Annex 1 – Responses to Issues Questionnaire

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Questionnaire on issues/ problems raised in the TADG working group

Name: Robert Longden
Organisation: Airtricity

**ISSUE 1: IMPACT ON GB QUEUE**

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

**Question 1:** Do you consider this to be an issue?

NO

**Question 2:** How big an issue do you consider this to be?

NOT AN ISSUE

**Question 3:** Set out your views on the issue of the Impact on GB queue in the context of your answers to questions 1 and 2.

Whilst we respond to the question below, the question itself is founded on an inappropriate premise – that NGET necessarily needs or should have a contractual relationship with individual users connected to networks other than its own. All distributed [embedded] generation, whatever its size, should have as their primary interface the distribution owner/operator in whose network they reside. Network interface issues should then be the primary responsibility of network operators.

The GB queue should be broken down into transmission and distribution related elements. We have proposed that the interaction between transmission and distribution should be treated as that between two networks, and network planning carried out on this basis. Thus, the DNO, who is best placed to understand the development and operation of their network, should deal with the connection of “new small DG connections” and then ensure that any subsequent requirements at its network interface with transmission are addressed. (Note, the requirements are highly unlikely to be directly related to individual NSDG connection, but to the totality of the DNO network requirements) It is not the connection of NSDG by itself which is important, but its integration into the overall DNO network configuration. Transmission capacity should be assessed and planned on the basis of directly connected users and interface requirements with other networks. There should not be any contractual arrangements [and NO NEED for them] between NGET and any party in relation to energisation of new small DG connections.
ISSUE 2: INFORMATION AVAILABLE TO NGET

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.

Information on embedded generation levels is included in demand forecasts already provided to NGET by DNOs. TADG has been informed that under existing information transfer provisions, DNOs could [if requested by NGET] provide enhanced information to assist in network planning and investment. We do not consider that NSDG is in any way a “special case” in that information exchange between two networks, on the totality of factors affecting the interface between them will be provided as part of normal planning and operational procedures. Information provision has no relationship to the process of energising NSDG, or indeed to the charging of NSDG for its use of the D system, which are both matters for the DNO in whose network it connects.

ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
IMMATERIAL ISSUE

Question 3: Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.

The question presupposes that NGET have or need a right to some sort of contractual relationship with embedded generation. This is NOT correct. We have already outlined that we believe the logical and sensible way forward is one of considering network interfaces. These can be further divided into planning and operational issues. Distributed generation will feed into the DNO system. Whether the DNO system then exports to the transmission system from individual GSPs is dependent on a host of other, variable, network parameters. The export capacity utilised at a particular GSP is thus a result of the entire DNO network configuration, including GSP interconnection within the Distribution system, the changing energy flows resulting from demand variation and power flows across parallel paths in the Distribution, and national Transmission networks. As such all DG embedded in the network are utilising this capacity. Whilst individual GSPs will export more or less due to constantly changing network conditions (on both the TX and DNO networks), the required export capacity or DTEC will not be a simple arithmetic sum of each GSP maximum export, but will be that of the GSP Group, which will properly account for geographical, demand and generation diversity factors.
ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

Question 1: Do you consider this to be an issue?

NO

Question 2: How big an issue do you consider this to be?

IMMATERIAL ISSUE

Question 3: Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.

Participation in the BM is not mandatory, for transmission connected generation. If generation does not wish to participate in the BM, it should not be coerced into doing so, whether it is directly connected or embedded. It is for the individual network operator to secure their own network – or if services are available from a third party, to agree terms for those services. NGET do not have agreements with individual EdF stations, they operate the interconnector and secure services from it. If the BM and associated contractual arrangements entered into by NGET are insufficient for NGET to control the network then consideration should be given to reform of the BM and NGET contracting processes to incentivise additional generation to participate in these arrangements. This additional generation is likely to be primarily transmission connected, or large embedded generation. Should NGET still be incapable of securing their system, they should procure services via the DNO, who in turn will be in the best position to offer appropriate incentives to both demand and generation connected to its network.

This simplifies the interface arrangements for all generators.

ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

Question 1: Do you consider this to be an issue?

NO

Question 2: How big an issue do you consider this to be?

NOT AN ISSUE

Question 3: Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.

The issue resolves itself entirely if the concept of DTEC implicit in network to network interaction is adopted. ALL embedded generation would contribute [via appropriate tariffs based on access rights, capabilities etc] to DTEC. NGET would NOT charge individual embedded generators TNUoS. The cost signals to generation would be consistent. Generators would make the choice whether to connect into a DNO network or to the MITS based on TNUoS, or GDuoS and DTEC, plus the relevant connection/reinforcement costs. The tariffs would be cost reflective of the incurred costs and thus the “correct” economic decision would automatically be made.

There would be a further benefit through the reduction in interfaces. A user would only deal with the network operator into whose network they chose to connect.
**ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?
**NO**

**Question 2:** How big an issue do you consider this to be?
**NOT AN ISSUE**

**Question 3:** Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.

We refer to Issue 5 above “The issue resolves itself entirely if the concept of DTEC implicit in network to network interaction is adopted. ALL embedded generation would contribute [via appropriate tariffs based on access rights, capabilities etc] to DTEC. NGET would NOT charge individual embedded generators TNUoS. The cost signals to generation would be consistent. Generators would make the choice whether to connect into a DNO network or to the MITS based on TNUoS, or GDuoS and DTEC, plus the relevant connection costs. The tariffs would be cost reflective of the incurred costs and thus the “correct” economic decision would automatically be made.

There would be a further benefit through the reduction in interfaces. A user would only deal with the network operator into whose network they chose to connect.”

**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?
**NO**

**Question 2:** How big an issue do you consider this to be?
**IMMATERIAL ISSUE**

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.

This is an unavoidable consequence of the settlement processes which operate on a GSP group level. Reform of the settlement arrangements to operate at a GSP level would be disproportionately complex and costly; requiring a whole new range of simplifications and approximations to represent the network supply path of every MPAN, in order to derive the correct transmission network usage by each supplier [taking due account of netted generation attributed to the supplier] in each half hour. The present system, which represents an appropriate balance between pragmatism and the pursuit of theoretically greater cost reflectivity of the transmission charging arrangements, is therefore appropriate.
**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
**YES**

**Question 2:** How big an issue do you consider this to be?  
**MATERIAL ISSUE**

**Question 3:** Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.

The transmission system began its existence as relatively weak ties between largely self supporting generation/demand blocks. It provided ancillary services and allowed for the more efficient dispatch of larger generation units. After a prolonged period of providing a primary service based on the bulk transfer of power, it is likely that future evolution of the transmission system will see it reverting to its original role, that of providing support to more broadly self-supporting demand/generation blocks.

It is not so much that the growth of DG threatens system security (which it does not), but that it provides a challenge to NGET’s charging base, which relies on the fact that all generation (and hence demand) flows across - and is charged for using - its network.

Depending on how distributed generation evolves, the DNO networks may become net providers or net consumers of ancillary services to NGET. It is as yet unclear whether the growth of DG will necessarily place more requirements on NGET for ancillary services. What is clear is that NGET’s charging base will [quite rightly] decline as more generation becomes embedded. This places additional challenges on network planning and investment and may result in “stranded assets”. If the emerging supply/generation blocks are largely self supporting, and ancillary services purchased from NGET are properly cost reflective, then either those remaining users directly connected to the transmission system (including DNOs) will be required to pay charges which are significantly in excess of cost reflective levels or, NGET will face a significant revenue shortfall.

As such the existing transmission charging methodology is not robust against a migration of generation from the MITS to DNO embedded. If there were to be NO transmission connected generation then the existing charging arrangements would fail entirely.

The existing transmission charging arrangements ensure that NGET recovers its revenue from users, based upon the transfer of bulk power across the transmission system, which is currently workable, for the reasons above. They do not explicitly recognise or charge for the other services and benefits that are provided by an integrated and interconnected transmission system. These include the provision of reserve services and system security services to the DNO networks. The transmission charging arrangements should be reformed to incorporate separate charging for these services and for the bulk power flow service. Such reformed charging arrangements would be robust (and continue to be cost reflective) against changes to the proportion
of generation directly connected to the transmission network.

They would not of course [and quite rightly] protect NGET from a revenue shortfall where the users of their services, no longer required them – such as a decline in the bulk power transfer element.

**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

**Question 1:** Do you consider this to be an issue?

NO

**Question 2:** How big an issue do you consider this to be?

NOT AN ISSUE

**Question 3:** Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.

See also answer to Issue 5, above.

Decisions on connection options are driven by the practicalities of connection at an appropriate voltage level for the size of generation and the relative costs of connection options. Ensuring that each connection option is both cost reflective and based on consistent principles will promote competitiveness.

By implementing DTEC, together with the consequent charges for use and connection, correct cost reflective signals will be generated for users. Generation will connect at the “right” point in the network and competition will be maximised.

**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3:** Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.

It is not the different arrangements between NGET and DNOs that create the burden or the complexity, it is the requirement for multiple interfaces that is an issue. Contractual burden can be significant in the case of smaller generators. Generators should not be exposed to multiple contractual interfaces. We believe that the adoption of network to network interface principles would remove the need for multiple interfaces. Users would ideally interface only with the network operator to whose network they were connected. Whilst there may be merit in
allowing large embedded generators the opportunity to provide services directly to NGET at present, as DNO networks evolve, it is they who will need to ensure that operation of the large generator is consistent with both their network conditions and their network interface with NGET. As such it would be expected that the eventual logical primary interface for all embedded generation would be their host network operator.
Questionnaire on issues/problems raised in the TADG working group

Name: Dewi ab Iorwerth
Organisation: Centrica Energy

ISSUE 1: IMPACT ON GB QUEUE

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

**Question 1:** Do you consider this to be an issue?
NO

**Question 2:** How big an issue do you consider this to be?
IMMATERIAL ISSUE

**Question 3:** Set out your views on the issue of Impact on GB queue in the context of your answers to questions 1 and 2.
Contractual arrangements should be set up between DNO & DG and then between DNO & NGET. This will require NGET and DNOs to significantly increase their communications between one another (compared to today!) to enable NGET to keep abreast of DNO developments. If these contractual arrangements are not done properly, then the results could be material.

