

STC Working Group on Offshore Electricity Transmission

Working Group Report

31 October 2007

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1.0 Summary

- 1.1 The STC Working Group was formed to assist Ofgem and BERR in their decisions relating to the provisions of the System Operator Transmission Owner Code (STC) as they relate to Offshore Electricity Transmission. The working group was made up of representatives of potential offshore generation developers, potential OFTOs, and existing STC Parties.
- 1.2 Specifically, the working group was asked to:
 - Consider the expected scope of the Offshore Transmission Owner (OFTO) role; and
 - Review all sections of the STC in the context of the current proposals for offshore electricity transmission.
- 1.3 There was consensus amongst STC Parties that the current STC had met the applicable objectives successfully to date.
- 1.4 In group discussion, offshore generation developers highlighted the need for offshore generators to be given certain assurances that the transmission infrastructure they would be reliant upon was built to appropriate standards and hence “fit for purpose”.
- 1.5 Some members of the group expressed the desire not to place unreasonable obligations on potential OFTOs as this would drive bidders to include an unnecessary and inefficient risk premium in any offshore transmission tender.
- 1.6 The group reached the view that the general principles of the STC which currently apply to onshore Transmission Licensees should apply to offshore transmission. This means adopting the concept that the OFTO is bound by its licence to provide transmission services to the System Operator under the terms of the STC, which in turn allow the System Operator to meet the needs of transmission users.
- 1.7 However, the group contrasted the proposed regulatory treatment of OFTOs, a single price control over the expected life of the assets, with the quinquennial review normally applicable to onshore TOs. The group therefore agreed that existing principles should be applied in such a way that ensured OFTO transmission services were provided at specified service levels over the lifetime of the offshore transmission licence.
- 1.8 The group noted a need to minimise the risk that a newly licensed OFTO could not accede to the STC because STC requirements had not been met. This means ensuring that any developments to the STC (either in contractual terms or in technical criteria) align with the proposed tender process for OFTO selection in terms of requirements and timing.
- 1.9 The group therefore proposes the development of the STC framework such that clear contractual relationships are established covering the following two key periods in the OFTO lifecycle, subject to the effective application of a tender quality assessment in OFTO selection:
 - The design and construction phase where an OFTO needs to meet and demonstrate technical requirements and pre-determined construction timescales; and
 - The enduring operational phase where service provision needs to be managed over the lifetime of the offshore network, thus allowing NGET

as System Operator to fulfil its ongoing obligations to users as well as setting out the terms of connection to onshore systems.

- 1.10 Further consideration is required with regard to provisions for the decommissioning of offshore transmission equipment.
- 1.11 The group recommends that further work is undertaken to identify the specific, necessary baseline technical criteria and minimum service quality criteria which offshore transmission infrastructure should meet in providing an appropriately designed, constructed and operated connection to the onshore network. These should balance the interests of offshore generators and onshore network owners with the need to allow an appropriate degree of innovation in offshore transmission.
- 1.12 These technical criteria would be specified within the STC alongside the technical requirements for reactive equipment, voltage control, fault ride through and relay of frequency signals by DC networks specified by the Grid Code subgroup on offshore transmission. The contractual framework put in place to manage design, construction and enduring operation should enforce these technical requirements as well as specifying the means by which compliance would be demonstrated.
- 1.13 NGET proposed that key items of equipment in the offshore networks (eg circuit breakers and reactive equipment) should be operable remotely by NGET's control facilities. This is different to the current arrangement for operation of onshore transmission equipment in Scotland where TOs configure the transmission system under NGET's direction using the control facilities in place prior to BETTA go-live. Both of the TOs in Scotland are of the view that the existing onshore arrangements are effective and efficient and should therefore form the basis of any offshore model in the short term.
- 1.14 The group also considered developments to STC governance in the light of the number of new parties which are likely to be required to accede to the STC in an OFTO role. The group recommends that OFTOs should be represented by two members on the STC committee. The group noted and supported the current proposal to extend STC amendment consultation timescales. The group also noted the existing provisions which allow Ofgem to nominate affected parties who are not STC Parties to propose STC changes.

