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CAP170: Category 5 System-to-Generator Operational Intertripping Scheme

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Target audience: Transmission licensees, generators, suppliers, consumer groups, Connection and Use of System Code parties and any other party who has an interest in the transmission arrangements.

Overview:

This document assesses the impacts of CAP170 - an urgent proposal to amend the Connection and Use of System Code ('CUSC') to introduce a new category of System to Generator Intertripping Scheme with administered prices. CAP170 would, if implemented, introduce administered prices for intertrip when there are transmission constraints for generators located behind a transmission boundary where the Authority has granted a derogation from the GB Security and Quality of Supply ('GB SQSS') planning criteria. This document also discusses the consequential changes to the Grid Code (B/09) and to NGET's Procurement Guidelines and Balancing Principles Statement which have been proposed as a consequence of CAP170.

This document seeks views on the impacts we have identified, and any other impacts respondents consider are associated with this proposal. This document does not express a view on the merits of CAP170 or a decision on the proposal. The Authority will make its decision following consideration of, amongst other things, responses to this impact assessment.

Contact name and details: Lesley Nugent, Senior Manager – Transmission

Tel: 0141 331 6007

Email: lesley.nugent@ofgem.gov.uk
Team: Electricity Transmission Policy and Compliance

Context

National Grid Electricity Transmission plc ('NGET') is, amongst other things, responsible for operating the transmission system in GB. A substantial proportion of the costs incurred in operating the system are ultimately borne by consumers. Amongst other things, operating costs include the costs of constraints payments NGET makes to generation and to demand users. Constraints occur when there is insufficient transmission capacity to transmit electricity from where it is being generated to where it is being consumed.

On 17 February 2009 Ofgem published an open letter to NGET[1], highlighting the rapid increase in both actual and forecast constraint costs in recent years. Constraint costs have increased from £70m in 2007/08 to approximately £261m in 2008/09 and a forecast of £249m for 2009/10[2]. In the letter we asked NGET to conduct an urgent review to consider (and if appropriate consult on) whether urgent changes to the existing commercial and charging arrangements are necessary to manage more effectively the costs of constraints, and to ensure that any constraint costs are recovered on an equitable basis from customers, suppliers and generators.

Following our open letter, amongst other things NGET raised CUSC Amendment Proposal CAP170 "Category 5 System to Generator Operational Intertripping Scheme".

Associated Documents

Derogations to facilitate earlier connection of generation – decision on interim approach, 8 May 2009 decision letter
http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=153&refer=Networks/Trans/ElecTransPolicy/tar

Managing constraints on the transmission system, 17 February 2009 open letter to NGET
http://www.ofgem.gov.uk/Markets/WhlMkts/EffSystemOps/SystOpIncent/Documents1/20090217Managing%20constraints.pdf

Transmission Access Review – Final Report to the Secretary of State, June 2008.
http://www.ofgem.gov.uk/Networks/Trans/ElecTransPolicy/tar/Documents1/080626_TAR%20Final%20Report_FINAL.pdf

[1] http://www.ofgem.gov.uk/Networks/Trans/ElecTransPolicy/tar/Documents1/20090217Managing%20constraints.pdf

[2] These figures have been updated since we published our 17 February 2009 open letter. The latest forecast 2009/10 figure is that which was provided by NGET to the 1 April 2009 Operational Forum, and the figure quoted on actual costs for 2008/09 is the latest figure that has been provided to Ofgem by NGET and is subject to final reconciliation.

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Summary

Background

NGET is responsible for operating the transmission system. The costs NGET incurs in operating the system include the costs associated with managing constraints. Constraints occur on the transmission system when there is insufficient transmission capacity to transmit electricity from where it is being generated to where it is required for consumption. In February 2009, Ofgem issued an open letter highlighting the rapid increase in actual and forecast constraint costs in recent years. We asked NGET to conduct an urgent review to consider (and if appropriate consult on) whether urgent changes to the existing commercial and charging arrangements are necessary to manage more effectively the costs of constraints, and to ensure that any constraints costs are recovered on an equitable basis from customers, suppliers and generators.

There are a number of actions that NGET, as GB system operator, can take to manage constraints, including the use of intertrips. An intertrip is a device that may be armed so that it automatically reduces output or temporarily disconnects a generator from the transmission system when there is a sudden event (such as a fault) at a location elsewhere on the transmission system. Where an intertrip scheme is in place, a transmission line can safely transmit an increased amount of electricity before that event occurs. There are existing Connection and Use of System Code ('CUSC') provisions that enable NGET to enter into agreements with generators for the provision of operational intertrips, with administered prices. In addition, NGET can enter into commercial agreements with generators for the provision of intertrips.

CAP170 – Category 5 System-to-Generator Operational Intertripping Scheme

CUSC Amendment Proposal CAP170 "Category 5 System-to-Generator Operational Intertripping Scheme" seeks to reduce constraints costs by limiting the costs associated with intertrip schemes for generators behind a transmission boundary for which the relevant transmission licensee has been granted a derogation by the Authority from the requirement to comply with the GB Security and Quality of Supply (GBSQSS) planning criteria. CAP170 proposes a new category of operational intertrip, which could be applied to both existing and future generators, with remuneration in line with the administered pricing arrangements that currently apply to certain categories of existing operational intertrips.

NGET has also proposed consequential changes to the Grid Code, and its Procurement Guidelines and Balancing Principles Statement, that it has identified would be required if CAP170 were approved.

Grid Code proposal B/09 proposes to include new definitions within the Grid Code as a consequence of CAP170, including a definition of a 'Category 5 Intertripping Scheme'. The proposed changes to the Procurement Guidelines and Balancing Principles Statement aim to define the criteria that, amongst other things, NGET would take into account when making decisions on what generators would provide Category 5 Intertripping Schemes, and when these would be armed.

Overview of impacts[3]

Our quantitative analysis indicates that the introduction of a new Category 5 intertrip scheme may reduce the costs to NGET of managing constraints on the existing derogated Cheviot boundary, on average by around £40m per annum. This cost saving arises as a result of increased incidence of use of operational intertrips and decreased use of more expensive commercial intertrips to manage constraints. This would be a positive impact on consumers, as the operating costs NGET incurs are ultimately recovered from consumers. CAP170 may have a positive impact on competition in generation and supply, to the extent that it results in reduced level of volatility of BSUoS costs for all users of the system. We have not identified any environmental impacts associated with CAP170.

With regard for the potential impact on ancillary services market, we support the principle of having a competitive ancillary services market, with market-driven prices. Extending administered price intertrip arrangements could be perceived to be at odds with this general principle. Whilst we fully support the principle of competitive ancillary services markets, we must be satisfied that in practice these markets are effectively competitive (and this assessment must include the extent to which those with market power in the primary markets may have the incentive and ability to demand higher prices in the ancillary market or markets). We note that there is a high level of market concentration behind the existing derogated boundary (the Cheviot boundary), and this may potentially influence the prices NGET pays for services such as intertrip and other ancillary services. To the extent that there may be concerns about effective competition in such markets, then extending administered arrangements may be regarded as more appropriate than relying on a market based solution.

We recognise that there are certain procedural limitations that have applied to the development of the proposal as a result of it having been treated as urgent. We also recognise that the proposal engages some complex issues and requires a number of consequential changes. We are disappointed that, given NGET's licence and statutory obligations, it did not review this issue sooner, to provide industry with more time to consider these issues and the options available. However, given the magnitude of the impact that high constraints costs has on consumers, with costs at around £261m for the period 2008/09, we consider it is appropriate that the issue is reviewed urgently.

CAP170, if implemented, is intended to be a short term measure. We would only expect it to remain in place until enduring transmission access arrangements come into force. The earliest we expect implementation of enduring access arrangements is 2010, although there is a risk that enduring arrangements may be delayed in the event of a legal challenge or delay by the industry until 2011.

In our Final Proposals document for the System Operator incentives for 2009/10, we noted that measures such as CAP170, if agreed, could have a significant impact on the constraint costs. We explained that, in this event, we would be seeking to ensure that this is recognised within the incentive structure. Such a change might be achieved through means of revision to the incentive target, or as a result of an Income Adjusting Event (IAE). If appropriate, we would expect NGET to raise such an IAE or other parties to raise an IAE in the event that NGET failed to do so.

We welcome views on these impacts and issues.