ISSUE 2: INFORMATION AVAILABLE TO NGET

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

**Question 1:** Do you consider this to be an issue?
NO

**Question 2:** How big an issue do you consider this to be?
IMMATERIAL ISSUE

**Question 3:** Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.
Again, as with 1) above, contractual arrangements between DNO & DG and DNO & NGET to ensure communications and information provision between DNO & NGET to allow NGET to keep abreast of DNO developments.

ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

**Question 1:** Do you consider this to be an issue?
NO

**Question 2:** How big an issue do you consider this to be?
IMMATERIAL ISSUE

**Question 3:** Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.
DG should be obliged (via contractual arrangements between DG & DNO) to provide necessary information to DNO in support of DNOs contractual arrangements/obligations with NGET.
**ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT**

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

| Question 1: Do you consider this to be an issue? | NO |
| Question 2: How big an issue do you consider this to be? | IMMATERIAL ISSUE |
| Question 3: Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2. | NGET could constrain down the DNO who then manage the constraint within their portfolio of DGs. This will require a framework (cf. Network Code) between DNO and DGs to ensure DNO is behaving (i.e. taking balancing actions on behalf of DGs) in an equitable manner. Again, this could be material if not done properly. |

**ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

| Question 1: Do you consider this to be an issue? | NO |
| Question 2: How big an issue do you consider this to be? | NOT AN ISSUE |
| Question 3: Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2. | This is not an issue if proper & effective communications and contractual arrangements are set up between DNO & NGET, i.e. NGET sees request for new connection to DNO and NGET gets “reasonable“ right to request DG that new connection becomes directly connected to Transmission network (cf. Network Sensitive Loads on gas network) |

**ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

| Question 1: Do you consider this to be an issue? | NO |
| Question 2: How big an issue do you consider this to be? | IMMATERIAL ISSUE |
| Question 3: Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2. | Only cost is set-up costs for contractual arrangements – should not be material. |
**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
NO

**Question 2:** How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.  
Surely (if I understand this correctly) this is beneficial to NGET? Particularly, if the above contractual arrangements are implemented resulting in greater communications between DNOs and NGET re. new connections resulting in greater transparency & notice of schemes which may/may not have an impact. If schemes do pose a “problem”, then NGET reserve the right to have a direct agreement with DG (see (5) above).

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
NO

**Question 2:** How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3:** Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.  
The current projections of potential new-build of renewable schemes (the main driver behind these issues) does not suggest such growth in DG. The UK supply gap that may be envisaged in the next 5-10 years will not be solely met (cannot be solely met!) by renewables! The supply gap in the UK will involve large coal and gas-fired power generation technologies (as well as nuclear potentially) requiring direct connection to Transmission network.

**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation. **WHY? HOW?**

**Question 1:** Do you consider this to be an issue?  
NO

**Question 2:** How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3:** Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.  
Do not see this as an issue without understanding more about the claim.
**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties. *Again, WHY? HOW?*

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<th>Question 3: Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.</th>
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<td><em>Again, without understanding the basis of the claim, then cannot respond fully.</em></td>
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Questionnaire on issues/problems raised in the TADG working group

Name: Paul Jones  
Organisation: E.ON UK plc

ISSUE 1: IMPACT ON GB QUEUE

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

Question 1: Do you consider this to be an issue? 
NO

Question 2: How big an issue do you consider this to be? 
NOT AN ISSUE

Question 3: Set out your views on the issue of the Impact on GB queue in the context of your answers to questions 1 and 2.

CAP097 alternative CAA2 was approved by Ofgem which was National Grid’s effective third choice solution (it was in fact its fifth choice, but only because of alternatives which improved on the other two options by introducing the phrase “the Company” in the legal text to replace “NGC”). Although National Grid’s preferred options extended to small generators, whereas CAA2 covered medium generators only, National Grid did state in the report that this option “would solve this long term issue” albeit to a lesser extent than the other two options. If National Grid had believed that CAA2 was insufficient we would have expected it to have stated so in its recommendation as it did in respect of other alternatives. We do not have any reason to believe that this issue has increased in severity since the implementation of CAP097 to warrant a change in view.

ISSUE 2: INFORMATION AVAILABLE TO NGET

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.

A similar reason to the answer to question 1 above. Additionally we understand that DNOs are required to provide National Grid with information in order to assist with planning on the transmission system. If this is deemed insufficient by National Grid then we would recommend a change to these requirements. Requiring embedded generators to pay generation TNUoS is not a solution.

ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

**Question 3**: Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.

*Embedded generators not subject to a BEGA are not presently deemed to use the transmission system and instead assumed to net off against local demand in the GSP Group in which it is situated. Whether or not one GSP in that GSP Group exports at times is immaterial as the GSP Group has been designated as the relevant unit for these purposes.*

There are two implications which result from the assumption that such embedded generators are not deemed to use the transmission system. Firstly, they do not pay TNUoS charges (and neither does the demand deemed to net off against them). Secondly, as they are deemed not to use the system, they are not compensated for any reduction in availability of the transmission system and do not gain access to the energy market to the same extent as generators using the transmission system, such as being able to offer bids and offers directly into the Balancing Mechanism. Therefore, reduced obligations are matched with reduced rights. We see no problem with this situation as long as a generator can opt to be deemed as using the transmission system, at which point it is correct that it attracts the associated rights and obligations.

**ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT**

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

**Question 1**: Do you consider this to be an issue?  
NO

**Question 2**: How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3**: Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.

*We assume that National Grid will want to use larger sized generators to balance the system. Relying on a number of small embedded generators to do so appears to be a complex way to operate the system in the short term to real time. In areas where smaller generators have more influence due to the nature of the transmission system such as in northern Scotland, is this not already covered by the different definitions of Large or Medium Power Stations and the associated rights National Grid enjoys as a consequence?*

**ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

**Question 1**: Do you consider this to be an issue?  
YES

**Question 2**: How big an issue do you consider this to be?  
IMMATERIAL ISSUE

**Question 3**: Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.

*In the absence of a regulatory framework which captures all generators no matter how small, there will always be an issue of incentives created by setting the*
relevant threshold. We do not believe that the present threshold represents a problem for the efficient operation of the market.

**ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
**NO**

**Question 2:** How big an issue do you consider this to be?  
**NOT AN ISSUE**

**Question 3:** Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.

If a generator is not deemed to be using the transmission system then it is not appropriate to charge it for doing so. It should be noted however that there is indeed a cost reflective signal which occurs. The cost reflective locational signal is provided by the location part of the TNUoS tariff. This is aimed at demand and generation. The demand signal in any area is the negative of the generation one. Therefore, if a supplier contracts with an embedded generator it is not exposed to the signal for that amount of demand which is offset by the embedded generation. Suppose that the relevant locational signal on demand is -£5/kW. By contracting with a generator it loses this which effectively means a cost of +£5/kW for contracting with the generator or in other words it is exposed to the generation locational signal. Of course there is also an embedded benefit associated with the positive non locational residual charge. However, this residual charge is not set to be cost reflective, but is to recover the allowed revenue in the proportions 27:73 between generation and demand. Therefore, its consideration is not relevant to this issue.

**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
**YES**

**Question 2:** How big an issue do you consider this to be?  
**IMMATERIAL ISSUE**

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.

It is not clear that this is a big issue. It has been previously deemed appropriate to deal with the GSP Group in its entirety. An alternative approach is indeed to deal with each GSP individually. However, this has significant systems and transactional costs implications. In the absence of a clearly defined problem with significant cost implications to solve, it is not clear that it is sensible to incur these implementation and operational costs.

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may
lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

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<tr>
<td><em>We do not believe that it is an issue at present and are some way off requiring a solution in the future, if at all. It is sensible to keep this situation under review though.</em></td>
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**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

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<td><em>Embedded generation is deemed not to use the transmission system and transmission connected generation is deemed not to use the distribution system. Therefore, embedded generation pays distribution charges and not transmission charges whilst transmission connected generation pays transmission charges but not distribution charges. In different situations it is financially beneficial to choose a distribution connection and in others a transmission connection. However, this forms one element of such a decision with for example technical considerations having a major influence. We have not seen any compelling evidence to suggest that this framework systematically benefits one class of generator over another. Indeed, charging embedded generators for use of the transmission system whilst not having reciprocal arrangements for transmission connected generation in respect of distribution charges would introduce an arrangement which would discriminate against distributed generators.</em></td>
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**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

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<td><em>Clearly we are not a small party so this question does not directly relate to us. However, we do not understand how the present situation can be seen as overly onerous for any one particular type of player. We do not see that the contractual links are overly complex. An embedded generator contracts with a supplier for trading purposes, a distributor for connection and use of system purposes and with National Grid if it is large enough to be required to do so. This is not a bewildering number of counter parties for any business to be able to deal with.</em></td>
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TADG Working Group
Page 16
Working Group Report
Annex 1
ISSUE 1: IMPACT ON GB QUEUE
There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
IMMATERIAL ISSUE

Question 3: Set out your views on the issue of the Impact on GB queue in the context of your answers to questions 1 and 2.

The changing pattern of use of the transmission system, due to changes in use by distribution systems, is gradual, predictable or at least forecastable and capable of supporting planned delivery of changes in transmission system ahead of time, backed up with an appropriate relationship with distribution system operators and other connected users.

Fundamentally, the management of distribution system level ‘local markets’ should be undertaken by the distributor concerned. If changes in local use affect the potential for remotely connected generation or transmission connected generation to sustain ‘business as usual’ then some reconsideration of the suitability of transmission connected generation or sufficiency of transmission system is required to continue to meet the needs of transmission connected users.

If there is a need for further transmission investment to perpetuate ‘business as usual’, when other local markets have changed and previous assumptions cease to be valid, then it is appropriate for the TSO and transmission connected generation, to consider whether further investment to support business as usual is sustainable.

Essentially existing transmission connected users, by virtue of local distribution system demand, hypothetically benefited from lower investment ‘at the time’ than had the adjacent distribution system demand not previously existed. In one sense transmission connected users benefited through deferred, reduced or avoided investment, that the changed environment (reducing distribution system demand) is now highlighting the need for. For example transmission connected providers of energy ‘relying’ on the presence of adjacent demand to get the outstanding capacity away to more remote markets at lower investment cost, than were the full provision of that electrical energy to remote markets provided for in transmission system investment/capability.