2.0 Introduction

- 2.1 The STC governs the relationship between National Grid Electricity Transmission (NGET) in its role as System Operator and the Scottish Transmission Licensees, Scottish Power Transmission Limited (SPTL) and Scottish Hydro Electric Transmission Limited (SHETL).
- 2.2 Ofgem established the STC working group to assist Ofgem and BERR in making decisions relating to the STC as applied to offshore transmission. The group was asked to consider the applicability of existing STC provisions to the new relationship between NGET and OFTOs and between the existing onshore TOs and OFTOs if necessary.
- 2.3 The group was also asked to consider first the wider question of the expected scope of the OFTO. The group's terms of reference are available on Ofgem's website within the Offshore working groups area.
- 2.4 Group members represented STC Parties, potential offshore generators and potential OFTOs. A full list of attendees is provided in Appendix A. Meetings were chaired by a representative from NGET who also prepared this working group report. NGET also fulfilled technical secretariat duties.
- 2.5 Two meetings were held in successive weeks in October 2007. The group's discussion focussed on:
 - The allocation of roles and responsibilities to the OFTO, NGET acting as System Operator, offshore transmission users and existing onshore Transmission Licensees;
 - Transmission Services and Operations;
 - Transmission Planning;
 - Construction; and
 - Governance.
- 2.6 The group did not discuss the specific legal and contractual tools required to implement its recommendations and further consideration will be required in developing the appropriate contractual vehicles and determining how these should interact with the OFTO selection and licence award process.

3.0 Objective and Purpose

3.1 The STC Working Group Terms of Reference specified that the purpose of the working group's review was to:

- Consider if the split of STC obligations are appropriate to apply to NGET and OFTOs;
- Consider if existing STC obligations are appropriate to apply offshore; and
- Develop proposals to change the STC to incorporate new offshore electricity transmission network arrangements.

3.2 The working group was asked to take account of the following objectives (listed in no particular weighting or order) in its deliberations:

- To ensure the safe, secure and economic operation of all transmission systems and offshore generation;
- To avoid undue discrimination on a geographic basis;
- To ensure consistency and compatibility with the onshore framework and industry structure, and
- To promote equality of treatment in respect of both transmission owners and Users of Offshore Networks.

3.3 The group was also asked to limit its proposals such that they do **not**:

- Constitute a fundamental review of existing obligations within the STC;
- Result in any unjustified additional capital investment in the onshore transmission or distribution network;
- Result in any unjustified capital investment for offshore transmission networks;
- Result in any unjustified costs (capital and operational) for offshore generators;
- Lead to any significant change to the existing security and quality of supply delivered to onshore transmission customers;
- Result in any unjustified increase in the system operation costs associated with the onshore transmission and distribution network; or
- Have an impact on the current transmission charging methodology.

4.0 Working Group Discussions

The STC

- 4.1 The representatives of STC Parties present at the working group meeting provided a summary of the STC and how it applies to:
- Designing, building, and maintaining transmission assets;
 - Developing connection designs;
 - Operation of TO assets;
 - Emergency Requirements; and
 - Safety management.
- 4.2 The group discussed how the STC was introduced for BETTA, reflected legacy arrangements, and is managed on the basis of mutual agreement between three established Transmission Licensees which are subject to regular price review.
- 4.3 The group also discussed how detailed processes required to implement the provisions of the STC are specified within the STC Procedures (STCPs). The group noted that some important aspects were detailed within the STCPs and that these would also need to be reviewed in the light of any relevant policy decisions before being applied to offshore transmission.
- 4.4 The STC Parties expressed the view that the STC had met its applicable objectives successfully since BETTA go-live. They acknowledged that parts of the code had not been fully tested therefore there was a need to keep the code under review.

The Role of the OFTO

- 4.5 The group was asked to consider the allocation of roles and responsibilities to the OFTO, NGET in the role of System Operator, offshore transmission users and existing onshore TOs.
- 4.6 Representatives of potential offshore generators pointed out that offshore generators would be reliant on a number of parties to provide them with access to the transmission system. They therefore desired assurance that any offshore transmission infrastructure they were reliant on was designed, constructed and operated in such a way that they could have a comparable degree of confidence in their transmission connection as they would if they had provided it for themselves.
- 4.7 The same group members also pointed out that NGET was the only party they were likely to have a contractual interface with.
- 4.8 NGET put forward its view that the party best placed to make decisions pertaining to the ongoing reliability of offshore transmission infrastructure was the OFTO itself.
- 4.9 Working group members cautioned against seeking unreasonable guarantees on the reliability of offshore infrastructure. Some members of the group argued that it would be undesirable to drive potential OFTOs to include an inefficient risk premium within their costs and suggested that OFTO licences incorporate mechanisms to deal with extreme events.

- 4.10 The group concluded that the provisions of the STC were a key tool in setting reliability requirements for OFTOs and hence providing offshore users with the necessary assurances over offshore transmission reliability.

Technical Standards

- 4.11 The group asked the STC Party representatives how technical standards for transmission infrastructure were managed under the current STC framework as these were seen as essential in ensuring that offshore transmission infrastructure was “fit for purpose”.
- 4.12 The discussion focussed on application of:
- The Security and Quality of Supply Standards (SQSS);
 - Transmission Licensees internal Electrical Standards (NGTS, SPTTS, the ‘RES’ etc);
 - Public Domain Standards (eg IEC); and
 - Technical Recommendations from the offshore Grid Code Subgroup.
- 4.13 STC Parties explained whilst technical standards are currently specified in respect of assets at the interface with users of the GB Transmission System (many of which are enforced under industry code governance) technical standards in respect of onshore transmission infrastructure were self-enforced by the Transmission Licensees. The current Transmission Licensees regard this to be an essential part of meeting the quality and reliability standards stipulated by their transmission licences and enforced through performance reporting and regulatory review.
- 4.14 Potential offshore generators argued that the absence of consistent application of baseline technical standards for offshore transmission assets would leave users without the necessary degree of confidence in the offshore transmission infrastructure they relied upon.