[3] For the avoidance of doubt, this document sets out our impact assessment on CAP170. The Authority has made no decision on the proposal, and nothing in this document should be interpreted as the Authority's decision.

1. Introduction

Chapter Summary

This chapter sets out the background to this document and the legal framework against which we developed our impact assessment. It also sets out a summary of the chapter structure of this document.

Question box

There are no questions in this chapter.

Background to CAP170

Current arrangements

1.1. National Grid Electricity Transmission plc ('NGET') is responsible for operating the transmission system in Great Britain. NGET recovers the operating costs that it incurs through charges to users of the electricity transmission system, and these costs are ultimately borne by consumers. Amongst other things, operating costs include the costs of constraints payments NGET makes to generation and demand users.

1.2. Constraints occur when, taking into account amongst other things the GB Security and Quality of Supply Standard ('GB SQSS') planning and operating criteria that NGET must adhere to, there is insufficient network capacity to transmit electricity from where it is being generated to where it is being consumed. In such circumstances NGET, in its role as GB System Operator, will take actions in the market to increase and decrease the amount of electricity supplied and demanded at different locations on the network. These actions give rise to costs, "constraints costs".

1.3. In the longer term, appropriate network investment should minimise constraints on the system. In the short term, there are a number of actions NGET can take to manage constraints, including:

- buying or selling electricity in the Balancing Mechanism (from plant at relevant locations)
- entering into contracts with generators (or customers) to increase or reduce output (or demand) at short notice, and
- entering into intertrip arrangements.

1.4. An intertrip is a device that may be armed so that it automatically trips a breaker that reduces output or temporarily disconnects a generator from the transmission system when the intertrip receives a specific signal. The signal is delivered in the

occurrence of a sudden event at a location elsewhere on the transmission system, such as a fault on a specific part of the transmission system. When an intertrip arrangement is in place, a transmission line can safely transmit an increased amount of electricity before a constraint level is reached, because the intertrip ensures that the system will not be overloaded if an event such as a fault on the transmission system does occur.

1.5. There are four categories of 'operational' intertrip which NGET currently makes use of:

- Category 1 – an intertrip scheme arising from a variation to a connection design (requested by and agreed with a customer) consistent with the criteria specified in the GB SQSS
- Category 2 – an intertrip scheme required to alleviate the overload that would occur on a circuit that connects a group containing the generator to the rest of the system
- Category 3 – an intertrip scheme installed as an alternative to reinforcement of a third party system (for example, a distribution network) and where the scheme removes the risk of overloading the third party system
- Category 4 – an intertrip scheme installed at the request of NGET under the circumstances where the use of such a scheme would be beneficial to facilitate the timely restoration of critical circuits.

1.6. CAP076 "Treatment of System to Generator Intertripping Schemes" [4] clarified the obligations between NGET and generators in respect of the arming and operation of such operational intertripping schemes and established an administered pricing mechanism within the CUSC for certain of these categories of intertrip. These administered pricing arrangements currently apply to Category 2, 3 and 4 intertrip schemes. Generators with Category 1 scheme receive no remuneration.

1.7. NGET also enters into commercial arrangements for the provision of intertrip services for intertrip schemes not covered by the intertrip categories referred to above. The price of this type of 'commercial' intertrip is dependent on the outcome of commercial negotiations between NGET and the provider of the intertrip.

Trends in constraints costs and CAP170

1.8. On 17 February 2009 Ofgem published an open letter to NGET[5] (the 'February 2009 open letter'), highlighting the rapid increase in both actual and forecast constraint costs in recent years. Constraint costs have increased from £70m in 2007/08 to approximately £261m in 2008/09 and a forecast of £249m in 2009/10[6]. We asked NGET

[4] This Amendment proposal was approved by the Authority on 10 June 2005. The decision letter is available here: http://www.nationalgrid.com/NR/rdonlyres/1E0FF9A8-9B75-4312-B40C-DBD49DA6F49D/7096/CAP076D.pdf
[5] http://www.ofgem.gov.uk/Networks/Trans/ElecTransPolicy/tar/Documents1/20090217Managing%20constraints.pdf
[6] See footnote 2 above.

to conduct an urgent review to consider (and if appropriate consult on) whether urgent changes to the existing commercial and charging arrangements are necessary to manage more effectively the costs of constraints, and to ensure that any constraints costs are recovered on an equitable basis from customers, suppliers and generators.

1.9. We noted in our February 2009 open letter that a significant proportion of the constraints costs arise as a result of available transmission capacity shortages, relative to transmission entry capacity rights sold to generators in Scotland (and to a lesser extent England and Wales). We also noted that the level of available transmission capacity (and forecast constraints) will be heavily influenced by transmission outages as part of the investment the three transmission companies are making to increase network capacity.

1.10. Given the significant level of forecast constraints costs and the fact that the rate at which constraint costs are incurred will increase significantly in the summer months (when the planned Cheviot outage programme commences), we set out in our February 2009 open letter that we considered this matter required NGET's immediate attention.

1.11. We set out in our open letter that NGET's review should seek to address matters including:

- the options for reducing the level of constraint costs (both constraint volumes and prices), and
- whether the current use of system charging mechanisms are equitable and appropriate and whether constraints costs are appropriately targeted on the parties that give rise to the need for constraint actions.

1.12. CUSC Amendment Proposal CAP170 "Category 5 System-to-Generator Operational Intertripping Scheme" was raised by NGET on 27 February 2009 ('CAP170'). CAP170 seeks to reduce potential constraints costs by limiting the costs associated with intertrip schemes for generators behind a transmission boundary for which the relevant transmission licensee has been granted a derogation by the Authority from the requirement to comply with the GBSQSS planning criteria.

1.13. The GB SQSS sets out the minimum criteria that transmission licensees must apply when planning and operating the transmission system. A derogation may, in certain circumstances, enable generation to connect in advance of the reinforcement necessary to ensure compliance with the GB SQSS. There is currently one transmission boundary for which Ofgem has granted a derogation from the GB SQSS requirements, the Cheviot boundary between the transmission network in the south of Scotland and that in the north of England.

1.14. On 8 May 2009, Ofgem published its decision[7] following a consultation on the interim approach we set out we were 'minded to' adopt to GB SQSS derogations to facilitate the earlier connection of generation. We set out in our 8 May 2009 decision letter that we expect NGET and the Scottish transmission licensees to submit

[7] http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=153&refer=Networks/Trans/ElecTransPolicy/tar

appropriate derogation applications in the near future, to facilitate the connection of the 450MW of Scottish renewable generation identified by the transmission licensees as being capable of advancement, and other generation in a comparable situation where the scope to advance connection dates is limited by the need to grant a derogation from the GB SQSS. This is ultimately likely to result in the existing derogation against the Cheviot boundary being extended, and we are expecting to receive requests from the transmission licensees for derogations against other boundaries.

Consequential changes proposed

1.15. NGET has also proposed consequential changes to other documents that NGET has identified would be required were CAP170 to be approved. In particular, NGET has identified that changes will be required to the Grid Code and to its Procurement Guidelines and Balancing Principles Statement.

1.16. On 3 March 2009, NGET issued its consultation on Grid Code modification proposal B/09 "Category 5 Intertripping Scheme"[8]. This proposes changes to the Grid Code to amend existing definitions and introduce a number of new definitions as a consequence of CAP170. In particular it would introduce a new definition of a 'Category 5 Intertripping Scheme'.

1.17. On 12 March 2009, NGET issued a consultation on proposed changes to its Procurement Guidelines[9], established in accordance with the requirements of transmission standard licence condition C16 "Procurement and Use of Balancing Services" ('SLC C16'). NGET proposes to include within the Procurement Guidelines Category 5 Intertripping Schemes as one of the services that it is necessary for NGET to procure from certain generators. NGET also proposes to define the criteria that, amongst other things, it would apply when it selects a provider for this service.

1.18. Finally, on 1 April 2009, NGET issued a consultation on proposed changes to its Balancing Principles Statement[10], also established in accordance with SLC C16. This proposes to clarify the criteria that, amongst other things, NGET would take into account when making a decision to arm a Category 5 Intertrip Scheme.

1.19. These changes are described in more detail in chapter 2. We currently expect that the Authority will make its decision on these consequential changes in the same timescales that it will make its decision on CAP170.