It remains the choice of existing transmission connected parties whether to invest further to remain otherwise unaffected in considerably altered economic environment or explore alternative options/alternative locations more suitable to sustained operation. It remains the choice of potential connectees to consider alternative locations cognisant of likely queue or constraints.

It is not credible for smaller customers/generators in distribution systems to be constrained or manipulated in the normal event other than to the extent that the effect of the generation and demand causes actual export onto the transmission system.

It should not be a ‘given’ that transmission connected generation should be protected from the consequences of changes in the regional/local markets as these markets becoming more self sustaining.

Clearly at the point at which a GSP or GSP Group becomes exporting then it is reasonable for the same forms of control to apply to a DSO requesting increases in export capability. Therefore at the point a distribution system reaches zero minimum demand at key periods the DSO’s requirement for
ISSUE 2: INFORMATION AVAILABLE TO NGET
There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

**Question 1**: Do you consider this to be an issue?

**NO**

**Question 2**: How big an issue do you consider this to be?

**IMMATERIAL ISSUE**

**Question 3**: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.

Other than advanced knowledge of relevant large/medium/small power stations under clause 6.5 of the CUSC (aka CAP 97), the addition of smaller increments of DG as individual connections is implicitly immaterial.

However the growth of smaller DG (and reductions in demand) can be predicted and forecast ahead of time in aggregate through a number of sources such as DTI, Planning Authorities, BWEA, DNO Week 24 data, NGETs own monitoring of net demand reducing over time etc. such that investment is made ahead of projected need. Sufficient sources of data already exist or could be enhanced, i.e. an expanded/improved week 24 data set or perhaps more regular data provision from distributors, to support forecasting/planning processes. Information can be provided by the Distributor, it does not need a direct contract with generators and NGET in order for relevant data to be provided.

ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG
There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

**Question 1**: Do you consider this to be an issue?

**YES**

**Question 2**: How big an issue do you consider this to be?

**MATERIAL ISSUE**

**Question 3**: Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.

It is an issue, but wrongly formed.

Whether export is or is not associated with a BEGA DG it’s the issue of a distribution system not having a basis of export defined that is the core problem. A contractual framework is required for holistically dealing with exporting distribution systems and implicitly any BEGA DG ought to be treated as a substituent contributor to such distributor export.
**ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT**

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

**Question 1:** Do you consider this to be an issue?

NO

**Question 2:** How big an issue do you consider this to be?

IMMATERIAL ISSUE

**Question 3:** Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.

It is our expectation that parties to be constrained first are those that have compensatable rights and that parties without compensatable rights are not constrained other than by faults or system emergency conditions.

It's for NGET to establish sufficient constrainable services/GSM/DSM so as to make use of OC6 of the Grid Code unlikely for the normal albeit more volatile usage of the transmission system and make the necessity to constrain the end local markets a very last resort for emergencies only.

This does not preclude providing for NGET reach into distribution systems for constraining larger generation to meet ‘national interest’ and suitable arrangements around key licencing thresholds are clearly already feasible. With reference to Issue 5, we would consider that an adjustment of the present embedded CVA DG arrangements into a form of Constraint and Compensation Agreement with a changed charging regime (perhaps no direct TNUoS charge) would achieve this.

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**ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3:** Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.

To deal with this matter correctly, the status of CVA DG connected within distribution systems will need to be reassessed and perhaps an alternative form of commercial treatment established. Essentially the anomaly exists because the existing arrangements treat CVA DG as if transmission connected.

It does NOT follow from this that all other forms of smaller DG should be treated as transmission connected to suit, rather the opposite change needs to occur. If a distributor is managing his system then he needs to manage his whole system. CVA DG needs to be a subset of the total management and the relationship with NGET changed such that transmission rights reside with the distributor.
ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.

It's been stated numerous times during TADG meeting, including by NGET, that it is the change in power flows that drives investment and hence cost reflectivity should mirror the volatility in use of the transmission system. If the measured use changes from a previously higher demand to a lower demand or from low demand to low export then charging is adjusted reflectively...and modelling of charging evolves to reflect the general changes in usage patterns.

Refer to response on Q5, re removing anomaly of present treatment of CVA DG and so removing any differential for any size of DG connected to a distribution system.

ISSUE 7: GSP vs. GSP GROUP TREATMENT

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

Question 1: Do you consider this to be an issue?
YES

Question 2: How big an issue do you consider this to be?
IMMATERIAL ISSUE

Question 3: Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.

Subject to a commercial arrangement with the distributor for exporting connections, and such charges in themselves ideally reflecting a likelihood of adjacent absorption, I see no major issue.

Presently charging is conducted by zones which is in itself not totally cost reflective, being a national model rather than location specific local model. It is presently accepted that for trading, GSP Group level is the acceptable level of granularity.

To achieve solution to the general issue would require a thorough revaluation of the basis of nodal power flows into and out of a GSP node for all transmission connections reflecting the mix of producers and users of energy in various geographic areas not just distribution system connections.
**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?

*YES*

**Question 2:** How big an issue do you consider this to be?

*MATERIAL ISSUE*

**Question 3:** Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.

The present basis of modelling/analysis to determine charging model may no longer be sufficient for a more dynamic mix of transmission generators and dynamic distribution systems (essentially customers).

The question is somewhat incorrect in that even with higher variance in use the transmission system will still be the provider of bulk power flows.

Whilst the net daily/monthly/yearly usage by distribution systems may reduce, suitable means for planning for credible outlier events (95% / 1 in 50 years etc.) will still be required through appropriate modelling to make sure sufficient investment in ‘standby capability’ is retained so as to avoid reliance on OC6/Grid Code for example for ‘stillest&coldest periods’, ‘warmest&windiest periods’ or ‘loss of gas supplies’. It is the ‘spread’ in variation of use that may be the key factor determining more reflective charging not the gross substituent components of pure demand and pure generation.

Charging implicitly may have a higher fixed component in charges to both exporting or importing transmission connections reflecting resilience or may continue to be obscured within variable charges. To be more cost reflective, Users’ maximum needs have to be articulated to the TSO, i.e. maximum import, maximum export, normal import, normal export and informed/refined with actual measurement data and statistical time or year/month/day to bring rigour to the exercise.

For note, TADG has not identified a need for a matching Import capacity declaration to mirror the proposed transmission access, most parties seeing ‘DTEC’ as export capacity at the GSP Node/Group so gaps exist in conducting this exercise if ‘DTIC’ is not at least implicitly acknowledged as the other key driver on transmission investment.

Cost reflective modelling would likely be based on credible worst case max import, max export, normal import, normal export by system peak or time of peak (need for security may differ for different users at different times of year).

An example of such potential analysis of a GSP is shown below, based in this case on the DNO’s SCADA system monitoring a main feed circuit from an NGET GSP. It demonstrates the traceability in the change in spread of usage with the increase in DG over the last 11 years, in the case shown not yet exporting, but with widening spread of use.
A graph for the same data expressing the spread as % total variance from average for the same periods is shown below.
### ISSUE 9: COMPETITIVENESS

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

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<td>As long as a means to charge an appropriate export charge to the transmission connected User can be made on the same basis as all other types of User then a fair proportion of such charge based on the same cost reflective model can be disseminated down to the User's customers causing such export and therefore claim of distortion of competition negated.</td>
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### ISSUE 10: CONTRACTUAL BURDEN

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

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<td>Noting that it is not reasonable or desirable to control everything, there is no excessive administrative burden in managing smaller parties since, at least from a distributor perspective, we would see that such parties would not intentionally be subject to the same forms of direct control by either NGET or DNO as would sensibly be the case for larger DG parties (or indeed perhaps larger demand customers). Essentially a DNO will control types and sizes of DG that it is sensible and realistic to control and distributor investment will be made in their systems such that other than for system emergency events all other smaller parties will not be subject to direct control or constraint (i.e. disturbance). This approach is consistent with managing larger commercial trading/market astute parties as if they are 'businesses with whom business can be done' whilst engaging smaller parties as 'customers whose needs are stably met with lowest interaction’</td>
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We would expect a similar approach with respect to planning and investment in transmission systems, focussing largely on the usage/behaviour of transmission connection points or groups of connection points themselves, to avoid engaging with the mass of subordinate customers/generators therein.
Questionnaire on issues/problems raised in the TADG working group

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<th>Name: Mike Wilks</th>
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<td>Organisation: KEMA</td>
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**ISSUE 1: IMPACT ON GB QUEUE**

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

**Question 1**: Do you consider this to be an issue?

NO

**Question 2**: How big an issue do you consider this to be?

NOT AN ISSUE

**Question 3**: Set out your views on the issue of Impact on GB queue in the context of your answers to questions 1 and 2.

NGET have existing provisions within the CUSC and Grid Code to ensure that “relevant” DG connections made by DNOs which impact on the transmission network are subject to control of connection timing by NGET i.e. if there is a current deficiency all NGET need to do is change the relevant requirements they currently place on the DNOs via these codes e.g. under Clause 6.5 of the CUSC.

**ISSUE 2: INFORMATION AVAILABLE TO NGET**

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

**Question 1**: Do you consider this to be an issue?

NO

**Question 2**: How big an issue do you consider this to be?

NOT AN ISSUE

**Question 3**: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.

NGET have existing provisions within the CUSC and Grid Code to ensure that it obtains all necessary information in planning timescales from DNOs on “relevant” DG connections to provide the appropriate signals for NGET to invest in the transmission system i.e. if there is a current deficiency all NGET need to do is change the relevant requirements they currently place on the DNOs via these codes e.g. Week 24 Submission data.

**ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG**

There is a gap in the contractual framework in relation to exports from the
distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3:** Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.

Any transmission Node which exports on to the transmission network regardless of whether it is a “Generation” Node (i.e. a Node with transmission connected generation typically exporting onto the transmission network) or a GSP (i.e. a Node with demand typically connected via a DNO network) should be treated equally. Currently an Exporting GSP (i.e. GSP which traditionally took demand from transmission onto distribution but now reverses that power flow) is not subject to the same contractual framework and consequent obligations as a “Generation” Node although *ceteris paribus* it has the same impact. This is clearly discriminatory and thus it is a contractual gap which should be filled.