Implications of the Proposed OFTO Selection Process

- 4.15 The group discussed the implications relevant to the STC of Ofgem and BERR’s proposal to select OFTOs by competitive tender and fix OFTO revenue for a period equivalent to the expected life of the OFTO’s assets.
- 4.16 The distinction between this proposed arrangement and the regulatory treatment applied to the existing Transmission Licensees led the group to conclude that more specific tools need to be developed to extend the principles embodied within the current STC to offshore transmission.
- 4.17 The group agreed that the STC should be developed such that it contributed positively to both:
- Setting out what the OFTO was expected to deliver in the design and construction of its offshore network (thus providing visibility and clarity of requirements before and after the tender process is complete); and
 - Ensuring that the service levels demonstrated at commissioning stage were maintained throughout the life of the assets.
- 4.18 This would necessitate the development of new technical compliance provisions alongside the development of appropriate performance measures.
- 4.19 However, some group members expressed the view that the STC should not be used to impose financial incentive mechanisms for OFTO performance and

that any revenue adjusting features should be included in the respective OFTO licences.

- 4.20 A potential link was identified between data items defined within the STC which represent transmission system availability and parameters in any performance incentive formula in an OFTO licence. A further link was identified with transmission capacity measures used in transmission access arrangements.
- 4.21 It was noted that any provisions built into the STC for offshore transmission were underpinned by transmission licencing.
- 4.22 The group also noted that the many of the provisions in the STC relating to transmission investment planning were not applicable to offshore transmission because:
- The OFTO licence duration was likely to match the expected life of the installed assets;
 - Significant offshore demand growth is not envisaged by the group; and
 - New generation applications are likely to trigger the proposed OFTO selection process.
- 4.23 However, the obligations placed on onshore TOs to inform others about planned developments which may have a material effect on another party's system would need to be extended include OFTOs in the planning process.

Maintenance and Outage Planning

- 4.24 The group agreed that responsibility for maintenance of offshore electricity transmission assets should lie with the respective OFTO.
- 4.25 Some group members stated that OFTOs should not be discouraged from performing appropriate maintenance by performance based penalties. Potential offshore generators concurred with this view but argued that extended periods of unplanned maintenance, or change in the timing of unplanned maintenance presented a significant risk to them.
- 4.26 The group agreed that the existing obligations in the STC for all parties to assist NGET in the development of a co-ordinated and economic outage plan, combined with the natural incentives for offshore generators and OFTOs to co-ordinate works could drive the correct behaviour.

Operational Switching

- 4.27 The STC sets out the terms by which the Transmission Licensees in Scotland configure their transmission systems under NGET's direction using the control facilities which were in place prior to BETTA go-live. All parties agreed that this arrangement had worked satisfactorily to date.
- 4.28 NGET voiced concerns over an extension of this arrangement to offshore transmission as it would mean:
- NGET would have to manage many additional real-time interfaces by voice communication over telephone which it regards as unnecessarily inefficient over multiple interfaces with consequential operational risks; and
 - Each OFTO would have to provide permanent round the clock control facilities resulting in unnecessary duplication.

- 4.29 NGET therefore put forward an alternative proposal applicable to new offshore transmission developments. This proposal would give NGET the right to operate key offshore transmission assets such as reactive compensation and circuit breakers by remote control, except in cases where alternative arrangements were demonstrably more efficient. NGET made it clear that it did not see a need for this requirement to be applied to existing offshore infrastructure at this stage.
- 4.30 A number of group members expressed concern at the principle of a third party (in this case NGET) taking control of an OFTO's assets.
- 4.31 NGET highlighted some of the circumstances within England and Wales where transmission and distribution assets were operated by a third party stating that these arrangements had either minimised investment in control systems or delivered operational efficiencies to the affected parties.
- 4.32 Following the second working group meeting, members were asked to consider NGET's proposal and raise specific concerns. Representatives of both SPTL and SHETL responded that onshore arrangements should be replicated offshore and raised the following specific questions over real-time monitoring of asset condition including the handling of alarms:
- Would the SO monitor the condition of the assets i.e. would they receive all equipment alarms?
 - Who will decide if an alarm requires the plant to be taken out of service, the owner or the operator?
 - Who has responsibility for despatch of owner's staff to attend to plant alarms?
 - Who will decide on the attendance priorities if more than one alarm is present, the SO, taking account of their operation or the owner attempting to protect their investment?
- 4.33 NGET believes these specific questions can be addressed through agreed interface procedures.
- 4.34 SPTL expressed the view of the Scottish TOs that the current onshore arrangements in Scotland provide the benefit of a double-check before operator action is taken.
- 4.35 NGET believes that this represents a duplication of resources which would be unnecessary and inefficient for new offshore transmission infrastructure in contrast to the current onshore position where the installation of new control systems to remove this duplication would most likely be unnecessary and inefficient.
- 4.36 Both SPTL and SHETL believe that that further work is required before enduring arrangements for operational switching are defined for offshore transmission.
- 4.37 The group therefore did not reach an agreed position on this issue within the available timescales. The relevant papers and correspondence to date are included within Appendix C of this report.

