not conditional on carbon reduction performance it is Arup’s view that it is likely that they would result in a high proportional increase in high profit-margin, low risk DE,

such as gas-fired embedded generation with or without CHP. These schemes may have other benefits, but do not necessarily deliver large carbon reductions.

Arup believe that the additional difficulties faced by renewable DE operators, such as fuel price instability, intermittency of output and variable plant resilience, warrant additional support within these proposals. If the relaxation of some of the licence terms were to be conditional on a minimum carbon reduction performance for example, this would provide an additional incentive for the targeted expansion of sustainable DE within the license framework. For example, the consultation discusses the issues of balancing the intermittent nature of DE and this particularly relevant to intermittent or non-dispatchable renewables or those new technologies with either unproven reliability or as yet fragile fuel supply chains. Arup believe that these additional risks need to be weighed against the greater carbon benefits associated with renewables.

We believe that were a limited number of DE licenses to be granted, they should be conditional on the achievement of specified levels of carbon abatement performance, with appropriate reporting and auditing arrangements put in place to validate that condition.

1 General Comments on Licensing

From the point of view of the operator of a DE scheme, the regulatory framework is severely asymmetrical at present. For the electricity being produced and sold, there is a long-established licensing framework which was evidently not designed with the requirements of DE in mind, but from which limited exemptions are available. For the heat being produced and sold, no statutory licensing framework applies and so specific rules have to be determined on a case-by-case basis. Neither approach facilitates the spread of DE schemes or ensures adequate protection of consumer interests. On the power side of DE schemes, project sponsors often adopt complex structures to fit their scheme within the limits on licence exemption; on the heat side of the business, operating or concession contracts typically elaborate commercial and operational rules to fill the void of applicable statutory regulation.

In short, current arrangements for licence exemption do not reduce the transaction costs of establishing DE schemes. Probably, the costs of relying on specially-written regulations for each exempt scheme exceed the costs of compliance with statutory regulation. Nor does our experience indicate that the results of attempting to draft scheme-specific commercial and operating rules produces more effective guarantees of quality of service and consumer protection.

Much of the demand for licence exemption is driven by the economic importance for DE schemes of selling electricity retail rather than wholesale. On this point, our experience is at odds with the implication in the Consultative Document (e.g. paragraph 2.23) that local retail sales are not important for the benefits of DE schemes to be realised. On the contrary, our experience indicates that retail supply margins potentially add significantly to the return on investment and hence to the willingness of operators to accept demanding carbon reduction targets.

Unfortunately, most large public CHP systems in the UK today export electricity at wholesale rates and the supply margin is not realised. Among the reasons they do so is that the scale of operation necessary to be an efficient retail supplier greatly exceeds the scale of operation of the DE schemes run by any one operator¹. This constraint can be overcome in some cases by subcontracting elements of retail supply, such as billing and customer care, but the market for these remains underdeveloped. As more DE schemes come on stream, especially in the private sector, we expect that this constraint on retail supply should gradually be overcome.

Securing a retail supply licence, and complying with regulations, also has a cost. However, our judgment is that these costs are a less significant factor in the decision of DE scheme

¹ Another reason is that most existing large CHP schemes in the UK serving the public are sponsored by local authorities who undertake the retail function for heat services, but who cannot do so for power.

operators to forego the opportunity for retail supply of electricity than the daunting economics of being a specialist retail supplier for the still relatively tiny DE market.

Given the perspective set out in this section, securing the relevant licences may be considered a barrier to entry by operators into the DE market rather than a specific constraint on establishing individual DE schemes. The significance of the regulatory barrier, though, is generally less than other barriers to entry. As the DE market grows, it is reasonable to expect that the economic barriers to entry will gradually lose their deterrent effect. As this happens, the need for licence exemption will wither.

Rather than emphasising licence exemption for DE schemes, the focus of licensing policy should be on facilitating the sponsorship of DE schemes especially by private sector sponsors, such as developers. Key to this is reducing the currently high transaction costs associated with each DE scheme that is set up. The more sponsors of DE schemes can rely on statutory regulation to ensure quality of service and consumer protection, the less they will need to develop such regulations themselves on a scheme-specific basis. The more standardised regulations can become, the lower will be the overall costs of setting up and monitoring DE schemes.

