NGC's proposed GB electricity transmission charging methodologies

The Authority's decisions

December 2004

Summary

This document sets out the decisions of the Gas and Electricity Markets Authority (the "Authority") on the charging methodologies for connection to, and use of, the high voltage electricity transmission system in Great Britain which were proposed by the National Grid Company ("NGC") and submitted to the Authority for approval on 30 September 2004.

NGC will be the GB system operator, responsible for operating the GB-wide transmission system under the new British electricity trading and transmission arrangements (BETTA) which it is planned will 'go-live' on 1 April 2005. As GB system operator, NGC must develop the methodologies that are to be used to calculate the charges that electricity generators, suppliers and large customers will pay for connection to, and use of, the GB transmission system.

The methodologies will establish how NGC recovers, from users who connect to and/or use the GB transmission system, the costs of making available and operating that system. Although there are only two types of methodologies – connection and use of system - there are three types of charge. The **connection charging methodology** calculates charges for the provision of assets that enable users to connect to the transmission system. The **use of system methodology** covers both **transmission network use of system** ("TNUoS") charges which relate to the provision of high voltage lines and cables, and **balancing services use of system** ("BSUoS") charges which relate to the costs incurred by the GB system operator in buying and selling electricity and other services to keep the transmission system in balance and within safe operating limits in real time.

NGC's transmission licence defines relevant objectives which each of the methodologies must meet. In summary[1], these include an objective to facilitate effective competition and an objective to ensure, as far as reasonably practicable, that transmission charges reflect the costs incurred by transmission licensees in their transmission businesses. The methodologies must be approved by the Authority. The Authority can, in certain circumstances, make a conditional approval of a methodology; the Authority can impose conditions relating to further action to be taken by the licensee in relation to the methodology better meeting the relevant objectives in NGC's licence.

[1] The full text of the relevant objectives is set out in Chapter 2.

The proposals brought forward by NGC were developed through a series of consultations with the industry starting in December 2003. On 30 September 2004, NGC submitted to the Authority, for its approval, one option for the connection charging methodology and two options for the use of system methodology. Both options for the use of system methodology have the same proposals for the calculation of BSUoS charges, but different proposals for the calculation of TNUoS charges. For the TNUoS methodology, NGC's preferred option ("Option B"), when compared to NGC's alternative option ("Option A"), had greater locational differences in tariffs for users at different geographical locations on the transmission system, and recovered a smaller share (10% compared to 27%) of total TNUoS revenues from generators rather than directly from suppliers and large industrial customers.

Following NGC's submission of its proposals, the Authority published a consultation and impact assessment document on 15 October 2004 (the "October IA and consultation document"). This document set out the Authority's views on the impact of NGC's proposals and invited views from interested parties. The document also described how the proposals would be assessed by the Authority.

The Authority has considered NGC's proposed connection and use of system methodologies, in the light of NGC's licence obligations and the Authority's legal duties and obligations, having particular regard to its principal objective to protect the interests of consumers where appropriate by promoting effective competition.

The Authority's decisions

- **Connection charging methodology**

  The Authority has decided to approve NGC's proposed connection charging methodology. The approval is subject to a condition that NGC reviews and potentially revises, within the next two years, its calculation of charges relating to the maintenance of connection assets with a view to furthering the relevant objectives to charge cost reflectively and to facilitate competition in connection works.

- **Balancing Services Use of System charging methodology**

  The Authority concluded that, had it been possible for the Authority to separately approve NGC's proposed BSUoS charging methodology, that methodology would have been suitable for approval.

- **Transmission Network Use of System charging methodology**

  The Authority decided that approving either of NGC's proposed TNUoS charging methodologies would **not** be consistent with its legal duties and obligations. Whilst Option A and Option B had significant merits, in the Authority's view both had areas of weakness. Specifically:

  - the Authority concluded that NGC's proposal to increase the share of total revenue recovered from suppliers and large users under Option B to 90% (as compared to 73% today) was a disproportionate measure relative to the 'problem' which it was seeking to address, i.e. negative demand charges in the north of Scotland. The Authority is not persuaded that negative demand charges are a problem and, even if they were a problem, that NGC's proposal (which the Authority considers would be likely to have an adverse impact on consumers in the short term) represents a proportionate response to that issue.

  - the Authority also identified significant weaknesses in the cost-reflectivity of Option A which did not appear, on the basis of the available evidence, to be offset by compensating benefits in terms of the facilitation of competition. In the Authority's view robust cost-reflective charges play an important role in promoting efficiency and facilitating competition, thereby protecting the interests of consumers.

  - the Authority therefore concluded that the interest of consumers would be better served if NGC came forward with revised proposals in the light of the Authority's views as set out in this document. The Authority has also identified a limited number of areas other than those identified above where NGC's proposals have raised issues of concern. The Authority considers that NGC should, in developing revised proposals, review and potentially refine these aspects of its proposals, and/or explain its chosen approach in more detail. Further details of these other areas of concern are set out in this document.

NGC has been informed of the Authority's decisions. NGC has indicated that it intends to issue a revised set of use of system proposals for industry consultation by 17

December 2004. NGC has also said that it intends to submit a revised set of proposals to the Authority by the end of January 2005.

If NGC does submit revised proposals to the Authority by the end of January 2005, the Authority will seek to publish an impact assessment concerning those proposals for consultation in early February 2005. Again assuming that this timetable is complied with, the Authority anticipates that it can be in a position to consider NGC's revised proposals at its meeting on 24 February 2005. If this is the case, the Authority should be in a position to announce its decision by the end of February 2005.

If the Authority approves the revised proposals by the end of February, this will allow the proposals to be implemented and charges levied from 1 April 2005. This is consistent with Ofgem/DTI's continuing view that the BETTA project is being progressed on schedule, and is on track to go live on 1 April 2005.

Transmission users are normally entitled to at least two months' notice of a change to transmission charges. If the Authority were to approve NGC's revised proposals at its meeting on 24 February 2005, the Authority would be minded to direct a shorter notice period to enable charges to be implemented from 1 April 2005. Again, if the Authority were to approve NGC's revised proposals at its meeting on 24 February 2005, the Authority will invite views on this proposal to direct a shorter notice period as part of its impact assessment on any revised NGC proposals.

Table of contents

1. Introduction

Purpose of this document

1.1. On 30 September 2004, the National Grid Company ("NGC") submitted to the Gas and Electricity Markets Authority (the "Authority") for approval its proposals for GB connection and use of system charging methodologies. On 15 October 2004, Ofgem published an impact assessment and consultation document (the "October IA and consultation document") on NGC proposals. The purposes of this document are to summarise the responses to the October IA and consultation document and to set out the Authority's decisions (and the reasons for those decisions). The Authority's decisions were made having carefully considered responses to the October IA and consultation document and NGC's submission to the Authority.

Background

1.2. This chapter sets out the rationale for the development of transmission charging methodologies for connection to and use of any transmission system across Great Britain ("GB"). It reiterates the objectives of the British electricity trading and transmission arrangements (BETTA), sets out how transmission charging fits into the project and details the process followed to date in developing GB charging arrangements. It also summarises the purpose and structure of this document and details where information can be sourced on related documents.

British Electricity Trading and Transmission Arrangements (BETTA)

1.3. The objective of the BETTA reforms is to implement new trading and transmission arrangements that are designed to promote the creation of a single competitive wholesale electricity trading market and to introduce a single set of arrangements for access to and use of any transmission system across GB.

1.4. The rationale for BETTA was set out initially in an Ofgem consultation paper of December 2001 ("the December 2001 consultation") and reaffirmed in a joint Ofgem/DTI report of May 2002 ("the May 2002 report"). DTI has also published

a Regulatory Impact Assessment ("RIA") which assessed the likely costs and benefits of the BETTA reforms. The RIA was published in draft in May 2002 for consultation, and published in final form with the draft Electricity (Trading and Transmission) Bill (the "E(TT) Bill") in January 2003.

1.5. The December 2001 consultation set out Ofgem's view that it was appropriate and timely to implement market based wholesale trading arrangements in Scotland. It was proposed that the most appropriate way of achieving this was through the creation of GB balancing and settlement arrangements, a common GB transmission charging regime, common terms throughout GB for connection to and use of the transmission system, removing the current commercial arrangements surrounding use of the Scotland-England interconnector assets by incorporating those assets into the GB transmission system and the creation of a GB system operator responsible, at a minimum, for balancing the GB transmission system.

1.6. The Energy Act 2004 contains provisions that are designed to facilitate the implementation of BETTA. The BETTA provisions gave the Secretary of State for Trade and Industry the ability to implement BETTA by, amongst other things, the power to determine new standard licence conditions for transmission licensees. The Secretary of State exercised these powers on 26 August 2004 and 31 August 2004, amongst other things, to place licence obligations on NGC in its capacity as GB system operator to have in place charging methodologies for connection to and use of the GB transmission system approved by the Authority.

Transmission charging under BETTA

1.7. One of the key building blocks of BETTA was the introduction of GB charging methodologies for connection to and use of the electricity transmission system – the high voltage network that allows the bulk transmission of generation to customers and local distribution networks.

1.8. In August 2003 Ofgem/DTI initiated the process of consulting on GB transmission charging by publishing a consultation document on this subject. The document was divided into two parts. Part 1 concerned proposed changes to the regulatory framework to implement GB transmission charging

arrangements while in Part 2 DTI consulted on the impact of the transmission charging arrangements on renewables.

1.9. In Part 1 Ofgem/DTI set out the proposed framework for setting transmission charges in a GB wholesale market. The key components of those proposals were as follows:

- the initial GB system operator should be responsible for producing the charging methodologies and statements to apply across GB;
- the regulation of the GB system operator should be based on the existing Standard Licence Conditions applying to NGC in England and Wales; and
- the existing charging arrangements in England and Wales should form the initial basis for consultation on GB charging methodologies.

1.10. In addition, the paper set out a proposed process and timetable for the initial GB system operator to develop and consult on its proposed charging methodologies.

1.11. In light of respondents' views to its August 2003 consultation document, Ofgem/DTI published conclusions in December 2003. This document reinforced Ofgem/DTI's support for the key principles set out in the August 2003 paper including that the GB system operator's licence conditions should be based on NGC's existing licence conditions and that the England and Wales charging model should be used as the initial basis for consultation on GB charging arrangements.

1.12. Following the publication of Ofgem/DTI's conclusions NGC, in its role as proposed initial GB system operator, published its Initial Thoughts consultation on GB charging in December 2003. This was followed by two further consultations in April 2004 and in August 2004. Finally, on 30 September 2004, NGC submitted its GB transmission charging proposals to the Authority for approval.

1.13. On 15 October 2004 Ofgem published a consultation and impact assessment concerning NGC's charging proposals (the "October IA and consultation document"). The document set out the framework which the Authority would apply in assessing NGC's proposals and sought respondents' views on its initial

assessment of NGC's proposed GB use of system and connection charging methodologies. The document also welcomed respondents' views on alternative charging approaches which might be considered to be more consistent with the Authority's principal objective and offered respondents the opportunity to submit a complaint for review regarding the proposed final methodologies in accordance with Article 23(6) of the Internal Market in Electricity ("IME") Directive 2003/54.

1.14. The document also requested additional information from NGC in relation to a number of key components of NGC's charging proposals including on the treatment of spare capacity, security and tariff stability. NGC published additional information in relation to these areas on 22 October 2004.

1.15. In total 38 parties responded to Ofgem's consultation, two of which were marked as confidential. A list of the non-confidential respondents is attached as Appendix 3. In addition Ofgem received two complaints relating to NGC's proposed methodologies under Article 23(6) of the IME Directive.

Structure of this document

1.16. Chapter 2 of this document describes the legal and regulatory framework which underlies the Authority's consideration of NGC's proposed charging methodologies. It also describes the decision framework which the Authority must apply to its decisions on whether or not to approve NGC's proposed GB charging methodologies.

1.17. Chapter 3 sets out views of respondents to the October IA and consultation document and NGC's views in respect of NGC's proposed connection charging methodology, together with the Authority's assessment of that proposed methodology. Chapter 4 sets out views of respondents to the October IA and consultation document and NGC's views in respect of those elements of NGC's proposed GB use of system charging methodology which relate to Balancing Services Use of System ("BSUoS") charges, together with the Authority's assessment of those elements of the proposed use of system methodology. Chapter 5 sets out the views of respondents to the October IA and consultation document and NGC's views in respect of those elements of NGC's proposed GB use of system charging methodology which relate to Transmission Network Use

of System ("TNUoS") charges, together with the Authority's assessment of those elements of the proposed use of system methodology. Chapter 6 summarises the Authority's decisions.

1.18. Appendix 1 provides a more detailed and technical summary of responses to the October IA and consultation document, together with those of NGC's comments in its submission to the Authority which appear, in the view of the Authority, to relate to the issues made by respondents in their responses to the October IA and consultation document. Appendix 2 provides a short technical summary of NGC's TNUoS charging proposals. Appendix 3 lists non-confidential respondents to the October IA and consultation document.

Related documents

GB transmission charging

1.19. This document discusses issues raised through NGC's consultation on its proposed GB charging methodologies. This document should therefore be read in conjunction with documents published by NGC as part of its consultation process. Relevant documentation can be found on the GB charging page of NGC's website[2].