The contractual gap is best (most efficiently) filled via the DNO as an Agent, given DG connections at DNO level cause the issue, the DNO is responsible for coordinating access onto the distribution network, best understand the impact on the GSP boundary and the already discusses required distribution/transmission interface assets with NGET i.e. the contractual gap should be “plugged” via a new DNO/NGET agreement mimicking existing equivalent transmission access contracts/products. It is strongly believed that as the issue arises at the distribution/transmission boundary the Agency solution must be applied on a “Net” basis i.e. NGET restricts its interest to the behaviour of the GSP and not all the underlying component behaviours driving it – this is the role of the DNO as Agent.

**ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT**

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

IMMATERIAL ISSUE

**Question 3:** Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.

The answer to Q2 is based on the current situation – in future it will become an increasingly material issue.

Given the current level of DG and BEGAs, and current Grid Code provisions it is believed NGET currently has sufficient capability to effectively and economically manage transmission constraints on both a commercial and emergency basis.
However, as the level of DG becomes much more substantial, the existing governance arrangements may be insufficient for economic, efficient and in extremis secure resolution of transmission congestion.

Thus is in future it will probably become necessary for enhanced commercial arrangements to evolve with DG to enable NGET to continue to effectively manage transmission constraints on both a commercial and emergency basis.

Given the size and number of such DG and the natural intermediary role of the DNO, the most effective solution will be to evolve arrangements between the DG and the DNO, which can then be aggregated as appropriate by the DNO as an Agent in a DSO-GBSO procedural arrangement operated under respective Grid Codes, CUSC and DCUSA. It (i) most naturally fits with existing governance frameworks and transmission access arrangements, (ii) will be the most efficient solution from an implementation and operational practice perspective, (iii) is seen as a natural evolution of a more active DNO, and (iv) is consistent with the joint DTI/Ofgem vision of the development of active DNO networks.

It is strongly believed that as the issue arises at the distribution/transmission boundary the Agency solution must be applied on a “Net” basis i.e. NGET restricts its interest to the behaviour of the GSP and not all the underlying component behaviours driving it – this is the role of the DNO as Agent.

**ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL Treatment in TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

**Question 1**: Do you consider this to be an issue?

YES

**Question 2**: How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3**: Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.

The answer to Q2 is based on the current situation in Scotland – in future it will become an increasingly material issue in England & Wales too.

In pure economic theory there is clearly a perverse incentive in treating DG immediately either side of a notional size threshold differently. However, in practice the threshold is meant to reflect a level where the DG in its own right, and in the context of wider developments has a meaningful impact on the transmission network and thus needs to be provided with appropriate transmission charging signals to ensure economic and efficient development of the transmission system within the overall umbrella of an effective and efficient GB electricity system. The threshold is also set in order to reduce the administrative burden on the GBSO. In other words the limit is meant to reflect a balance of both degree of impact and practicality/value of direct administration. It is natural that where a threshold exists DG will seek to maximise economies of scale underneath that threshold.
Currently it could be argued that in England & Wales the issue is immaterial given the respective volume of DG and the 100MW size of threshold which means that in most cases the decision regarding project size and whether to embed will not primarily be driven by transmission charging factors but a range of other technical and commercial factors.

However, in Scotland, where the relevant thresholds are 5MW and 30MW for SHETL and SPTL respectively, it is arguably already a material issue, as clearly at such size thresholds the consequences of choosing to connect at Distribution or Transmission Levels have fundamentally different cost consequences for these relatively small projects.

Furthermore, under the projected substantial increase in the proportion of DG (a lot of which is in Scotland), and thus the consequent impact on the transmission network, there is a case for reviewing such thresholds under an Agency model where the Agent (which as previously argued is believed to best be the DNO) acts as an intermediary between NGET and DG in an extension/evolution of existing governance and contractual arrangements. This would seek to ensure that at a high level DG is appropriately incentivised to locate where possible where it minimise the impact on transmission and bears the appropriate cost otherwise (obviously at a local level DNOs can choose to extend and refine such locational signals within their regional areas). Ideally the DNO Agent would bear a GSP specific charge which it would then cascade as it felt appropriate to the DG within its constituency.

Clearly such a consideration cannot be done in isolation and must consider the effective and efficient development of the GB electricity system as a whole. As such it must consider developments in DNO charging, the environmental objectives of the UK Government and the natural geographic disposition of renewable energy resources. However it is clear that as the proportion of DG grows and the impact on the transmission network of larger numbers of below threshold DG becomes more substantial, the threshold or differentiation in treatment either side will need to change.

### ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1**: Do you consider this to be an issue?

YES

**Question 2**: How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3**: Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.

The answer to Q2 is based on the current situation in Scotland – in future it will become an increasingly material issue in England & Wales too.
ISSUE 7: GSP vs. GSP GROUP TREATMENT

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?

**YES**

**Question 2:** How big an issue do you consider this to be?

**IMMATERIAL ISSUE**

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.

The answer to Q2 is based on the current situation (where there only a limited exporting GSPs) – in future it will become an increasingly material issue.

For reasons see answer to ISSUE 3 plus;

From the view of a transmission network and non-discrimination any Node exhibiting export behaviour should be treated equally regardless of the underlying components driving the export onto the transmission network. Thus for the purposes of charging an Exporting GSP, where it purely exports, (i) must be subject to the same charging regime as a Generation Node (as previously defined in answer to Q1); or, (ii) where the GSP exhibits both export and import behaviour in an equal manner to that of an Interconnection Node (e.g. Sellindge).

Clearly it will be at the discretion of the DNO how it choose to allocate and charge through to DG and others, the Exporting GSP charges levied on it by NGET.

As noted in the answer to ISSUE 3 it is strongly believed that as the issue arises at the distribution/transmission boundary the Agency solution must be applied on a NET basis i.e. NGET restricts its interest to the behaviour of the GSP and not all the underlying component behaviours driving it – that is the role of the DNO as Agent.

ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?

**YES**

**Question 2:** How big an issue do you consider this to be?

**IMMATERIAL ISSUE**
**Question 3**: Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.

The answer to Q2 is based on the current situation – it may or may not become a material issue.

The transmission network currently fulfils both the bulk transfer of power and security of supply throughout the year and particularly at time of peak demand. Current transmission access and charging arrangements essentially recognise this (subject to some practical and political constraints).

This role will naturally evolve as the pattern of generation and demand evolves. It is not clear at this stage how fundamentally the role of transmission will change and in what timeframes. For example under a scenario of substantial DG growth it may well reduce the bulk transfer role and emphasise the security of supply role but equally it is possible under such a scenario for a reinforcement of the bulk power transfer role, especially where DG growth is concentrated in northern Scotland (e.g. due to natural geographic disposition of renewable resource).

Due to the advance in generation technologies and the increased emphasis on protecting the environment it is inevitable that the role of transmission will change and that the transmission access & charging arrangements will need to change to maintain cost-reflectivity. However, this issue in itself is not yet material (or indeed certain to occur) and does not require a fundamental change to transmission access and charging arrangements at this time.

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**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

**Question 1**: Do you consider this to be an issue?

**YES**

**Question 2**: How big an issue do you consider this to be?

**MATERIAL ISSUE**

**Question 3**: Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.

The answer to Q2 is based on the current situation in Scotland – in future it will become an increasingly material issue in England & Wales too.

For reasons see answers to ISSUES 3 & 5, plus;

Given clear discrimination in treatment and the expected substantial growth in DG, without a change in the transmission access & charging regime, directly connected generation will be subject to a competitive disadvantage to embedded generation in relation to their access and use of the transmission system. This will apply both in the context of (i) on a project basis, adjacent generation will see a different charge simply on basis of status and; (ii) overall, the burden of transmission charges will rise on a proportionately reducing charge base within the total constituency of generation benefiting from the presence of transmission.
### ISSUE 10: CONTRACTUAL BURDEN

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

| Question 1: Do you consider this to be an issue? | YES |
| Question 2: How big an issue do you consider this to be? | MATERIAL ISSUE |
| Question 3: Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2. |

A matrix form of contractual relationship is undesirable. It clearly imposes undue complexity and administrative burden on DG.

Furthermore where the numbers of DG substantially increase its also imposes undue complexity and administrative burden on the DNOs and NGET itself. This presents both commercial and operational risks.

This is already a material issue for small parties and will become increasingly material for the DNOs and NGET itself, given the expected growth of DG, their increasing impact on networks and thus the increasing need to evolve the governance regime to more appropriately accommodate DG. Thus the industry needs to adopt an Agency approach to maximise the efficiency of the contractual and operational interfaces.

It is felt that given the primary issues relate to network development, access, and charging that a DNO Agency Model is most appropriate i.e. the DNO acts as an intermediary between DG and NGET. Furthermore given the DNO acts as Agent the interface with NGET should be at the distribution/transmission boundary and thus developed on a “Net” basis i.e. **a DNO Net Agency Model should be adopted.**
### Questionnaire on issues/ problems raised in the TADG working group

Name: Patrick Hynes / Nick Pittarello  
Organisation: National Grid

<table>
<thead>
<tr>
<th>ISSUE 1: IMPACT ON GB QUEUE</th>
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<td>There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.</td>
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**Question 1**: Do you consider this to be an issue?  
YES

**Question 2**: How big an issue do you consider this to be?  
MATERIAL ISSUE

**Question 3**: Set out your views on the issue of Impact on GB queue in the context of your answers to questions 1 and 2.  

Whilst the view has been expressed that CAP097 covers all generation, this is subject to the interpretation of the DNO not National Grid. The DNO may not be best placed to ascertain the cumulative impact of small embedded generation on the transmission system.

Where gaps are appearing naturally in the GB queue (some large transmission projects may terminate) the implication is that any “capacity gaps” will be absorbed by many small generators (or ‘negative demand’). Small generators which are cumulatively having an effect on transmission flows are not subject to the same access restrictions as other larger individual generators.

