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Date: 15 July 2009

Dear Colleague,

TREATMENT OF NGET'S COSTS AS OFFSHORE SO DESIGNATE AND FURTHER INCREMENTAL NETSO COSTS UNDER THE SO INTERNAL INCENTIVE

Background

In 2006, the Government appointed National Grid Electricity Transmission (NGET) as the designate offshore system operator. In this role, NGET has provided support to DECC and Ofgem in the development and delivery of the new offshore transmission regime, which achieved "Go-Active" on Wednesday 24 June.

The resources and costs required for NGET to undertake work relating to the development and administration of the offshore transmission regime are excluded from the current price control[1]. We set out in 2007, at the time of our final SO incentive proposals, that rather than include an allowance for these uncertain system operator (SO) costs, we would require NGET to record the costs it incurs and report those costs to us in detail[2]. We also set out that an ex post adjustment to the price control would be made, to allow for the recovery of incurred efficient and economic costs, once the new regime had been delivered; which it has now been.

At "Go-Active" NGET's role was formally extended by the Secretary of State and it is now the National Electricity Transmission System Operator[3] (NETSO). This extended role means that NGET has taken on new obligations and responsibilities in relation to the offshore elements of the transmission system. These obligations also require NGET to perform a key co-ordination and support role in delivering effective outcomes from the competitive tenders for offshore transmission licences and efficient network development.

We recognise that these additional obligations mean that NGET will incur costs that have not been allowed for under the current SO revenue restriction. This letter now sets out the Authority's approach to the treatment of:

1) The costs that NGET has efficiently incurred in the development of the Offshore Transmission Regulatory Regime in its role as GBSO offshore designate (from 2 August up until 31 March 2009); and

[1] The current revenue restriction, the SO internal incentive, runs between April 2007 and March 2012.
[2] http://www.ofgem.gov.uk/Markets/WhlMkts/EffSystemOps/SystOpIncent/Documents1/17094-3507.pdf
[3] Previously known as 'Great Britain System Operator'. NGET's system operator role was extended offshore at "Go-Active", on 24 June 2009.

2) The incremental costs that NGET will incur for its role as offshore SO between April 2009 and March 2012 (i.e. during the remainder of the SO internal incentive).

Treatment of NGET's Offshore Transmission Regulatory Regime Development Costs

Subsequent to the Authority's decision to have NGET log up the costs that it incurred in its role as designate offshore SO, NGET reported their costs to us on a monthly basis. The costs submitted have been expressed in terms of members of their staff deployed on the offshore transmission project and other associated costs. A summary of these costs is provided at Annex 1.

Following this process, we recently received a formal request from NGET for reimbursement of the total costs that they have incurred, as GBSO offshore designate, in developing the Offshore Transmission Regime (up until the end of March 2009). The costs in their submission amount to £1.563 million.

We note that NGET's submission represents a significant reduction from their original forecast cost of £7 million, which NGET proposed at the time of the SO internal incentive settlement.

We have worked closely with NGET on the offshore transmission project and have directed much of their work through formal instructions. We have subsequently reviewed the monthly staff deployment and cost reports that they have submitted. As such, we have been able to confirm that the staffing costs that are included in the submissions relate to NGET staff that have been working on the offshore transmission project. Therefore, our assessment is that the costs have been incurred economically and efficiently for the services provided.

As such, the Authority's decision on the treatment of the costs set out in NGET's submission (at Annex 1) is to allow NGET to fully recover the costs.

Treatment of NGET Additional Costs Arising from Extension of System Operator Role Offshore (up until the end of March 2012)

In addition to the costs set out above, NGET will incur additional administrative and functional costs as it takes on its expanded role as NETSO. These costs specifically include additional interactions with offshore Generators, OFTOs and Ofgem through the tender process, and its additional planning and reporting obligations (including the 'offshore development information statement' which is currently being consulted on as special condition C4). It is important for the success of the tender process that NGET to fulfil these expanded obligations.

NGET recently gave us a forward looking estimate of its additional costs for the remaining three years of the current price control period (i.e. for regulatory years 2009-10, 2010-11 and 2011-12). A breakdown of the activities it expects to undertake is available at Annex 2. NGET predicted that these costs will total £7.505 million up until the end of the 2011-12 financial year.

