ENTSO-E Requirements for Generators (RfG) Network Code
GB Stakeholder's Key Issues

The following are the key issues for GB Industry Stakeholders[1] with the ENTSO-E Requirements for Generators Network Code[2] (dated 26 June 2012), as captured at a workshop on 2/3 August. There are five significant broad issues identified below, for which three proposed levels of negotiating stance are described. In addition, six specific technical issues are described.

A. Mechanism Permitting Retrospective Application of RfG Obligations

Issue and Evidence	
Issue	GB Stakeholders believe the RfG Network Code should not contain the ability for retrospective application of the obligations within the RFG Network Code to existing generators, both in the future and at the point of code implementation.
Evidence	The retrospective application of requirements of the Network Code to existing generators may entail prohibitive costs for generators to modify their equipment. These costs may affect the viability of imminently planned investment, long-term investment and modification to existing plant. If different requirements are implemented retrospectively in different parts of Europe, certain generators may be placed at a competitive disadvantage.
GB Stakeholder Position	
Ideal	Remove the ability for the Network Code to be retrospectively applied to existing generators.
Fallback	If there is to be retrospective application of the requirements of the Network Code to existing GB generators the following conditions are required: • application would be based on the output of a full Cost Benefit Analysis undertaken by an independent party appointed by the GB National Regulatory Authority. The party undertaking the Cost Benefit Analysis would be independent from the TSO. • application would be subject to full Stakeholder consultation and National Regulatory Authority approval in line with the existing open and transparent governance arrangements within GB Codes (noting Issue B below). • the Cost Benefit Analysis process and criteria should be standard across Europe to ensure generators in a given country are not put at a competitive disadvantage
Red line	As Fallback

B. National Choices within Implementation

Issue and Evidence	
Issue	The Network Code allows TSOs to make certain national choices for implementation such as retrospective application and technical parameters. These choices may have onerous, significant implications for generator owners, and the Network Code does not provide sufficient safeguards to protect the interests of such Stakeholders through an open and transparent governance arrangement.

1 For the purpose of this document the term "GB Stakeholders" does not include National Grid Electricity Transmission (NGET), SP Transmission Ltd (SPTL) and Scottish Hydro Electric Transmission Limited (SHETL).

2 ENTSO-E Network Code for Requirements for Grid Connection Applicable to all Generators

Evidence	National choices in the Network Code are subject to the "provisions of Article 4(3)" of the RfG. However, the requirements of Article 4(3) are not sufficiently clear to ensure that Stakeholder views are represented through an open and transparent governance arrangement.
GB Stakeholder Position	
Ideal	All GB national choices would be subject to full Stakeholder consultation and GB National Regulatory Authority approval in line with the existing open and transparent governance arrangements in GB. Article 4(3) should therefore be modified to explicitly state that stakeholder views should be considered within an appropriate governance process.
Fallback	As Ideal
Red line	As Fallback

C. Quantitative Cost Benefit Analysis Justification for RFG

Issue and Evidence	
Issue	GB Stakeholders believe the requirements of the Framework Guidelines have not been met in relation to the need for Cost Benefit Analysis when requirements in the Network Code are more stringent than current standards and requirements
Evidence	Section 2.1 of the Framework Guidelines[3] states "*Where the minimum standards and requirements, introduced by the network code(s), deviate significantly from the current standards and requirements, there should be a cost-benefit analysis performed by ENTSO-E that justifies this deviation and demonstrates additional benefits from requiring the higher standard*". GB Stakeholders believe in a number of areas (e.g. 10.2(b), 10.2(c), 10.2(e), 10.2(f), 10.5(c).2, 10.5(c).3, 13.2(a), 15.2(b), 16.2), the requirements of the RFG Network Code go beyond the existing standard and requirements, however, justification has not been provided by ENTSO-E.
GB Stakeholder Position	
Ideal	DECC should lobby the Commission to reject the Network Code. ENTSO-E should then be required to undertake further drafting, to include: • the required Cost Benefit Analysis should be undertaken by an independent (from ENTSO-E) party appointed by ACER. • a review of the RFG Network Code to ensure it is consistent with the other Network Codes currently being drafted by ENTSO-E.
Fallback	DECC should form a 'blocking minority' to delay the progress of the Network Code, to allow ENTSO-E to complete the required Cost Benefit Analyses and as required by the Framework Guidelines, and to ensure consistency with other Network Codes.
Red line	As Fallback

[3] Framework Guidelines on Electricity Grid Connections, FG-2011-E-001, 20 July 2011, ACER