Small generator issues

1.20. In May 2004, Ofgem/DTI published a conclusions document on small generator issues under BETTA. This document set out the view that there was a disparity in the treatment between transmission and distribution connected small generators in terms of charging which, if rolled out on a GB basis, would have the effect of unduly disadvantaging small transmission connected generators. In order to address this disparity Ofgem/DTI proposed a reduction in transmission charges for affected generators.

1.21. While Ofgem/DTI recognised that an enduring solution was required to this problem, in the interim, to ensure that small transmission connected generators were not disadvantaged from the start of BETTA, Ofgem/DTI proposed the

[2] http://www.nationalgrid.com/uk/indinfo/betta/gb_consultations.html

introduction of a discount against NGC's use of system charges. In July 2004 Ofgem/DTI published a consultation on a draft licence condition to address this issue and following a broadly positive response a new licence condition (C13 – Adjustments to use of system charges (small generators)) was designated to give effect to this measure.

1.22. It is the responsibility of the Authority to determine the level of this discount. In light of this responsibility the Authority will shortly be publishing a minded-to statement and impact assessment on the proposed level of the discount. This will set out the Authority's current view that the discount should be set at around 25% of the total residual element of NGC's TNUoS charges or £4/kW. This document will be published on Ofgem's website.

Other related BETTA document

1.23. As part of the BETTA process this document makes references to other aspects of the BETTA project. A full record of the BETTA documents published to date can also be found on the BETTA area of the Ofgem's website.

Way forward

1.24. In the light of the decision by the Authority to approve NGC's proposed connection charging methodology, NGC will progress work to apply this methodology and consequently notify users of the resultant charges. NGC will also finalise its statement of connection charging methodology and seek formal approval of the statement from Ofgem.

1.25. In respect of use of system charges, the decision by the Authority not to approve either of NGC's proposals will mean further consultation by NGC, and a revised submission being provided by NGC in the light of that consultation. NGC has indicated to the Authority that it intends to issue revised proposals for consultation by 17 December, and to submit revised proposals to the Authority by the end of January 2005.

1.26. Following a submission of revised proposals by NGC, the Authority intends to publish an impact assessment on the revised proposals. If NGC adheres to the timetable set out above, the Authority anticipates that it can be in a position to consider NGC's revised proposals for approval at its meeting on 24 February

2005. The Authority should then be in a position to announce its decision by the end of February 2005.

1.27. If the Authority were to approve the revised proposals by the end of February, this would allow for the proposals to be implemented and charges levied from 1 April 2005. This is consistent with Ofgem/DTI's continuing view that the BETTA project is being progressed on schedule, and is on track to go live on 1 April 2005.

1.28. The Authority notes that an approval of a use of system methodology at the end of February would only be consistent with charges being implemented on 1 April 2005 if the Authority directs a shorter notice period than the 2 months to which transmission users are normally entitled. If the Authority were to approve revised proposals at its meeting of 24 February 2005, it would also be minded to issue a direction in respect of such shorter notice period. Ofgem would welcome comments on this position. Views in respect of this matter will also be invited in respect of any such direction as part of the Authority's impact assessment on NGC's revised proposals.

2. Regulatory framework and Ofgem's assessment framework

2.1. This chapter summarises the framework within which the Authority has exercised its function to consider for approval NGC's proposed connection and use of system charging methodologies.

Regulatory Framework

2.2. The electricity industry in Britain is regulated by the Electricity Act 1989 (the 'EA').

2.3. The Utilities Act 2000 (the UA), section 1 of which establishes the Authority, amended the EA in a number of respects. Those reforms include:

- the transfer of the functions of the Director General of Electricity Supply and the Director General of Gas Supply to the Authority;
- the introduction of a new principal objective (primary duty) on the Authority "to protect the interests of consumers in relation to electricity conveyed by distribution systems, wherever appropriate, by promoting effective competition between persons engaged in, or in commercial activities connected with, the generation, transmission, distribution or supply of electricity"; and
- the introduction of standard licence conditions for each type of electricity licence granted under the EA and provisions for making modifications to standard licence conditions.

2.4. Regulation of the electricity industry is achieved in part by prohibiting certain principal activities (section 4 of the EA), including the transmission of electricity and the distribution of electricity. These activities are then authorised by licence (section 6 of the EA) or exemption (section 5 of the EA).

2.5. It is the Authority who has power to grant licences in respect of each of the prohibited activities referred to above (section 6 of the EA).

Authority's statutory duties

2.6. The Authority's principal objective and statutory duties, insofar as they relate to the electricity industry, are set out in Sections 3A to 3C of the EA. Further details of these sections are set out below.

2.7 The general duties of the Secretary of State and the Authority in section 3A of the EA are as follows:

3A(1) Sets out the Authority's principal objective and states: "The principal objective of the Secretary of State and the [Authority] in carrying out their respective functions under [Part 1 of the EA] is to protect the interests of consumers in relation to electricity conveyed by distribution systems or transmission systems, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors."

3A(2) States: "The Secretary of State and the Authority shall carry out those functions in the manner which he or it considers is best calculated to further the principal objective, having regard to-

(a) the need to secure that all reasonable demands for electricity are met; and

(b) the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under [Part1 of the EA], the Utilities Act 2000 or Part 2 or 3 of the Energy Act 2004."

3A(3) States: "In performing that duty, the Secretary of State or the Authority shall have regard to the interests of-

(a) individuals who are disabled or chronically sick;

(b) individuals of pensionable age;

(c) individuals with low incomes; and

(d) individuals residing in rural areas;

but that is not to be taken as implying that regard may not be had to the interests of other descriptions of consumer."

3A(4) States: "The Secretary of State and the Authority may, in carrying out any function under this Part, have regard to –

(a) the interests of consumers in relation to gas conveyed through pipes (within the meaning of the Gas Act 1986); and

(b) any interests of consumers in relation to-

(i) communications services and electronic communications apparatus; or

(ii) water services or sewerage services (within the meaning of the Water Industry Act 1991),

which are affected by the carrying out of that function."

3A(5) States: "Subject to subsection (2), the Secretary of State and the Authority shall carry out their respective functions under [Part 1 of the EA] in the manner which he or it considers is best calculated –

(a) to promote efficiency and economy on the part of persons authorised by licences or exemptions to distribute, supply or participate in the transmission of electricity or to participate in the operation of electricity interconnectors and the efficient use of electricity conveyed by distribution systems or transmission systems;

(b) to protect the public form dangers arising from the generation, transmission, distribution or supply of electricity;

(ba) to contribute to the achievement of sustainable development; and

(c) to secure a diverse and viable long-term energy supply,

and (so far as not otherwise required to do so by this subsection) shall, in carrying out those functions, have regard to the effect on the environment of activities connected with generation, transmission, distribution or supply of electricity."

3A(5A) States: "In carrying out their respective functions under this Part in accordance with the preceding provisions of this section the Secretary of State and the Authority must each have regard to –

(a) the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed; and

(b) any other principles appearing to him or, as the case may be, it to represent the best regulatory practice."

3A(6) States: "In this section "consumers" includes both existing and future customers."

3A(7) States: "In this section and sections 3B and 3C, references to functions of the Secretary of State or the Authority under [Part 1 of the EA] include a reference to functions under the Utilities Act 2000 which relate to electricity conveyed by distribution systems or transmission systems."

3A(8) States: "In this Part, unless the context otherwise requires –

"exemption" means an exemption granted under section 5;

"licence" means a licence under section 6 and "licence holder" shall be construed accordingly."

2.8 Section 3A of the EA was recently amended in a number of respects by the Energy Act 2004, including by adding the following two requirements for the Authority (which have also been referred to above).

- that, subject to its principal objective and its general duties, the Authority should carry out its functions in a manner best calculated to contribute to the achievement of sustainable development and
- that the Authority carry out its functions having had regard to "the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed" and any other principles appearing to the Authority to represent best regulatory practice.

2.9 Section 3B sets out duties on the Secretary of State and the Authority relating to social and environmental matters, including a duty on the Authority to have regard to guidance issued by the Secretary of State under this section. Section 3C contains duties on the Secretary of State and the Authority relating to health and safety issues relevant to the electricity industry.

Relevant European Law

2.10 Section 3D of the EA sets out exceptions to Sections 3A – 3C, one of which states that "the duties imposed by sections 3A to 3C do not affect the obligation of the Authority....to perform or comply with any other duty or requirement (whether arising under this Act or another enactment, by virtue of any Community obligation or otherwise)."

2.11 The duties which the EA imposes upon the Authority do not, therefore, override any contradictory duties or obligations under European law. The Authority, therefore, needs to take (and has taken) due account of relevant European law. In addition to the applicable general principles of Community law which require the promotion of effective competition, non-discrimination, transparency and proportionality in charging structures, the following pieces of European legislation are most directly relevant for the purposes of this decision:

- the Internal Market in Electricity Directive (2003/54/EC) ("IMED");
- Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal market; and
- Regulation 1228/2003 on conditions for access to the network for cross-border exchanges in electricity.

Licences

2.12 Each licence which is granted by the Authority pursuant to section 6 of the EA is subject to conditions, either standard to that type of licence (standard conditions) or applicable to just that licence holder (special conditions). Section 7 of the EA sets out the parameters of what may be included in a licence. Section 7(2) provides that licence conditions may require a licensee to enter into agreements

and section 7(4) provides that conditions may require that the Secretary of State or the Authority designate such agreements.

2.13 On 26 August 2004, the Secretary of State exercised her powers under sections 134 and 137 of, and paragraph 1 of Schedule 17 to, the Energy Act 2004 to determine new standard conditions in relation to transmission licences and to make a scheme in relation to existing transmission licences and to modify the conditions of licences granted under section 6 of the EA. On 31 August 2004, the Secretary of State further exercised her powers under sections 134 of the Energy Act to modify the conditions of transmission licences. These changes took effect on 1 September 2004.

Decision framework

Relevant objectives

2.14 Standard conditions C4 and C6 of NGC's electricity transmission licence require NGC, in its capacity as licensee, to determine, as soon as practicable after the relevant licence condition comes into effect, a GB use of system methodology and a GB connection charging methodology approved by the Authority.

2.15 Standard conditions C5 and C6 set out the relevant licence objectives with which the GB use of system and connection charging methodologies must conform.

2.16 The relevant objectives for the connection charging methodology are as follows:

(a) the objectives referred to [for the purpose of the use of system charging methodology (see below)], as if references therein to the use of system methodology were to the connection charging methodology; and

(b) in addition, the objective, in so far as consistent with sub-paragraph (a), of facilitating competition in the carrying out of works for connection to the GB transmission system.

2.17 The relevant objectives for the use of system charging methodology are as follows:

(a) that compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity;

(b) that compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and in accordance with the STC) incurred by transmission licensees in their transmission businesses; and

(c) that, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses.

2.18 In considering whether to approve or reject a proposed methodology which has been submitted to it, the Authority must first decide whether the relevant methodology meets the above-mentioned relevant objectives. If a proposed methodology does not meet the standards required by the relevant objectives, it must be rejected.

2.19 If the NGC proposals relating to the use of system methodology or the connection charging methodology meet the relevant objectives, but they could better meet those objectives, then such proposals may be approved subject to conditions relating to further action to be taken by NGC in relation to the methodology in question better meeting the relevant objectives.

Legal duties and obligations, including European law requirements

2.20 If NGC's proposals meet the relevant objectives specified in the licence conditions, the Authority must then consider the proposals in the light of its legal duties and obligations, including European law requirements and the requirements of general public law which the Authority is subject to.

2.21 If a proposed methodology is inconsistent with the Authority's legal duties and obligations, including the requirements of European law, the Authority must reject that proposal.

Requirement to act in a manner which is "best calculated to further the principal objective"

2.22 Paragraph 2 of section 3A of that EA states that: "The…Authority shall carry out [its] functions in the manner which…it considers is best calculated to further the principal objective, having regard to:

(a) the need to secure that all reasonable demands for electricity are met; and

(b) the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under this Part, the Utilities Act 2000 or Part 2 or 3 of the Energy Act 2004."

2.23 The above duty requires that the Authority considers not only NGC's proposals but also any alternative proposals. Although it is not open to the Authority to develop, approve or implement a proposed methodology that has not been put to it by NGC, as part of its assessment of NGC's proposals (and as part of its decision as to what would be best calculated to further the principal objective) the Authority must consider, in the context of the options available to it, whether any alternative proposal which meets the relevant objectives and is otherwise compliant with European law and other applicable legal requirements would better facilitate the achievement of the principal objective.

2.24 If the Authority determines that there is such an alternative to the methodology/ methodologies which NGC has proposed which would better facilitate the achievement of the principal objective, the Authority must then determine whether it should discharge the duty referred to at paragraph 2.22 above by rejecting NGC's proposed methodology/methodologies or by accepting NGC's proposed methodology/methodologies with or without conditions. In such circumstances, it would be relevant for the Authority to take into account, without limitation:

(a) how far short of the best proposal the NGC proposal/proposals is/are;

(b) the extent to which the deficiencies can be addressed by conditions;

(c) whether NGC would be able to come forward with an improved (or sufficiently or suitably improved) proposal and the length of time this would take; and

(d) the effect on the timetable for the implementation of BETTA of rejecting the NGC proposals and the detriment caused to the achievement of the principal objective by the delay.