We have considered NGET's submission and do not consider that NGET has demonstrated that all of the information systems costs can be shown to specifically relate to offshore SO activities or would be required during the period to 31 March 2012. As a consequence, and do not intend to allow £0.850m of the £1.2m of these IS costs identified by NGET. In effect, this reduces the forecast SO internal costs relating to offshore transmission to £6.655m over the three year period to 31 March 2012.

We believe that the predicted volume of activity and associated costs appear credible based on the assumed development of offshore transmission over the period. We nevertheless

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consider that there is doubt in relation to the timing and exact levels at which these costs will be incurred (i.e. such costs will depend on the timing and volume of offshore connections that are made). We also note that NGET does not currently have experience as system operator in offshore areas and recognise that it has been challenging for NGET to provide robust, forward looking estimates of its resource requirements given the uncertainty that exists in this area.

Based on our analysis above, we consider that there may be some degree of uncertainty in the estimates provided by NGET and it is therefore not appropriate at this point to provide an ex-ante adjustment to NGET's price control. However, we also recognise that in order for the NETSO to properly carry out its authorised activities and discharge all its obligations, it is important that it has certainty over cost recovery and is able to receive revenues for the work undertaken prior to the end of the current price control period.

The Authority has therefore decided to adopt a 'pay as you go' treatment of NGET future costs as NETSO for the years 2009-10 to 2012-12. This approach means:

- NGETs recoverable costs would be capped at a maximum level of £6.655 million. Any costs above this level would be automatically disallowed.
- NGET would be required to continue their regular reporting to us on actual staff deployed and associated costs. We consider that reporting on a bi-monthly basis would be appropriate for the time being but potentially at different intervals, as Directed by the Authority, depending on relevant factors as they arise.
- We would annually test the submitted costs for efficiency (using the same process of assessing the actual incurred costs, and their purpose, as was used in the implementation of the offshore transmission regulatory regime).
- NGET would be allowed to recover its actually incurred offshore NETSO costs in each of the financial years 2009-10, 2010-11 and 2011-12. The costs would therefore be recovered in the year after they were incurred.

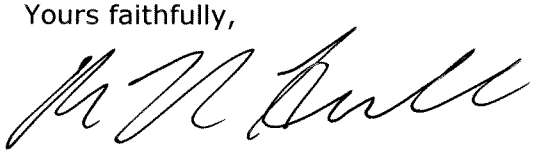
This arrangement would cease at the end of the SO internal incentive period.

Next Steps

We have published our statutory consultation on the proposed modifications to NGET's transmission licence to give effect to the decisions in this letter[4], specifically special condition AA5A.

If you have any queries in relation to the issues raised in this letter, please feel free to contact Sam Cope on 020 7901 7239 or via email at sam.cope@ofgem.gov.uk.

Yours faithfully,



Robert Hull

Director – Regulatory Services
For, and on behalf of, the Authority

[4] http://www.ofgem.gov.uk/Networks/offtrans/pdc/cdr/cons2009/Pages/Cons2009.aspx

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Annex 1 – NGET submissions: offshore SO designate and incremental NETSO costs

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April 2009

Dear Bob,

GBSO Offshore Projects Costs Recovery – April 2009

Over the past three years NGET, in its capacity as designate GBSO, has been assisting Ofgem and DECC in their development of the offshore transmission regime.

During this time, NGET has worked closely with Ofgem/DECC to:

- Lead industry debate on development of offshore policy (including chairing working groups to consider offshore developments to the GB SQSS, Grid Code and SO-TO Code);
- Provide advice on ad-hoc policy issues;
- Deliver a suite of codes and licence statements (Grid Code, CUSC, SO-TO Code, GB SQSS) in accordance with drafting instructions received from Ofgem;
- Develop and deliver charging arrangements for offshore generators; and
- Generally prepare for the extension of the GBSO role offshore by:
    - Assessing and developing existing onshore processes to make them suitable for the offshore transmission regime;
    - Delivering the contractual relationships that will be required post Go-live of the regime; and
    - Ensuring the appropriate operational interfaces exist to ensure that NGET is able to communicate appropriately with offshore stakeholders.

As we have previously discussed, the resources, and hence costs, incurred in delivering this work were specifically excluded from our price review submissions, and so are incremental to our current funding arrangements.