<table>
<thead>
<tr>
<th>ISSUE 2: INFORMATION AVAILABLE TO NGET</th>
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**Question 1**: Do you consider this to be an issue?  
YES

**Question 2**: How big an issue do you consider this to be?  
MATERIAL ISSUE

**Question 3**: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.  

National Grid accepts it has the ability to request additional information from DNOs in relation to embedded generation. However, in a net model, it is the lack of a capacity based exit product which prevents National Grid from passing on price signals that reductions in demand may also cause transmission investment costs. The contractual arrangements must facilitate the efficient pass through of cost reflective signals to attain the most efficient solution for end customers. We do not believe a net arrangement can pass through the correct signal without fundamental exit reform.

The signals all users receive, irrespective of size or location of connection, should reflect the impact on investment. Under the current regime NGET may invest to facilitate embedded generation but through the commercial arrangements provide a benefit to either the associated supplier or directly to the embedded generator.
ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

Question 1: Do you consider this to be an issue?
YES

Question 2: How big an issue do you consider this to be?
MATERIAL ISSUE

Question 3: Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.

We believe all generation parties should be treated equally. This is not an issue just about export, but more fundamentally the treatment of embedded generation as negative demand. An export product could be designed, but this would not address the main issue of the impact on transmission flows (and hence investment) of reductions in demand due to embedded generation.

Within the current contractual framework there is no export product. Technically, in the current arrangement an export product would need to be based on a GSP Group zone rather than GSP node basis. This would be next to pointless because few Suppliers export on a GSP Group basis from embedded generation. However to correct the current model, Supplier embedded generation export from a GSP Group should also be combined with directly connected generation located in that GSP Group zone. This in itself would be a very radical change to the current regime.

In principle, embedded generation should receive the appropriate signal, whether there are exports from a GSP node or not. The current regime does not deliver this.

ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

Question 1: Do you consider this to be an issue?
YES

Question 2: How big an issue do you consider this to be?
MATERIAL ISSUE

Question 3: Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.

This is already occurring, with the expectation that it will increase significantly in the future. The current option is to bilaterally trade with individual embedded generators however this may not be a sustainable longer term solution since it lacks transparency, is impractical and ultimately inefficient.

ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

Question 1: Do you consider this to be an issue?
** ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100M **

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3:** Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.

The current embedded benefit which is derived from the sum of the residual bears little relation to any actual benefit. DG generation will have approximately the same impact as a directly connected generator at a given transmission node and therefore should be charged the same.

** ISSUE 7: GSP vs. GSP GROUP TREATMENT **

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.

This is effectively a cross-subsidy from Directly connected to DG generation.

Directly connected generation has to trade via the NBP, whereas DG does not. DG is competing with directly connected to supply demand in that zone and therefore both parties should be treated equally.

An intra-zonal transmission charge would be required to be developed to correct
the current model and remove the subsidy.

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1**: Do you consider this to be an issue?

YES

**Question 2**: How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3**: Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.

Clearly the role of the transmission system will evolve with time. The access and charging arrangements should be designed to pass through a non discriminatory cost reflective signal. Without this the overall network solution will be sub optimal.

If hypothetically the system does move significantly towards a system for security only, under a net model, consumption would not be a correct proxy for charging i.e. a GSP with 0 peak demand would not be charged under the current arrangements even though it was benefiting from the security of connection to a wider network.

**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

**Question 1**: Do you consider this to be an issue?

YES

**Question 2**: How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3**: Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.

The size of the benefit, approximately £17/kW, is more significant than the transmission tariff most users are exposed to, therefore is material. The issue of competitiveness is also covered in question 7.

**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

**Question 1**: Do you consider this to be an issue?

YES

**Question 2**: How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3**: Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.

We believe this reinforces the need for an efficient agency model. Where the
supplier is exposed to a cost reflective signal.
Questionnaire on issues/ problems raised in the TADG working group

Name: Tim Russell
Organisation: Renewable Energy Association

ISSUE 1: IMPACT ON GB QUEUE

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of the Impact on GB queue in the context of your answers to questions 1 and 2.

This is not an issue because it is not true and is based of a common misunderstanding (including by myself until recently) as to what was imposed by CAP097. There is a contractual route for the TSO to control the connection of all generation to a distribution network that can not connect under G/83 i.e. all generation larger than 16A per phase low voltage.

ISSUE 2: INFORMATION AVAILABLE TO NGET

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.

CAP097 covers all generation down to 12kw. In terms of information NGC has the power under Grid Code PC 3.2 (d) (ii) to request data on small embedded power stations.

ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

Question 1: Do you consider this to be an issue?
YES

Question 2: How big an issue do you consider this to be?
MATERIAL ISSUE

Question 3: Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.

The relationship between all embedded parties and the TSO ought to be dealt with by an agent. There is currently no provision for dealing with exports from a distribution network and any such export should be charged for as generation by the TSO. I do not think it is material at the moment (because there is so little of
it) but if export did become more common it would be material. If (and I am not aware whether it is the case) any generator is being prevented from connecting because it would result in export then I consider it to be a material issue. If this is not happening then until either it does or there is substantial export (that there is no system to charge for) it is an immaterial issue. Because I do not know whether anybody is currently being prevented from connecting because of a resultant export I am reluctantly forced into the position of considering it material, which it may not be at present. What is not acceptable is the TSO wanting direct relationships with smaller and smaller generators.

**ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT**

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

**Question 1:** Do you consider this to be an issue?  
**NO**  
**Question 2:** How big an issue do you consider this to be?  
**NOT AN ISSUE**  
**Question 3:** Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.

Active participation (i.e. submitting offers and bids to change output) is voluntary for all generators of any size and there are means for parties to aggregate smaller generators either to participate in the BM or to offer ancillary services so in practice the commercial means that NGC has to get plant to alter its output is voluntary for all sizes of generator.

**ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

**Question 1:** Do you consider this to be an issue?  
**YES**  
**Question 2:** How big an issue do you consider this to be?  
**MATERIAL ISSUE**  
**Question 3:** Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.

There is no logic in having size thresholds. 2 x 50MW generators have the same effect as 1 x 100MW ones and 100,000 x 1kw ones. See also issue 6 in terms of this also having the same effect as a 100MW demand reduction.

**ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
**YES**  
**Question 2:** How big an issue do you consider this to be?  
**MATERIAL ISSUE**  
**Question 3:** Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.
There is no logic in having size thresholds. All parties connected to the transmission network should be treated identically and charged for their net withdrawal from or export to it. Thus if a distribution network imported generation it would be treated as net demand whereas if there was a net export the charge for that net export would be a generation charge. There is no difference in cost impact on the transmission system of a net increase in 2 x 50MW generators or 1 x 100MW generator or 1 x 100MW reduction in demand. 1 x 100MW generation increase combined with 1 x 100MW contemporaneous demand increase produces no change in transmission costs. Charging should to be cost reflective therefore be independent of size and on a net basis.

**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
YES

**Question 2:** How big an issue do you consider this to be?  
IMMATERIAL ISSUE

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.

This may have some materiality within some GSP groups.

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
YES

**Question 2:** How big an issue do you consider this to be?  
IMMATERIAL ISSUE

**Question 3:** Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.

In spite of the growth of DG this does not appear to be an issue for the foreseeable future, in particular there does not appear to be systematically more DG in the south than the north so the bulk power transfer role of the transmission system will continue. If the transmission system role does move towards more of the role of the original 132kv Grid System then it will be appropriate to review how the transmission system is charged for. Note the use of system charges structure from 1990 to 1994.

**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

**Question 1:** Do you consider this to be an issue?  
YES

**Question 2:** How big an issue do you consider this to be?  
IMMATERIAL ISSUE
**Question 3:** Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.

If charges were not cost reflective it would be a material issue. As however it is cost reflective to charge for use of the transmission system on the basis of net flows onto or off it which is broadly how charges now work, it is a largely hypothetical issue i.e. it would be an issue if charges were not cost reflective.

**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

**Question 1:** Do you consider this to be an issue?

**YES**

**Question 2:** How big an issue do you consider this to be?

**MATERIAL ISSUE**

**Question 3:** Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.

Parties should require a contractual relationship with the network operator only of the network that they are connected to. Requiring all or some parties to have contractual relationships with more than one network operator places an additional burden of complexity on that party.
Questionnaire on issues/ problems raised in the TADG working group

Name: Richard Ford  
Organisation: RES

### ISSUE 1: IMPACT ON GB QUEUE

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

**Question 1:** Do you consider this to be an issue?  
**NO**

**Question 2:** How big an issue do you consider this to be?  
**NOT AN ISSUE**

**Question 3:** Set out your views on the issue of Impact on GB queue in the context of your answers to questions 1 and 2.

*Small DG is indistinguishable from reduced demand at the interface of the NGET and DNO networks. Whilst demand and generation are treated separately by NGET, there should be no contractual arrangements between NGET and any party in relation to Energisation of new small DG connections.*

### ISSUE 2: INFORMATION AVAILABLE TO NGET

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

**Question 1:** Do you consider this to be an issue?  
**NO**

**Question 2:** How big an issue do you consider this to be?  
**NOT AN ISSUE**

**Question 3:** Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.

*Information on embedded generation levels is included in demand forecasts already provided to NGET by DNOs. Increased levels of DG may result in lower demand forecasts. This provides NGET with appropriate signals for transmission investment. It is inappropriate to consider contractual arrangements in relation to energisation of DG in the context of a question of information provision.*

### ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

**Question 1:** Do you consider this to be an issue?  

**Question 2:** How big an issue do you consider this to be?  
**IMATERIAL ISSUE**

**Question 3:** Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.

*This question is inappropriately worded. The issue is NOT of non-BEGA DG but of exports to the transmission system from GSPs or GSP groups. Exports at an individual GSP need not be associated with any generation, it may be the result of national power flows across parallel paths in the NGET and DNO networks. Export from an individual GSP should not be a material issue unless and until the*
level of export exceeds the available transfer capacity at that point. Until then, an increase in export of 1MW at a GSP has the same impact on the transmission system as a decrease in demand of 1MW for an importing GSP at the same location. Any “gap” in the contractual arrangements should be addressed by treating GSP export as negative demand and, if appropriate, revisiting the current position of differing treating of generation and demand on the NGET network.

ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

Question 1: Do you consider this to be an issue?