Transitional Arrangements

- 4.38 One member of the group suggested that offshore generators commissioning prior to the implementation of the offshore arrangements will require different treatment, as they could not have designed and constructed their connections

in accordance with the enduring regime. Therefore it may be necessary to release these projects from certain new obligations imposed by the STC for offshore transmission, such as those which may be developed associated with operational switching and technical standards.

Governance

Background

4.39 It was noted that STC governance is similar to the governance models utilised in other Industry Codes although it has been tailored to reflect the fact that there are only three STC Parties at present. Its key characteristics are:

- Amendments to the STC are overseen by the STC committee though all decisions on changes to the STC are ultimately referable to the Authority;
- The STC Committee is made up of up to two representatives from each of the STC Parties;
- The process to progress amendments to the STC is similar to that in other codes with a final decision made by the Authority; and
- Amendments to the STCPs are made by the Committee if there is unanimous approval of the change amongst members of the STC Committee.

Committee and Consultation Issues

4.40 The group identified a number of aspects of STC Governance which may need to be reviewed prior to increasing numbers of OFTOs acceding to the STC.

STC Committee Membership

4.41 The STC Committee is constituted of two members nominated by each STC Party. The group agreed that this would quickly become inefficient as increasing numbers of Parties accede to the STC. After discussion the Working Group agreed upon the following as a basis for the future structure of the STC Committee:

- Up to 2 members representing the GBSO
- Up to 4 members representing Onshore TOs
- Up to 2 members representing Offshore TOs

STC Committee Chair

4.42 It was noted that the STC Committee Chairmanship is rotated between the parties. It is likely that a similar rotation could continue, with the chairmanship potentially rotated between the constituencies.

Voting

4.43 Certain matters can be put to the vote at Committee Meetings the most significant being a vote to determine if an STCP Amendment should be made.

4.44 It was highlighted that a direct map across of the existing provisions would see each Party being able to block an amendment to an STCP that it was a party to. Alternative approaches were discussed to allow only STC Committee members the power of veto, although it was highlighted that under the

proposed representation it could be the case that an STCP amendment is passed that an OFTO affected by the amendment opposes.

- 4.45 Another alternative is therefore to move to a majority voting system with safeguards such as that seen under the DCUSA system of governance. The working group did not reach a firm recommendation at this stage.

Amendment Reports

- 4.46 The existing process for the preparation of an Amendment Report places the obligation upon the STC Committee to commission an impact assessment from each STC Party for every proposed STC amendment. The group noted that it would be more appropriate that each Party has the opportunity but not the obligation to prepare such an impact assessment, with perhaps the obligation upon the STC Committee to make each STC Party aware of the opportunity.

Industry Consultation

- 4.47 It was noted here that the duration of an industry consultation, currently set at a maximum of 10 business days, is under review by the STC Committee. The amendment proposal currently being evaluated is to extend this to 1 month. The group noted that this proposal if approved would be of benefit for Offshore Transmission post Go-Live as it could allow parties more time to consider changes if they had not been able to input into the change process prior to the consultation phase.

Other Issues

- 4.48 Other issues noted by the working group were:

- **Licence Conditions:** The current licence conditions for onshore Transmission Licensees place obligations on them to “have in force” and “comply with” the STC. The working group noted that for OFTOs with a potentially reduced role, the additional burden of “enforcing” the STC may not be warranted and as such their equivalent Licence condition might only be to “comply with” the STC.
- **Code Obligations for OFTOs:** Depending on the manner in which OFTO obligations were codified into the STC it may be appropriate to clearly identify OFTO obligations for ease of reference for new OFTOs. That is to say either OFTO obligations could be placed into separate sections of the STC / separate STCPs, or if OFTO obligations are embedded within the existing sections of the STC, they could be highlighted at the start of each section. Note that this latter approach is the one taken in respect of DNO obligations in respect of LEEMPS within the Grid Code.
- **Accession:** The requirement for all existing STC Parties to devise an accession process for each new party would not be appropriate moving forward. It is likely that a standardised accession process for OFTOs will need to be developed.