[8] http://www.nationalgrid.com/NR/rdonlyres/F9739402-0967-494E-B2A0-671108300589/32420/cp_b09_category5.pdf
[9] http://www.nationalgrid.com/NR/rdonlyres/A257F2EF-6771-49C3-8695-41FF3E1A84E7/32623/C16consultationdocumentcat5intertripping12mar09v10.pdf
[10] http://www.nationalgrid.com/NR/rdonlyres/EE7FD978-07C8-4946-AC3A-5A6AA32EA602/33249/C16BPSconsultationcat5intertrippingv10.pdf

Legal and assessment framework for amendments to the CUSC

CUSC process

1.20. The CUSC sets out the standard commercial terms between generators (and other network users) and NGET. The CUSC also sets out the series of procedures which must be followed in relation to proposals to amend the CUSC. Anyone who is party to the CUSC can propose an amendment to the CUSC. Once a CUSC Amendment Proposal has been raised, the CUSC Amendments Panel ('the Panel') assesses it (and where relevant consults on it) before referring it to the Authority for a decision. After receipt of the Final Amendment Report from the Panel, the Authority makes a decision as to whether or not to direct implementation of the Amendment Proposal or any alternative that may have been raised through the Amendments process. Appendix 4 outlines the procedure for raising proposed amendments to the CUSC.

Urgent amendments

1.21. The CUSC also includes procedures to allow the Panel and the Authority to consider Amendment Proposals under expedited timescales under an Urgent Amendment process. The Panel provides a recommendation to the Authority on whether an Amendment Proposal should be considered as Urgent and also a recommended timetable that should be followed.

1.22. When considering such a recommendation, the Authority considers an Urgent Amendment Proposal is likely to display at least one of the following characteristics;

- there is a real likelihood of significant commercial impact upon NGET, industry parties or customers if a proposed amendment is not considered as urgent
- safety and security of the network is likely to be impacted if a proposed amendment is not considered as urgent, and/or
- the proposal is linked to an imminent date related event.

1.23. When making a decision on Urgency the Authority does not make any judgements on the merits of the actual proposal.

1.24. NGET requested that CAP170 be considered as an Urgent Amendment Proposal under the CUSC. NGET set out that it considers that:

- the proposal is linked to an imminent date related event and,
- there is a very real likelihood of significant commercial impacts upon NGET, industry parties or customers if the CAP170 is not treated as urgent.

1.25. NGET's request for CAP170 to be treated as an Urgent Amendment Proposal referred to Ofgem's February 2009 open letter on managing constraints, and noted that the rate at which constraints costs are incurred is due to increase significantly, when the planned outage programme for 2009/10 on the Cheviot boundary commences. NGET also noted that as the costs of constraints are ultimately passed on to consumers, by seeking to limit the price of intertrips, not treating CAP170 as Urgent has the potential to have significant commercial impact on both the industry and consumers.

1.26. On 27 February 2009, the Panel recommended that CAP170 be treated as an Urgent Amendment Proposal. On 2 March 2009, we wrote to the Panel indicating that Ofgem agreed with the Panel recommendation, and consented to CAP170 being treated as an Urgent Amendment Proposal for the purposes of section 8.21.1.5 of the CUSC.

1.27. Consequently, CAP170 was submitted directly to industry consultation on 3 March 2009 following which it was discussed by the Panel at its meeting of 23 March 2009. The Panel recommended by majority that the Authority should reject CAP170. We received the final Amendment Report for CAP170 on 25 March 2009.

Decision making framework

1.28. With regard to a CUSC Amendment Proposal the Authority must assess the amendment proposal against the applicable CUSC objectives[11] which are:

a. The efficient discharge by NGET of the obligations imposed on it by the Electricity Act 1989 ('the Act') and its Transmission Licence; and

b. Facilitating effective competition in the generation and supply of electricity and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity.

1.29. The Authority must also consider whether the proposal is consistent with its wider statutory duties, including those arising under European law. Further, the Authority must determine which of the options available to the Authority is best calculated to further the Authority's principal objective to protect the interests of existing and future consumers, wherever appropriate by promoting effective competition. A brief description of the Authority's powers and duties is set out at Appendix 3 of this document.

1.30. Appendix 4 outlines in more detail the legal and assessment framework for our decision, including the requirement to undertake an impact assessment in certain circumstances.

1.31. Notwithstanding the urgency associated with CAP170, it is our view that CAP170 is important for the purposes of Section 5A of the Utilities Act, specifically with respect to the potential impact on consumers. It is on this basis that the Authority has decided to publish the impact assessment set out in this document.

[11] The applicable CUSC objectives are set out in standard licence condition C10 of NGET's electricity transmission licence.

1.32. Section 5A of the Utilities Act 2000 requires that where an impact assessment is undertaken it must include an assessment of the likely effects on the environment of a proposal. We have set out in chapter 3 that we have not identified any environmental impacts associated with this Amendment Proposal.

Wider context

Competition concerns

1.33. In April 2008 Ofgem opened a Competition Act investigation into the conduct of Scottish Power ('SP') and Scottish and Southern Energy ('SSE') in the wholesale electricity sector, following allegations that the companies had a position of dominance arising from transmission constraints between England and Scotland, and had abused this position by withholding generation plant from the wholesale forward market while using the same plant to supply balancing power to NGET at excessive prices. Ofgem has looked into a number of allegations concerning similar behaviour since the British Electricity Trading and Transmission Arrangements ('BETTA') were introduced in April 2005

1.34. While Ofgem recently closed the investigation into SP and SSE on grounds of administrative priority, noting that the likelihood of making an infringement finding under the Competition Act was low, we did identify concerns in the relevant market. These included the fact that output from SP's and SSE's generation plant in Scotland appears to have been much more expensive than that of comparable generation in England and Wales at times of constraint, which could indicate the exercise of market power. We set out in the February 2009 open letter that if, and to the extent that such issues could serve to increase the overall cost of resolving constraints in Scotland, we consider that this would necessarily reinforce the need to take action to address constraints costs.

1.35. On 30 March 2009, we published a consultation ('the 30 March 2009 consultation') on our initial policy proposals on addressing market power concerns in the electricity wholesale sector following the decision to close the investigation into SP and SSE[12]. We set out in that document that Ofgem is concerned that the GB market is vulnerable to the undue exploitation of market power, both when there are constraints on the GB transmission system and more generally at times of system tightness (when there is greater risk that a constraint could occur).

1.36. The 30 March 2009 consultation referred to the February 2009 open letter, and noted that in response to that letter, two proposals have now been raised by NGET: a charging modification to introduce a locational element to Balancing Services Use of System ('BSUoS') charges, which aims to reflect the costs of resolving constraints back onto generators in constrained regions which are non-compliant with the GB SQSS; and CAP170. The 30 March 2009 consultation noted that NGET is also giving further thought to other options, including mechanisms which could improve the incentives on Transmission Owners ('TO') to minimise constraint costs for example by reducing the length of outages. We set out Ofgem's initial views on possible changes to existing

[12] http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?file=Market%20Power%20Concerns-%20Initial%20Policy%20Proposals.pdf&refer=Markets/WhlMkts/CompandEff

market arrangements, including mechanisms to improve alignment of incentives between the System Operator ('SO') and TOs, and changing Balancing Mechanism pricing.

1.37. The 30 March 2009 consultation set out that Ofgem is minded to seek to address market power concerns through the introduction of a new market power licence condition. The aim of this condition would be to strengthen Ofgem's powers to carry out investigations of generator behaviour and impose fines or other sanctions if participants were found to be unduly exploiting a position of market power.

Other relevant issues

1.38. The level of available transmission capacity (and forecast constraints) is influenced by transmission outages. We noted in the 30 March 2009 consultation the likely increase in the incidence of constraints, both within Scotland and elsewhere in GB, due to new renewable generation coming on-stream and the on-going requirement for transmission outages to undertake necessary reinforcement works. In its request that CAP170 be treated as urgent, NGET noted that the rate at which constraints costs are incurred is due to increase significantly, when the planned outage programme for the Cheviot boundary commences.

1.39. In addition, NGET's current transmission constraint estimates may rise further if NGET is able to advance the connection dates of generators as part of the "interim connect and manage" arrangements proposed as one of the short term measures in the context of the Transmission Access Review (TAR) (and referred to in paragraph 1.14 above). NGET and the transmission licensees have so far identified 450MW of Scottish renewable generation whose connection dates could be advanced subject to appropriate GB SQSS derogations being in place. NGET has stated that the connection of an additional 450MW of Scottish generation is likely to give rise to an additional £40 million of constraints costs per annum, if the full amount of generation connects in 2009/10.