Question 2: How big an issue do you consider this to be?

IMMATERIAL ISSUE

Question 3: Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2. There is no reason why NGET should have any procedures for constraining DG that is not actively participating in the BM. If the BM and associated contractual arrangements entered into by NGET are insufficient for NGET to control the network then consideration might be given to reform of the BM and NGC contracting processes to incentivise additional generation to participate in these arrangements.

ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

Question 1: Do you consider this to be an issue?

NO

Question 2: How big an issue do you consider this to be?

NOT AN ISSUE

Question 3: Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2. Unless ALL DG (including micro generation within domestic households) is to be treated as transmission connected generation or ALL DG is treated as negative demand then there must inevitably be a combination as at present. The existing thresholds (which are tied to licensing thresholds) are an appropriate balance.

ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

Question 1: Do you consider this to be an issue?

NO

Question 2: How big an issue do you consider this to be?

NOT AN ISSUE

Question 3: Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2. Unless ALL DG (including micro generation within domestic households) is to be treated as transmission connected generation or ALL DG is treated as negative
demand then there must inevitably be a combination as at present. The existing thresholds (which are tied to licensing thresholds) are an appropriate balance.

**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

IMMATERIAL ISSUE

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.

This is an unavoidable consequence of the settlement processes which operate on a GSP group level. Reform of the settlement arrangements to operate at a GSP level would be disproportionately complex and a minor reduction to the theoretical maximum cost reflectivity of the transmission charging arrangements is therefore appropriate.

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3:** Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.

The existing transmission charging arrangements are not robust against a reduction in the levels of transmission connected generation. In the extreme case of all generation (except one station) being connected to the DNO networks, the remaining station would pay a fixed amount (of around £250m pa) regardless of the station size or location. If there were to be NO transmission connected generation then the existing charging arrangements would fail entirely.

Since the existing transmission charges are based on the transfer of bulk power across the transmission system they are not truly cost reflective.

The current transmission charging arrangements do not explicitly recognise or charge for the other services and benefits that are provided by an integrated and interconnected transmission system. These include the provision of reserve services and system security services to the DNO networks. The transmission charging arrangements should be reformed to incorporate separate charging for these services and for the bulk power flow service. Such reformed charging arrangements would be robust (and continue to be cost reflective) against changes to the proportion of generation directly connected to the transmission network.
**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

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<tbody>
<tr>
<td>Decisions on connection options are driven by the practicalities of connection at an appropriate voltage level for the size of generation and the relative costs of connection options.</td>
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**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

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<th><strong>Question 3</strong>: Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.</th>
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<tbody>
<tr>
<td>It is not the different arrangements between NGET and DNOs that create the burden or the complexity, it is the requirement for multiple interfaces that is an issue.</td>
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<tr>
<td>Contractual burden can be significant in the case of smaller generators. Generators should not be exposed to multiple contractual interfaces. DG should be able to contract with the DNO only, whilst transmission connected generation should be able to contract with NGET only.</td>
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</table>
**Questionnaire on issues/ problems raised in the TADG working group**

<table>
<thead>
<tr>
<th>Name: Bill Reed</th>
<th>Organisation: RWE</th>
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</thead>
</table>

**ISSUE 1: IMPACT ON GB QUEUE**

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

**Question 1**: Do you consider this to be an issue?  
NO

**Question 2**: How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3**: Set out your views on the issue of the Impact on GB queue in the context of your answers to questions 1 and 2.

*The GB queue arose as a consequence of the transition to BETTA and the incentive to develop new projects under the Renewables Obligation. No evidence has been presented that the lack of contractual arrangements between NGET and small DG connections not covered by CAP97 impacts on the availability of transmission capacity for other users. We are not aware of any instances where new small DG connections not covered by CAP097 have impacted on our transmission connection offers.*

*In theory the energisation of new small DG connections not covered by CAP97 will have implications for the availability of transmission capacity for other users if in aggregate such connections result in significantly reduced demand or export at GSPs. In such circumstances, investment may be required in the transmission system. It is for NGET to determine how such investment occurs. We believe that arrangements for both entry and exit may require review when there is clear evidence from NGET that small-scale DG is significantly impacting on transmission investment.*

**ISSUE 2: INFORMATION AVAILABLE TO NGET**

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

**Question 1**: Do you consider this to be an issue?  
NO

**Question 2**: How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3**: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.

*In our view the information required from new small DG and any other scheme in planning timescales should be determined by the Grid Code. If NGET believe that there is an issue associated with information provision then changes to the Grid Code can be proposed.*

*Furthermore, signals with respect to investment in the transmission system should be determined in relation to the capacity arrangements (both entry and exit) at the point of connection between the transmission system, transmission connected generators and distribution networks.*
### ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

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We believe that the rights and obligations with regard to network access of non BEGA DG and indeed all DG should be set out in the connection arrangements between the generator and the operator of the network that the generator is connected to.

The key interfaces are between the transmission company and DNO in relation to the connection between the transmission system and DNO network (imports and exports) and between the DNO and the generator with respect to DG.

Where NGET wishes to introduced obligations with respect to entry or exit from the DNO system, then these arrangements should apply to the users of the DNO network. It if for the DNO to manage these obligations and to devise an appropriate methodology for use of the DNO network both for DG and demand. In this context we would support the concept of a Distribution Transmission Entry Capacity (DTEC) product that represents the firm financial rights for exports from the DNO network and the transmission network. Associated with the DTEC are any requirements with regard to transmission entr. If is for the DNO to establish how such rights are allocated to DNO users including DG through an appropriate DNO methodology statement for use of the DNO system.

### ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

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Constraints in the energy market are current managed through the balancing mechanism (bids/offers) or through NGET forward contracts. We do not regard an increase in DG significantly changing the relationship between NGET as system operator and generators. However, we recognise that increased connection of DG may give some cause for concern with regard to managing energy flows. We believe that in the event that such concerns materialise the threshold for the definition of BMUs could be lowered (from the current 50MW de minimus level) through a BSC modification to ensure that NGET can more effectively control the system in real time.

With regard to the issues associated with transmission entry capacity, the current arrangements require compensation to be paid in relation to planned and unplanned outages that prevent exports. Such compensation results in rebates to
 ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

Question 1: Do you consider this to be an issue? 
YES NO

Question 2: How big an issue do you consider this to be? 
MATERIAL ISSUE

Question 3: Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.

We believe that the rights and obligations with regard to network access of non BEGA DG and indeed all DG should be set out in the connection arrangements between the generator and the operator of the network that the generator is connected to. Consequently we believe that there should be consistent arrangements for all DG. We note for example that DNO connected generators of greater than 100MW are treated as if they were connected to the transmission network yet in many cases are remote from the network while DNO connected generators less than 100MW are treated as “negative demand”. We believe that this is anomalous.

It should be noted that further consideration of the treatment of DG with respect to the transmission charging arrangements is required. For example we would support the principle that DG in negative transmission charging areas provides support to the transmission system and helps to avoid significant investment in transmission infrastructure. Therefore we could envisage that the “negative demand” in such areas could be subject to appropriate locational incentives with respect to the transmission network (subject to the DNO use of system methodology).

 ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

Question 1: Do you consider this to be an issue? 
NO

Question 2: How big an issue do you consider this to be? 
NOT AN ISSUE

Question 3: Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.

We believe that the rights and obligations with regard to network access of non BEGA DG and indeed all DG should be set out in the connection arrangements between the generator and the operator of the network that the generator is connected to. Therefore the cost reflective TNUoS tariffs should apply to all
exports onto the transmission system. This supports the notion of a DTEC at GSPs with the DTEC subject to the same arrangements as any other site with a TEC (i.e. the relevant generator tariff for the zone of export).

**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?
YES

**Question 2:** How big an issue do you consider this to be?
MATERIAL ISSUE

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.

*Consistent treatment of all exports onto the transmission system at the point of connection would require that GSP exports should be considered as the basis for netting off flows onto the transmission system.*

*We recognise that a GSP-based approach may have implications for the practicality of the arrangements for DTEC. As an interim solution GSP group aggregation could be utilised. This would enable the scale and scope of a GSP-based enduring solution to be identified.*

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?
NO

**Question 2:** How big an issue do you consider this to be?
NOT AN ISSUE

**Question 3:** Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.

*Notwithstanding the potential growth of DG, the bulk transfer of power will remain the role of the transmission system for the foreseeable future.*

*While growth of DG may have implications for system security standards, we believe that these will evolve in relation to the significance of the potential impact. In our view any changes to security standards should apply to parties that are connected to the transmission system. In the context of DG, the transmission standards should apply to the exports of power from the DNO network onto the transmission network. It is for the DNO to determine how such standards are applied to DG in an appropriate use of system methodology.*

*In the context of security standards, we believe it is for the transmission company to consider how it meets the relevant standards under its licence. The growth of DG may create additional opportunities to develop a commercial framework for the delivery of ancillary services such as frequency response, reactive power, black start and reserve.*
**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

**Question 1:** Do you consider this to be an issue?  
**NO**

**Question 2:** How big an issue do you consider this to be?  
**NOT AN ISSUE**

**Question 3:** Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.

*It is for individual project developers to determine whether projects are aborted or completed. However, we recognise that the complexity of the arrangements and the associated regulatory burden may provide barriers to entry. In this context we believe that the DTEC approach and associated DNO methodology represents the most straightforward and robust enduring solution to any issues that may arise.*

**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

**Question 1:** Do you consider this to be an issue?  
**YES**

**Question 2:** How big an issue do you consider this to be?  
**MATERIAL ISSUE**

**Question 3:** Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.

*We believe that the rights and obligations with regard to network access of non BEGA DG and indeed all DG should be set out in the connection arrangements between the generator and the operator of the network that the generator is connected to.*

*Managing interfaces with NGET, suppliers and DNOs would introduce significant complexity in the arrangements for DG, increase the associated regulatory burden (for both small and large players) and may provide barriers to entry.*
### Questionnaire on issues/ problems raised in the TADG working group

<table>
<thead>
<tr>
<th>Name: Max Lalli</th>
<th>Organisation: SHETL</th>
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#### ISSUE 1: IMPACT ON GB QUEUE
There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

**Question 1:** Do you consider this to be an issue?  **YES**  
**Question 2:** How big an issue do you consider this to be?  **IMMATERIAL ISSUE**  
**Question 3:** Set out your views on the issue of Impact on GB queue in the context of your answers to questions 1 and 2.  
THERE WOULD IN ANY CASE NEED TO BE SOME PRACTICAL DE-MINIMUS LEVEL, SO THE LEVEL OF "SMALL" SEEMS REASONABLE FOR THIS PURPOSE.

