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26th November 2010

**Offshore electricity transmission: further refinements to the enduring regulatory regime**

Dear Yvonne and Kristina,

Thank you for the opportunity to comment on the further refinements to the enduring regulatory regime. This response is provided on behalf of the RWE group of companies, including RWE Npower plc, RWE Supply and Trading GmbH and RWE Npower Renewables Limited, a fully owned subsidiary of RWE Innogy GmbH.

Our main comments on the consultation are set out below. Annexes 1 & 2 incorporate our comments on the proposed CUSC and Grid Code changes respectively. Annex 3 provides answers to the questions raised in the consultation.

1. We strongly welcome the proposal to introduce a generator build model in the enduring regime. This model addresses a number of generator concerns regarding the evaluation and management of the risks associated with the delivery of offshore infrastructure. In combination with the early and late OFTO models, we believe that the inclusion of the generator build model provides generators with the flexibility to choose the approach which best meets their individual project requirements.

2. We would welcome clarification from Ofgem regarding how the proposed generator build option (OTSDUW Arrangements), if approved, would be implemented to enable developers with existing construction agreements to transition to the new arrangements. We would expect that Ofgem would direct National Grid to implement the new arrangements immediately in respect of new developers and within a specified timeframe for existing developers who wished to transition. We do not consider that a requirement for the developer to submit a modification application to effect this change would be appropriate.

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3. We recognise that code changes are required in order to bring the generator build option into effect and we welcome the improved clarity they bring. However, we are concerned that the speed of implementation is likely to result in imperfect code changes and a risk that stakeholders, particularly generators acting on behalf of future OFTOs, will not have sufficient time to identify impracticable requirements. We are particularly concerned that there may be issues in relation to phased projects that have not fully been considered in the proposed licence and code amendments to date. We suggest that Ofgem recognise this possibility and the likelihood of needing to revisit certain requirements via the established industry review panels in its conclusions.

4. We welcome a number of key changes that are confirmed in this consultation document in relation to the generator build model, including the extension of the powers to make property schemes under schedule 2A to the Electricity Act1989 and the OFTO of Last Resort mechanism. We also welcome the ability of the generator to switch from a failed OFTO tender process to take forward the process under generator build, hence enabling the generator's project to progress and providing an OoLR under this option. Equally, we support the decision to allow the generator to switch to the generator build model in the case of a failed OFTO build tender and we understand that this will occur after the first failed OFTO build tender process.

5. We do not agree with Ofgem's decision to remove the 75% ex-ante valuation guarantee. We believe that the guarantee provides an important level of comfort to investors who are unfamiliar with the industry and its associated risks. If Ofgem consider that the level of the guarantee is too high, a reduction in the guarantee would be preferable to its complete removal because this would still provide some level of comfort. We do not believe that the provision of a guarantee creates a risk of reimbursing inefficient costs because of the developer's liability to the recovery of this cost through its TNUoS charges.

6. We agree generation and transmission costs should be ring-fenced in Ofgem's assessment of costs under the generator build model, however we do not believe this necessitates separate contracts for these assets; generation and transmission costs can be separately identified in a single procurement contract. This shall facilitate cost savings and, in some circumstances, resolve practical issues with placement of separate contracts, e.g. separate procurement of generation assets that shall sit on the OFTO's offshore substation, such as 33kV switchgear, would introduce considerable complexity and interface risk.

7. We believe that the transmission assets should not be adopted by the OFTO until the last generator begins to generate. We question Ofgem's interpretation of the EU unbundling requirements and we would welcome further debate on this issue. It is important for us to be able to test the effective functioning of the transmission assets in the commissioning phase of the project prior to handing over the assets to the OFTO, as such, we would not view the assets to be fully commissioned until they had carried full load (or close to it). There are also complications with the phased transfer of assets where responsibility and control of assets are shared between Generator and OFTO over several phases of a project's development. The involvement of multiple responsible and controlling parties, during what is still a project in construction, will create significant additional complexity to already complex multi-contract construction projects.