Complaints under Article 23(6) of the IMED

2.25 Paragraph 6 of Article 23 of IMED states: "Any party who is affected and has a right to complain concerning a decision on methodologies taken pursuant to paragraphs 2, 3 or 4 or, where the regulatory authority has a duty to consult, concerning the proposed methodologies, may, at the latest within two months, or a shorter time period as provided by member States, following publication of the decision or proposal for a decision, submit a complaint for review. Such a complaint shall not have suspensive effect."

2.26 Two complaints relating to NGC's proposed methodologies have been submitted to the Authority under the above paragraph. The Authority considered these complaints as part of its decision-making process. The Authority will be responding separately to each of the complainants.

3. Connection charging methodology

3.1. Standard condition C6 of NGC's electricity transmission licence requires it to establish a GB connection charging methodology approved by the Authority. This chapter sets out the Authority's assessment of the proposed connection charging methodology which NGC submitted to it for approval on 30 September 2004.

3.2. This chapter is in four sections:

- the first provides a summary of the connection charging proposals submitted by NGC;
- the second section reviews responses to the October IA and consultation document relating to NGC's proposed connection charging methodology;
- the third section outlines the Authority's views of the proposals, having taken account of the responses to the October IA and consultation document and the material provided by NGC in its submission to the Authority, and in the context of the decision framework discussed in the previous chapter; and
- the final section concludes with a summary of the Authority's decision.

NGC's proposals

3.3. NGC proposes to adopt "shallow" connection charging proposals whereby connection assets will be defined as being those assets which are for the sole use of each connected party. The definition excludes all assets which are shared or could be shared by more than one user. The connection charge would be calculated as the cost of providing and operating those assets and would include a reasonable rate of return on capital employed.

3.4. To ensure that the underlying intent of a "shallow" connection charging policy is applied consistently across GB, and recognising the more radial nature of the Scottish network, NGC proposes to introduce an additional rule to limit the maximum length of generator connection circuits to two kilometres. This

proposed approach, which would apply GB wide but which the Authority understands would be more likely to affect generators in Scotland as a consequence of the more radial nature of the Scottish transmission network, is similar to NGC's treatment of demand connections under the existing approved methodology in England and Wales where, in the absence of such a rule, the definition of connection assets could include relatively long circuits.

3.5. Under NGC's proposals connection charges will include a separately identified charge for maintaining the connection assets allocated to each user. Given differences in how maintenance cost information is collected by NGC, SP Transmission and Scottish Hydro Electricity Transmission, it is not possible, without additional IT expenditure, to extend NGC's methodology of calculating maintenance charges to GB. NGC has therefore proposed as an interim measure to change the method of calculation by levying a charge based on a simple percentage of asset value. NGC also proposed to review contestable maintenance arrangements following the introduction of BETTA.

3.6. NGC also proposes to allocate a proportion of general running costs, such as rates and overheads, to connection assets in calculating connection charges. However, given differences in the detail of how costs are recorded across the three transmission businesses, NGC has refined and simplified slightly its method of calculation to make use of the information available.

3.7. Finally, in line with its existing arrangements in England and Wales, NGC proposes to provide new users with a choice over how connection charges are paid, e.g. via a one-off upfront capital contribution or via annual charges, and over how connection assets are re-valued each year.

Respondents' views

3.8. In total five respondents commented on NGC's proposed GB connection charging methodology. Of those responses the majority of comments were broadly supportive of NGC's proposals.

3.9. Three of the respondents supported the connection charging methodology as it is applied in England and Wales as acceptable for implementation across GB. One respondent noted that the elements of NGC's connection charging

proposals were broadly consistent with the existing Scottish methodologies. Another respondent specifically noted that the application of a shallow connection policy was a positive development.

3.10. One respondent supported the proposal to base site specific maintenance charges on a percentage of Gross Asset Value ("GAV") as a pragmatic solution to charging for maintenance. The respondent further noted that in the long term it was questionable whether competition in the maintenance of connection assets is viable and welcomed NGC's proposals to undertake a further review in this area.

3.11. One respondent expressed support for the element of NGC's proposed methodology which allowed new users connecting to the transmission system to pay a single up-front payment in respect of the connection assets allocated to them by NGC. On the same subject another respondent, while supporting the principle of allowing capital contributions, sought clarification on the treatment of capital contributions already made. The respondent argued that NGC should be directed to honour existing contractual terms.

3.12. Two respondents argued that the application of the 2km rule is arbitrary. One of those respondents argued that connections should be considered on a case by case basis until a more appropriate approach is found. In response to NGC's comment that a 2km rule has existed for demand spurs in England and Wales since 1997/98, the same respondent noted that the basis of this proposal pre-dates changes to NGC's connection charging methodology in England and Wales introduced in April 2004 and should be reviewed.

3.13. One respondent commented on the proposal to reflect additional costs if a number of transmission licensees are involved in assessing an application for connection. The respondent noted that no indication has been provided as to how charges will be compiled and thus that uniform fees should be applied irrespective of location.

NGC's views

3.14. NGC generally welcomed the views expressed by respondents as supporting its GB connection charging proposals. In particular it welcomed support for its proposed site specific maintenance charging arrangements as an interim

arrangement and reiterated its intention to undertake a thorough review of contestable maintenance following the introduction of BETTA.

3.15. NGC recognised the concerns of respondents in respect of the treatment of capital contributions. NGC noted that if a user wishes to make a capital contribution towards its connection assets then this would be required to be agreed with NGC and that as GB system operator it would seek to facilitate back to back arrangements with the Scottish transmission businesses. However, NGC said that it could not comment on issues relating to historic payment arrangements with the Scottish transmission businesses.

3.16. In relation to the view that the proposed 2km rule would be arbitrary, NGC highlighted that such a rule has existed for demand spurs in England and Wales since 1997 and has been clearly stated in subsequent charging statements. Further NGC did not consider that connections should be considered on a case by case basis. NGC argued that this approach would be inconsistent with the aim of developing transparent charging arrangements based on unambiguous charging rules. NGC also noted that an established rule was necessary in this case to differentiate between local and remote substations for the purposes of determining a shallow connection policy across GB.

3.17. On the issue of application fees NGC argued that it would not be cost reflective to charge a single fee irrespective of location and pointed out that the respondent had failed to acknowledge that, under a GB charging arrangement, respondents would be gaining access to the whole GB system. NGC also noted that to provide greater choice a fixed price application would continue to be available.

The Authority's views

Assessment against relevant objectives

Facilitation of competition

3.18. The Authority considers that NGC's connection charging proposals are consistent with the objective of facilitating competition in generation and in the trading of wholesale electricity. Specifically, the 'shallow' definition of connection assets ensures that the arrangements do not unduly or arbitrarily

benefit or disadvantage parties on the basis of when and where they connect to the network.

3.19. The Authority also considered that adopting a consistent and transparent methodology across GB is likely to facilitate competition more effectively when compared with the different arrangements that prevail across the three separate systems of the transmission licensees today. Consistency in, for example, the valuation of connection assets and the attribution of operating costs to connection assets are likely to promote consistency of charges for parties participating in the GB wholesale market.

Cost reflectivity

3.20. The Authority thought that the connection charging proposals result, as far as practicable, in charges that are reflective of costs. The methodology results in charges that relate directly to the value of connection assets provided. The inclusion in the definition of connection assets of only those assets which are not shared or shareable also contributes, in the Authority's view, to the transparency of the methodology in respect of the costs that are being reflected.

3.21. The Authority also recognises that application fees for connection which are based on the costs incurred in processing an application including the costs of system studies (which could in the context of a GB market involve more than one transmission licensee) are cost reflective and practicable, and are, therefore, reasonable for inclusion in the methodology. The Authority does not therefore agree with one respondent who stated that application fees should be uniform across GB irrespective of the costs of processing each application.

3.22. The Authority notes the comments relating to the application of the '2km rule', and the potential for an alternative rule to be more cost-reflective. The Authority, however, considers that NGC's proposed treatment is a reasonable and pragmatic approach consistent with the underlying intent of a shallow connection charging policy, given the more radial nature of some generation connections in Scotland.

Reflecting developments in the transmission businesses

3.23. The Authority is of the view that, so far as is consistent with the relevant objectives referred to above, and to the extent relevant, the connection charging methodology proposed by NGC does, as far as reasonably practicable, properly take account of developments in transmission licensees' transmission businesses.

Facilitation of competition in connection works

3.24. The Authority also considers that the proposals are consistent with the objective to facilitate competition in connection works. The methodology forms part of a set of arrangements which permit new connecting parties to undertake certain aspects of initial construction and to assume responsibility, in return for a commensurately lower connection charge, for ongoing maintenance of connection assets.

3.25. The Authority notes that NGC proposes a change to the methodology in comparison with current arrangements in England and Wales in respect of the calculation of site specific maintenance charges. The Authority does not consider this change to detract from the facilitation of competition in connection works, and accepts that it is an appropriate approach given the cost and practical difficulties in applying the approach that currently applies in England and Wales in full from the BETTA go live date.

3.26. The Authority notes NGC's intention to review the arrangements post the BETTA go-live date. The Authority considers that the planned review is appropriate, and has decided to make the undertaking of such a review, and the bringing forward of change proposals, where appropriate, in the light of that review for implementation by no later than 1 April 2007, a condition of approval of the proposed GB connection charging methodology.

Assessment against legal duties and obligations

3.27. The Authority considers that NGC's proposed GB connection charging methodology will contribute to furthering the interests of consumers by promoting effective competition. It is the Authority's view that alternative connection charging methodologies, for example adopting a 'deeper' definition of connection assets, would be less effective in promoting competition. 'Deeper' connection charging methodologies can result in transmission users

being unduly or arbitrarily advantaged or disadvantaged on the basis of when and where they connect to the network.

3.28. For example, a deep connection charging methodology is more likely than a shallow charging policy to result in charges which could discriminate between similar customers depending on the time of their connection. The connection of a new customer in a given location may trigger the need for reinforcement of assets which would be shared by all local users. Under a deep connection policy, these charges would be charged to the new customer despite the fact that they will be shared by other users. Furthermore, given the lumpy nature of connection investments, subsequent new users may be able to connect at a relatively low cost. Such arrangements will act to distort competition by changing the cost base of otherwise similar users.

3.29. In addition, the level of connection charges under a deep connection policy is unlikely to be either transparent or stable over time. Charges will depend significantly on the engineering design judgement of the network operator and on network conditions at the time of connection. They will therefore be difficult for users to assess in advance.

3.30. The Authority also considers the proposals to be proportionate and non-discriminatory. The methodology sets out in a transparent manner the rules that are to apply to all parties connecting to the GB transmission system. The rules for calculating these charges (and their effects) appear to be fair and reasonable given the objectives of the methodology specified in NGC's licence.

The Authority's decision

3.31. In the Authority's view the points raised by respondents for consideration did not, in the judgement of the Authority, justify rejecting NGC's connection charging proposals. NGC's proposals are consistent with its licence objectives. Further, approving that methodology would, in the view of the Authority, be consistent with the Authority's legal duties and obligations, including its principal objective to protect the interests of consumers and the requirements of European law.

3.32. In the light of this, the Authority has approved NGC's connection charging methodology as set out in its September 2004 Conclusions Report, subject to the condition to review and if appropriate propose changes to its method of calculating site specific maintenance charges.

4. Balancing services use of system charging methodology

4.1. Standard condition C4 of NGC's electricity transmission licence requires it to establish a GB use of system charging methodology approved by the Authority. This chapter sets out the Authority's assessment of those elements of NGC's proposals for a use of system methodology which relate to Balancing Services Use of System ("BSUoS") charges.

4.2. This chapter is in four sections:

- the first provides a summary of the BSUoS proposals submitted by NGC;
- the second section reviews responses to the October IA and consultation document relating to NGC's proposed BSUoS methodology;
- the third section outlines the Authority's view of the proposals taken in the light of the responses to the October IA and consultation document and the material provided by NGC in its submission to the Authority, and in the context of the decision framework discussed in chapter 2; and
- the final section provides a summary of the Authority's views in respect of the BSUoS element of NGC's proposed use of system methodology.

NGC's proposals

4.3. NGC proposes to extend the methodology currently applied in England and Wales in respect of the procurement and use of balancing services to GB. Under these current arrangements BSUoS charges are levied on generators, suppliers and interconnector users on a non-locational basis. Charges are based on metered energy taken from or supplied to the transmission system in each half-hour settlement period.

4.4. The methodology sets out how the costs incurred by NGC in providing balancing services are recovered. The methodology also reflects the incentive payments available to NGC through its system operator incentives scheme if NGC is able to provide balancing services at costs lower than forecast. A key

driver for the methodology is, therefore, the form of the system operator incentives scheme.

Respondents' views

4.5. Three respondents commented on NGC's proposed BSUoS charging methodology.

4.6. One respondent argued that the charges made under BSUoS are a reasonably accurate reflection of the costs incurred in the provision of balancing services and thus the proposed structure is appropriate.

4.7. Another respondent set out the view that the move to GB BSUoS would increase levels of balancing payments and that these material increases in costs would have to be passed on to customers.

4.8. The third respondent argued that NGC should introduce cost-reflective locational BSUoS pricing. The respondent suggested that processes used to identify system balancing actions from energy balancing actions could be developed to calculate a locational component of BSUoS and should therefore be considered on a GB basis.