We have been providing Ofgem with monthly reports containing detailed descriptions of the work we have undertaken along with the costs incurred. The purpose of this letter is to summarise the costs incurred up to the end of 2008/09, and therefore this letter represents a formal submission of the value to be ultimately included in the transmission licence to represent Offshore Development Costs. These costs are explained in more detail below and total £1.563m.

We have separately discussed arrangements for funding of incremental offshore resources from 1 April 2009 to 31 March 2012, and this is not covered any further in this letter.

GBSO Offshore Project Implementation Costs

a. Cost summary

The table below summarises the incremental offshore development costs incurred:

Offshore Costs Summary				
Financial Year	Actual Manpower Costs £'000	External & & Indirect Costs £'000	Funding/Interest Charge £'000	Total £'000
2006-2007	186	3	17	**206**
2007-2008	796	55	30	**881**
2008-2009	442	34	0	**476**
Total	1424	92	47	1563

During the development of BETTA (British Electricity Trading and Transmission Arrangements) a robust process was developed to capture incremental costs and this was successfully used to recover those costs in a way that was satisfactory to both NGET and Ofgem. We have adopted exactly the same processes to monitor and record the incremental costs contained within the table above.

The monthly Financial Report and related appendices have provided a full monthly analysis of the actual personnel engaged on the project along with the forecast for the forthcoming three months. It has also included a section on the total monthly indirect costs incurred on the project. Any queries raised by Ofgem on the detailed content of the reports have been responded to.

The main categories of cost recovery are:

1) Actual Manpower Costs

These consist of direct employment costs (basic salary, NI, pension) for the following types of staff:

a) Personnel allocated full-time to the Offshore Project e.g. the central project management team.
b) Personnel who spend at least 20% of their time on the project in any one month. In this case the appropriate proportion of their overall costs are apportioned to the project manpower costs total.
c) Backfill costs. Where staff have spent all or part of their time on Offshore Project related activities, it has been necessary to employ agency staff to backfill these positions to enable NGET to carry with its other activities. Where this occurred, it has been necessary to identify the position that has been backfilled and the cost of backfilling.

2) Indirect Costs

These include other costs that can be directly associated with the delivery of the Project both staff related (such as travel and subsistence that can be directly related to the project) and external such as the cost of organising meetings, conferences and workshops.

3) Funding/Interest charge

In accordance with established principles an interest charge has been calculated on the company funded expenditure at the end of the Financial Year. The interest rates applied are shown in appendix 1.

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Excluded Expenditure

We have applied strict rules to ensure that the costs NGET is claiming are purely incremental. Therefore certain costs have not been allocated to the project. This covers instances where staff have only contributed a small proportion (<20%) of their time to the project as well as management and supervision time.

In summary, NGET is informing Ofgem that it has incurred approximately £1.5m of costs in contributing to the Offshore Project. NGET believes that these costs have been incurred economically and efficiently and represent a proportionate cost for the service that has been provided.

Our previous discussions with Ofgem have indicated the following way forward:

- Ofgem will develop, and consult upon, a mechanism within the transmission licence to facilitate the recovery of these costs;
- Ofgem will consult on the level of costs to be included for recovery;
- Ofgem will include the appropriate number within the transmission licence; and
- NGET will recover the monies via the SO internal costs mechanism during 2009/10.

Please let me know if you have any further questions of this submission, and in particular whether you require any further information to support this submission, or you disagree with the way forward described.

Yours sincerely

Chris Bennett
Future Transmission Networks Manager

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Appendix 1

A summary of the interest rate charges is shown below. The calculation has been based on the Bank of England base rate.

Interest Rate Description	Financial Year	
	2007-2008	2008-2009
Average Interest Rate	5.5425%	3.5404%
Compounded Average Interest Rate	5.5425%	9.1190%

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Forecast costs for NGET to discharge its new obligations in the Offshore Transmission Regime.