1.40. As noted above, we have recently issued an open letter setting out the interim approach we will adopt to GB SQSS derogations, which we consider will facilitate earlier connection of generation to the transmission and distribution systems in GB. We have noted in that context that we understand from NGET that, whilst the impact of the 450MW on constraints costs might amount to as much as £40 million per annum, costs would build up to this level and might be significantly lower than this figure in the first year of the derogation. The interim approach we are adopting is likely to result in additional derogated boundaries, which would also be covered by CAP170.

1.41. In the longer term, future investments in the network to increase capacity and some of the developments which are being considered in the context of TAR may help to mitigate the level of constraints costs and provide a more equitable and efficient basis for recovering those costs from all transmission network users. We currently expect these enduring arrangements to be in place by 2010 at the earliest.

Structure of this document

1.42. The remainder of this document is structured as follows:

- Chapter 2 provides an overview of CAP170 and the consequential changes that NGET has proposed;
- Chapter 3 sets out our assessment of the impacts of CAP170; and
- Chapter 4 sets out the way forward.

2. Overview of CAP170

Chapter Summary

This chapter provides an overview of CAP170 and an overview of the consequential changes NGET has proposed to the Grid Code, its Procurement Guidelines and its Balancing Principles Statement.

Question box

There are no questions on this chapter

Overview of CAP170

2.1. One tool available to NGET, as SO, to manage constraints is the use of intertrips. As noted previously, an intertrip is a device that may be armed so that it automatically trips a breaker that reduces output or temporarily disconnects a generator from the transmission system when the intertrip receives a specific signal. The signal is delivered in the occurrence of a sudden event on the transmission system, such as a fault on a specific part of the system. When an intertrip arrangement is in place, a transmission line can safely transmit an increased amount of electricity before a constraint level is reached, because the intertrip ensures that the system will not be overloaded if an event such as a fault does occur. If no intertrip is in place, NGET would take alternative action such as Bid-Offer actions in the Balancing Mechanism to constrain generation pre-fault, or would enter into contracts with relevant generators to reduce output.

2.2. Whilst intertrips are armed pre-fault and there is a cost associated with arming an intertrip (ie having it in place and ready to be used), the principal cost would be expected to occur post-fault following tripping, to compensate a user for the loss of access to the system when an intertrip has to be used. Therefore based on NGET's assessment of the low probability of tripping (and the low probability therefore of loss of system access for those users with an intertrip scheme in place) intertrips should represent a more economic and efficient means for managing constraints than alternatives such as Bid-Offer actions to pay to constrain generation pre-fault.

2.3. NGET has advised that at derogated non GB SQSS compliant transmission boundaries, the need to take action to manage constraints is more onerous than at compliant transmission boundaries. The reason for this is that there is a shortage of capacity relative to the volume of generation connected. There is currently only one such derogated boundary, the Cheviot boundary, but there is scope under the existing framework for the transmission licensees to apply for derogation for other boundaries. NGET considers that administering prices for intertrips capable of being armed in respect of derogated non-compliant transmission boundaries would offer a means to limit potential costs.

2.4. CAP170 seeks to introduce a new category of System-to-Generator Operational Intertripping Scheme to cover intertrips capable of being armed only with respect to derogated non-compliant transmission boundaries.

2.5. It is proposed that a 'Category 5 Intertripping Scheme' would be defined (in the Grid Code, see section below for more detail) as an intertripping scheme which:

> "(i) is required to alleviate thermal overloads, unacceptable voltage conditions or power system instability arising out of an event which results in the interruption of powerflow on a circuit or circuits that form part of a Derogated Non-compliant Transmission Boundary; and
>
> (ii) may only be armed in respect of such a Derogated Non-compliant Transmission Boundary".

2.6. A 'Derogated Non-compliant Transmission Boundary' would be defined as:

> "Transmission Circuit(s) forming part of the GB Transmission System which is/are the subject of a GB SQSS Derogation".

2.7. A 'GB SQSS Derogation' would be defined as:

> "A direction issued to NGET and/or Relevant Transmission Licensee by the Authority relieving NGET and/or Relevant Transmission Licensee from obligations under the Security and Quality of Supply Standard".

2.8. The detail in respect of individual Category 5 Intertripping Schemes would be specified in the F3 appendix of the relevant Bilateral Agreement between NGET and a generator, and applied to existing or new intertrip providers capable of being armed in respect of a derogated non-compliant transmission boundary.

2.9. It is proposed that a methodology will be used to determine which generators will be required to provide a Category 5 Intertripping Scheme. The CAP170 proposal sets out that this methodology will be based upon a cost-benefit analysis, considering aspects such as installation costs and the cost associated with the administered scheme. NGET has consulted on proposed amendments to its Procurement Guidelines and Balancing Principles Statement (discussed further below) that we understand are intended to form this 'methodology'.

2.10. Under CAP170, it is envisaged that Category 5 Intertrip Schemes would be in place until such time as the nature of the boundary changes (i.e. the derogation is no longer in place).

2.11. It is proposed that the Category 5 Intertripping Scheme will receive remuneration in line with existing arrangements for the Category 2 and 4 System to Generator

Operational Intertripping Schemes[13]. The payments made for Category 2 and 4 System-to-Generator Operational Intertrip Schemes were introduced by CAP076, and the level of payment was established by the CAP076 working group in the course of its consideration of CAP076. This payment includes:

- an annual Capability Payment (£/annum) for the installation and right to arm the scheme covering costs such as additional staff training, upkeep of policies and procedures
- an Intertrip Payment (£/generating unit/trip) covering costs of wear and tear following a trip as well as additional fuel costs, and
- a Restricted Export Level Payment (£/MW/day) following tripping should NGET be unable to restore the transmission capacity within 24 hours following the trip.

2.12. The Capability Payment is currently around £33,000 per annum[14], and the Intertrip Payment £443,000 per generating unit[15] providing this Category of Intertrip (the working group rationale behind this level of administered price is described in chapter 3). The Restricted Export Level Payment is intended to rebate TNUoS charges on a daily basis (if capacity is not available after 24 hours), in accordance with the standard payments for disconnections introduced by CAP048[16].

Implementation issues

2.13. CAP170 proposes to include text within the CUSC to deal with the implementation process for CAP170. This is intended to facilitate issuing, where appropriate, amended Bilateral Agreements to users setting out the detail of individual Category 5 intertrip arrangements. This process provides for users to refer such proposed amendments to the Authority for the terms to be settled[17]. That is, should a user not agree with the changes that NGET has proposed to make to its Bilateral Agreement where NGET has identified that user should provide a Category 5 Intertripping Scheme, and the user does not agree to the terms NGET has proposed, the terms could be settled by the Authority.

2.14. Following determination by the Authority, where applicable and in accordance with the variation clause of the relevant Bilateral Agreement, the user and NGET would be required to amend the Bilateral Agreement in accordance with the Authority's determination.

[13] As set out in CUSC section 4, Schedule 4.
[14] CUSC section 4, Schedule 4 sets out that the Capability Payment is £1.72 per settlement period. This figure is specified at April 2005 base, and is subject to indexation in accordance with paragraph 4.5 of the CUSC. The indexation rate for the current year is 1.1092 which gives a payment rate of £1.91 per Settlement Period (correct to two decimal places). £1.91 x 17520 Settlement Periods per year = £33,463.20.
[15] CUSC specifies a figure of £400,000. As above, using indexation rate for the current year, £400,000 x 1.1092 = £443,680.
[16] See Ofgem's decision letter for more information: http://www.nationalgrid.com/NR/rdonlyres/14ACD9FA-F3EB-437E-B07C-024056ED79F8/2112/CAP048D.pdf
[17] As provided for under standard licence condition C9 (Functions of the Authority) ('SLC C9') of NGET's transmission licence.

2.15. In addition, the implementation of CAP170, if approved, is dependent on the consequential changes, discussed in more detail below, being made to the Grid Code and NGET's Procurement Guidelines and Balancing Principles Statement.