NGC's views

4.9. On the issue of introducing locational BSUoS pricing NGC noted that the IT systems suggested by one respondent as a suitable basis for introducing locational BSUoS charges were designed to consider the overall balancing picture. As a result NGC argued that the systems would not be sufficiently accurate for attributing specific costs to specific actions.

4.10. In order to create locational signals to reflect transmission constraints NGC argued that a methodology would have to be developed that specifically allocated the costs of a balancing action to a constraint. NGC argued that this could not be developed with sufficient accuracy or robustness to use in BSUoS calculation from BETTA go live.

4.11. NGC expressed reservations that locational BSUoS charges based on short run marginal costs would be compatible with the long run marginal cost signals produced by the TNUoS tariffs.

4.12. NGC also highlighted that when the issue of locational charging for BSUoS was considered during the recent review of charging in England and Wales, the overwhelming view of participants was to retain non-locational BSUoS charges.

The Authority's views

Assessment against relevant objectives

Facilitating competition

4.13. It is the Authority's view that NGC's proposed BSUoS methodology does facilitate competition. It ensures that balancing costs are charged to network users on a consistent and transparent basis. It also extends, for the first time and as part of a wider set of arrangements, the scope for competition in balancing services across GB.

Cost reflectivity

4.14. The Authority also considers NGC's proposals to be cost-reflective. There is a clear relationship between the costs that NGC incurs in undertaking its balancing activity, and the charges paid by users. Further, in the context of NGC's system operator incentives scheme, the total level of costs is periodically reviewed.

4.15. The Authority notes the views of one respondent that balancing costs might more accurately be charged out on a locational basis. Whilst the Authority recognises that a small proportion (around 20%) of balancing costs could be seen as having a locational cost driver (specifically the costs of black start, reactive power and transmission constraints), the Authority recognises that there are practical difficulties in terms of developing detailed rules and IT systems to implement locational BSUoS charging. It is not clear to the Authority that this would be practicable in the time available before BETTA go live or that the costs associated with addressing these issues would outweigh the potential benefits at this time given the current level of BSUoS costs that have locational cost drivers.

However, the Authority is of the view that this issue should be kept under review by NGC post BETTA go live.

Reflecting developments in the transmission businesses

4.16. The Authority is satisfied that, to the extent relevant and so far as is consistent with the relevant objectives referred to above, the element of the use of system methodology proposed by NGC pertaining to BSUoS charges does, as far as reasonably practicable, properly take account of developments in transmission licensees' transmission businesses.

Assessment against legal duties and obligations

4.17. The Authority is of the view that NGC's proposals will protect the interests of consumers, by ensuring that balancing costs are charged out in a non-discriminatory and cost-reflective manner, and in a manner which facilitates competition.

4.18. The Authority considers that, as part of a set of arrangements in England and Wales, the approved BSUoS charging methodology has played a part in delivering significant benefits to consumers. Extending the scope for these benefits to GB is in the interests of consumers. Since the introduction of the England and Wales trading arrangements in 2001, balancing costs have fallen significantly, to the benefit of consumers in England and Wales. NGC's proposals will contribute to extending the scope for similar benefits to Scottish customers.

4.19. The Authority does not accept the view put forward by one respondent that the introduction of GB BSUoS would increase balancing costs and would consequently increase the costs to consumers. Given the extension of the arrangements to GB the Authority recognises that in total the balancing costs associated with a larger market are likely to be greater than those in England and Wales. However the charging base over which those costs will be recovered will also increase along with the number of competing generators. As a result, the extension of the England and Wales charging principles across GB will, together with NGC's system operator incentive arrangements, benefit GB consumers by aligning the interests of the GB system operator with the interests of GB consumers.

4.20. The Authority also considers the proposals to be proportionate and non-discriminatory. The methodology sets out in a transparent manner the rules that are to apply to all parties using to the GB transmission system. For these reasons the Authority considers the proposals to be compliant with the requirements of European law in these regards.

The Authority's decision

4.21. In the Authority's view, the points raised by respondents for consideration did not, in the judgement of the Authority, justify rejecting NGC's BSUoS charging proposals. NGC's proposals are consistent with its licence objectives and wider statutory duties. Further, approving that methodology would be consistent with the Authority's legal duties and obligations, including its principal objective to protect the interests of consumers and the requirements of European law.

4.22. In the light of these considerations, if it were possible for the Authority to approve a BSUoS charging methodology independently from consideration of a TNUoS methodology (as discussed in the next chapter), then the Authority would have approved NGC's proposed BSUoS methodology as set out in its September 2004 Conclusions Report. However, NGC's use of system charging methodology encompasses both TNUoS and BSUoS, and a separate approval of NGC's BSUoS proposals in not an option which is available to the Authority.

5. Transmission network use of system (TNUoS) charging methodology

5.1. Standard condition C4 of NGC's electricity transmission licence requires it to establish a use of system charging methodology approved by the Authority. This chapter sets out the Authority's assessment of the proposals in respect of the Transmission Network Use of System ("TNUoS") charges element of the use of system methodology submitted by NGC for approval.

5.2. This chapter is set out as follows:

- a summary of the key points made by respondents to the October IA and consultation document on whether NGC's proposals meet the relevant objectives specified in the relevant condition of its licence, and are consistent with the Authority's legal duties and obligations and a summary of NGC's views as set out in NGC's submission to the Authority which are in the opinion of the Authority relevant to the comments made by respondents to the October IA and consultation document;

- the Authority's assessment of NGC's proposals in the light of the views of respondents to the October IA and consultation document and the material provided by NGC in its submission to the Authority.

5.3. A more detailed summary of respondents' views and NGC's views is provided in Appendix 1. The views set out in Appendix 1, and referred to in this chapter, make reference in a number of instances to detailed elements of NGC's proposed charging model. A technical summary of NGC's proposed TNUoS charging model, including how the model assumptions differ between Option A and Option B, is provided in Appendix 2.

Respondents' and NGC's views

5.4. Ofgem's consultation invited views on whether NGC's proposed methodologies met licence requirements and the extent to which they met the Authority's legal

duties and obligations. This section summarises the views of respondents to the October IA and consultation document, organised under the following headings:

- Facilitation of competition and commercial impacts;
- Cost reflectivity
- Relevance to the Authority's legal duties and obligations

5.5. These are set out below:

Facilitation of competition and commercial impacts

Locational charges

- **Locational signals and competition**:

  Eight respondents supported NGC's preferred methodology (Option B) because it would create more efficient signals for the location of new generation and thereby facilitate competition. These respondents said that weakened locational signals would distort competition.

  NGC noted in its submission to the Authority that its preferred methodology (Option B) was, in its view, more likely to deliver efficient locational signals to users and that such signals would promote effective competition.

- **Impact on suppliers**: Seven respondents argued that the effect of NGC's locational charging model under Option A and Option B, but more severely under Option B, would be to increase costs for suppliers in England and Wales, and that this would impact adversely on consumers and on small, independent suppliers (i.e. those without affiliated generation businesses).

- NGC noted in its submission to the Authority that it had not been presented with evidence to suggest that cost-reflective tariffs would create a barrier to competition in supply. Further NGC noted users have had notice that BETTA would result in a change in GB tariffs.

- **Need to dampen locational signals**: Two respondents suggested alternative charging models which could promote "less severe" locational charges. One respondent argued this could be achieved by setting a range constraint on tariffs based on the existing range in England and Wales.

- NGC set out the view in its submission to the Authority that artificially constraining tariffs, and thereby limiting cost-reflectivity, would distort competition.

Tariff Stability

- **Impact on competition**:

  Of the thirteen respondents who commented on the application of expansion factors, eight respondents favoured Option A because it was considered to result in more stable tariffs, and that this was seen as important for competition. One respondent highlighted the potential benefits of longer-term transmission products as a means of managing the risk of unstable annual tariffs.

  NGC expressed a view in its submission to the Authority that a balance needed to be struck between cost-reflectivity and tariff stability, and that in its view Option B struck the correct balance.

- **NGC analysis**:

  Eight respondents pointed to the additional analysis carried out by NGC (which was published on 22 October 2004) as demonstrating that both its scenarios are equally stable and that tariff stability is comparable to stability under existing arrangements in England and Wales.

  NGC noted in its submission to the Authority that, in its view, and having carried out detailed analysis, there was no compelling evidence that the final tariffs produced under Option A compared to Option B would be more or less stable over time.

- **Definition of charging zones**:

  Six respondents supported an approach which would increase the size of charging zones as a means of promoting more stable tariffs. However, two respondents highlighted how zones are defined, and periodically reviewed, as being factors contributing to tariff instability.

  On the issue of zoning NGC noted in its submission to the Authority that a balance has to be struck between a large number of zones which would be more cost reflective and a small number of zones which would enhance stability. In NGC's view the zonal boundaries it has proposed under Option A and Option B achieved this balance.

Analysis presented in Ofgem's October IA and consultation document

- **Analysis in Ofgem's IA**:

  Five respondents commented on the analysis presented in the October IA and consultation document. Four of those respondents questioned the view presented by Ofgem that the impact of the charging arrangements on Scottish generators would be "broadly neutral".

  NGC noted in its submission to the Authority that the 'broadly neutral' characterisation reflected the position set out in the NERA report.

- **Scotland-England interconnector charges**:

  A number of respondents raised concerns that existing charges relating to the Scotland to England interconnector were not relevant, and gave a misleading impression, of the impact of GB charging on Scottish generation.

  NGC noted in its submission to the Authority that the retention of existing arrangements in the context of network investment in Scotland could result in higher charges to Scottish generators than if the additional costs were recovered under a GB charging methodology.

Effect on renewable generation

- **Impact of charges on investment in generating plant and Government policy**:

  Thirteen respondents commented on the negative impact under both Option A and Option B of NGC's proposals (but particularly under NGC's preferred option – Option B) that the application of locational charges would have on the development of renewable generation projects, particularly in Scotland.

  Three respondents argued that the methodologies should be developed to ensure that meeting Government renewable targets should be a central consideration in developing charging arrangements. In contrast six respondents argued that wider environmental considerations are a matter for the Government and should be addressed by way of a subsidy and not through the GB charging methodologies. The respondents argued that to consider such factors would dilute the cost reflectivity of the charging arrangements.

  NGC in its submission to the Authority expressed a view that any mechanism to assist renewable generators in peripheral areas should operate outside the charging methodologies. To do otherwise, NGC believed, would impact on cost-reflectivity and consequently distort competition.

Northern Ireland

- **Competitive position**:

  One respondent argued that the application of locational generation charges to the Moyle Interconnector would prevent generators from Northern Ireland trading into GB and, in so doing, limit competition.

  NGC noted in its submission to the Authority that all transmission connected parties should be liable for TNUoS charges on a non-discriminatory basis. NGC also noted potential reforms to its treatment

of interconnectors in the light of policy developments at the European level associated with Cross Border Tariff ("CBT") harmonisation.

Cost reflectivity

- **General**:

  Eight respondents expressed support for Option B as better fulfilling NGC's licence objectives than Option A in terms of reflecting system costs. Respondents noted that this was important in providing efficient signals to market participants.

  NGC in its submission to the Authority noted that Option B was, in its opinion, more cost-reflective than Option A, and that on balance Option B better met the objectives specified in NGC's licence.

- **Assumed transmission voltage of incremental transmission capacity**:

  Six respondents supported NGC's assumption under Option B that a proportion of additional capacity would be provided at a higher voltage level (400Kv) than the prevailing voltage (275kV) that would result in a lower per unit cost, although two respondents considered that NGC's proposals placed too much emphasis on the prevailing voltage. Eight respondents did not support NGC's proposal, on the basis that it would overstate cost differences.

  NGC in its submission to the Authority supported the inclusion of voltage specific factors as enhancing cost-reflectivity. Further NGC considered that an adjustment to 132kV and 275kV circuits was appropriate to reflect the likelihood of these circuits being upgraded to 400kV. NGC noted that reducing the factors to 80% of their value reflected information provided by Scottish transmission licensees on the total proportion of lower voltages circuits which they anticipated being upgraded in the short to medium term.

- **Generation data used in the DCLF[3]**:

  Four respondents argued that uniform scaling of all generation capacity to determine the location of generation to meet demand for the DCLF model overstated the likely contribution at system peak of intermittent generation. The respondents expressed a view that appropriate scaling factors should be applied to renewable generation. Another respondent argued that the generation data could be made more realistic by using different scaling assumptions for different types of generator.

  NGC in its submission to the Authority did not support scaling different classes of generators differently. It did not consider that an appropriate approach had been identified, and noted the potential for inappropriate approaches to be discriminatory.

- **Unit cost of additional transmission capacity**:

  Two respondents expressed support for NGC's assumed unit cost of providing additional transmission capacity. One respondent argued that NGC should recognise ways other than building new 400kV lines, and should also reflect the delays in the building of new lines, in calculating its unit cost. It argued that NGC's assumption over-estimated costs of providing additional transmission capacity. Another respondent argued that NGC's assumption under-estimated costs, because it excluded certain types of assets.

  NGC noted in its submission to the Authority that whilst some methods of providing additional transmission capacity could be cheaper than the cost of new build, other methods would in NGC's view be more expensive. NGC considered that their approach was appropriate given the benefits of transparency and simplicity.

[3] NGC's DC Load Flow (DCLF) model is the network model used to estimate additional flows consequent to increments of generation and demand at each point on the network, and is used to derive locational tariffs differentials. More information is provided in Appendix 2.