Applicability of STC Sections C and D to Offshore Transmission

- 4.49 The group briefly discussed how the current STC drafting would need to be adapted, amended or replaced to implement proposed arrangements for offshore transmission.

- 4.50 A preliminary review of the rights and obligations stipulated in sections C and D of the STC and how they might be applied to offshore transmission is given in Appendix B. The group did not review this in detail and agreed that further work was required to assess how the proposals relating to offshore transmission would impact on or be applicable to individual clauses with the STC.

5.0 Conclusions and Recommendations

- 5.1 The group reached the view that the general principles of the STC which currently apply to onshore Transmission Licensees should apply to offshore transmission.
- 5.2 The group therefore asks Ofgem and BERR to consider the following recommendations relating to the provisions of the STC for offshore electricity transmission.

Recommendation 1: The STC framework should be extended to encompass offshore electricity transmission.

- 5.3 The group recognised however that not all obligations, such as those relating to investment planning, were directly applicable offshore. A clause by clause analysis is required in order to translate applicable requirements appropriately.

Recommendation 2: There is a need for a detailed evaluation of the STC clauses and STCPs to identify provisions which are applicable to offshore transmission.

- 5.4 As the group recommends that the STC framework is extended to offshore transmission, there is a need to develop STC governance to accommodate new parties. The group recommends that STC governance arrangements should be changed to include OFTO representatives on the STC Committee and that new voting mechanisms are considered.

Recommendation 3: STC drafting on governance should be developed to provide for 2 OFTO representatives on the STC Committee.

Recommendation 4: There is a need to review STC voting arrangements and develop voting mechanisms which reflect the rights and obligations placed on STC Parties under the proposed offshore transmission arrangements appropriately.

- 5.5 However, the group concluded that the differences between the regulatory treatment of the current STC Parties and the proposed regulatory treatment of OFTOs (as well as the number of new parties and arrangements involved) justify the development of new tools within the STC framework to manage offshore transmission. The group therefore agreed that existing principles should be applied in such a way that ensured OFTO transmission services were provided over the lifetime of the offshore transmission licence, at service levels specified at the time of OFTO selection.
- 5.6 The group therefore proposes the development of the STC framework such that clear contractual conditions are in place between NGET, acting as System Operator, the OFTO concerned and any TO where their system is materially impacted by investment plans.
- 5.7 The group noted a requirement to ensure that the any developments to the STC (either in contractual terms or in technical requirements) aligned with the

proposed tender process for OFTOs in order to minimise the risk that a newly licensed OFTO could not accede to the STC.

Recommendation 5: The STC framework should be expanded to include new contractual terms which define the relationship, obligations and responsibilities between NGET, affected TOs and any OFTO in design, construction and enduring operation.

- 5.8 The group recommends that further work is undertaken to identify the specific, necessary baseline technical criteria which offshore transmission infrastructure should meet in providing “fit for purpose” connections to the onshore networks over the lifetime of the OFTO licence.

Recommendation 6: Necessary baseline technical criteria and minimum service quality standards should be defined for offshore transmission in the STC along with the appropriate processes and allocation of responsibilities for demonstrating compliance with these criteria.

- 5.9 NGET recommends that the STC should provide NGET with the right to operate key offshore transmission infrastructure by remote control with provision to make alternative arrangements where these are demonstrably more efficient. Both SHETL and SPTL oppose this recommendation pending establishment of a workstream to consider the issue further.

Recommendation 7: STC drafting for offshore transmission should be developed to specify NGET’s requirement to operate offshore transmission equipment by remote control subject to the development of appropriate interface procedures and subject to the right of challenge by the OFTO concerned on grounds of economic efficiency.

Appendix A Working Group Representatives

Meeting No.1

Held on 15th October 2007, 11am in D2.1, National Grid House, Warwick

Present:	Representing
Graham Stein	Group Chairperson (National Grid)
Bec Thornton	Group Secretary (National Grid)
Mark Duffield	National Grid
Kenny Stott	Scottish Hydro Electric Transmission Limited
David McMenemy	SP Transmission Limited
John Norbury	RWE Npower
Ham Hamzah	RWE Npower
Paul Jones (part)	E.ON
Bridget Morgan	Ofgem
Louise Elder	Ofgem
Aileen Macleod (part)	Scottish Hydro Electric Transmission Limited

Apologies:	
Robert Longden	Airtricity

Meeting No.2

Held on 22nd October 2007, 10am in Room 0.3, Lakeside House, Northampton

Present:	Representing
Graham Stein	Group Chairperson (National Grid)
Bec Thornton	Group Secretary (National Grid)
Mark Duffield	National Grid
Kenny Stott	Scottish Hydro Electric Transmission Limited
Alan Michie	SP Transmission Limited
Ham Hamzah	RWE
Paul Jones	E.ON
Bridget Morgan	Ofgem
Robert Longden	Airtricity
Chris Whitley	National Grid

Apologies:	
John Norbury	RWE Npower
Louise Elder	Ofgem

Appendix B STC Sections C and D

The following table provides a preliminary view of the clauses within STC Sections C and D that are applicable to offshore electricity transmission.