CUSC Amendments Panel recommendations

2.16. The Panel discussed CAP170 at its meeting of 23 March 2009 and recommended by majority that the Authority reject CAP170. We received the final Amendment Report for CAP170 on 25 March 2009. The report recommends that, if approved, CAP170 should be implemented immediately.

Overview of consequential changes

Grid Code change proposal B/09

2.17. NGET has identified that the introduction of a new Category 5 Intertripping Scheme would require associated Grid Code changes to allow the commercial arrangements for such new schemes to operate effectively.

2.18. Grid Code change B/09 proposes to introduce into the Grid Code a new category of intertripping scheme which will be utilised by NGET (in its role as SO) to operate and manage the GB Transmission System.

2.19. It is proposed that the Category 5 Intertripping Scheme would enable increased pre-fault power flows at a 'Derogated Non-Complaint Transmission Boundary' than would otherwise be the case and would only be armed in respect of such 'Derogated Non-Complaint Transmission Boundary'.

2.20. It is proposed to include the following newly defined terms (see paragraphs 2.5-2.7 above) into the Glossary and Definition section of the Grid Code:

- Category 5 Intertripping Scheme
- Derogated Non-Compliant Transmission Boundary
- GB SQSS Derogation

2.21. It is proposed that the definition of 'System-to-Generator Operational Intertripping' and 'System-to-Generator Operational Intertripping Scheme' will also be amended such that it aligns with the new category of intertripping scheme.

2.22. The proposed change has been consulted upon by NGET, and discussed with the Grid Code Review Panel ('GCRP'), which expressed its concerns with respect to the proposal. The GCRP was concerned that the proposed Grid Code changes do not adequately describe what constitutes a 'Category 5 Intertripping Scheme' and under what circumstances this new category of intertrip would be utilised. The GCRP was also

concerned that the changes were being progressed in short timescales compared to other Grid Code change proposals. The GCRP's concerns, and NGET's responses to those concerns, are set out in more detail in NGET's report on B/09. We received the report on B/09 on 25 March 2009. NGET recommended in that report that the change is approved, with an implementation date to be agreed between Ofgem and NGET if the change is approved (as is standard practice in respect of approved Grid Code changes).

Procurement Guidelines

2.23. Under the existing Procurement Guidelines, System-to-Generator Operational Intertripping is a 'Part 2 Ancillary Service', ie a necessary service required from some generators where agreement is reached that a generator's connection is conditional upon the provision of this service. The service covers the existing four categories of operational intertrip and is provided as a condition of connection, with remuneration for each category as described in paragraphs 2.11 and 2.12 above.

2.24. NGET is proposing to introduce Category 5 Intertrip Schemes as a Part 2 Ancillary Service in the Procurement Guidelines. This service may be required from existing and new generators.

2.25. NGET's proposed change to the Procurement Guidelines aims to set out the criteria that, amongst other things, NGET would base its decision on the selection of an appropriate provider for this service. These proposed criteria are:

a) technical characteristics of a Generating Unit

b) the cost of connecting a Generating Unit to the System-to-Generator Scheme

c) payments associated with a category 5 service provider

d) size of load

e) load factor and the likelihood of a Generating Unit running during constraint periods

f) anticipated time to return to commercial load following an intertrip, and

g) diversity of generation necessary to allow effective management of constraints if, for example, plant with intertrip capability is not generating or if it is required to generate at a certain output to manage local issues.

2.26. We expect to receive NGET's report on this proposed change to the Procurement Guidelines by July 2009, to enable us to make a decision on this proposed change in the

same timescales within which we currently expect to make a decision on CAP170 and the other consequential changes that have been proposed[18].

Balancing Principles Statement

2.27. The Procurement Guidelines referred to above set out the principles by which NGET procures the balancing services. The Balancing Principles Statement outlines how these services are used.

2.28. NGET has proposed to amend the Balancing Principles Statement to clarify how it will make the operational decisions in respect of utilisation of Category 5 Intertrip Schemes. The proposed changes set out that a key operational decision in utilising the category 5 intertrip service is the selection of suitable generating units that could meet the required intertrip volume on a derogated non-compliant transmission boundary. NGET proposes to amend the Balancing Principles Statement to reflect that such a decision is likely to be based on the system conditions at the time, taking into account factors such as:

a) the output of category 5 providers' generating units

b) the effectiveness of intertripping a specific unit in relieving the constraint with respect to the conditions at that time

c) any disproportionately detrimental effect to the system in the event of a specific generating unit or combination of units being intertripped when compared to the benefit of arming that generating unit or units (e.g. impact of loss of MVAr reserves, local constraint issues)

d) where practicable, only arming sufficient intertrip volume on generating units to enable the discrepancy between the present derogated transmission boundary capability and that capability that would be required to satisfy compliance with the GB SQSS, and

e) equitable treatment of generating units where more than one generating unit can provide the required intertrip volume and where, after taking into consideration the above criteria, there is no way of differentiating between them.

2.29. On 29 April 2009, NGET circulated a number of worked examples that aimed to clarify the procurement and utilisation criteria it would apply to Category 5 Intertripping Schemes[19]. NGET provided three worked examples:

[18] Under SLC C16, and unless the Authority directs otherwise, before revising its Procurement Guidelines, NGET is required to submit a report to the Authority on the proposed revisions, within seven days of the close of the consultation period on the proposed revisions. Following receipt of the report, the Authority has 28 days within which to make a decision on whether to veto the proposed changes. In this case, NGET's consultation on proposed changes to its Procurement Guidelines closed on 13 May 2009. We have directed that NGET shall not submit its report within seven days of that date, to avoid the Authority being in a position of making a decision on whether or not to veto changes to the Procurement Guidelines, in advance of the consultation and decision on CAP 170 being complete. We consider that as the proposed changes are as a consequence of CAP 170, it is appropriate that the Authority makes its decisions on these changes in consistent timescales with CAP 170.

- The first example was designed to show how NGET would select the most appropriate generating units to provide this service in a scenario where some stations already have commercial intertrip schemes installed

- The second example is identical to the first, except that it assumes none of the stations have pre-existing commercial intertripping arrangements in place

- The third example aimed to show how NGET would arm the most appropriate intertrip.

2.30. We expect to receive NGET's report on this proposed change to the Balancing Principles Statement by July 2009, to enable us to make a decision on this proposed change in the same timescales within which we currently expect to make a decision on CAP170 and the other consequential changes that have been proposed[20].

[19] These worked examples were published on NGET's website on 5 May 2009 - http://www.nationalgrid.com/uk/Electricity/Balancing/consultations/.
[20] Please see footnote 17. The same licence obligations (and our direction) also apply in respect of changes to the Balancing Principles Statement.

3. Quantitative and qualitative analysis of impacts of CAP170

Chapter Summary

This chapter sets out and seeks views on our assessment of the impacts of CAP170. It includes our quantitative and qualitative analysis of the specific impacts of CAP170 as well as an assessment of environmental impacts as required under Section 5A(4)(a) of the Utilities Act 2000. We have also considered CAP170 in terms of key themes which are relevant to the Applicable CUSC objectives and the Authority's wider duties, including the Authority's principal objective and relevant European legislation.

Question box

Question 1: Do respondents consider we have appropriately identified, and where possible quantified, the impacts of CAP170, including environmental impacts? If not, what additional quantification is required?

Question 2: Do respondents consider that there are additional impacts that have not been fully addressed? Where respondents consider that there are additional impacts, what are these impacts?

Question 3: Do respondents wish to present any additional analysis that they consider would be relevant to assessing the direct and indirect impacts of the proposals?

Question 4: Do respondents wish to raise any other issues that they have not had the opportunity to raise in the course of NGET's consultations on CAP170 and the consequential changes given the urgent timescales?

Question 5: Do respondents have any views on the implementation issues associated with CAP170, including the nature, scope and development timescales for consequential changes to other documents?

Question 6: Do respondents consider there are any further risks and unintended consequences associated with CAP170 which the Authority should consider in reaching its decision?

Introduction

3.1. This chapter sets out and seeks views on Ofgem's preliminary assessment of the impacts of CAP170 according to the following key themes:

- Impact on consumers
- Impact on competition
- Impacts on sustainable development

- Impacts on health and safety
- Risks and unintended consequences
- Other impacts including implementation costs.

3.2. In undertaking this impact assessment we have taken account of the consultation responses to NGET's consultation on CAP170. We have taken account of the consequential changes NGET has proposed to other documents (described in the previous chapter), and (where these have been available in advance of the publication of this impact assessment) responses to NGET's consultations on those changes.