- **Treatment of spare transmission capacity**:

  Two respondents argued that NGC's decision not to adjust for spare transmission capacity on the current network did result in more cost-reflective charges. In contrast, two respondents thought that by not adjusting for spare capacity, NGC was overstating incremental costs.

  NGC noted in its submission to the Authority that the proposed DCLF already accounted for spare capacity, and that an additional adjustment would therefore result in the methodology being less cost-reflective.

- **Treatment of transmission security**:

  NGC's proposals calculate charges to reflect, on a locational basis, the costs of providing access to a secure network. Thirteen out of seventeen respondents viewed NGC's proposed treatment of security in deriving locational tariffs as inappropriate. Eleven respondents considered the proposals to over-state costs. Two respondents argued that security should be viewed as a 'common good' and charged out on a non-locational basis.

  NGC expressed a view in its submission to the Authority that its treatment of security was robust and reflected transmission planning standards.

- **Northern Ireland**:

  Two respondents argued that NGC's proposed treatment of the Moyle Interconnector was not cost-reflective, in that it did not reflect the role of the interconnector in reducing the need for network investment in Scotland.

  NGC set out in its submission to the Authority that it was appropriate to charge all transmission connected parties on a non-discriminatory basis.

Relevance to the Authority's legal duties and obligations

5.6. The following key themes were identified by respondents to the October IA and consultation document and the material provided in NGC's submission to the

Authority, which in the Authority's view had particular relevance to assessing whether either Option A or Option B are consistent with the Authority's legal duties and obligations:

- compliance with European Law;
- protecting the interests of GB electricity consumers; and
- the process followed by NGC and the Authority.

5.7. Views of respondents to the October IA and consultation document, and views expressed by NGC in its submission to the Authority which in the view of the Authority are relevant to the issues above, are set out below.

- **Compliance with European law**

  Two respondents argued that NGC had failed to consider properly proportionality, and had placed too much emphasis on the approved methodology in England and Wales as demonstrating that its GB proposals were proportionate. One respondent considered that key assumptions had not been justified by NGC, and that NGC had not given due consideration to alternative options. Another respondent argued that the charging arrangements put forward by NGC would result in the Moyle Interconnector being materially disadvantaged and therefore disproportionately affected.

  Eighteen respondents agreed that adjusting the split of revenue between generation and demand, as proposed under Option B, as a solution to the issue of negative demand charges[4], was appropriate in terms of consistency with possible European policy developments.

  NGC noted in its submission to the Authority that a methodology which is deemed to be cost-reflective and which facilitates competition would in NGC's view also meet the requirements of proportionality. NGC noted the role of the Authority in assessing whether the methodology

[4] Under NGC's current methodology in England and Wales charges to generators in some areas are negative, i.e. a payment is made from NGC to the generator if they are generators at times of peak demand. Under NGC's Option B, the possibility of negative demand charges was also raised. NGC contended that

was proportionate. NGC noted that the proposals under Option B were not driven by European developments, and that further debate in the future might be required on the specific issue of how European policy developments might be reflected in GB transmission charging arrangements.

- **Protecting the interests of GB electricity consumers**

Eight respondents supported NGC's preferred option (Option B) as being consistent with the promotion of competition, and which in turn protected the interests of consumers.

On the other hand, seven respondents argued that the effect of NGC's charges under Option A and Option B (but particularly under Option B) would be to increase costs for suppliers and thus ultimately for consumers. Three respondents contended that the issue of negative demand charges should be addressed in a different way to that proposed by NGC under Option B. Another respondent considered the 'problem' of negative demand charges, in respect of incentives to waste energy, to be exaggerated.

One respondent argued that, given that consumers pay for the Renewables Obligation, they would ultimately be paying even more in the event of higher transmission charges in areas of renewable development.

NGC in its submission to the Authority expressed a view that its preferred methodology – Option B, by delivering cost reflective locational signals to users, would promote effective competition and thus be in the best interests of consumers. NGC considered its proposals under Option B to be the most appropriate method of addressing negative demand charges, which in NGC's view would otherwise create perverse incentives to waste energy.

- **Process**

  Six respondents argued that the process followed by Ofgem in its October IA and consultation document was flawed, and inconsistent with its own guidance on IAs. Three respondents argued it should have been more rigorous and comprehensive, including for example an indication of whether the Authority was minded to accept NGC's proposals.

  Two respondents considered that the decision to request views on alternative scenarios at such a late stage in the process was a retrograde step which created additional uncertainty. One party stressed that it was vital for the Authority to consider alternatives in considering whether the proposals were proportionate.

  Two respondents expressed concerns about the fragmented nature of the consultation more generally under the BETTA project. Two respondents noted that Ofgem should have provided NGC with guidance at an earlier stage in the process.

  One respondent believed the process undertaken to introduce GB charging arrangements has been commendable as it had provided ample opportunity for interested parties to raise concerns and voice opinions.

  NGC in its submission to the Authority set out a view that the process followed in developing the GB transmission charging methodologies had been robust and had provided sufficient opportunity for parties affected by the proposals to provide input. It also noted that the differences between the GB network and the England and Wales network had been considered in detail and reflected in the proposals.

The Authority's assessment of NGC's proposals

5.8. This section sets out the Authority's assessment of NGC's proposals in the light of the material provided to the Authority by NGC in its submission to the Authority, and in the light of responses to the October IA and consultation document. The section is in two parts:

- The first part contains an assessment of whether NGC's proposals are consistent with the relevant objectives specified in NGC's licence;
- The second part contains an assessment of whether NGC's proposals are consistent with the Authority's legal duties and obligations.

5.9. These are discussed in turn below.

Assessment of NGC's proposals against relevant objectives

Facilitating competition

5.10. The Authority considers that, on the balance of arguments and evidence, NGC's preferred proposed TNUoS methodology (Option B) and its alternative proposed TNUoS methodology (Option A) both facilitate effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitate competition in the sale, distribution and purchase of electricity.

5.11. The adoption of a single methodology to apply across GB, based on the consistent application of principles and presented in a transparent manner, would appear to be important in facilitating competition. Option A and Option B, in the Authority's view, possess these generic characteristics.

5.12. The Authority also considers Option A and Option B to be significant improvements in respect of facilitating competition as compared to the prevailing arrangements that operate across the networks in England and Wales and Scotland and in relation to the Scotland - England interconnector. The current arrangements, and in particular the charges associated with the use of the Scotland – England interconnector, may distort competition by, in effect, deriving charges on a differential basis depending on whether energy is being traded across the border or not.

5.13. The Authority was not persuaded by arguments that the degree to which tariffs under Option B might change over time with network developments would distort competition. The Authority considers that such changes are in principle consistent with (and indeed an important element of) facilitating competition. An alternative methodology which artificially constrained the extent to which tariffs might evolve over time in contrast could be considered to distort

competition by introducing cross-subsidies between different transmission network users as they would, over time, lead to charges that do not reflect the costs of providing transmission capacity at different locations. This could, over time, distort decisions on the closure of older generation plant and the location of new plant.

5.14. The Authority was also not persuaded by the arguments that Option A and Option B would distort competition by introducing large changes to suppliers' costs at short notice. An alternative regulatory approach which actively sought to protect parties from the effect of changes might be expected, in contrast, to have a more detrimental effect on competition. Suppliers' costs can vary for a number of different reasons and it is a legitimate function of suppliers to manage these risks in their contracts with customers. It is not clear to the Authority that protecting suppliers from one element of these cost risks would promote competition.

5.15. Finally, the Authority noted the interaction between facilitating competition and cost-reflective charges. In the Authority's view cost-reflective charges derived from a transparent and robust charging model are important in facilitating competition. The Authority is also aware that charges which are not cost-reflective can distort competition significantly. A methodology which did not derive charges in such a manner might be considered to distort competition by, in effect, requiring some parties to pay charges greater than reasonable costs, and providing other parties with the benefit of charges below reasonable costs. This is discussed in more detail in the next section.

Cost-reflectivity

5.16. The Authority noted the detailed and technical points raised in respect of Option A and Option B. It reached, on the balance of evidence, the following conclusions:

- **DCLF**: The network model adopted by NGC in Option A and Option B, in representing a reasonable characterisation of the network to which charges relate, is an appropriate basis on which to develop cost-reflective charges.

- **Expansion factors (1)**: The costs of providing additional transmission capacity are related to the voltage at which additional capacity is provided. Further, it is generally more robust to assume that a significant proportion of incremental capacity will be provided at the prevailing voltage, as the investment plans of the transmission licensees in the context of the Transmission Investment for Renewables ("TIRG") project[5] would suggest. In the Authority's view, other things being equal, Option B is therefore more cost reflective than Option A.

- **Expansion factors (2)**: The simplifying assumption adopted by NGC that, across GB, 20% of additional capacity will be provided at a voltage higher than the prevailing voltage could, potentially, be developed to be more reflective of future costs of providing additional capacity. The Authority was not persuaded on the balance of evidence that NGC's simplified approach was the most robust, cost-reflective approach. The Authority has therefore invited NGC to review this issue, and if appropriate to refine its approach or to explain in more detail the basis for its original approach.

- **Spare capacity**: That there is some merit in the arguments presented by NGC as to why Option A and Option B already reflect the presence of spare capacity on particular circuits. However, the Authority notes that this has not been presented clearly or consistently by NGC to date. The Authority has therefore invited NGC to review this issue, and if appropriate to refine its approach or to explain in more detail the basis for its original approach.

- **Security**: The Authority is not persuaded by the argument that system security should be charged for on a non-locational basis. Incremental capacity is provided in the context of a secure network. Further, in most circumstances parties are not permitted to use the network before the additional capacity can be accommodated securely. This is the basis of transmission planning standards. Therefore, in the Authority's view, a model which ignored the need to accommodate parties on a secure

[5] Transmission Investment for Renewable Generation – Initial proposals, August 2004, 197/04, Ofgem

network would appear less cost reflective than a model that sought to reflect the costs of providing security on a locational basis.

- **Unit cost of incremental capacity**: The Authority recognised that a unit cost which allowed for a wider range of methods of providing additional transmission capacity could be a more accurate characterisation of actual costs. However, the Authority was not persuaded by the arguments that NGC's simplifying assumption, to adopt the average cost of building new 400kV lines, systematically overstates costs. The Authority considered that this view was supported by information submitted by the three transmission licensees on the cost of providing incremental capacity in the context of the TIRG project.

  The Authority has, however, decided to invite NGC to consider, in developing its revised proposals, whether and how its approach to this issue could be refined in the light of respondents' views, and/or to explain in detail the basis for its chosen approach. The Authority has also asked NGC to present, in the context of consulting on revised proposals, further analysis on how the tariffs derived through its proposed methodology relate to actual forecast investment costs in the context of the TIRG project or planned transmission network investment more generally.

Reflecting developments in the transmission businesses

5.17. The Authority is satisfied that, to the extent relevant and so far as is consistent with the relevant objectives referred to above, the element of the use of system methodology proposed by NGC pertaining to TNUoS charges does, as far as reasonably practicable, properly take account of developments in transmission licensees' transmission businesses.

Consistency with legal duties and obligations

5.18. The discussion above sets out the Authority's view that it considers NGC's Option A and Option B proposals to meet the objectives specified in NGC's licence. However, the Authority considers that, in the case of NGC's alternative

proposal – Option A - this is marginal in respect of the requirement that the methodology is as cost-reflective as it is reasonably practicable for it to be.

5.19. This section considers whether NGC's proposals are consistent with the Authority's legal duties and obligations. This assessment includes details of the Authority's consideration of which of the options available to it would be best calculated to protect the interests of consumers, and of the Authority's consideration of whether NGC's proposals are proportionate and non-discriminatory and otherwise consistent with European law requirements.

5.20. The discussion is in three sections:

- Compliance with European law;
- Protecting the interests of GB electricity consumers;
- Process.

5.21. These are discussed in turn below.

Compliance with European law

5.22. The Authority considered carefully the issue of whether NGC's proposals complied with European law. The Authority reached the following conclusions:

- **Proportion of revenue recovered from suppliers and large users**:

  The Authority concluded that NGC's proposal to increase the share of total revenue recovered from suppliers and large users under Option B to 90% (from the 73% share which applies today) was a disproportionate measure relative to the 'problem' it was seeking to solve, i.e. negative demand charges in the north of Scotland. In the Authority's view the costs of this aspect of Option B (in this case borne by end consumers, in the short term) are disproportionate to the benefits that might accrue from avoiding negative demand charges.

  The Authority was not persuaded by the arguments that there is a problem to address with negative, but cost-reflective, demand side charging. In the Authority's view, the issues highlighted by NGC appeared to relate to the basis for charging, (i.e. the calculation of

charges on the basis of energy consumed at the three periods of system peak (the 'Triad')) rather than negative charges.

The Authority considered that the aspect of Option B addressing the issue of negative demand charges would place an additional burden on consumers. Whilst in the medium to long term the net effect on consumers might be expected to be zero, as wholesale prices adjust to reflect lower costs to generators, in the short term this aspect of Option B might be expected to result in a net increase in costs to customers, e.g. if customers have fixed price contracts with a 'pass through' element for changes to transmission charges.