8. We are concerned by the proposal to amend the existing construction agreement and amendment process (as set out in paragraph 3.23 of the consultation document). On receipt / acceptance of the offer only extremely limited design work shall have been completed with regard to the offshore transmission system, i.e. the assumptions made in

regard to these assets would be extremely provisional (exactly as per NGET Appendix P assumptions in existing “wet” connection agreements). It is noted (Appendix 2 clauses 1.11) that any material changes in assumptions would require a modification application. This causes us considerable concern and we would request a clear caveat on this assertion that defines “material” as being a change that has a material impact on the onshore transmission system or NGET’s work in provision of the onshore interface points or material impact on another CUSC party. In this context all other changes would be classified as immaterial and not require a modification application, once finalised the agreements can be aligned with these immaterial changes via an agreement to vary (as envisaged in Appendix 2 clause 1.12). Failure to adopt this approach will lead to a rash of mod-apps and/or disputes as the generator develops the offshore transmission solution, leading to delays, avoidable expense and inefficient use of industry participant’s time. Following our suggested pragmatic approach would also make it easier to agree assumptions in a timely manner prior to offer acceptance, i.e. without the generator needing to undertake detailed design assessment (where time would not exist to do so in any case).

9. We assume that paragraph 3.33 of the consultation document relates to the obligations that shall exist at the onshore Interface Point as opposed to the offshore Connection Point. It is noted that Appendix E of the planning code explicitly states that in designing an offshore transmission system ER G5/4, P28 and P29 are only applicable at the onshore Interface Point. The message is confusing as the later part of this paragraph 3.33 seems to be discussing generation assets as opposed to the Interface Point. It is important that clarity exists in this area as this issue has potentially significant implications for the design of the offshore transmission system.

10. The proposed requirement to submit SPD for the OTSUA within 28 days of accepting the connection offer (Grid Code PC.A.1.4) is unreasonable. It is unclear why such a short time scale has been proposed, particularly when compared to when this information would become available under an OFTO build scenario (at least 12 months, perhaps considerably longer depending upon which OFTO tender round is entered). It is proposed that this data should be supplied a minimum of 3 years prior to the Completion Date (first phase), which is likely to be comparable with when it would become available under an OFTO build option.

In relation to the implementation of the generator build model, we look forward to commenting on the proposed changes to the STC later in the year. We also await further consultation on the Tender Regulations, Tender Rules and OFTO licence conditions in relation to the enduring regime as a whole. We note Ofgem’s intention to consult on any additional measures to facilitate coordinated networks through the offshore transmission regime. Finally, we await further clarification in relation to compliance of the offshore transmission regime with the EU third package of energy legislation.

If you wish to discuss any aspect of our response, please do not hesitate to contact me.

Yours sincerely

By email

John Gaffney
Grid Integration Manager
RWE Innogy

## Annex 1

## Comments on Proposed CUSC Changes

- Definitions : It would have been helpful if the defined acronyms of OTSDUW and OTSUA were more pronounceable.

- Definition "OTSDUW" : Despite being defined as "Offshore Transmission System User Works", the full text is inserted on 14 occasions.

- Definition "OTSUA" : Clarify if this clause intends that the OTSUA assets will be specified in the Construction agreement and, if so, at what stage in the construction period and in which appendix.

- Definition "OTSUA Transfer Time" : A more appropriate term would be "OTSUA Transfer Date"

- Definition "Transmission Interface Point" : Clarify the difference if any between this definition and that of "Interface Point" as defined in the STC.

- 1.5.1 : Whilst we support the provision for the developer and National Grid to agree to certain post-offer changes, we would expect that the required scope may be specified in the connection application, if known at the time, and this would be recognised in the Offer.

- 2.13.3 : Drafting error. A variation is a form of agreement and is not open to acceptance. Substitute "variation" with "offer to vary"

- 2.13.8 : Please clarify/illustrate the level of detail relating to the OTSDUW arrangements that will be set out in the assumptions (Appendix P?). Not withstanding our comments on modification applications, we would not expect the assumptions to be too detailed or contain data likely to change frequently, since each change would necessitate a modification application as envisaged under 2.13.10.