Executive Summary

This document presents NGET's forecast of the incremental resources that it requires to discharge the obligations it will undertake as part of the offshore transmission regime. The key points to note are:

- Resources relating to the offshore transmission regime were explicitly excluded from the last transmission price control submission, therefore all required resources are incremental and require new funding arrangements;
- NGET will take on new obligations from Go-active to facilitate the operation of the offshore transmission regime;
- New funding arrangements need to cover the period up to 31 March 2012, at which time NGET expects that activities associated with the offshore transmission regime will be accommodated within the next transmission price control (starting from 1 April 2012);
- NGET has forecast the resources/costs it will incur over the financial years 2009/10 to 2011/12 as follows:
    - Enduring resources: 19 incremental posts (equating to 25 FTEs allowing for shift posts) resulting in costs of £5.7m;
    - IS costs: development of the system to interface with OFTOs on outage co-ordination at a cost of £1.2m; and
    - Project costs: maintenance of a small project team within NGET at a cost of £0.6m. (NGET has made a separate submission to Ofgem relating to the project costs incurred up to the end of 2008/09).
- Within this submission NGET proposes an ex-ante process for consultation on these resource forecasts and costs that would ensure that the necessary resources can be secured in the available timescales;
- NGET firmly believes that the forecast presented in this submission represents a prudent position based on its understanding of the role that it will undertake as part of the offshore transmission regime, and its expectation of the volume of offshore generators that will apply for connection within the relevant timeframe; and
- If the resources presented in this submission are not funded this will present risks to the overall operation of the proposed offshore transmission regime.

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1. Background

In August 2006, the Secretary of State announced that he had decided that at the appropriate time he will exercise his powers under section 92 of the Energy Act 2004 and extend NGET's onshore role as Great Britain System Operator (GBSO) offshore. At the appropriate time he will make modifications to NGET's licence for the purpose of extending it to the territorial sea and the Renewable Energy Zone (REZ).

This will extend the geographical remit of NGET's role as GBSO from Go-live of the Offshore Transmission Regime, currently scheduled to be June 2010.

At Go-live, the competitive approach for appointing offshore transmission owners (OFTOs) will be implemented. NGET will have a key role in interfacing with this new process and will undertake new activities in this regard.

The purpose of this submission is to describe the additional activities that NGET will be obliged to undertake when its role is extended, and to provide information relating to the number of resources that will be required, and the costs that will be incurred in discharging these obligations.

2. Current role of the GBSO

The GBSO role is a regulated activity carried out under NGET's transmission licence. The activities that NGET currently performs onshore are funded through the Electricity SO Internal Incentive, and charged to all users of the transmission system via Balancing Services Use of System (BSUoS) charges in accordance with the Transmission Charging Methodology Statement.

The revenue allowances for the GBSO function are agreed as part of the transmission price control process. The current price control runs from 1 April 2007 through to 31 March 2012.

Generally, the role of the GBSO requires NGET to:

- Provide information to market participants, both ex-ante and ex-post;
- Manage industry frameworks, including running the administrative and governance arrangements for some of the industry codes and statements;
- Offer terms to all users who wish to connect to and/or use the system;
- Perform the role of single contractual counterparty with all users of the transmission system;
- Liaise with parties who provide transmission services; and
- Undertake the safe, secure, economic and efficient operation of the transmission system.

3. Funding for additional activities

The extension of the GBSO role offshore will require NGET to undertake additional activities. At the time of submission of information for the current price review period, these activities, and the costs associated with them, were explicitly excluded from NGET's forecasts. Therefore, as the activities associated with undertaking the GBSO role offshore are incremental to the current transmission price control, additional funding should be provided to cover these activities. It is NGET's view that it is necessary to establish ex-ante funding mechanisms for the additional obligations that NGET will be required to discharge from Go-active, and then subsequently, Go-live. Arrangements for funding must also take into account the lead times that NGET will experience in securing the appropriate resource.

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In some areas (particularly System Development in Asset Management) the volume of required resources is driven, to a degree, by the volume of connection applications that are made and the subsequent tender activity that must take place. The forecast presented in this submission makes assumptions about these volumes (based on current expectations via liaison with the relevant stakeholders), and ex-ante funding is required to ensure that NGET can recruit this resource in the required timescales. An ex-post assessment of these volumes would not be appropriate as it would assume perfect foresight of requirements which is not possible.

Whilst there is an element of the forecast that is 'volume driven', the associated costs are still incremental due to the requirement to undertake the additional activities required by the offshore transmission regime when compared with onshore activities. For instance, an application to connect to the transmission system by an offshore user drives considerably more work than an equivalent application by an onshore users due to the requirement to design an optimum onshore/offshore connection, the requirement to deliver a two-stage offer, and the requirement to interface with the tender process. Furthermore there are additional operational requirements for offshore users caused by the requirement to interface with the OFTO, and the potential to have to interface with a DNO.