#### ISSUE 2: INFORMATION AVAILABLE TO NGET
There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

**Question 1:** Do you consider this to be an issue?  **NO**  
**Question 2:** How big an issue do you consider this to be?  **NOT AN ISSUE**  
**Question 3:** Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.  
ADEQUATE EXISTING ARRANGEMENTS IN PLACE WITH DNO, I.E. WEEK 24 SUBMISSIONS AND JSDO MEETINGS

#### ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG
There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

**Question 1:** Do you consider this to be an issue?  **YES**  
**Question 2:** How big an issue do you consider this to be?  **MATERIAL ISSUE**  
**Question 3:** Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.  
THE IDENTIFIED GAP SHOULD BE CLOSED IN A SIMPLE MANNER. WE ALSO ADVOCATE THAT NGET SHOULD ADVISE ON A MAXIMUM EXPORT LIMIT, AFTER ANY BEGAS, AT A GSP WHICH WHEN EXCEEDED WILL RESULT IN TRANSMISSION COSTS. IF DNO THEN ANTICIPATES THIS TO BE EXCEEDED BY APPLICATION OF NEW SMALL DG CONNECTION IT WILL ALERT NGET SO THAT NGET CAN TAKE ANY REMEDIAL ACTION IT SEES FIT.

#### ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT
There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

**Question 1:** Do you consider this to be an issue? YES
**Question 2:** How big an issue do you consider this to be? IMMATERIAL ISSUE
**Question 3:** Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2. SHOULD NOT BE AN ISSUE IF WORKING WITHIN THE CONFINES OF THE NGET ADVISED MAXIMUM EXPORT LIMIT WE ADVOCATED IN QUESTION 3 TO ISSUE 3.

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**ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

**Question 1:** Do you consider this to be an issue? YES
**Question 2:** How big an issue do you consider this to be? IMMATERIAL ISSUE
**Question 3:** Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2. ANY CAPACITY “BREAK” WILL IN GENERAL LEAD TO PERVERSE INCENTIVES AT THE BOUNDARY E.G. 99 MW EMBEDDED WIND FARM IN E & W TO AVOID HAVING TO BE A BMU AND SUFFER TNUOS CHARGES. HOWEVER, NOT A MATERIAL ISSUE AS SENSIBLE TO HAVE SOME BREAK POINT E.G. IT WOULD NOT BE APPROPRIATE FOR A 10 MW GENERATOR TO HAVE ALL THE TECHNICAL AND COMMERCIAL OBLIGATIONS THAT A 1000 MW ONE HAS. THE IMPORTANT THING IS TO ENSURE CONSISTENCY AND REASONABLENESS. NOTE ALSO THAT THE DG WILL HAVE TO CONSIDER ANY CONNECTION AND GDUOS CHARGES IN THE DECISION TO LOCATE PROCESS.

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**ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue? YES
**Question 2:** How big an issue do you consider this to be? IMMATERIAL ISSUE
**Question 3:** Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2. WE BELIEVE THE PROBLEM HERE IS WITH NGET’S CHARGING METHODOLOGY NOT BEING SUFFICIENTLY COST REFLECTIVE IN TREATING DG AS NEGATIVE DEMAND.

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**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.
### Question 1: Do you consider this to be an issue?  YES
### Question 2: How big an issue do you consider this to be?  MATERIAL ISSUE
### Question 3: Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.  
ANY DNO EXPORT, AND RESULTING TRANSMISSION COST, NEEDS TO BE ADDRESSED AT GSP LEVEL.

### ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

### Question 1: Do you consider this to be an issue?  NO
### Question 2: How big an issue do you consider this to be?  NOT AN ISSUE
### Question 3: Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.  
NGET NEEDS TO UNDERSTAND WHAT WILL DRIVE ITS COSTS AND DEVELOP CHARGING AND ACCESS METHODOLOGIES TO REFLECT THIS.

### ISSUE 9: COMPETITIVENESS

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

### Question 1: Do you consider this to be an issue?  YES
### Question 2: How big an issue do you consider this to be?  IMMATERIAL ISSUE
### Question 3: Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.  
AS PER ISSUE 6 THE PROBLEM IS ONE OF NGET'S CHARGING METHODOLOGY. OUR PROPOSAL OF A NGET DECLARED COST FREE EXPORT LEVEL SHOULD ASSIST HERE. IN ANY DECISION ON WHERE TO CONNECT ALL THE RELEVANT COSTS NEED TO BE CONSIDERED BY DG, i.e. TNUOS, GDUOS AND CONNECTION. EACH LICENSEE HAS AN OBLIGATION TO SET CHARGES THAT ARE, INTER ALIA, COST REFLECTIVE OF ITS COSTS, AND IN ACCORDANCE WITH OFGEM APPROVED METHODOLOGIES.

### ISSUE 10: CONTRACTUAL BURDEN

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

### Question 1: Do you consider this to be an issue?  YES
### Question 2: How big an issue do you consider this to be?  IMMATERIAL ISSUE
### Question 3: Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.  
WE SUPPORT MINIMISING CONTRACTUAL BURDEN ON NEW SMALL DG AND BELIEVE THIS CAN BEST BE ACHIEVED BY NGET EXERCISING ITS RIGHTS THROUGH EXISTING BEGAs AND BMUs
Questionnaire on issues/ problems raised in the TADG working group

Name: Paul McGimpsey
Organisation: SPT&D

ISSUE 1: IMPACT ON GB QUEUE

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

Question 1: Do you consider this to be an issue?
NO.

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of the Impact on GB queue in the context of your answers to questions 1 and 2.

NGET should only have a contractual relationship with users who are directly connected to (or use) the transmission system. Small DG that serves local demand and does not use the transmission system should not be required to enter into contractual arrangements with NGET. Parties that connect to and/or use the transmission system should be responsible for its costs.

- Obligatory contracts would be a significant barrier to the development of DG.
- NGET always has the option of offering suitably attractive commercial terms to new small DG connections in circumstances where it considers it necessary/beneficial to do so, i.e. NGET could offer, non-obligatory, commercial terms (with financial reward) for small DG to provide a particular service/function.
- Whereas it is clear that distribution demand connections need the transmission system for security and voltage control, the same cannot be said of DG.
- The GB Queue primarily affects larger generators who are supplying demand over the transmission system. Those generators who are not using the system should not be included the GB Queue.

ISSUE 2: INFORMATION AVAILABLE TO NGET

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.

- Existing processes are in place by which NGET can obtain required information from DNOs, e.g. Week 24 submissions and Joint System Development Liaison Meetings.
- NGET have not approached SPT&D to express concern with existing process.
- SPT&D are happy to consider changes to the current process within the
ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

Question 1: Do you consider this to be an issue?
YES

Question 2: How big an issue do you consider this to be?
MATERIAL ISSUE

Question 3: Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.
- SPT&D has put forward a “Thin DNO Agency Model” to fill the gap in existing framework. The SPT&D model proposes:
  - The introduction of a DTEC for exporting GSPs;
  - The introduction of bilaterally agreed operational limits for GSP exports; and
  - Recovery of DTEC charges via DNO charging methodologies.

ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

Question 1: Do you consider this to be an issue?
YES

Question 2: How big an issue do you consider this to be?
MATERIAL ISSUE

Question 3: Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.
- NGET already has the ability (via the CUSC) to instruct the DNO to carryout certain actions in emergency situations.
- These rights would be augmented by the introduction of the SPT&D proposed “Thin DNO Agency Model”.
- NGET always has the option of offering suitably attractive commercial terms to DG not actively participating in the BM where it considers it necessary/beneficial for it to do so.

ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

Question 1: Do you consider this to be an issue?
YES

Question 2: How big an issue do you consider this to be?
MATERIAL ISSUE

Question 3: Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.
(1) "size-based" criteria
- Perverse incentives are an inevitable result of introducing capacity limits.
• If DG declares capacity just below Large Generator threshold and it does not cause an export to transmission system it should not be charged.
• If DG declares capacity just below Large Generator threshold and it does cause an export to transmission system it should be charged. DTEC would be levied under SPT&D proposed “Thin DNO Agency Model”.

(2) “voltage-based” criteria
• Little evidence of generation opting to connect to D system in preference to T system to simply avoid TNUoS charging.

**ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1**: Do you consider this to be an issue?
Yes

**Question 2**: How big an issue do you consider this to be?
Immaterial Issue

**Question 3**: Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.
• The size of the DG is not the issue. The issue is whether or not the existence of that DG causes an export to the T system.

**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1**: Do you consider this to be an issue?
Yes

**Question 2**: How big an issue do you consider this to be?
Material Issue

**Question 3**: Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.
• The proposed thin-DNO agency model addresses this issue by looking at charges per GSP.
• We do not advocate a complete overhaul of existing trading arrangements.

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1**: Do you consider this to be an issue?
Yes

**Question 2**: How big an issue do you consider this to be?
Immaterial Issue

**Question 3**: Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.
• NGET needs to understand what drives its costs and develop its charging methodology to reflect this. If the bulk transfer of power is no longer the
**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

**Question 1:** Do you consider this to be an issue?  
**NO**  
**Question 2:** How big an issue do you consider this to be?  
**NOT AN ISSUE**  
**Question 3:** Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.

- The fundamental point here is that, in theory, DG is competing with the transmission system in using locally provided generation to meet demand rather using remote generation and the transmission system. The whole NGET approach is to try to restrict this competition to its core service.
- The proportionally deeper costs of connecting to the D system need to be taken into account, as does the application of GDUoS charges.
- Where DG does not make use of the T system, TNUoS charges should not be levied in addition to these D costs.
- The availability of a more economical D connection to a prospective generator is not in itself a reason to extend the remit of TNUoS charges in order to make the T option “more attractive”.