Further, even if it was accepted that the issue of negative demand charges needed to be addressed, the Authority was not persuaded that proper consideration had been given to whether other changes such as to the basis of charging could be practically implemented to accommodate negative demand charges or if they could not, whether alternative approaches to the issue had been considered. In the Authority's view it is likely that alternative approaches could be effective in addressing the perceived issue, and that such alternatives are likely to be less burdensome on consumers. Hence, the Authority concluded that Option B was disproportionate.

- **Burden on individual parties as a result of location**:

The Authority was not persuaded by the arguments that suggested that the locational tariffs derived under Option B or Option A would place a disproportionate effect on individual parties located at different points on the network. In principle the Authority considers that charges which are reflective of costs, are fair and reasonable, have an appropriate degree of transparency and stability, and which are applied in a non-discriminatory manner, would be expected to be proportionate.

The Authority is also of the view that suggested modifications to NGC's proposals to constrain tariffs, either directly or indirectly would unduly penalise some parties to the benefit of others, without objective justification.

Protecting the interests of GB electricity customers

5.23. The Authority, in determining how to exercise this function (of approving or otherwise the charging methodologies) in the manner which it considers is best calculated to protect the interests of consumers, must have regard not only to the methodologies which have been proposed by NGC but also to any alternative methodologies that have been proposed by third parties. Although it is not open to the Authority to develop or implement a methodology which NGC had not proposed, the exercise of comparison is important in determining which of the options available to the Authority is the best calculated to protect the interests of consumers.

5.24. The discussion above indicates that it is not available to the Authority to approve Option B because, in its view, Option B is not proportionate. Further, even if the Authority had considered Option B to be proportionate, Option B would, in the Authority's view, have, in all the circumstances, offended the requirement that the Authority exercise its functions in the manner best calculated to protect the interests of consumers.

5.25. The Authority has also reached the conclusion that it would not be in the best interests of electricity consumers for the Authority to approve Option A. In the Authority's view Option A has significant weaknesses in terms of cost-reflectivity and these weaknesses do not appear to be offset by benefits in terms of the promotion of competition. Cost reflective charges based on robust and objectively justified criteria are, in the Authority's view, important in promoting efficiency and thereby protecting consumers in the long term.

Process

5.26. The Authority is content that both of NGC's proposals have been assessed against a range of possible alternatives, and that interested parties have had sufficient opportunity and material to comment on the proposals in an informed manner, and to contribute to the identification of credible alternatives against which the proposals have been assessed.

5.27. The Authority does not consider that considering alternatives in the context of NGC's proposed methodology, which in turn shares a number of common

elements with its methodology in England and Wales, has unduly constrained debate or resulted in alternative methodologies being overlooked or discounted.

5.28. In respect of the October IA and consultation document, it is the Authority's view that all relevant legal requirements have been met, and that the approach taken in this instance was not inconsistent with Ofgem's general guidance on impact assessments. Whilst in some instances impact assessments do include a 'minded to' position, this is not a formal requirement and, in the Authority's view, would have been inappropriate in these particular circumstances. Finally, in relation to seeking views on wider issues and charging models through the October IA and consultation document, the Authority considered that it would have been inappropriate not to invite views on more general charging issues in informing its decision."

6. The Authority's decisions and next steps

6.1. This chapter summarises the Authority's decisions in respect of NGC's proposed connection and use of system methodologies, as discussed in the previous three chapters, and sets out next steps.

Summary of the Authority's decisions

Connection charging methodology

6.2. The Authority has decided to approve NGC's proposed connection charging methodology. The approval is conditional on NGC reviewing and potentially revising, within the next two years, its calculation of charges relating to the maintenance of connection assets, with a view to furthering the relevant objectives to charge cost reflectively and to facilitate competition in connection works.

Balancing Services Use of System charging methodology

6.3. The Authority concluded that, had it been possible for the Authority to separately approve NGC's proposed BSUoS charging methodology, that methodology would have been suitable for approval.

6.4. However, the BSUoS methodology forms one element of the use of system charging methodology required under NGC's licence. NGC's BSUoS proposals cannot, therefore, be separately approved at this time, in light of the Authority's decision concerning NGC's TNUoS charging methodology proposals.

Transmission Network Use of System charging methodology

6.5. The Authority did not consider that approving either of NGC's proposed TNUoS methodologies would be consistent with its legal duties and obligations. Whilst Option A and Option B have significant merits, in the Authority's view both had areas of weakness which if not addressed would result in a methodology that was not best calculated to protect the interests of consumers and which (in the case of Option B) would not be consistent with European law requirements. Specifically:

- the Authority concluded that NGC's proposal to increase the share of total revenue recovered from suppliers and large users under Option B to 90% (from 73%) was a disproportionate measure relative to the 'problem' it was seeking to solve, i.e. negative demand charges in the north of Scotland. The Authority was not persuaded that negative demand charges are a problem and, even if they were, that NGC's proposal (which would, in the Authority's view, be likely to have an adverse impact on consumers in the short term) represented a proportionate response to that issue.

- the Authority also identified significant weaknesses in the cost-reflectivity of Option A which did not appear, on the basis of the available evidence, to be offset by compensating benefits in terms of the facilitation of competition. In the Authority's view robust cost-reflective charges play an important role in promoting efficiency and facilitating competition, thereby protecting the interests of consumers.

6.6. The Authority therefore concluded that the interests of consumers would be better served if NGC reconsidered its proposals. The Authority has also identified a limited number of areas where NGC might, in developing revised proposals, review and potentially refine the assumptions adopted in its charging model, and/or explain in more detail the basis for its proposed approach.

Next steps

6.7. NGC has been informed of the Authority's decision. NGC has indicated that it intends to issue a revised proposed use of system methodology for industry consultation by 17 December 2004. NGC has also indicated that it intends to submit a revised set of proposals to the Authority by the end of January 2005.

6.8. If NGC does submit revised proposals in accordance with the timetable indicated above, the Authority will seek to publish an impact assessment for consultation in early February 2005. Again, assuming that the above timetable is complied with, the Authority anticipates that it can be in a position to consider NGC's revised proposals at its meeting on 24 February. If this is the case, the Authority should be in a position to announce its decision by the end of February 2005.

6.9. If the Authority approves the revised proposals by the end of February, this will allow the proposals to be implemented and charges levied from 1 April 2005. This is consistent with Ofgem/DTI's continuing view that the BETTA project is being progressed on schedule, and is on track to go live on 1 April 2005.

6.10. The Authority notes that users are normally entitled to at least two months notice of a change to transmission charges. If the Authority were to approve NGC's revised proposals at its meeting on 24 February 2005, the Authority would be minded to direct a shorter notice period to enable charges to be implemented from 1 April 2005. Again, if the Authority were to approve NGC's revised proposals at its meeting on 24 February 2005, the Authority will invite views on this proposal to direct a shorter notice period as part of its impact assessment on any revised NGC proposals.

Appendix 1 Detailed summary of views

1.1 This appendix provides a more detailed and technical summary of the responses to the October IA and consultation document, and NGC's views as set out in its submission to the Authority which in the view of the Authority are relevant to the issues raised by respondents in response to the October IA and consultation document.

1.2 The appendix is in four sections:

- Respondents' views on whether NGC's proposals are consistent with the relevant objectives specified in NGC's licence;
- NGC's views in relation to the issues raised by respondents in respect of the consistency of its proposals with the relevant objectives in its licence;
- Respondents' views on whether NGC's proposals are consistent with the Authority's legal duties and obligations;
- NGC's views in relation to the issues raised by respondents in respect of the consistency of its proposals with the Authority's legal duties and obligations.

1.3 These are discussed in turn below.

Consistency with relevant objectives – Respondents' views

1.4 The October IA and consultation document sought views on whether NGC's proposed methodologies met licence requirements and the extent to which they met the Authority's legal duties and obligations. This section summarises respondents' views, organised under the following headings:

- Facilitation of competition and commercial impacts;
- Cost reflectivity
- Relevance to the Authority's legal duties and obligations.

1.5 These are set out below:

Facilitation of competition and commercial impacts

Locational charges

1.6 Eight respondents supported NGC's preferred methodology because it would create more efficient signals for the location of new generation. They argued that, in so doing, a methodology based on locational charging would better facilitate competition. The same respondents argued that the alternative, less locational, methodologies could unduly benefit Scottish generators when considered in the light of the combined effect of NGC's connection and use of system proposals. The respondents contended that weakened locational signals would distort competition.

1.7 Seven respondents argued that the cumulative effect of NGC's locational charging model under both options would be to increase costs for suppliers in England and Wales. Respondents noted two ways in which this would, in their view, impact adversely on consumers. First, additional costs would immediately be passed through to consumers. Alternatively, costs might need to be absorbed by suppliers (particularly if competing, vertically integrated, suppliers were not passing on such cost increases) thereby distorting competition and discouraging new entry by independent suppliers. Three respondents argued that suppliers who are not vertically integrated will be particularly adversely affected by the proposals, and that this should be a relevant consideration for NGC in developing its proposals.

1.8 On the issue of zoning three respondents supported maintaining the existing zoning criteria as widening the zones would dilute locational signals.

1.9 Two respondents suggested alternative charging models which could promote "less severe" locational charges. One respondent argued this could be achieved by setting a range constraint on tariffs based on the existing range in England and Wales. The other respondent argued that more proportionate tariffs could be promoted by ring-fencing cost-recovery in Scotland from cost-recovery in England and Wales.

Tariff Stability

1.10 Of the thirteen respondents who commented on the application of expansion factors, eight respondents favoured the application of a single expansion factor as they argued that this would produce tariffs that were more stable and predictable and thus would better facilitate the promotion of competition. The majority of those respondents argued that stability and predictability should take priority over cost-reflectivity. One respondent argued that there was a risk that multi- voltage factors would be calculated erroneously creating inaccurate cost signals.

1.11 Eight respondents pointed to the additional analysis carried out by NGC (which was published on 22 October 2004) as demonstrating that both its scenarios are equally stable and that tariff stability is comparable to stability under existing arrangements in England and Wales.

1.12 Six respondents supported extending the zonal range from +/- £1/kW to +/- £2/kW to create greater tariff stability and predictability, thereby facilitating competition. Another respondent while supporting NGC's proposals in the interim argued that the zoning methodology can lead to instability where a node is close to a zonal boundary and that this should be reviewed to ensure greater stability. Another two respondents expressed concern about the impact on tariffs of rezoning periodically. They argued that this would cause uncertainty and have a negative impact on investment decisions. One respondent questioned the need for so many zones in Scotland given the perceived similarity of the impact of tariff charges across zones in Scotland.

1.13 Two respondents argued that the variability of tariffs under a locational charging model would have a negative impact upon suppliers and would therefore not facilitate effective competition. One respondent argued that NGC should consider longer-term transmission products.

Impact Assessment Analysis

1.14 Five respondents commented on the analysis presented in Ofgem's October IA and consultation document. Four of those respondents questioned the assertion that the impact of the charging arrangements on Scottish generators would be "broadly neutral". They argued that the arrangements would disadvantage

generation in Scotland, particularly peripheral generation and as result would have a negative impact on competition.

1.15 Three respondents argued that the impact would only be broadly neutral if a generator were exporting to England and Wales. Another respondent put forward the view that the removal of Scotland to England interconnector charges cannot be used to justify excessive use of system charges. They argued that the current interconnector arrangements are discriminatory and unlawful being based on the false premise that only Scottish market participants benefit from its existence and that the appropriate comparison would be a charging regime under which interconnector costs are shared between Scottish and England and Wales market participants.

1.16 Another respondent argued that Appendix 5 of Ofgem's October IA and consultation document misrepresents the impact on generators under the existing interconnector charging arrangements as under the existing arrangements the generator is not liable for interconnector charges. Rather generators sell to suppliers operating in Scotland and it is the supplier who pays interconnector charges. The respondent therefore put forward the view that the only charges facing generators are the infrastructure generation charges in Scotland and thus they are indifferent as to whether the electricity is sold in Scotland or in England and Wales.

1.17 The same respondent argued that Ofgem was incorrect to highlight a range of use of system tariffs of between £94m and £107m and connection charges of £25m. The respondent suggested that the total cost should be £119m (£94m + £25m) and that the £107m was based on all generators paying a shallow connection charge and thus would include some of the £25m connection charges

Effect on renewable generation

1.18 Thirteen respondents commented on the negative impact under both of NGC's proposals (but particularly under NGC's preferred option – Option B) that the application of locational charges would have on the development of renewable generation. Four respondents noted that the charging arrangements would in particular penalise island generation and, in so doing, prevent generation in

areas where resources for wind generation are considered to be most favourable. Another respondent argued that, in recognition of these concerns, generator TNUoS charges in the north of Scotland should be capped at £11/kW.

1.19 Three respondents argued that the methodologies should be developed to ensure that meeting government renewable targets should be a central consideration in developing policy. The respondents argued that NGC's proposals would compromise those targets.

1.20 In contrast six respondents argued that wider environmental considerations are a matter for the Government and should be addressed by way of a subsidy and not through the GB charging methodologies. The respondents argued that to consider such factors would dilute the cost reflectivity of the charging arrangements.

Northern Ireland

1.21 One respondent argued that the application of locational generation charges to the Moyle Interconnector would prevent generators located in Northern Ireland trading into GB and, in so doing, limit competition. The respondent cited that generators using the Moyle Interconnector would be liable for transmission charges in Northern Ireland (and possibly in the Republic of Ireland also) and that the failure of a GB charging methodology to recognise this would disadvantage such generators, and thereby reduce competition in GB.