Section	Rights		Obligations		Applicability Offshore
	NGET	Transmission Owners	NGET	Transmission Owners	
Section C: Transmission Services and Operations					
Part One: Provision of Transmission Services					
2.1				Provide Transmission Services to NGET	<p>The Provisions of Section C Part One are all likely to be applicable offshore.</p> <p>If Recommendation 5 is adopted, then the contractual terms covering ongoing service delivery by the OFTO would be similar to Section C part one in outline and may include elements of performance reporting currently dealt with in Section C Part Three.</p>
2.3	Use Transmission Services to discharge its obligations under its Transmission Licence and the Act				
3.1				Provide a Services Capability Specification	
3.2				Keep the Services Capability Specification under Review	
3.3	Propose changes to the form of Services Capability Specifications				
4.1				Provide Transmission Services within the Service Capability Specification	
4.4				Notify NGET if Operational Capability Limits have been exceeded	
4.5/ 4.6				Notify NGET of any Services Reduction and quantify the impact	
4.5/ 4.6				Notify NGET of any Service Reduction Risk and quantify the potential impact	
4.6				Provide a Services Restoration Proposal in the event of a Services Reduction or Services Reduction Risk	
4.9		Modify a Services Restoration Proposal			
4.12				Take steps to minimise the duration or effect of Services Reductions and Services Reduction Risks	

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Section	Rights		Obligations		Applicability Offshore
	NGET	Transmission Owners	NGET	Transmission Owners	
5.1				Configure its Transmission System only in accordance with directions given by NGET	
5.4.1				Comply with OC7.6 of the Grid Code (Operational Switching In Scotland)	
5.4.2			Comply with OC7.6 of the Grid Code (Operational Switching In Scotland)		
6.1			Comply with licence standards and operate within Capability limits		
6.3			Take action and inform the TO if Capability Limits are exceeded		
6.4			Inform the TO of any event likely to impact on the TO's Services		
Part Two: Transmission Outage Planning					
2.1			Develop and maintain a seven year outage plan		All of Section C Part Two is likely to be applicable offshore
2.3			Provide TOs with information on outages that affect them		
3.1				Develop and maintain outage proposals	
3.6				Assist NGET in co-ordinating and facilitating outages	
3.7				Submit a year ahead plan by Week 28	
4.1			Issue a year ahead outage plan to TOs by Week 34		
4.3			Revise and re-issue the outage plan in line with feedback by week 49		
5.2			Keep the Outage Plan under review		
6.1			Agree an Outage Implementation Process for each outage		
7.1	Request that an outage is discontinued within the relevant Emergency Return to Service Time			Discontinue an outage within the relevant Emergency Return to Service Time	
Part Three: Other					
2.1	Co-operate with another party's tests				In line with Recommendation 6, new testing provisions are likely to be required for offshore both at commissioning stage and to manage ongoing service levels. Testing may be enforced under the new contractual arrangements proposed under Recommendation 5.
2.1				To provide test results and maintenance records for User sties	
2.2				To assist with commissioning at Users' sites	
3.1				Enter into an interface agreement with a user	Applicable Offshore

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Section	Rights		Obligations		Applicability Offshore
	NGET	Transmission Owners	NGET	Transmission Owners	
4.1				Notify NGET of Events	Applicable Offshore
4.1			Notify TOs of Relevant Events		
5			Agree and implement Black Start and De-Synchronised Island procedures		Applicable but unlikely to be required in practice
8			Agree system performance reporting (C17 Statements)		Applicable Offshore – could be absorbed into new contractual provisions as per Recommendation 5
Section D: Planning Co-ordination					
Part One: Transmission Planning					
2.1				Develop and maintain an investment plan	Unlikely to be applicable offshore
2.1				Provide an up to date investment plan to NGET	
2.1			Develop and maintain an investment plan		
2.1			Provide TOs investment planning information which affects them		
2.2			Prepare planning assumptions		
2.3			Co-operate and assist each other in the development of co-ordinated investment plans		May be applicable offshore
2.4	Make changes to the Investment plan				Unlikely to be applicable offshore
2.4	Request a change to another party's investment plan				May be applicable offshore
2.5			Identify planned works which require arrangements to be made between NGET and the user		May be applicable offshore
2.5				Not to undertake planned works without arrangements in place between NGET and the user	
2.6				Have and submit to NGET a Connection Site Specification relating to each Connection Site	Applicable Offshore
2.8				Update its Services Capability Specification and Connection Site Specifications	If Recommendation 5 is adopted, then these provisions would be included in the contractual terms covering OFTO design, construction and commissioning
4.1			Agree the workplan for and content of the SYS		Not Applicable
Part Two: Construction					
2.2	Raise a NGET construction application				Likely to be superseded by the proposed tender process and connection application process.
2.3			Ensure any NGET construction application is raised 3 business days after user application		
2.6			Charge for NGET construction application		