- 6.9.6.1 : Please clarify that the intent of this clause is that only Material changes that effect another CUSC party would require a Modification Application.

***Offshore Construction Agreement***

- Section 17.2 : The preparation of two specifications are undertaken by the "Relevant Transmission Licensee", namely the "Connection Site Specification" and the "Transmission Interface Site Specification". There are two areas of confusion here

  a) The definition of "Relevant Transmission Licensee" does not allow for the inclusion of NGET. Is it not NGET who would prepare, at least, the "Transmission Interface Site Specification"?

  b) The preparation of both specifications involve the varying of the bilateral connection agreement (Appendices F) and, now, the Construction agreement (Appendix OF). These appendices contain technical requirements which could potential have major influence on the design of the system. Given the potential implications for project design we are concerned that these are identified without any indication of the timescales for the transmission licensee to deliver these specifications, following the submission of the required data.

Clarify the intent of placing the first set of brackets around the text. Also clarify whether the requirement to provide F1 to F5 updates to National Grid is separate to or included with the requirement to provide data for the Connection Site Specification.

- Section 17.3 : Suggests the aim for the "Connection Site Specification" and "Transmission Interface Site Specification" would be to have them complete just prior to "OTSDUA Transfer Time". As discussed above we would be concerned that this could have material impact due to changes being possible at an undefined (and possible very late) stage of the project.

- Schedule 2 Exhibit 3A
  2.3.2 (c) : Confirm that a request by the User to amend the dates would not necessitate a modification.

  2.11 : Typo, repeated "User shall"

- Exhibit B - New Connection Application
  Note 24 : Provides for the applicant to indicate in Section A whether it wishes to opt in or out of the OTSDUS Arrangements although no question/box to this effect is included in Section A

  Note 26 : Provides for the Applicant to indicate the scope of the OTDUW but, again, no question or dotted line is included within Section A or B

- Exhibit C - New Connection Offer
  Whilst not part of the suite of changes, it may be appropriate to substitute "The National Grid Company Limited" (last page) with "National Grid Electricity Transmission plc".

## Annex 2
## Comments on Proposed Grid Code Changes

- There is a term in the definitions and subsequently referred to in the Grid Code text called "OTSDUW Development and Data Timetable". This appears to be a document of fundamental importance, as it describes timelines for data passage between NGET and the Generator engaged in OTSDUW development. However there is no example anywhere giving indicative times or specifying actual time limits. It would be useful to have this document laid out as a schedule to the Offshore Construction agreement, within CUSC.

- A definition is required for **Offshore Works Assumptions**, in addition, a typical list of offshore works assumptions should be provided in the code.

- PC Content Page : Appendix F missing from contents.

- PC.4.4.1 (a) : we suggest provision be made for a User submitting proposed OTSDUW Plant and Apparatus information with their connection application if a proposal exists. This would be non binding from NGET's perspective but may facilitate earlier alignment of Interface Point requirements. Text could read "(including optional provision of proposed OTSDUW Plant and Apparatus arrangement)", or similar.

- PC.A.1.4 : 28 days for the provision of SPD for OTSUA is unreasonably short. It is unclear why such a short time scale has been proposed, particularly when compared to when this information would become available under an OFTO build scenario (at least 12 months, perhaps considerably longer depending upon what OFTO tender round is entered). It is proposed that this data should be supplied a minimum of 3 years prior to the Completion Date (first stage), which is likely to be comparable with when it would become available under an OFTO build option. Also note the concerns we express in our covering letter regarding the requirements for modification applications, the requirement to provide SPD data for OTSUA within 28 days heightens our concerns.