Cost reflectivity

1.22 There were a significant number of detailed comments made in respect of how NGC's locational tariffs were constructed, and whether and how its proposed TNUoS methodologies were cost-reflective. These are discussed below in respect of specific elements of NGC's proposed TNUoS methodologies.

Expansion factors

1.23 One area where respondents commented on the development of the methodologies was in relation to NGC's proposals to adjust the expansion factors applied to 275kV and 132kV lines to reflect the likelihood of those circuits being upgraded to 400kV. As noted above, in the context of cost-

reflectivity, all six respondents who commented on this proposal supported it as enhancing the cost-reflectivity of the model. However, at the same time two respondents argued the adjustments did not go far enough and that a larger proportion of lines than that assumed by NGC would be up-rated if additional capacity were required.

1.24 Eight respondents to Ofgem's consultation and impact assessment supported NGC's preferred option as better fulfilling its licence objectives by reflecting system costs, providing efficient signals for the location of new generation nearer to demand. The majority argued that no convincing argument had been put forward as to why the factors NGC had used in deriving locational tariffs were incorrect.

1.25 Respondents' views were mixed on the application of voltage specific expansion factors. Four respondents supported the use of multi-voltage expansion factors on the basis that this would enhance cost reflectivity. However, as noted above, eight respondents favoured the application of a single expansion factor on the basis that multiple factors would overstate cost differences. A number of respondents welcomed more transparency in the calculation of the expansion factors.

1.26 Six respondents commented on NGC's proposals to adjust the expansion factors applied to 275kV and 132kV lines to reflect the likelihood of those circuits being upgraded to 400kV. Three of those respondents supported such an approach as a pragmatic solution to reflecting costs. One respondent, while supporting a single expansion factor, argued that if the Authority decides to approve Option B then it should make two adjustments: (1) the ratio of the expansion factor for 275kV should be reduced to reflect the fact that 275kV costs more closely mirror 400kV costs; and (2) the proportion of 275kV circuits that are assumed to be upgraded should be increased from 20% to 50%. Another respondent agreed that the adjustments NGC has made to recognise that some expansion takes place at a higher voltage still underestimates upgrading of lines. The respondent argued that much of the 275kV network could be upgraded at fraction of cost of new build.

Generator scaling

1.27 Seven respondents commented on the use of the uniform scaling method employed in the existing England and Wales charging methodology. Four of those respondents argued that the failure to apply an appropriate scaling factor in modelling renewable generation was not cost-reflective. They argued that as a result the model is biased in favour of conventional plant. The respondents suggested that appropriate scaling factors should be applied to renewable generation. One respondent argued that the arrangements should be developed further to apply scaling factors for all injection points. They argued that this would make the model more reflective of costs at peak conditions.

Expansion constant

1.28 Four respondents commented on the calculation of the expansion constant. Two expressed the view that no convincing argument has been put forward that the existing approach is inappropriate and that ultimately NGC was in the best position to judge the costs of network expansion. However, one respondent noted that the calculation of the expansion constant should recognise there are cheaper ways of providing additional capacity rather than as a result of new build. They further noted that the model does not consider that new capacity is not delivered immediately and that the costs of provision should be derived by discounting future expansion costs as set out in the NERA report[6]. A fourth respondent suggested that the current expansion constant is artificially low as it ignores investment in other related transmission assets, such as quad boosters.

Spare capacity

1.29 Two respondents supported the removal of the adjustment for spare capacity on the grounds that the additional information provided by NGC demonstrated that this was a pragmatic approach on the grounds of cost-reflectivity. One respondent disagreed and argued that it was unrealistic that another user would immediately take up released capacity and that there would invariably be spare capacity on the system. The respondent argued that the failure to reflect this in NGC's model results in less cost-reflective nodal marginal costs. A fourth respondent linked the treatment of spare capacity to the application of a locational security factor on the basis that spare capacity reflects the additional

security that is provided in the system. They therefore argued that these elements cancelled each other out and that the correct approach would be to set the security factor to unity and ignore spare capacity on circuits.

Northern Ireland

1.30 Two respondents argued that the application of generation charges to the Moyle Interconnector would not reflect the costs which parties importing from Northern Ireland would have on the Scottish transmission system. The respondents argued that rather than provoking the need for future investment in the Scottish system, imports from Northern Ireland would reduce such a need.

Security factor

1.31 Of the seventeen respondents who commented on the modelling of security, thirteen argued that NGC's proposal to apply a locational security factor was inappropriate. Eleven of those respondents argued that a locational security factor would increase the differentials in use of system charges to a greater magnitude than that required in the pursuit of cost-reflectivity. The other two respondents did not support a locational security factor as all users benefit from a secure network and its costs should be equally met by all. One respondent noted that the application of security factors in areas where generation charges are negative is not appropriate. Another respondent argued that the lack of recognition of spare capacity was compounded by the application of a locational security factor. A third respondent suggested that security was already accounted for in the calculation of nodal MWkm and that applying a security factor was effectively double-counting.

1.32 Three respondents expressed some support for a locational security factor as being more cost-reflective. One respondent argued that under the proposals peripheral circuits which do not benefit from the average level of security pay too much. Another respondent argued for the application of further disaggregated security factors to reflect different costs across the network e.g. Scotland as compared to England and Wales or urban as compared to rural, and

[6] The NERA report is available on the GB charging consultation page of NGC's website.

set out the view that NGC had not provided sufficient justification as to why this was not possible.

Short term transmission entry capacity

1.33 One respondent opposed the proposed charge for STTEC on the basis that it was not, in their view, cost-reflective. They argued it was inappropriate that charges for different access products should be derived from the current TEC charge rather than based on the actual product and that this was exacerbated in Scotland with higher locational differentials.

Consistency with relevant objectives – NGC's views

1.34 This section summarises NGC's views, as set out in its submission to the Authority, in relation the issues raised by respondents to Ofgem's October IA and consultation document summarised in the section above. It uses the same headings as above, namely:

- Facilitation of competition and commercial impacts;
- Cost reflectivity
- Relevance to the Authority's legal duties and obligations

1.35 These are discussed in turn below:

Facilitation of competition and commercial impacts

Locational charges

1.36 In its Final Conclusions Report NGC noted that there were a range of views regarding whether or not its preferred TNUoS methodology (Option B) or its alternative TNUoS methodology (Option A) better met its relevant licence objectives. However, it noted that it agreed with those respondents that believed its preferred methodology was more likely to deliver efficient locational signals to users and that such signals would promote effective competition.

1.37 In relation to the impact of locational signals on renewable generation in Scotland NGC noted that it found no evidence to support the assertion that

charges overall would increase significantly for generation in Scotland and noted that this assertion failed to take into consideration the associated reduction in connection charges and the removal of interconnector charges. On the issues of whether Scottish islands' tariffs should be capped NGC has set out the view that to do so would be inappropriate from the perspective of cost-reflectivity and could result in inefficient transmission investment.

1.38 On the issue of the impact of locational charges on suppliers NGC has set out the view that it had not been presented with evidence to suggest that cost-reflective tariffs such as those derived from the proposed methodology would create a barrier to competition in supply. Further NGC has noted that fixed price contracts are a matter to be resolved between suppliers and customers and that users have had sufficient notice that BETTA would result in a change in GB tariffs.

1.39 NGC set out the view that an approach based on setting a range constraint on tariffs would, by artificially constraining tariffs, limit cost-reflectivity which in turn would distort competition.

Tariff stability

1.40 NGC noted that it has carried out detailed studies to identify the stability of tariffs under both its preferred (Option B) and alternative (Option A) methodologies and against its existing methodology in England and Wales. Having carried out this analysis NGC concluded that there is no compelling evidence that the final tariffs produced under these methodologies would be more or less stable over time.

1.41 In relation to whether predictability and stability should be prioritised over cost-reflectivity NGC set out the view that it is obliged to produce a methodology which both meets the relevant objectives on cost reflectivity and facilitation of competition through stability and predictability. They noted that a balance has to be struck been these objectives and that, in their view, their preferred methodology (Option B) achieves such a balance.

1.42 On the issue of zoning NGC has again expressed the view that a balance has to be struck between a large number of zones which would be more cost reflective and a small number of zones which would enhance stability. In NGC's view the

zonal boundaries it has proposed achieve this balance. In response to the issues raised in respect of rezoning NGC has previously set out the view that this will only occur during a price control period in response to exceptional circumstances which would if unchecked lead to a disruption of the cost reflective signals provided by the zones.

Impact Assessment Analysis

1.43 NGC has previously set out the view that when all charges levied on Scottish generation are taken into account then their position is broadly neutral. They noted that this reflected the position set out in the report prepared by NERA for Scottish Power UK Division.

1.44 Further NGC has noted that if the existing arrangements were retained and investment in additional interconnector circuits were required then this would have a more material impact on Scottish generation than under the proposed GB arrangements whereby these costs would be recovered on a GB basis.

Effect on renewable generators

1.45 In relation to support for renewable generation NGC agreed with the views expressed by a number of respondents that any mechanism to assist renewables in peripheral areas should operate outside the charging methodologies. To do otherwise NGC believed would impact on cost-reflectivity and consequently distort competition.

Northern Ireland

1.46 NGC noted its view that all transmission connected parties should be liable for TNUoS charges on a non-discriminatory basis. NGC also highlighted its STTEC product as potentially of relevance to the Moyle Interconnector. NGC also noted the potential reforms to charges for interconnectors pursuant to the UK's participation in the European Cross-Border Trading (CBT) scheme, which could impact on TNUoS charges associated with use of interconnectors, including Moyle.

Cost-reflectivity

Expansion factors

1.47 On the issue of the treatment of expansion factors NGC supported the application of voltage specific factors as enhancing cost-reflectivity. Further NGC considered that an adjustment to 132kV and 275kV circuits was appropriate to reflect the likelihood of these circuits being upgraded to 400kV. NGC noted that reducing the factors to 80% of their value reflected information provided by Scottish transmission licensees that there are plans to up-rate approximately 20% of these circuits. NGC thus put forward the view that this constituted a better reflection of incremental costs.

Generator scaling

1.48 In relation to comments in favour of the scaling of transmission capacity NGC has argued that the scaling of TEC values would be inappropriate. The company has set out the view that no approach has been identified which would demonstrate which generation it is appropriate to scale and by what amount. NGC noted that scaling certain generation without such a case being demonstrated could create discrimination in relation to other types of generation within the charging base which imposes similar costs on the transmission system.

Expansion constant

1.49 On the calculation of the expansion constant NGC has set out the view that experience of developing the network in England and Wales had demonstrated that the costs of alternative approaches such as re-stringing and re-profiling would be more expensive on a £/MWkm basis that the cost of new build due to the relatively small amounts of new capacity created. Further NGC argued that such factors should not be included in the calculation of the expansion constant as they would lead to additional complexity and lower transparency. On the same issue NGC also did not agree with the suggestion to discount the investment costs used in the expansion constant to reflect long lead times for the

construction of new capacity on the basis that the majority of projects are completed in much shorter lead time.

Spare capacity

1.50 In relation to spare capacity NGC's view is that it is appropriate to remove this factor as the effect of a line being underutilised is already reflected in the DCLF model on the basis that locational differentials are based on actual flows across circuits. NGC argued that not including this in the model was therefore more cost reflective.

Security factor

1.51 NGC's view of the application of a locational security factor is that the "least squares fit" approach used to derive the factor reflects the varying costs of security on the system and consequently can be robustly applied to all GB nodes. NGC noted that this view is supported by the comparison of a secured DCLF nodal model against an unadjusted DCLF model. NGC also believes that there is no evidence that the application of one security factor to all circuits would not disadvantage peripheral circuits. NGC set out the view that if in future any connection was demonstrated to not benefit from the GB security standard then it would be appropriate to review the application of the single locational security factor.

1.52 In relation to the charging treatment of the Moyle Interconnector, NGC has set out the view that, given that it is directly connected to the transmission system, then any parties using it to import into GB impose costs on the GB transmission system and should be liable for the associated charges.

Renewable generation

1.53 In relation to support for renewable generation NGC agreed with the views expressed by a number of respondents that any mechanism to assist renewables in peripheral areas should operate outside the charging methodologies. To do otherwise NGC believed would impact on cost-reflectivity and consequently distort competition.

Relevance to the Authority's legal duties and obligations

1.54 The following key themes were identified by respondents to the October IA and consultation document and the material provided in NGC's submission to the Authority, which in the Authority's view had particular relevance to assessing whether the proposals are consistent with the Authority's legal duties and obligations:

- protecting the interests of GB electricity consumers;
- compliance with European Law; and
- process.

1.55 Each of these areas is considered in turn below:

Respondents' views

Protecting the interests of GB electricity consumers

1.56 As noted above eight respondents to the October IA and consultation document supported NGC's preferred scenario (Option B) as better fulfilling its licence objectives by reflecting system costs. The respondents argued that cost-reflectivity was key to promoting effective competition and delivering efficient solutions which in turn was paramount to the interests of consumers.

1.57 On the other hand, seven respondents argued that the cumulative effect of NGC's model under both options would be to increase costs for suppliers and thus ultimately for consumers. A further six respondents argued that it was questionable whether there will be a corresponding reduction in wholesale prices which would reflect the reductions in costs for generators. Consequently they argued that customers would be worse off.