These is also an element of the forecast that is not 'volume driven', in particular the requirements on NGET to publish information relating to the development of the offshore system.

It is important to note that this submission covers the period until 31 March 2012, after which revised price control arrangements will take over. In the submissions for the price control from 1 April 2012 onwards, NGET expects to include the offshore activities as part of its ongoing activities.

It is proposed that funding for the incremental offshore activities commences from June 2009. This will allow NGET to recruit and hence ensure that the necessary resource is in place with the necessary training at the right time. This will also cover the incremental activities that NGET will need to undertake during the transition period from Go-active to Go-live.

4. Extension of the GBSO role offshore

Once its role as GBSO is extended, the incremental activities that NGET will perform relating to the operation of the offshore transmission regime can be summarised as follows:

- Provision of ex-ante information to assist potential offshore users via the development and publication of the offshore strategic development statement;
- Management and review of the new code provisions that will be introduced to facilitate the offshore transmission regime;
- Offering terms to potential offshore users via the new two stage connection application process;
- Interface with the new offshore tender process;
    - NGET will provide information into the data room; and
    - NGET will respond to questions from bidders (via the tender panel).
- Finalisation of the overall onshore/offshore connection solution;
    - By establishing the overall preferred connection solution by assessing a number of different onshore and offshore combinations;
    - By working with the relevant TO, the preferred bidder and the generator; and
    - By using the output of the tender process to provide a final connection agreement to the offshore user.
- Management of a number of new interfaces – technically, commercially and operationally including;
    - Interface with the offshore user;
    - Interface with the offshore transmission owner; and

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    - Interface between the offshore transmission owner and the onshore point of connection (either to a TO or a DNO).
- Undertake the safe, secure, economic and efficient operation of the offshore transmission system; and
- General oversight of the operation of the regime from an NGET perspective.

NGET has considered how the activities described above impact on its current organisational structure, the areas where these additional activities will take place, along with the volume of resource required undertaking them.

In summary, additional resource is required in the following areas:

- Network Operations:
    - Control Room – for the operational aspects of the role;
    - Data management – both on-line and off-line data for system modelling purposes; and
    - Transmission Requirements – to manage data flows, and hence co-ordinate outages between transmission companies/users.
- Asset Management:
    - To undertake technical and economic analysis and coordinate the overall provision of initial connection offers (including combined assessment of different onshore and offshore options), and technical interface to the tender process and participants within it; and
    - Technical assessment work to produce the offshore strategic development statement
- Commercial:
    - Customer Services - To provide interface with offshore users, preparation of initial connection offer and final agreement to vary and commercial interface to the tender process and participants within it;
    - Electricity Codes – to monitor the operation of the revised arrangements introduced into the industry codes to facilitate the offshore transmission regime, and propose changes as required. To participate in Distribution governance processes;
    - Demand and generation forecasting – to co-ordinate the production of the offshore strategic development statement including collation of information and leading the consultation process; and
    - Project Team – additionally NGET proposes to maintain 'project resource' until one year after Go-live to provide a single point of contact on any aspect of the operation of the regime, and to assess how the overall process is performing, proposing changes as required.

A more detailed description of these activities, along with the full time equivalents (FTEs) required, is provided in Appendix 1. This forecast is based on the above description of the role of the GBSO and current assumptions about the number of networks that will be in existence. NGET reserves the right to alter these forecasts if the GBSO role changes during the current offshore consultation period.

Clearly, a large element of the resource requirement is due to the operational responsibilities of the GBSO and the default operational arrangements in which the GBSO will direct the operation of the offshore networks with the OFTO undertaking switching activities. With this in mind, further detailed information on the operational role of the GBSO is provided in Appendix 2.

This resource forecast covers the period from Go-active to the end of March 2012. Clearly NGET's revised obligations only become fully effective at Go-live when NGET will take on the operational role for offshore networks. However there is significant work for NGET to undertake

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from Go-active through to Go-live which is reflected in the resource/cost forecasts. Activities required ahead of Go-live include:

- Recruiting and training of the necessary staff;
- Migration of current contractual arrangements with offshore users to bilateral connection agreements with NGET;
- Ensuring that the relevant operational interfaces are in place for existing offshore networks;
- Compiling on-line and off-line data sets;
- Development of the IS system required to support communications with OFTOs;
- Developing, consulting on and publishing the Offshore Strategic Development Statement; and
- Any applications to connect to the transmission system after Go-active will be subject to the new two-stage application process.