An important element in using regulation to facilitate the more cost effective setting up of more DE schemes would be to separate the issue of the extent of participation in the BSC from the issue whether DE scheme operators are licensed or licence-exempt. Participation in the BSC is essentially a function of scale; regulation of quality of service and customer relationships is equally applicable to operators of large and small DE schemes that provide services to the public.

It would be logical for a licence applicable to DE scheme operators to cover both generation and retail supply, and optionally distribution as well, although the economics of electricity distribution are generally not attractive for DE schemes.

Finally, we note that the many of the arguments that support the case for licensing the power side of DE schemes apply with equal force to the heat side of such schemes. The availability of a standard regulatory framework for the retail supply of heat and power would facilitate the development of such “dual energy” services on a basis that is comparable to, and competitive with, the dual fuel services that are now so popular.

2 Responses to Consultation Questions

2.1 Chapter 2

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

Arup considers that it would be inappropriate to raise the licence exception limits set out in the Class Exemption Order 2001. We explain our reasoning for this view elsewhere in this document, but key points that we raise are that raising exemption limits would:

- Place an increased number of consumers outside of the scope of statutory regulatory protection. Many of those consumers could be at the mercy of monopoly suppliers, which could have serious implications for fuel poverty.
- Create a situation where DE schemes require the constant, expensive re-invention of surrogate, private regulation by project sponsors and their application through contractual terms and conditions.
- Create a situation where risks become self-perpetuating, in that further increases in exemption limits come to be expected as the DE market expands.
- Wrongly imply that regulation is only appropriate for large scale DE schemes, when in fact it is the activities of large scale operators that can and should be supervised, even if individual schemes that they run are small.

Rather than exempting more or larger DE schemes from licensing, Arup proposes that licence conditions be devised that are directly relevant to the particular requirements of DE schemes. Operators should be licensed rather than individual schemes, and the licence conditions would cover generation, distribution and supply, though we expect in most cases that DE schemes would rely on public networks for electricity distribution.

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

No, the per-company limit should not be scrapped as that would potentially create an easy commercial loop-hole for larger schemes, which could be split into separate notional business entities to avoid the licence requirement. In fact, we believe that it is the per company limit which is the relevant issue from the point of licensing, rather than per site.

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

The number of DE schemes in existence in the UK providing services to the public is still relatively small, which perhaps tends to focus attention on the particular circumstances of each scheme. For the same reason, the operators of such schemes are few in number and they operate on a relatively modest scale. We envisage that in future the DE market will become much bigger, many more operators will enter the market and some of them will achieve a considerable scale of operations.

In our general comments on licensing (section 1 above) we emphasised that it is the activities of operators providing services to the public that should be subject to regulation, and not individual DE schemes.

Electricity generation using renewable resources such as wind, and CHP schemes in general, can be operated economically at levels below the current exemption thresholds for distribution and supply. This is because the minimum efficient size of plant is modest, and operation and maintenance activities and billing and customer services activities, can be organised on a regional or national scale even where individual schemes being operated are very small. Indeed, the bigger the DE market becomes in the UK and the more efficient operators become, we expect the minimum efficient size of DE scheme to reduce.

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

Clarity would have been helpful, but the DE market is moving on from the point where improving the present framework of licensing thresholds is appropriate. Given that Government policy is targeting the growth of DE for reasons of sustainability, the requirement now is for a suitable regulatory framework within which to encourage market entry by DE operators and the proliferation of DE schemes, rather than allowing the market to develop site-by-site, scheme-by-scheme with high set-up costs due to the absence of appropriate rules.

2.2 Chapter 3

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?

Yes, Arup believes that representation of DE in the BSC governance process is appropriate and necessary; both to enable the current challenges to be better addressed and to better enable the BSC governance process to adapt to future challenges.

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?

Yes, there would appear to be a case for this at least as an interim measure. Possible funding sources would be the ROC buy out fund or the receipts from the NFFPA auctions of NFFO contracted power. As the DE sector expands, it may be more appropriate for this to be funded from a DE trade body.

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.