- We believe that PC.A.5.4.2 is incomplete in not including the requirement for control system data. It is an obligation on an OFTO, via STC, to provide reactive power. There is no mention of a requirement to provide a model for the associated control scheme. If a generator undertaking OTSDUW proposes to satisfy, wholly or in part, the future OFTO reactive power scheme onshore, there will be a need to model the reactive scheme and associated control system.

- PC.A.8 : The opening clause recognises the need for the network data under PC.A.8. to enable the User to assess undertaking the OTSDUW and, as such, all data in PC.A.8. should be provided with the offer and not "upon request" as stated in this clause, i.e. this data should be included under PC.F.2.1 as data that shall arrive with the offer.

- PC.F.2.1 : See comments on PC.A.8.

- PC.F.2.2 : One definitive data set that the User shall require in progressing the OTSDUW is that required to facilitate harmonic analysis and filter design (this is already recognised by NGET as a key study for offshore transmission system design). This clause should include this definite data requirement (rather than rely on PC.F.2.3). Data required from NGET shall include, but not necessarily limited to (i) background harmonic information (ii) onshore transmission system impedance loci (iii) total and incremental harmonic contribution limits. Prompt provision of (i) and (ii) are of paramount importance to the generator to facilitate progression of harmonic analysis in a timely manner. In addition, the importance of this data warrants definitive timescales in the planning code for its provision.

- The use of the term "OTSDUW Plant and Apparatus" has been used liberally through the Connections Conditions and this raises some points:

  a) It does not fit in all instances - e.g. in CC.6.3.8 (a) (iii) "OTSDUW plant and apparatus…...is required to "control voltage….without instability across the entire operating range of the Onshore (generators)….." Clearly there is no relationship between OTSDUW Plant and Apparatus and generators onshore. In this instance we would suggest the following is inserted at the end of "**Onshore Power Park Module**":

  or, *in the case of* ***OTSDUW Plant and Apparatus****,* ***Offshore Power Park Module****.*

  b) It is understood that the obligation for reactive power provision is placed upon the OFTO, via the STC, and the inclusion of "OTSDUW" in the GC is intended to preserve that obligation. However, it is allowed that an Offshore generator may provide some (or all) of that reactive power obligation, via for example its Wind Turbine Generators. It is felt that there should be some specific text within the CC's that would allow for a generator undertaking OTSDUW to opt to do this, as currently such an option would appear, effectively, precluded. Certainly it would appear that requirements of CC.A.7, as now worded, could not be satisfied by using capabilities of an offshore generator's plant and apparatus. We therefore suggest the following be added to the end of the existing words in CC.6.3.2 e) (iii)

  *Where the provision of such reactive capability is specified, it will, for the purposes of* ***OTSDUW,*** *be considered to form part of* ***OTSDUW Plant and Apparatus****.*

## Annex 3
### Consultation Questions

Q3.1 Do you consider that the scope of the proposed changes to the Codes achieves our policy intent?

**In principle yes, but subject to our detailed comments on drafting. However, the limited timescales for drafting and review is likely to lead to areas that require further refinement through normal industry process.**

Q3.2 Do you consider that there are areas of the Codes where you consider that further amendments are required to deliver our proposals?

**Insufficient time available to make this assessment.**

**We have concerns as to whether the proposed code changes make any attempt to address issues associated with phased projects, see main body of our response.**

**We have concerns relating to the lack of detail that exists in some areas, e.g. timescales for data provision.**

Q3.3 Do the proposed changes to the Codes create unintended barriers to phased development of offshore projects?

**It is not clear, at this time, if any of the proposed code drafting will create unintended barriers to phased development of offshore projects. However, it should be noted that potential barriers do exist in the regime, for example (i) the need to hand-over part (or all) of the offshore transmission system to an OFTO prior to the commencement of export from the first generator (ii) potential inefficiencies that phasing offshore projects may introduce if separate phases require separate OFTOs. RWE would be happy to share our thinking on this with DECC and Ofgem.**

**See also answer to Q3.2.**

Q3.4 Do you consider that the timescale of 28 days, being proposed in clause 17 of Schedule 2, Exhibit 3A of CUSC (the Construction Agreement), for an offshore generator to provide its programme for the construction of the OTSDUW and its proposed onshore connection point is reasonable?