**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

**Question 1:** Do you consider this to be an issue?  
**YES**  
**Question 2:** How big an issue do you consider this to be?  
**MATERIAL ISSUE**  
**Question 3:** Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.

- The implementation of obligatory (and unnecessary) interfaces between NGET and small parties will only serve to act as a barrier to the development of DG.
Questionnaire on issues/problems raised in the TADG working group

Name: Mike Ray
Organisation: United Utilities

**ISSUE 1: IMPACT ON GB QUEUE**

There are no contractual arrangements between NGT and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

**Question 1:** Do you consider this to be an issue?
- YES-OF-NO

**Question 2:** How big an issue do you consider this to be?
- NOT AN ISSUE
- IMMATERIAL ISSUE
- MATERIAL ISSUE

**Question 3:** Set out your views on the issue of the impact on GB queue in the context of your answers to questions 1 and 2.

No licensee has good information about the behaviour of small generators. The best available information to DNOs will be transmitted to NGT via both Wk 24 submissions and the routine Planning Liaison meetings between NGT and DNOs. Certainly the clustering of small schemes could have an effect, particularly in Scotland. However, this uncertainty is a feature of a market approach and is a risk for all participants, and in this case particularly NGT, to bear.

**ISSUE 2: INFORMATION AVAILABLE TO NGT**

There are no contractual arrangements between NGT and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGT in planning timescales and for signals for NGT to invest in the transmission system.

**Question 1:** Do you consider this to be an issue?
- YES-OF-NO

**Question 2:** How big an issue do you consider this to be?
- NOT AN ISSUE
- IMMATERIAL ISSUE
- MATERIAL ISSUE

**Question 3:** Set out your views on the issue of information available to NGT in the context of your answers to questions 1 and 2.

From TADG meetings it is clear that NGT are not particularly concerned about this point - at the second TADG meeting the following is recorded:

"Notwithstanding the details discussed, NG did state that the operational and planning issues were not seen in NG as being insurmountable, nor the primary drivers for change."

**ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG**

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

**Question 1:** Do you consider this to be an issue?
- YES-OF-NO

**Question 2:** How big an issue do you consider this to be?
- NOT AN ISSUE
- IMMATERIAL ISSUE
- MATERIAL ISSUE

**Question 3:** Set out your views on the issue of rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.
By definition, generators with a material effect are defined by CUSC following the CAP 097 amendments. From the figures published by Ofgem in 92/06 it is not clear that there will be significant export from GSPs, taking into account existing demand, apart from in Scotland – an effect magnified by the classification of 132kV as Transmission – arguably a bigger distortion than any other.

**ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT**

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

**Question 1:** Do you consider this to be an issue?

**YES** or **NO**

**Question 2:** How big an issue do you consider this to be?

**NOT AN ISSUE**

**IMMATERIAL ISSUE**

**MATERIAL ISSUE**

**Question 3:** Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.

This is an issue that does require attention, but through the existing Grid and Distribution Codes – where there has always been an analogous set of emergency arrangements for disconnecting load for reasons of system integrity.

**ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

**Question 1:** Do you consider this to be an issue?

**YES** or **NO**

**Question 2:** How big an issue do you consider this to be?

**NOT AN ISSUE**

**IMMATERIAL ISSUE**

**MATERIAL ISSUE**

**Question 3:** Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.

Although all perverse incentives are to be discouraged, we note that there are currently conflicting incentives on generators to decide whether to be T or D connected. There will always be boundary issues creating incentives for as long as there are boundaries.

The question is what is the value or cost of these perverse incentives v the cost and risk of a remedy in terms of implementation cost and risk of introducing other unforeseen imperfections.

**ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?

**YES** or **NO**

**Question 2:** How big an issue do you consider this to be?

**NOT AN ISSUE**

**IMMATERIAL ISSUE**

**MATERIAL ISSUE**

**Question 3:** Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.

As Issue 5
**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?
YES or NO

**Question 2:** How big an issue do you consider this to be?
NOT AN ISSUE IMMATERIAL ISSUE MATERIAL ISSUE

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.
It is our view that such flows are unlikely to be significant in terms of driving investment in the main interconnected system, and are therefore not material.

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?
YES or NO

**Question 2:** How big an issue do you consider this to be?
NOT AN ISSUE IMMATERIAL ISSUE MATERIAL ISSUE

**Question 3:** Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.
We recognize the distortions that DG introduces into transmission charging, particularly where GSPs export. However the disbenefits of the distortion need to be weighed against the cost of improvements. We continue to believe that the disbenefits are generally small, particularly as there is no current reason to believe that significant number of GSPs will change from import to export. We note from 82/06 that the net growth in DG for GB is expected to be about 4GW against a current MD of about 50GW.

**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

**Question 1:** Do you consider this to be an issue?
YES or NO

**Question 2:** How big an issue do you consider this to be?
NOT AN ISSUE IMMATERIAL ISSUE MATERIAL ISSUE

**Question 3:** Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.
See Issue 8

**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

**Question 1:** Do you consider this to be an issue?
YES or NO

**Question 2:** How big an issue do you consider this to be?
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<th>NOT AN ISSUE</th>
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<td><strong>Question 3:</strong> Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2. Clearly the burden of the interfaces is significant for those generators caught by CUSC post CAD097. Having said that, one of the big difficulties is the complexity and uncertainty in relation to the current arrangements and possible changes. If the industry arrangements became more fixed, and probably with the uncertainties associated with the GB queue and user commitment can be removed by having enduring arrangements, then although there would be some necessary remaining complexity, we believe that developers and their consultants will not find the complexity a barrier.</td>
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Questionnaire on issues/ problems raised in the TADG working group

Name: DAVID WALKER
Organisation: West Coast Energy Ltd

ISSUE 1: IMPACT ON GB QUEUE

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for the availability of transmission capacity for other users.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of the Impact on GB queue in the context of your answers to questions 1 and 2.
This is an issue for the DNOs to manage.

ISSUE 2: INFORMATION AVAILABLE TO NGET

There are no contractual arrangements between NGET and any party in relation to energisation of new small DG connections not covered by CAP097, with implications for information provision to NGET in planning timescales and for signals for NGET to invest in the transmission system.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of Information Available to NGET in the context of your answers to questions 1 and 2.
This is an issue for the DNOs to manage.

ISSUE 3: RIGHTS/OBLIGATIONS OF NON-BEGA DG

There is a gap in the contractual framework in relation to exports from the distribution system to the transmission system not associated with BEGA DG, with implications for transmission rights and obligations of affected users.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
IMMATERIAL ISSUE

Question 3: Set out your views on the issue of Rights/obligations of non-BEGA DG in the context of your answers to questions 1 and 2.
DG should be considered as a whole and not as BEGA or Non-BEGA

ISSUE 4: IMPACT ON CONSTRAINT MANAGEMENT

There is no formalised procedure for NGET to constrain down DG not actively participating in the BM, with implications for system operation.

Question 1: Do you consider this to be an issue?
NO

Question 2: How big an issue do you consider this to be?
NOT AN ISSUE

Question 3: Set out your views on the issue of Impact on Constraint Management in the context of your answers to questions 1 and 2.
NGET have no direct arrangements for controlling or constraining demand customers and DG should not be any different. This is an issue for DNOs to manage.

**ISSUE 5: PERVERSE INCENTIVES FROM DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for size/voltage-related incentives.

**Question 1:** Do you consider this to be an issue?  
NO

**Question 2:** How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3:** Set out your views on the issue of Perverse Incentives in the context of your answers to questions 1 and 2.  
Any threshold is a compromise and if the current thresholds work why change them?

**ISSUE 6: COST REFLECTIVITY OF DIFFERENTIAL TREATMENT IN TRANSMISSION CHARGING FOR DG<100MW**

DG are treated as either transmission-connected generation or as negative demand in transmission charging, based on size threshold criteria, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
NO

**Question 2:** How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3:** Set out your views on the issue of Cost-Reflectivity in the context of your answers to questions 1 and 2.  
Any threshold is a compromise and if the current thresholds work why change them?

**ISSUE 7: GSP vs. GSP GROUP TREATMENT**

The current arrangements allow distribution-connected users to net off within a GSP group, but there is no transmission charge for any resulting flows on the transmission system between GSPs in the same GSP group, with implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?  
NO

**Question 2:** How big an issue do you consider this to be?  
NOT AN ISSUE

**Question 3:** Set out your views on the issue of GSP vs. GSP Group Treatment in the context of your answers to questions 1 and 2.  
Is there any evidence that inter-GSP flows within a GSP group are an issue or a problem?

**ISSUE 8: EVOLUTION OF TRANSMISSION SYSTEM**

The existing transmission access & charging arrangements are based on the transmission system providing for bulk transfer of power, while growth of DG may lead to an increasing emphasis on provision of system security and have implications for cost-reflectivity.

**Question 1:** Do you consider this to be an issue?
**Question 2:** How big an issue do you consider this to be?

**Question 3:** Set out your views on the issue of Evolution of Transmission System in the context of your answers to questions 1 and 2.

The balance of the functions of the Transmission system may be changing as more DG is connected but the changes are gradual and even by 2020 will not be overly massive. There is time to take a calm reflection on these issues.

**ISSUE 9: COMPETITIVENESS**

Issues of cost reflectivity have a knock on effect on the competitiveness of embedded generation vis-à-vis directly connected generation.

**Question 1:** Do you consider this to be an issue?

NO

**Question 2:** How big an issue do you consider this to be?

NOT AN ISSUE

**Question 3:** Set out your views on the issue of Competitiveness in the context of your answers to questions 1 and 2.

There is rarely if ever the luxury of a choice of a connection option. For a given size of project and existing network infrastructure the choice is usually obvious.

**ISSUE 10: CONTRACTUAL BURDEN**

Different interfaces with NGET and DNOs create complexity and an administrative burden for small parties.

**Question 1:** Do you consider this to be an issue?

YES

**Question 2:** How big an issue do you consider this to be?

MATERIAL ISSUE

**Question 3:** Set out your views on the issue of Contractual Burden in the context of your answers to questions 1 and 2.

Any given project should only have to deal with one network operator ie if DG the DNO and if transmission connected NGET. Keep it simple.