3.3. We have also taken account of the analysis set out in the next section, was undertaken (based on historic and forecast data provided by NGET) in order to seek to quantify in the impacts of CAP170 on the existing derogated boundary, the Cheviot boundary. In the subsequent sections we apply this analysis in Ofgem's qualitative assessment of the impacts on the areas set out above.

Quantitative analysis of impact of new category of intertrip

3.4. In general terms, the introduction of a new category of administered intertrip scheme might be expected to have an impact on:

- **volume** of constraints: broadly speaking, if the introduction of this category of administered intertrip replaces alternative Balancing Mechanism actions and other commercial arrangements to constrain generation pre fault, it might be expected to result in a reduction in the volume of generation physically constrained off and an increased volume of intertrip being armed, and
- **cost** of constraints: regardless of any potential impact on volume, it might be expected that the introduction of administered intertrip arrangements would reduce the costs associated with managing constraints, by replacing Balancing Mechanism actions or other commercial arrangements.

3.5. We have compared the volume and costs of constraints that have risen or are expected to arise on the existing derogated boundary (the Cheviot boundary) under the existing arrangements, to the volume and costs of constraints that might be expected were CAP170 to be approved and implemented.

3.6. We have used as the base case the data provided by NGET on the actual historic and forecast volume and cost of constraints on the Cheviot boundary. NGET has also provided data setting out the changes CAP170 would introduce (the 'post CAP170 scenario'). We have described in more detail in Appendix 2 the assumptions that NGET has used in establishing the historic and forecast volume and cost changes in the post CAP170 scenario, and would welcome views on whether respondents agree with NGET's approach. We note that the data NGET has provided for the post CAP170 scenario assumes no impact on the volume and costs of constraints in England and Wales as a

result of CAP170, as it assumes that there is only one derogated boundary to which CAP170 would apply. Whilst we have not undertaken quantitative analysis on the impacts of CAP170 on boundaries other than the Cheviot boundary, we have considered in our qualitative analysis the likely impacts of applying CAP170 to other derogated boundaries.

3.7. The expected impact of CAP170 on volumes and costs of constraints on the Cheviot boundary, and the rationale behind the administered price NGET has proposed applying under CAP170, is discussed below.

Impact on constraints volumes

3.8. On the basis of the information available to us, it would not appear that the introduction of CAP170 is likely to have a significant impact on the volume of constraints on the Cheviot boundary going forward, as can be seen from the graph below (figure 1)[21] which shows the same volume of forecast constraints on the Cheviot boundary in later years for both the pre and post CAP170 scenarios.

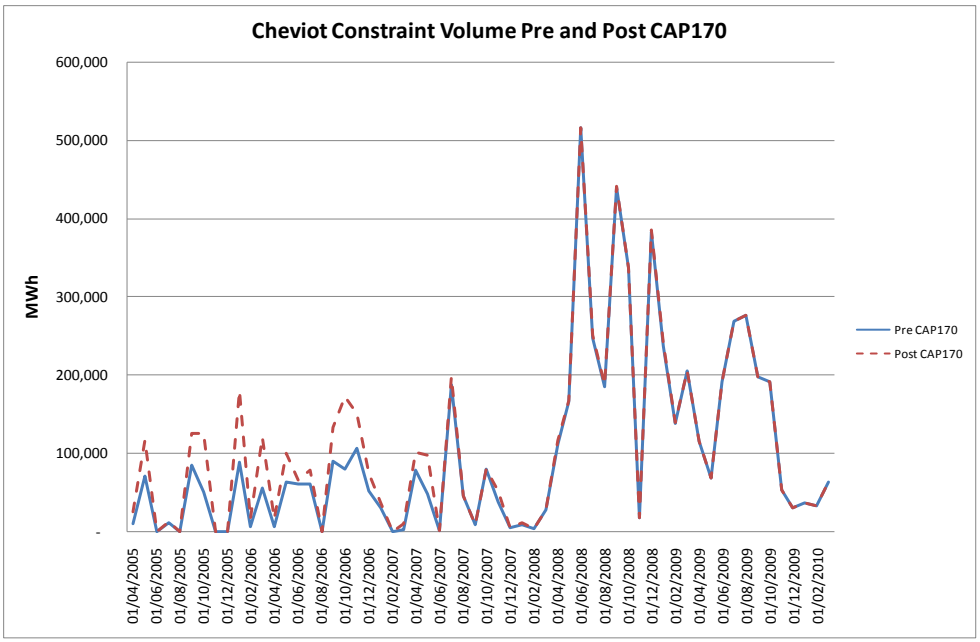
3.9. The reason for this is that until mid 2006, NGET took actions in the Balancing Mechanism to constrain generation pre-fault. Such action might be expected where constraints volumes are expected to be relatively small. Were CAP170 to be introduced in the context of these actions, then it would be expected to reduce the volume of constraints.

3.10. However, the data NGET has provided indicates that from mid 2006, NGET has also used contractual arrangements, including commercial intertrip, to manage constraints on the Cheviot boundary. This course of action might be expected where constraints volumes are expected to be more significant, eg where outages such as the planned Cheviot investment programme further reduce network capacity on a part of the system that is already restricted. Given that intertrip arrangements are already established (albeit on a commercial basis) to seek to minimise constraints volumes on the Cheviot boundary, then CAP170 would not be expected to have an impact on the volume of constraints (although it might still be expected to impact on costs, as discussed in the section below).

3.11. Whilst this is the case in respect of the Cheviot boundary, it might be expected that CAP170 would have an impact on the volume of constraints were it to apply to another derogated boundary that did not have pre-existing intertrip arrangements in place. In these cases, we would expect CAP170 to reduce constraints volumes, as administered intertrip arrangements would be expected to replace alternative actions to constrain generation pre-fault.

[21] The graph looks at total volume of historic and forecast constraint related actions on the Cheviot boundary taken pre and post CAP170. These actions include intertrips armed and tripped, Balancing Mechanism actions and in the case of the forecast data in 2009/10, any contracts for restricting volume that NGET took with parties in advance.