5. IS Systems development

NGET has undertaken an assessment of its IS systems in the context of the proposals for the offshore transmission regime, and has identified that one of these systems needs to change to support the new regime. The system in question is that used by NGET to communicate with industry participants and co-ordinate outages.

Further detail of the options available in respect of taking this forward are provided in Appendix 3. It should be noted that NGET, in developing the resource forecasts contained within Appendix 1, has assumed that the software changes have been undertaken. If this is not the case then additional resource would be required in Network Operations as highlighted in both Appendix 1 and Appendix 3.

6. Financial Impact

The costs for financial years 2009/10 through to 2011/12 are described below.

Enduring costs - The fully loaded costs associated with recruiting, training and maintaining the 25 FTEs described in Appendix 1 are £5.7m.

IS Costs - As described in section 5 and Appendix 3 options exist for how NGET takes forward the required IS developments. NGET's recommendation is to proceed with the hardware and software upgrade now, therefore incurring £1.2m during 2009/10.

Note that if the software upgrade was not progressed, then the enduring resource forecast within Network Operations would be increased by 1FTE resulting in additional costs per annum of £80k.

Project costs - Maintenance of a small central project team to undertake activities as described within Appendix 1 at a cost of £0.6m.

Note that NGET intends to make a separate submission to Ofgem relating to project costs incurred up to the end of 2008/09. These costs are currently forecast at £1.4m.

Summary and phasing of costs

£k	2009/10	2010/11	2011/12	Total
Enduring costs	1,818	1,911	1,955	5,684
IS costs	1,200	0	0	1,200
Project costs	375	215	31	621

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Total	3,393	2,126	1,986	7,505

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Appendix 1 – Schedule of resource requirements

Directorate	Department	FTEs	Description	Required by...[5]
Commercial	Electricity Codes	1	Monitor and review new code provisions for offshore transmission to ensure that they are working appropriately – propose any revisions as required Input to DCUSA and Distribution Code governance required as a result of NGET having to apply to DNOs for connection Input to Panel processes on the offshore transmission regime	From September 2009
	Customer Services	4	Undertake the necessary activities during transition to migrate transition customers to new regime – delivery of revised contractual requirements Preparation of initial connection agreement Provision of Commercial information to the tender process Dealing with Commercial issues from the tender process Working with the preferred bidder (OFTO) to ensure necessary contractual arrangements are put in place Provision of agreement to vary to offshore users	2 from June 2009, 2 from April 2010
	Demand and generation forecasting	1	Co-ordination of the production of the offshore strategic development statement Collation of information and taking the lead on the consultation process	From September 2009
Asset Management	System Development	9	Technical and economic assessment of connection applications	5 from September 2009, 4 from April 2010

[5] The dates in the table anticipate that funding arrangements are finalised by June 2009. In some cases it may be necessary for NGET to utilise existing resources ahead of incremental offshore resource being secured to ensure that the necessary training can be given.

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Directorate	Department	FTEs	Description	Required by...[5]
			Assessment of different onshore connection solutions to identify an optimum (onshore and offshore) network design Technical contribution, network design and overall co-ordination of the initial connection offer Provision of technical information to the data room Addressing technical issues and network design issues as they arise in the tender process Assessment of variant bids by studying the onshore implications and potential impact on overall design Working with the preferred bidder to finalise the technical solution Extension of current SYS information to cover offshore networks Technical assessment work to produce the offshore strategic development statement	
Network Operations	Control Room	1 (7)	Real time operation of offshore transmission system Implement the planned release and restoration of offshore equipment Provide offshore operational switching as required Monitor offshore plant and equipment alarms Constantly evaluate constraint transfers and offshore generator output to ensure that system security and safety is maintained at all times on all transmission networks, and ensure that these are input to control room plans and strategies Liaise with affected users on	From September 2009 (to enable necessary training to be delivered). This team of 7FTEs will cover the 24 hour shift rota plus the management of other operational issues as required