Evidence suggests that DE and in particular, renewable DE schemes experience price prejudice from the wholesale market and that this is at least partly because they pose a disproportionate risks of system imbalance. In our answer to Q27, we propose that exposure to the BSC be proportional to the overall operations of a licensed DE operator. We believe that this will help to align the objectives of DE operators with the purchasers in the wholesale market and should therefore enable licensed DE operators to obtain better prices for their exported electricity. Such a move may also in the future encourage licensed DE operators to develop diverse portfolios of generating assets in order to manage their overall intermittency and hence their exposure to balancing and settlement charges. This would help to redress the current tendency of the Renewables Obligation to fund the most established renewable technologies with low marginal carbon abatement costs, such as utility scale wind turbines.

Given that BERR are currently examining opportunities to incentivised renewable and/or low-carbon heat, we suggest that some form of collateral heat initiative be used to provide an additional, balanced incentive to DE schemes. This is an issue which we feel warrants further, more detailed consultation as there are a range of potential interventions that could benefit DE and cogeneration in particular.

2.3 Chapter 4

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.

Our experience is that power purchase prices from DE schemes are weak and that this is a significant disincentive to many potential schemes.

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

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

Our experience suggests that consolidation is a high volume, low margin business with high costs of entry. It is not clear to us whether more market players with the same remit would make any significant difference.

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?

There appears to be a role for a preferential purchase incentive of DE, provided that its objective is to encourage carbon abatement. However, we believe that it is best left to the market participants to capitalise on this opportunity than to establish a specialist Energy Trader through regulatory intervention. In particular, we do not see the case for a single Energy Trader in the medium term.

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.

If the option of a single Energy Trader is to be pursued, which we do not support, then this question would require more detailed consultation.

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

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

The problem is rather at the retail level, including both the constraints on DE scheme operators selling their own electricity retail and the limited nature of retail competition generally. If these issues were resolved, the need for a dedicated wholesale market for DE would reduce. If one were to be set up, the rates for DE electricity should be differentiated based on carbon abatement or other benefit.

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

2.4 Chapter 5

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

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

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

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

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

Yes. Representation would be beneficial in helping to breakdown DNO misconceptions and wariness regarding the technical and operational standards of DE operators.

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

Whilst we appreciate that Engineering Recommendation G59 is a connection standard and as such sets out what must be achieved and not how to achieve it, our experience highlights major differences in application of the standard across the DNOs. Certain DNOs are prepared to 'trust' DE operators to install, test (witnessed), operate and maintain adequate interface protection whilst others insist on costly duplicate protection schemes and complex inter-tripping arrangements. In a worst case example a DNO requested duplicate protection on its boundary switchgear for a DE generator connected some distance away within an IDNO network. This also reflects the particular DNOs attitude to IDNOs as 'just another connecting customer' (who we don't trust). This can have a major impact on the connection cost for DE schemes and lead to inordinately long delivery times. We are aware of the technical issues regarding DE in passive distribution networks, particularly voltage control and unintentional islanding and appreciate this sometimes heavy handed approach is down to individual and/or corporate appetite for risk but if we are to move forward these are the type of issues we must address and determine a common approach across DNOs, IDNOs and DE operators.

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.

2.5 Chapter 6

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

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

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

Arup believes that there is a case for issuing a small number of licenses to DE operators provided that those licenses are conditional on minimum levels of quantifiable carbon abatement. We do not believe it is appropriate to issue licenses to individual schemes, however. The question of a consumer tie-in period requires more detailed consultation, but in our view, provided there are other consumer protection mechanisms in the interim period, some tie in period is both acceptable and necessary.

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

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

Yes, the emergent DE market should be brought within the regulatory framework. The key requirement is to facilitate the provision of “dual energy” services at the retail level to potential local consumers of the heat and power being produced on a basis that is comparable and competitive with the “dual fuel” services now widely available. To achieve this, a DE supply licence would be secured by the operator and not be DE scheme-specific. The extent of participation by a licensed DE operator in the BSC would then reflect the total scale of its operations.

A requirement for a DE supply license could go some way to alleviate IDNO concerns about the technical and operational competence of DE operators. However, once the issue of licence exemption is resolved, we would expect that DE schemes would typically generate and retail electricity and not seek to distribute.

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.