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Section	Rights		Obligations		Applicability Offshore
	NGET	Transmission Owners	NGET	Transmission Owners	
3.1	Generate construction planning assumptions				
3.5		Request a change to construction planning assumptions			
4.2		Notify NGET that transmission construction works are unnecessary			
4.7/ 4.8				Submit a TO construction offer (<3months – x days)	
5.1				Keep a TO Construction offer open for 6 months from application date	Applicable Offshore If Recommendation 5 is adopted, then these provisions would be included in the contractual terms covering OFTO design, construction and commissioning.
8.1			Co-operate in the development of construction programmes		
9.1			Agree plant required for communications between NGET and the user		
11.1				Provide a connection site specification prior to energisation	
11.1			Provide information to TO required to produce a site responsibility schedule		
11.2				Prepare site responsibility schedule and provide to NGET	
Part Three: TEC Exchange					
1.1	Submit a NGET TEC Exchange Rate Application				Applicable Offshore
1.2			Ensure any NGET TEC exchange application is raised within 3 days of user application		
2.1	Generate TEC Exchange Rate Planning Assumptions				
3.1				prepare a TO TEC Exchange rate (<3 months – x days)	
Part Four: Statement of Works					
1.1	Submit a NGET requests for a Statement of Works				Applicable Offshore in relation to being an affected party for onshore works
1.2			Ensure any NGET Statement of Works is raised within 3 days of user application		
2.1	Generate a Statement of Works Planning Assumptions				
3.1				Prepare a TO Statement of Works Notice (<3 months – x days)	

Appendix C Operational Switching Documentation and Correspondence

NGET Paper

Operational Switching Models for Offshore Electricity Transmission

18 October 2007

Discussion Note for STC Working Group

The table below provides a view of the pros and cons for three different switching models for offshore electricity transmission networks. The models have been chosen to represent the full spectrum of options, ranging from where the network owner has the exclusive ability to operate its network (albeit under the GBSO's direction) to where the GBSO has exclusive control.

In evaluating the models it is assumed the GBSO is responsible for directing configuration of the network. The switching operation is completed either by the OFTO (or subcontracted third party) following direction or by the Control Person (Operations) via telecommand.

The evaluation presented below assumes that the OFTO would be responsible for performing maintenance on its own equipment and hence would benefit from the ability to manage safety from the transmission system provided in models 1 and 2.

NGET's favoured proposal (Model 2) is intended to give the principal affected party the means to control equipment in a given mode of operation. Under this model, control responsibilities are divided between a Control Person (Operations) and a Control Person (Safety). Day to day operation is performed by an authorised Control Person (Operations), which would involve actions such as reactive equipment control, configuration to manage flows and fault levels, de-energisation and energisation as necessary, and transformer tap changing.

Control of de-energised and isolated equipment would be handed over by the Control Person (operations) to the Control Person (Safety) as necessary prior to planned or unplanned maintenance work, and handed back when work is complete. Only one Control Person would have control at any time, either by means of physical lockout or exchange of documentation.

NGET has serious concerns over any proposal which adds significantly to the number of real-time operational interfaces it is responsible for which rely on voice communication between controlling and operating parties. Hence, NGET does not support an extension of current onshore arrangements in Scotland (as represented by model 1) to offshore transmission.

NGET Paper

	Safety Switching	Operational Switching	Pros	Cons
Model 1	OFTO or subcontracted Third Party (Following handover from the GBSO)	OFTO or subcontracted Third Party (Does not include direction of configuration by SO ie physical switching only)	<ul style="list-style-type: none"> Single Party OFTO is unencumbered in meeting statutory safety obligations 	<ul style="list-style-type: none"> Requires new control centre facilities for each OFTO Additional interface creates an inefficient means for GBSO to direct flows Additional interface creates an inefficient means for GBSO to manage reactive equipment Additional assets required to segregate networks Uniform standards Required for Control Facilities (eg UK based)
Model 2	OFTO or subcontracted Third Party (Following handover from the GBSO)	NGET	<ul style="list-style-type: none"> Operational Interfaces minimised Uses existing control centre facilities Efficient means for GBSO to direct flows Efficient means for GBSO to manage reactive equipment No additional assets required to segregate networks Consistent resilience standard for control systems OFTO is unencumbered in meeting statutory safety obligations 	<ul style="list-style-type: none"> OFTO has local control only Dual authorisations required
Model 3	NGET	NGET	<ul style="list-style-type: none"> Operational Interfaces minimised Uses existing control centre facilities Efficient means for GBSO to direct flows Efficient means for GBSO to manage reactive equipment No additional assets required to segregate networks Consistent resilience standard for control systems 	<ul style="list-style-type: none"> NGET Involved in safety switching with no impact on flows over the GB Transmission System OFTO relies on GBSO to meet statutory safety obligations

NGET Paper - continued

Control of Third Party Equipment

Model 2 and Model 3 both envisage situations where a transmission owner allows the GBSO to operate its equipment. It is acknowledged that network owners will in general prefer to operate their own equipment. However, third party operation of distribution and transmission equipment is a well established practice.