D. Obligations and Thresholds for Types of Generators

Issue and Evidence	
Issue	The specified obligations and thresholds for type B, C and D generators in the GB synchronous area may place GB generators at a cross-border competitive disadvantage, in comparison to obligations for generators connected in continental Europe. In addition such differences do not foster economies of scale across Europe and undermines the cost-efficiencies through harmonisation that the RfG holds as a principle need.
Evidence	As drafted a 40MW generator in GB would be Type D, whilst in Continental Europe it would be considered Type B. This will impose different requirements on the generators and in particular more onerous requirements on the GB generator. This would place the GB generator at a competitive disadvantage in a single European energy market. Due to the difference in the bandings, the specification for a GB generator of a given size may need to be a different to the specification of the same generator in Continental Europe. This does not provide GB companies with the advantage of buying 'off the shelf' products, and thus no economy of scale is gained.
GB Stakeholder Position	
Ideal	There would be equal obligations and thresholds for generator in Europe (except Ireland and Baltic synchronous areas due to their size), achieved by harmonising thresholds for GB, Nordic and Continental Europe at B=1MW, C=10MW, D=30MW (the GB thresholds),
Fallback	There would be equal obligations and thresholds for generator in Europe (except Ireland and Baltic synchronous areas), achieved by harmonising thresholds for GB, Nordic and Continental Europe at B=1MW, C=50MW, D=75MW (the Continental Europe thresholds).
Red line	Provide the Cost Benefit Analysis to demonstrate the requirements as detailed in Table 1 of the Network Code. It is still considered, as has been highlighted throughout the consultation process, that the justification presented to date is insufficient.

E. Requirements for Type A generators

Issue and Evidence	
Issue	The DNOs should have no enduring obligation under Article 35(1) to engage in a post installation compliance regime with Type A generators.
Evidence	This is based on: • the fact that Type A generators will be mass market and • there is no requirement specified in Articles 38 – 44 to do so. The Network Code as currently drafted is unclear as to where the responsibility for the post-installation compliance regime resides for Type A generators. Given the large number of embedded generators included in this category it is not viable for DNOs to ensure compliance through post-installation testing of the product and therefore this issue must be made clear.
GB Stakeholder Position	
Ideal	Include drafting in Article 35 to ensure that DNOs have no enduring obligation to demonstrate compliance of Type A generators.
Fallback	As Ideal
Red line	The Network Code as currently drafted is implemented.

Specific Technical Issues with the Network Code

1. GB Stakeholders recognise that the system impact from non inverter micro-CHP based on Stirling engine technology[4] is likely to remain very small. The Stirling engine is synchronous and is designed and tuned to operate at 50Hz ± 0.5Hz. Such generators will be captured as Type A under the RFG, which thus introduces additional requirements on the technology. In order to meet the requirements[5] the additional costs and loss of efficiency eliminates the commercial viability of such devices.
    - *GB Stakeholder View:* Implement a carve-out in the Network Code which allows for certain types of technology to be exempt from certain requirements of the Network Code. This exemption should be based on the fundamental operating characteristics of the technology and that being small-scale it has only a very low potential impact on the network.
2. The requirements for producing Reactive Power is very onerous at very low Active Power outputs for certain generators (e.g. wind turbines) [Article 16(3)c]
    - *GB Stakeholder View:* Add a lower threshold for Active Power output (say 20%), below which the Reactive Power requirement does not apply.
3. The requirement to cease production of Active Power within 5 seconds for Type A generators is too onerous. [Article 8(1)f]
    - *GB Stakeholder View:* This needs justification in the form of a Cost Benefit Analysis, and to permit national choice within a given range.
4. The requirements for Type C and D generators for the speed of delivery of Reactive Power are unclear and potentially onerous [Article 16(3)d.2]
    - *GB Stakeholder View:* This is currently an issue with the GB Grid Code, and needs further analysis.
5. The requirements for Type B generators to provide additional Reactive Current within 10 milliseconds is believed to be too onerous [Article 15(2)]
    - *GB Stakeholder View:* Further analysis should be undertaken to ensure the time stated in the Network Code is appropriate for current technologies.

Further Points for DECC to Note

1. Definitions are fundamental to the whole code and the definitions in the Network Code are unclear (e.g. generator, TSO etc.).
2. The structure and numbering of the Network Code makes it difficult to use as a working document – a full numbering scheme as in the GB Grid Code would be preferred.
3. There will need to an 'interpretation' document provided which reflects the Network Code following Comitology to support consistent application across member states.
4. Confirm that European Standards will be developed to ensure that new mass market products (e.g. domestic PV) are compliant with the requirements of the Network Code

[4] An example of such technology is the MEC Stirling engine used in the Baxi Ecogen domestic CHP unit.

[5] For example: Special inverter controls would be required. This would increase the product costs increase by 15%-20% and reduce electrical efficiency by 3%-4% making the product no longer commercially viable.