1.58 Five respondents argued that the split of revenue recovery between generation and demand should not be changed from 27/73, and that if it did move to 10/90, as proposed by NGC under Option B, it would have a materially negative impact on consumers in England and Wales. Three of those respondents argued

that negative demand charges are symptomatic of wider flaws in the GB methodology and should not be addressed by adjusting the generation/demand split. They argued that an alternative approach should be found outside the development of GB charging methodologies. One of those respondents also suggested that if a change were deemed absolutely necessary then this should be capped at the nearest 5%. Another respondent argued that the fear that consumers will take more electricity at peak with negative demand charges was exaggerated.

1.59 Two respondents supported the general move to reduce the proportion of charges paid by generators in line with European practice regardless of what methodology is approved. However, they argued that the occurrence of negative demand is not a reason in itself as this demonstrates that the locational differences have been overstated and is best addressed by adopting a more realistic range of tariffs. Another respondent suggested that demand tariffs in England and Wales should remain at the same level after BETTA as today and that the scope for negative demand charges could be addressed by setting the demand tariffs in Scotland at somewhere between zero and the level in England and Wales. A third respondent argued the generation/demand split should move in the opposite direction towards a 50/50 split to reduce the impact of change to an acceptable level.

1.60 Three respondents suggested changes in GB tariffs should be phased in over time. One argued it was necessary to minimise the impact of changes in demand charges on consumers and that this should be done over at least two years. Another respondent proposed it should be done over a period of three years, during which time NGC should undertake a long-term review of the stability of charges.

1.61 One respondent argued that given that consumers pay for the renewables obligation, they would ultimately be paying even more in the event of higher transmission charges in areas of renewable development.

Compliance with European law

1.62 Two respondents argued that NGC had failed to properly consider proportionality. One respondent noted that NGC had defended the

proportionality of its GB model (under both options) on the grounds that its existing England and Wales methodology was proportionate and was of the view that NGC had not demonstrated that locational tariff differentials under a GB model were proportionate. In particular the respondent noted that NGC had failed to justify key charging model assumptions and to make appropriate adjustments to these to reflect evidence provided by respondents to previous consultations. The same respondent also noted that NGC had assumed the obligation to address proportionality lies with Ofgem and the respondent argued that Ofgem must therefore explicitly acknowledge its responsibility in this area and explain how the GB methodology satisfies this requirement.

1.63 Another respondent argued that the charging arrangements put forward by NGC would result in the Moyle Interconnector being materially disadvantaged and therefore disproportionately affected contrary to the terms of the IME Directive. Other views on proportionality were set out in the context of two complaints under Article 23(6) of EU Directive 2003/54.

1.64 Eighteen respondents agreed that adjusting the split of revenue between generation and demand was appropriate in terms of consistency with possible European proposals.

Process

1.65 Six respondents argued that the process followed by Ofgem in the October IA and consultation document was flawed. Three respondents argued it should have been more rigorous and comprehensive. The view was put forward that the October IA and consultation document did not provide an assessment of the competitive impacts of the tariffs nor did it consider whether the proposals were proportionate. The same three respondents suggested the assessment should have provided an indication of the substance of the Authority's proposed decision. One of the respondents argued that, as the October IA and consultation document did not do this, it fails, in their view, to meet Ofgem's own guidance on the production of impact assessments.

1.66 In terms of the analysis provided in the October IA and consultation document, two respondents argued that this should have included cost/benefit analysis of different approaches including those suggested by NERA. Another respondent

argued that Ofgem's assessment had concentrated on Scottish generation and in doing so neglected the impact on England and Wales customers. A third respondent noted that there had been no attempt to demonstrate how charges should evolve over time. A fourth respondent suggested it was not helpful to publish information on the total proportions of charges recovered from generation and demand across GB as, where a charging regime includes negative charges, the total value of positive charges will sum to more than 100% of charges and will thus inflate differentials.

1.67 Two respondents considered that the decision to request views on alternative scenarios at such a late stage in the process was a retrograde step which created additional uncertainty.

1.68 One respondent argued that Ofgem's process, in drawing an analogy with the process for approving industry code modifications, was flawed. They argued that the code modification process includes a process of review and consideration of alternatives before proposals are submitted to Ofgem and that this had not been provided for in the GB charging process. The respondent considered this placed a greater burden on Ofgem to consider alternatives.

1.69 Six respondents commented on the wider process of reviewing GB charging under BETTA. Two of those respondents argued that the entire BETTA consultation process has been flawed and in particular that too many consultations on different areas had made it difficult for respondents to gain a clear view of the outcome of individual policies. Two other respondents argued that Ofgem should have provided NGC with guidance on the balance between their relevant objectives at an earlier stage in the consultation process.

1.70 One respondent believed the process undertaken to introduce GB charging arrangements has been commendable as it had provided ample opportunity for interested parties to raise concerns and voice opinions.

NGC's views

Protecting the interests of consumers

1.71 It is NGC's firm view that its preferred methodology is cost reflective and facilitates competition.

1.72 In relation to the impact on consumers of changing the split of revenue recovery between generation and demand NGC noted that the change was required specifically to address negative demand charges and therefore prevent perverse incentives to consume electricity at peak. NGC set out the view that setting the demand tariff in the north of Scotland to zero would be an artificial approach which would have the result of skewing competition and ultimately of harming consumer interests.

1.73 On the issue of phasing in GB tariff changes NGC expressed the view that this could not be reconciled against the licence objectives as it would effectively constitute a cross-subsidy. If such a mechanism were to be introduced NGC has noted that this would require a direction from Ofgem/DTI.

Compliance with EU Law

1.74 NGC has set out the view that a methodology which is deemed to be cost-reflective and which facilitates competition would also meet the requirements of proportionality.

1.75 NGC has noted that the IME Directive 2003/54/EC places a duty on the regulatory authorities rather than the transmission system operators and consequently that the decision to amend the methodology in light of that Directive falls to the Authority.

1.76 In relation to the generation/demand split NGC has noted that its proposed changes were designed to address the scope for negative demand charges and thus that harmonisation with the approach used in Europe was not its intention. As such NGC argues that its proposal should not be seen to fetter a wider discussion of European tariff harmonisation at a later stage.

Process

1.77 NGC has set out the view that the process that it followed in developing the GB transmission charging methodologies has been robust and has provided sufficient opportunity for parties affected by the proposals to provide input.

1.78 In terms of the decision to use the England and Wales methodology as the basis for consulting on GB charging methodologies NGC has noted that this was consulted on by Ofgem and supported by respondents. NGC stated that as part

of its consultation it has considered whether there were characteristics unique to the Scottish transmission system that would require reflection in the GB methodology and that where such differences were identified, for example in the treatment of maintenance charges, appropriate adjustments have been made.

Appendix 2 Technical summary of NGC's proposals

2.1 Transmission charges recover the cost of the transmission network from users. The size of those costs is set through price controls and other mechanisms and is independent of the charging methodologies.

2.2 NGC submitted two options for a TNUoS methodology to the Authority. Its preferred option (Option B) gave rise to greater locational differences in tariffs for users at different points of the network, and recovered a smaller share (10%) of total TNUoS revenues from generators rather than suppliers and large industrial customers. NGC's alternative TNUoS methodology proposal (Option A) gave rise to less locational differences, and recovered a larger share (27%) of total TNUoS revenues from generators.

2.3 The proposed TNUoS methodologies calculate tariffs in a number of steps that are set out in more detail below. These steps are the same under both of NGC's options. The proposals seek to calculate tariffs which vary by location. Further the differences in tariffs between locations are designed to reflect differences in the incremental investment costs associated with providing additional transmission capacity at each location.

2.4 The methodology proposes that all transmission connected generators and interconnectors are liable for generation TNUoS charges, and large transmission connected demand customers and suppliers are liable for demand TNUoS charges. Charges are levied on the basis of transmission capacity booked (for generators[7]) or used (for customers and suppliers) at periods of peak demand.

DC Load Flow model

2.5 NGC's starting point for deriving its TNUoS tariffs is an electrical DCLF model of the transmission network. This comprises the maximum amounts of generation and demand at each node, and the network of circuits which link these nodes. A base case is run using this model to identify the flows across the network at

[7] Generators in zones where charges are negative, i.e. where a payment is made from NGC to the generator,

times of peak demand. In modelling these flows generation capacity (which exceeds peak demand in total if all generators operate at maximum capacity) is scaled back at each point of the network on a pro rata basis such that the total amount of energy put on the network is equal to the total amount of energy taken off the network.

2.6 The model is then run to see how electrical flows would differ across the network if there were an additional MW of generation capacity at each node on the network. This gives an incremental flow of electricity around the network (expressed as megawatt kilometres) for each node of the network. This can be interpreted as a measure of relative usage of the transmission system of generators at each node.

2.7 In modelling the network at this stage all circuits are treated equally. In reality the networks comprise different types of circuits, most notably circuits of different voltages and underground cable circuits. Other things being equal, it is cheaper per megawatt transported for circuits to operate at the highest voltage. However, high voltage circuits might not be economic where the total volume of megawatts being transported is relatively small. The network in Scotland has a larger proportion of lower voltage transmission circuits when compared to the network in England and Wales.

Expansion factors

2.8 These nodal incremental MWkm results depend on the circuit lengths used in the DCLF model. NGC makes a number of adjustments to the physical circuit lengths for modelling purposes. The adjustments are made by applying expansion factors to the physical circuit lengths. The expansion factors, in effect, stretch the length of the circuit in line with estimates of costs of different types of circuit relative to the cost of 400kV overhead lines.

2.9 Under NGC's preferred Option B, different expansion factors are adopted for 132kV and 275kV circuits. Under NGC's alternative Option A, multi-voltage expansion factors are not used. Under both options, different expansion factors are used to distinguish between overhead lines and underground cables.

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have these payments calculated on the basis of actual, rather than booked, capacity.

Zones, expansion constants and security factors

2.10 NGC's estimates of incremental transmission usage at each node are expressed in terms of electrical flows, i.e. megawatt kilometres. Tariffs are derived in two steps from this point. First, nodes are grouped into zones and a zonal average is calculated. Zones are defined separately for generation and for demand. Second, the zonal average is multiplied by (a) a security factor, and (b) an expansion constant.

2.11 Transmission networks are developed to comply with relevant engineering planning standards. These standards require that sufficient capacity is built to accommodate flows across the network when circuits are, as a result of faults or planned maintenance work, not available. The cost of providing additional capacity is therefore driven by the cost of providing a network secured against such faults and outages.

2.12 The DCLF used by NGC assumes that all circuits are available. It is therefore an 'unsecured' model. NGC calculate a security factor as an estimate of the average difference (in terms of additional electrical flows) between the unsecured DCLF and a secured load flow model. NGC calculate the security factor to be equal to 1.8. This could be interpreted as saying that approximately 80% more capacity needs to be provided as contingency against network faults than would be required if faults and outages did not occur.

2.13 The expansion constant is NGC's estimate of the unit cost of transporting one megawatt for a distance of one kilometre. It is calculated on the basis of the cost of building new 400kV overhead lines. The method of calculation is the same under both of NGC's proposed options.

Aggregate split between generation and demand

2.14 The final step adopted by NGC in constructing TNUoS charges is to adjust generation and demand tariffs on a non-locational basis to ensure that (a) a prescribed share of total revenues is recovered from generators, and (b) NGC is able to recover its total allowed revenues. The prescribed share does not affect the differences in tariffs between zones, but it does affect the level of tariff in all zones.

Short Term Transmission Entry Capacity ("STTEC")

6.11. NGC's proposed methodology (for both Options A and B) also encompasses a charge for its STTEC product. The STTEC product is available to parties who wish to increase their contracted ability to export on to the GB transmission network for specific periods of time during the course of a year. The charge for this product is based on a proportion of the TNUoS tariffs that applies to NGC's standard annual transmission service, i.e. the service for which parties pay TNUoS charges. The STTEC charge is limited to zero in TNUoS zones which have negative generation TNUoS charges.

Appendix 3 List of respondents

The following parties submitted non-confidential responses to Ofgem's consultation and impact assessment on the proposed GB transmission charging methodologies of the GB system operator.

1. Airtricity
2. AMEC Project Investments Ltd
3. Argyll & the Islands Enterprise
4. BOC Group plc
5. British Energy
6. British Wind Energy Association
7. Centrica
8. Comhairle Nan Eilean Siar (Western Isles Council)
9. Conoco Phillips
10. Corus
11. Country Land and Business Association
12. E.ON UK plc
13. EDF Energy
14. Edison
15. Energy Intensive Users Group
16. Energywatch
17. Fred Olsen Renewables Ltd
18. Grangemouth CHP Ltd
19. Green Power
20. Highlands and Islands Enterprise
21. International Power
22. Magnox
23. Moyle Interconnector Ltd
24. Natural Power
25. Northern Ireland Authority for Energy Regulation
26. Opus Energy Ltd
27. RDC
28. Renewable Energy Development Group Ltd
29. RWE n power
30. Scottish Power UK Division
31. Scottish Renewables
32. Shetland Islands Council
33. Scottish and Southern Energy
34. Terra Nitrogen (UK) Ltd
35. Uskmouth Power
36. Viking Energy