Figure 1 – Cheviot constraint volume pre and post CAP170

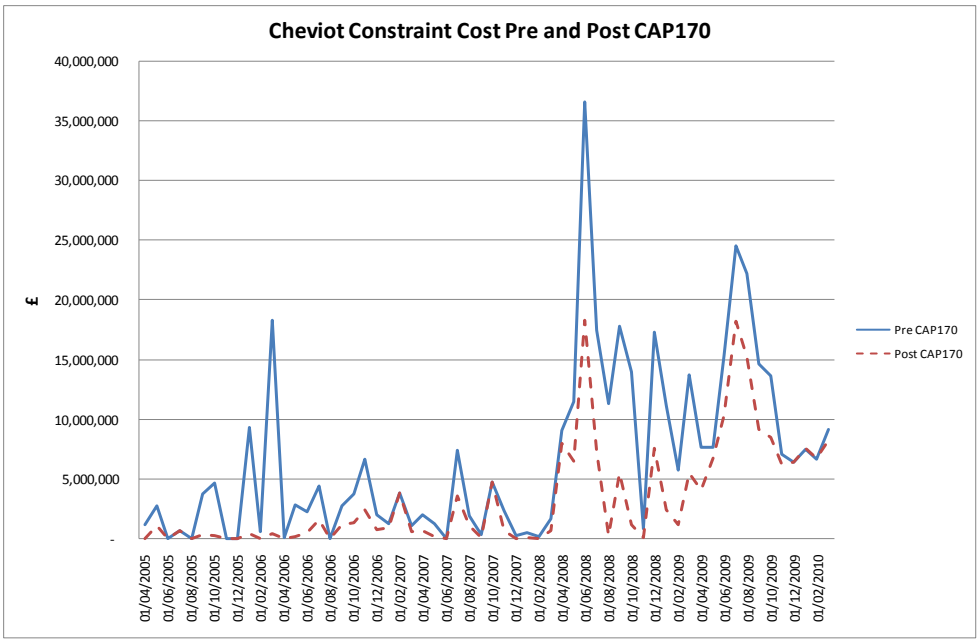


Impact on constraints costs

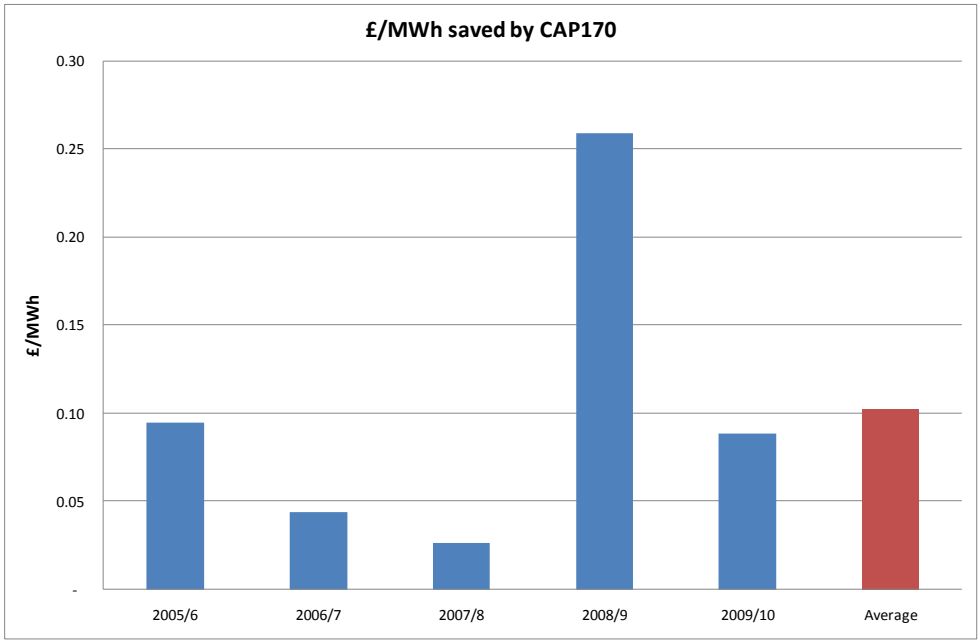
3.12. The graph below (figure 2) shows the total cost of constraints on the Cheviot boundary in the period before CAP170 for the years 2004/05 to 2009/10 and the expected costs after the introduction of CAP170[22]. This indicates that the costs of constraints in the post-CAP170 scenario are less than the pre-CAP170 scenario. It indicates a reduction on average by £40.6m per annum.

[22] In the analysis we have assumed that introducing the new Category 5 System-to-Generator Operational Intertripping Scheme does not affect the incidence of constraint occasions that NGET has to deal with in relation to derogated non-compliant boundaries. However, it is possible that the use of intertrips will change generator behaviour at the non-compliant boundary. We have not modelled this since there is uncertainty as to how behaviour might be affected. The analysis also assumes that all Category 5 schemes can commerce immediately and therefore ignores the potential transitional effect of run-off period for existing commercial contracts.

Figure 2 – Cheviot constraint cost pre and post CAP170



3.13. The change in the costs of constraints in these years would have had the impact of reducing the BSUoS paid by parties by on average £0.1/MWh per year as shown in the graph below.



3.14. Additional detail on the constraints costs at the Cheviot boundary is shown in the graph below (figure 3a). As discussed above, prior to mid 2006, NGET took actions in the Balancing Mechanism to reduce constraint volumes on the Cheviot boundary. Post

CAP170 the Balancing Mechanism constrained off costs have been reduced and replaced by the CAP170 intertrip costs. Post 2006, commercial intertrips are also used to address constraints rather than solely Balancing Mechanism actions. In the years 2008/09 and 2009/10 therefore, the graph shows constraint costs relating to use of commercial intertrips pre CAP170 being replaced by costs relating to the use of category 5 operational intertrips post CAP170. This can be seen more clearly by looking at two sample years (figure 3b), 2006/07 and 2008/09 also included below (same key applies to all graphs).

Figure 3a – Breakdown of Cheviot constraint costs pre and post CAP170

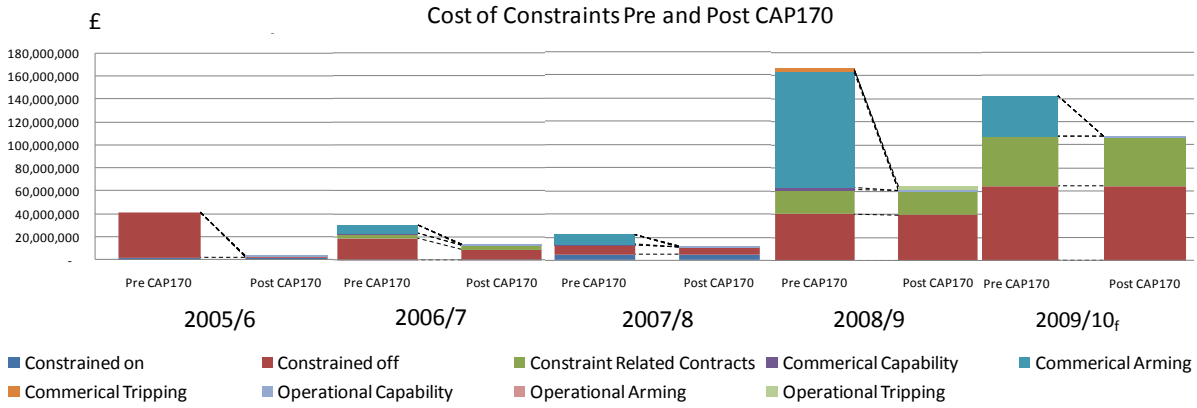
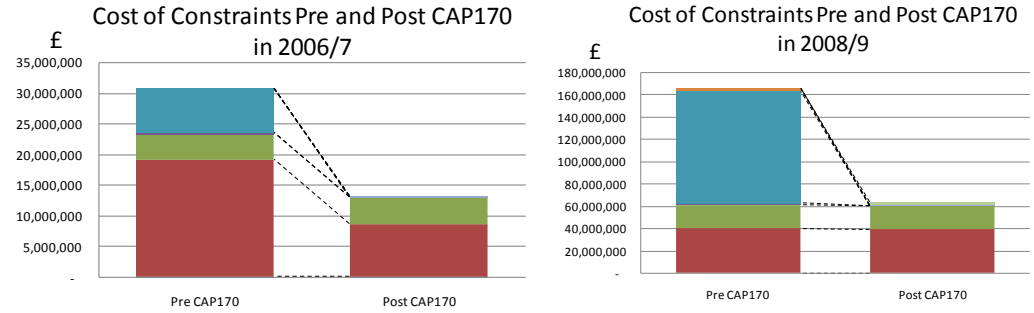


Figure 3b – Breakdown of Cheviot constraint volume pre and post CAP170 – sample years taken from above graph



Level of administered price

3.15. We note that any administered price for intertrip, to the extent that it is lower than the costs associated with alternative actions or commercial intertrip costs, would be expected to result in a positive impact on suppliers and ultimately customers by reducing the costs associated with managing constraints. The cost savings associated with CAP170 that we have identified above are based on applying the administered price that NGET currently applies to Category 2 and Category 4 Intertrip Schemes. We discuss in this section whether this is a reasonable price to apply to the Category 5 intertrip scheme that CAP170 would introduce.

3.16. We have described in chapter 2 the elements that make up the administered payments that NGET makes for the provision of Category 2 and Category 4 operational intertrip (ie the annual capability payment and the intertrip payment) and the level of payment for each element.

3.17. As also noted in chapter 2, the existing arrangements (which NGET proposes should apply to CAP170) were developed by the working group considering CAP076, and were implemented following the Authority's approval of CAP076 in July 2005. As set out in chapter 2 the CAP076 working group identified the need for three types of payment: an annual Capability Payment, an Intertrip Payment, and a Restricted Export Level Payment.

3.18. The annual capability payment is intended to cover administrative costs such as the costs of relevant staff training. The CAP076 working group report[23] sets out that the group discussed a range of costs, based on the time to train one individual, the number of individuals requiring training, typical patterns of shift working and the full time equivalent cost of these individuals. The group considered that a figure of £30k per annum was appropriate.