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Directorate	Department	FTEs	Description	Required by...[5]
			operational and data submission issues Manage all operational interfaces	
	On-line data management (IEMS)	1	Collection of technical and real-time data associated with offshore networks Derivation and presentation of real time information into the control room and Commercial (Balancing Mechanism, BM) systems Ensure that real time systems (IEMS and BM) have an accurate representation of offshore networks to provide effective control, real time network analysis and situational awareness for control room staff Update monitoring facilities to ensure effective delivery of data and control room tools For each offshore model it is anticipated that 70 digitals, 35 analogues and 180 alarms would need to be processed Coordinate testing of EDL and EDT facilities including communication outage management	From January 2010
	Transmission Requirements[6]	1	Derivation and delivery of offshore system access requirements Preparation of detailed operational plans to allow access for all offshore maintenance and construction work Management of new interfaces with OFTOs, offshore users and DNOs Ensure that transitional networks are compliant with	From October 2009

[6] This forecast assumes that the necessary upgrades have been made to the software that manages communication between transmission users (and needs extending to include OFTOs). If this change is not made, then the resource forecast would increase to 2. Also see Appendix 3.

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Directorate	Department	FTEs	Description	Required by...[5]
			the operational codes as well as assimilating the networks into operational processes We anticipate 20 operational interfaces to manage at Go-live with an increase to 30 by 2012	
	Off-line data management	1	Collection of all technical data for offshore networks Define internal data streams for OFTO plant commissioning and Service Capabilities Specification data within NGET Provide a defined point of contact in line with present/future governance procedures Definition of operational capabilities Build official submission logging system. Carry out data submission checks. Disseminate submitted data to the relevant business streams with NGET. Liaise with OFTOs where there is a data clarification issue or it is felt additional data is required. Assist in the entry of OFTO data into operational off-line models	From January 2010
Total		19 (25)		

NGET will also provide a central project team equating to 2 FTEs for one year after Go-live (currently expected to be in place until June 2011). This resource will undertake the following activities:

- Overall management of offshore transmission process within NGET
- Single point of contact with Ofgem/industry on offshore transmission issues
- Monitor and review operation of regime
- Development of process improvements as regime beds in

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Appendix 2: Operational activities in the new Offshore Transmission Regime

Within one year of Go-live the GBSO will be responsible for real time control of 11 offshore transmission networks, 6 of which will be embedded (i.e. connect into distribution networks). This will involve planning and directing the configuration of around 18 offshore substations along with around 40 BMU connections with a total capacity of around 2.6GW. The GBSO will be responsible for managing the real time flows of power within the offshore network and across the offshore/onshore interface in accordance with the operational limitations provided by the OFTO and other interfacing parties. This will be achieved by managing the turbine output and configuring the offshore network to optimise flows. Responsibility for controlling voltages to meet security standards and control reactive flows across the offshore/onshore interface will also fall to the GBSO.

For embedded transmission flows across the onshore/offshore interface will be managed to meet DNO requirements. Where variations are caused by planned outages within the DNO network, the GBSO will co-ordinate the outage plans of the DNO, OFTO and Generator to ensure economic and efficient placement. In addition to planned outages, restrictions within DNOs due to the operation of embedded generation are becoming more common place. These restrictions vary throughout the day as network conditions change and will require real time liaison between the GBSO and DNO to minimise restrictions on the onshore/offshore interface. In some locations automatic control of flows across the interface will be used to limit restrictions; these will be controlled by the GBSO under instructions from the DNO.

Voltage control within the network and flows of reactive power across the onshore/offshore interface is expected to be achieved through a combination of turbine reactive capability and static compensation provided by the OFTO. The GBSO will need to have a full understanding of the interaction between the two systems (in some cases there will be a single integrated control system) so that control parameters can be altered to optimise voltage control to match system conditions. This may require rearrangement of LV busbars to ensure that compensation provided by Generators is directed to the right point on the network.