In some circumstances within England and Wales, equipment is controlled and/or operated by third parties. This is managed via bilateral contracts between users and network operators and between network operators. These arrangements have been put in place where:

1. Equipment is owned by one party but its operation has a more significant impact on another party;
2. The life of the assets did not justify installation of remote operation infrastructure (eg Magnox sites); or
3. Another party's equipment is required as a point of isolation.

These arrangements demonstrate the principle that ownership, control and operation of assets can be de-linked to facilitate operational efficiency.

Further Considerations

If the GBSO has the capability to perform operational switching on offshore electricity transmission networks, some consideration is required of liabilities in the event of equipment failure.

The GBSO will also have a more direct interest in the operability and reliability of certain assets and will therefore seek to gain assurances over the condition of offshore assets, either through its own verification processes or independent assurance.

Conclusions

NGET's view is that the GBSO's obligations in controlling the transmission system economically and efficiently are best met under the dual control model for offshore electricity transmission proposed above as Model 2.

The primary benefits of this approach are:

1. Increased operational effectiveness of remote operational switching from a single control room facility
2. Optimisation of costs by minimising the extent of new control facilities
3. Retention of safety management responsibility by the party responsible for maintenance

We therefore recommend that the STC provisions applicable to offshore electricity transmission give the GBSO the right to assume direct control of offshore transmission assets in the direction of flows across the transmission system. Provisions should also be made such that alternative arrangements can be agreed where they are demonstrably more efficient.

SHETL Response

SHETL response to NGET's Operational Switching Model Paper for Offshore Electricity Transmission

In the run up to BETTA go live there was a considerable amount of discussion and debate regarding the respective roles and responsibilities of the Transmission Owner (TO) and the System Operator (SO) regarding operational switching, the outcome of which resulted in the arrangements we operate under today. The inefficiencies mentioned in the Models have not been experienced, to our knowledge in Scotland. NGET currently manage to control real and reactive output from existing generation with no issues. It is interesting to note that since the introduction of BETTA no proposals have been brought forward by any of the existing TO's to amend the current processes. This leads us to conclude that whilst certain aspects of the current processes may not be ideal for individual parties, collectively the TO's conclude that they are effective. Consequently, SHETL would advocate that the existing operational switching model currently employed in the Onshore environment should be extended in respect of any proposed Offshore Transmission assets until such times as all parties have the opportunity to take part in a detailed, informed debate on the way forward.

As an example we pose a number of questions:

- a) Would the SO monitor the condition of the assets i.e. would they receive all equipment alarms?
- b) Who will decide if an alarm requires the plant to be taken out of service, the owner or the operator?
- c) Who has responsibility for despatch of owner's staff to attend to plant alarms?
- d) Who will decide on the attendance priorities if more than one alarm is present, the SO, taking account of their operational financial incentives or the owner attempting to protect their investment?

Any new control centre facilities required Offshore would be the same as for any Power Station. Control and monitoring will still be required by the asset owner. Uniform standards for control can be applied through appropriate codes.

In summary, SHETL cannot support any recommendation that the STC provisions applicable to offshore electricity transmission include the right for the SO to assume direct control of offshore transmission assets. Any revision of the STC provisions should replicate those of the existing Onshore environment until all the existing TO's have the opportunity to collectively discuss, agree and propose amendment to the current STC provisions.

Subject: RE: Operational Switching Models

SPTL Correspondence

I am responding to our action to review and feedback on the Operational Switching Model paper.

We support the points made by SHETL and recommend that the existing operational switching model should be extended to offshore. We also agree that it is important not to change to a new model until there has been a detailed and informed debate on the way forward. We would also make the following comments:

- We believe that the existing processes, as per model 1, are effective
- Model 1 has the important benefit of providing an additional interface i.e. a double-check before operator action is taken.
- We are not convinced that that an additional interface will necessarily lead to inefficiencies particularly given that there are unlikely to be many OFTOs.
- SHETL raises some pertinent questions regarding responsibilities and 24/7 operation. The OFTO will need to have monitoring and control facilities anyway - and this need not be expensive - to monitor their own assets 24/7.