**No it is not reasonable. It is noted that the proposed coding changes do not restrict the information to be provided in 28days to the programme and onshore interface point, but also include the overall design assumptions for the offshore transmission system plus SPD data.**

**See our more detail comments relating to paragraph 3.23 of consultation and on Grid Code PC.A.1.4.**

Q3.5 Do you consider that Clause CC.6.3.2 in the Connection Conditions in the Grid Code accurately reflects the system design at the Interface Point?

**We believe that CC.6.3.2 does accurately reflect system design requirements at the interface point. However there are several CC clauses relating to control and delivery of the reactive power capability, defined in CC.6.3.2. We do not believe that**

**the current drafting provides a clear picture of how the system design at the interface point can be effected, particularly in the instance where a user's plant and apparatus will contribute to the overall system design requirements.**

**We note that, within the Offshore Construction Agreement (CUSC amendments document), the definition of "Transmission Interface Site Specification" identifies "reliance upon User's equipment" i.e.where such is being utilised, wholly or in part, to satisfy system design requirements at the interface point. However we do not believe it is clear within Grid Code drafting that such an option is feasible to execute; because of the distinct reference to "OTSDUW plant and apparatus".**

**We believe that in order to add the necessary clarity and to allow user's equipment to contribute to system design requirements at the interface point, consideration should be given to amending CC.6.3.2 (e) (iii) as suggested elsewhere within this response.**

Q3.6 We note that section K does not place an obligation on an OFTO to contribute to frequency control but that a change to CC6.3.6 a) (vi) is being proposed to require this where the generator chooses to construct its transmission assets. Do you consider that this requirement is applicable to an offshore transmission system constructed by an offshore generator?

**We would note that CC.6.3.6 a) (vi) places a specific obligation upon a specific technology option. We would support the inclusion of such a requirement, as we would believe it is necessary in order to allow the user's plant and apparatus to fulfil the frequency response obligation.**

**We would highlight concern if a similar obligation did not exist for an OFTO build solution, via the STC, as we are unsure how a user could fulfil a frequency response obligation, if a D.C. converter, at the interface point, did not possess the capability specified in the Grid Code drafting.. We note that currently STC section K is not clear in defining such requirements.**

**However it should be considered further whether this is 'simply' a frequency response issue, as such DC converters will be required to deal with fluctuating outputs on a continuous basis, regardless of the frequency mode of operation, due to the nature of the variable power sources likely to be encountered.**

Q3.7 We note that the OFTO has an obligation under the STC to ensure an offshore transmission system stay connected to the NETS through faults and disturbances and that this obligation should apply to all offshore transmission systems regardless of the party that has constructed them. Do you consider that the changes being proposed in section CC6.3.15 of the Connection Conditions in the Grid Code reflect these requirements on an offshore transmission system constructed by an offshore generator?

**Yes.**

Q3.8 Do you consider that the changes in CC.6.5 are applicable to an offshore transmission system constructed by an offshore generator? We note that the proposed changes to CC.6.5 place slightly more specific requirements on an OFTO than those placed on a TO by the STC, in that the STC requires the TO and the NETSO to agree the communications plant to be delivered (STC section D, part two, 10).

**Yes, clarity is welcomed and better when placing supply contracts.**

**We would note, however, that requirements covered under CC.6.5 generally relate to obligations that are realised through requirements within the Bilateral Connection Agreement (BCA). As such, we have identified within our comments, some residual concerns about uncertainty relating to when the BCA technical appendices, 'F', will be finalised and the impact that changes to the 'F's' could have at a late stage in a project. We believe that communications signals and measurements being identified late, and which have not been defined at the early stages, provide an example of issues that could arise.**

Q3.9 Do you consider that the changes being proposed in section PC.8 of the Planning Code are relevant to the Grid Code, or whether these changes are more appropriate in the CUSC?

**No comment.**