Across the initial 11 offshore networks the GBSO will be exposed to around 1800 operational alarms. On activation the GBSO will be expected to take appropriate actions to make the system safe and notify the OFTO. A number of these actions will require restrictions on generation and appropriate procedures will need to be in to co-ordinate the OFTO and GBSO response to minimise these restrictions

The GBSO will be responsible for directing the reconfiguration of the offshore transmission network to give the OFTO access to the offshore transmission system for planned and fault outages with minimal restrictions on the generation. The design standards for offshore transmission allows for generator restrictions for single outages. Consequently rearrangement of turbine string connections (by changing LV busbar configurations) will be necessary to mitigate these restrictions whilst ensuring that:

- The reactive compensation provided by the turbines is integrated with the static compensation on the offshore network;
- Fault levels within the onshore and offshore networks remain within limits; and
- The connection of turbines to the settlement metering meets the Generator requirements for BM participation.

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Appendix 3 – IS System Development requirements

Please note that the costs included in this appendix will require review once the way forward is agreed to reflect the latest estimates from IS service providers.

Driver for change

The system that requires change was introduced at BETTA Go-live to allow NGET to co-ordinate outages with the two Scottish transmission companies. At the time, the system was specified to accommodate only two external transmission companies.

The proposals for the offshore transmission regime are to introduce a competitive tender process to identify offshore transmission owners (OFTOs). Thus, under these proposals, NGET will have to communicate with OFTOs to ensure that GB Transmission System outages are co-ordinated, and hence the application will need to deal with more than two transmission companies.

Therefore, there is a requirement to modify the software associated with this application to increase the number of external transmission companies that can be accommodated.

Costs associated with the software modification are £350,000.

The hardware associated with this application was purchased in early 2004 and requires upgrading to bring it in line with industry best practice. There is no standard support service available from the vendors for the current hardware, and therefore support is currently being provided on a 'best endeavours' basis. Upgrading the hardware would remove these support issues. Therefore, there is a risk that a hardware failure could result in a significant outage of the application.

The costs associated with the hardware upgrade are £850,000.

Options

Option 1: *Progress hardware and software upgrade*

It is NGET's recommendation that the hardware and software upgrade should be undertaken now. This will bring the hardware in line with industry standards and modify the software to ensure that OFTOs enjoy the same level of service as onshore TOs.

Pursuing the hardware and software upgrades simultaneously is, in NGET's view, the most economic approach.

The cost of Option 1 is £1.2m

Option 2: *Progress software upgrade only*

Under this option, the software upgrade would be progressed as per Option 1.

However, the hardware upgrade would not be progressed. This would mean the continuation of the risk currently faced that the hardware is not adequately supported and the application may fail and become unavailable.

If the hardware is not replaced now, then NGET would include the costs of this in the next Transmission Price Control submission. It is likely that this would result in a higher overall cost of hardware upgrade as compared with doing it simultaneously with the software upgrade.

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The cost of Option 2 is £350k (with deferred costs for the hardware upgrade).

Option 3: No IS development, manual workaround

Under this approach, neither the hardware nor the software upgrade would be progressed.

This would introduce the same risks in respect of the hardware as described for Option 2. Additionally, funding for the hardware upgrade would need to be pursued at a later stage (as per option 2).

If the software upgrade was not progressed, then a manual workaround would need to be introduced to co-ordinate outages with OFTOs. This would result in different interfaces between NGET and Scottish transmission companies and NGET and OFTOs.

A manual workaround would increase the risk that outages/restrictions on the offshore networks were not correctly reported through to offshore generation. Given the proposals for limited compensation for restrictions on access caused by outages on the offshore networks, it is essential that offshore generators receive the best possible information in this regard.

It is currently estimated that the resource required in the first year of operation of the proposed regime (from June 2010 based on current expectation of number of offshore networks/OFTOs) would equate to 1 FTE. It is NGET's view that the manual workaround would only be viable whilst there was a manageable number of offshore networks, and that by 2015, the software upgrade would need to be in place.

The costs associated with the additional resource requirements would need to be factored into the enduring resource forecasts if this option were pursued.

Funding

As indicated above, NGET's preferred approach is to progress now with both the hardware upgrade and the software modification at a cost of £1.2m. However it is appropriate to describe all the different options available at this stage.

We will not progress with the IS development described above prior to agreeing with Ofgem the most appropriate way forward and securing a guarantee that the incurred costs can be recovered as part of the eventual recovery of total costs incurred by NGET in making preparations for the implementation of the offshore transmission regime. In order to ensure that the development work is completed in the required timescales, NGET requires the timescales described in section 3 of this submission to be met.

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