3.19. To establish the level of the Intertrip Payment, an approach based in part on 'Equivalent Operating Hours' (EOH) was used by the CAP076 working group. A figure of 300 EOH for each trip is applied, and in developing the payment the working group noted that a range of prices for EOH could be applied, depending on generating technology and other factors (from £250/EOH to £700/EOH). The Intertripping Payment includes the costs per EOH, wear and tear, and the fuel start up fees to bring the unit back (but excludes the costs of consequential losses). The working group considered a range of possible Intertrip Payments, from £100,000 for a gas generating unit to £400,000 for a coal generating unit. The group considered that if a single figure was to be included in the CUSC then the figure should be at the top of the range (i.e. £400k per generating unit per trip) so as to ensure all generators are incentivised to have their intertrips armed.

3.20. The Restricted Export Level Payment was intended to rebate the average TNUoS charges on a daily basis. The approach adopted by the CAP076 working group for calculating this is consistent with the standard payments for disconnection introduced by CAP048.

3.21. Based on the information available to us, we have not at this stage identified a material difference between new Category 5 intertrip scheme and existing operational intertrips that receive this payment. We would welcome respondents' views on this. To the extent that there is no material difference, then it would appear to be appropriate to apply the same price to the new category of intertrip as that which applies to existing operational intertrip categories. The impact of the level of payment proposed is discussed further in the section below setting out our qualitative analysis.

[23] http://www.nationalgrid.com/NR/rdonlyres/3D865BB1-9033-4758-8E4F-F8C93AEBFEF0/2340/CAP076finalworkinggroupreport201204.pdf

Impact on imbalance

3.22. The cash out methodology seeks to ensure that actions taken in the Balancing Mechanism to manage constraints are identified ("tagged out") and excluded in the calculation of imbalance prices so that they do not contribute to imbalance costs, although as described by Ofgem in the context of the cash out review, this can sometimes be difficult to achieve in practice. If constraint actions are not correctly "tagged out" then any actions required to manage constraints could potentially affect energy imbalance prices. Our analysis assumes that CAP170 has no effect on imbalance volumes or imbalance prices. However, any reduction in constraint actions that NGET takes in the Balancing Mechanism, as a result of having additional intertrips armed, will reduce the risk of such actions not being identified. Although we have not quantified this, it is likely to reduce the potential for constraints to affect imbalance prices.

Environmental impact

3.23. The effect of CAP170 going forward (on the Cheviot boundary) is likely to be replacing a commercial payment for intertrip with an administered payment. We do not consider that there is a quantifiable environmental impact associated with this change, as we would not expect this to have a significant impact on the generation mix on the system.

Conclusions

3.24. Based on the information available to us, it might be expected that the quantitative impacts of CAP170 on the cost of constraints on the existing, derogated non-compliant Cheviot boundary would be significant and could have the impact of reducing constraints costs by on average around £40.6m per annum.

3.25. The remainder of this chapter takes this quantitative analysis into account in setting out Ofgem's assessment of the impacts of CAP170 in the context of the key themes relevant to the legal and assessment framework against which we must consider CAP170.

Impact on consumers

3.26. The impacts of CAP170 quantified above, would in turn be expected to lead to an impact on both existing and future consumers through the impact on electricity bills. Our quantitative analysis suggests that CAP170 benefits consumers since the introduction of CAP170 might be expected to lead to a reduction in the costs that might otherwise be incurred in managing constraints at the Cheviot boundary. We would expect CAP170 to reduce the costs of managing constraints at other derogated boundaries, to the extent that this type of administered intertrip is used as an alternative to more costly actions. This would be expected to result, ultimately, in costs savings for consumers, although we note that there are a range of factors which determine the extent to which impacts that appear at a transmission level are ultimately passed through to consumers.

Impact on competition

Competition in electricity generation and supply

3.27. As we have set out previously in this document, at non-compliant derogated boundaries there is a greater volume of constraints relative to the volume of constraints at compliant boundaries, and therefore increased need to take actions, and incur higher costs, to manage such constraints. As such it might be expected that by seeking to reduce the costs associated with managing constraints at a derogated non-compliant boundary, CAP170 has a positive impact in terms of reduced level of volatility of BSUoS costs for generators and suppliers on the system overall.

3.28. Indeed, to the extent that it reduces the risk or unpredictability associated with costs behind a non-compliant boundary, which may otherwise act as a barrier to entry to generation and supply, then we consider an administered solution such as CAP170 could have a positive impact on promoting competition. However, we recognise that any such pro-competitive impact is likely to be secondary to positive impacts in terms of savings for consumers. In terms of impact on competition, the most significant impact might be expected to be on the ancillary services market in the areas in which CAP170 would apply, as discussed below.

Competition in the ancillary services market

3.29. We support the principle of having a competitive ancillary services market, with market driven prices. Extending administered price intertrip arrangements could be perceived to be at odds with this general principle. However, whilst we fully support the principle of competitive ancillary services markets, we must be satisfied that in practice these markets are effectively competitive (and this assessment must include the extent to which those with market power in the primary markets may have the incentive and ability to demand higher prices in the ancillary market or markets). To the extent that there may be concerns about effective competition in such markets, then extending administered arrangements may be regarded as more appropriate than relying on a market based solution.

3.30. On 30 March 2009, we issued our initial policy proposals on addressing market power concerns in the electricity wholesale sector ('the 30 March 2009 consultation')[24]. We set out in that document that Ofgem is concerned that the GB market is vulnerable to the undue exploitation of market power, both when there are constraints on the GB transmission system and more generally at times of system tightness. We discussed rising constraints costs and set out that, whilst increases in constraint costs can be partly explained by the trends in transmission availability and generation connections, it is also the case that the factors which have given rise to the existence of market power, and thus the potential for its undue exploitation have increased over the past few years. We noted that applying observed pricing differentials[25] to then forecast constraint

[24] http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?file=Market%20Power%20Concerns-%20Initial%20Policy%20Proposals.pdf&refer=Markets/WhlMkts/CompandEff

[25] Pricing differentials between generators in Scotland and England and Wales have been observed at times of constraint, both in the Balancing Mechanism and contracts with NGET (including commercial inter-trips).

volumes in 2008/09, in a worst case scenario the potential direct costs attributable to undue exploitation of market power could be as much as around £125m per annum[26].

3.31. As noted above, the volume of (and therefore costs associated with) constraints at a derogated non-complaint boundary are already likely to be greater than at a compliant boundary. On any part of the system there may be limited scope in terms of which generator NGET chooses to take a particular action (as much depends on the particular part of the system at which the constraint arises). However, where the constraint arises at a non-compliant boundary, NGET has limited option for alternatives such as rearranging outages, and is more likely to seek actions from generation to manage the constraint. In these circumstances, there may be increased scope for undue market exploitation, and where market power exists in the primary markets it will often arise in the ancillary market as the providers of the product/service are the same.

3.32. We discussed concentration in generation ownership in the March 2009 consultation. We noted that concentration levels in the generation market in Scotland are high relative to GB as a whole, with an HHI[27] at around 3300 compared to 1000 for GB. Moreover, concentration levels are even higher in terms of flexible plant that is capable of providing short notice balancing power to NGET. Between them, ScottishPower and Scottish and Southern Energy currently own virtually all of the flexible generation plant (i.e. thermal, pumped storage and hydro) in Scotland, and HHIs based on a Scottish market for balancing power are around 5,500[28], indicating a high degree of concentration.

3.33. We note that this level of concentration, combined with other relevant factors discussed in the March 2009 consultation, may potentially influence the price NGET pays for services such as intertrip and other ancillary services. We set out some analysis in the March 2009 consultation on the price differential between Bid-Offer actions at times of constraint in Scotland (ie behind the Cheviot, non-compliant boundary) and in England and Wales. The table below shows that during export constraint periods, accepted coal bid prices in Scotland are 11 £/MWh lower on average than in other periods and are also 14 £/MWh lower than England and Wales coal prices at these times, leading to higher constrained-off costs by the same amount. In unconstrained periods, Scottish coal bid prices are 2 £/MWh lower. Accepted gas bid prices in Scotland are 9 £/MWh lower on average during export constraints than in other periods and are 10 £/MWh lower than England and Wales gas prices at these times.

[26]The worst case scenario considers the potential pricing impact of market power exploitation, comparing the observed price differentials for each type of constraint relieving action (BM, contracts, intertrips) and multiplying by the volume of actions taken. Where pricing differentials may be partially explained by the relative cost of replacement actions, an appropriate adjustment is made. The worst case scenario does not explicitly take account of the cost of any undue exploitation of market power to exacerbate the volume of constraints.

[27] The Hirschman-Herfindahl Index (HHI) is a measure of market concentration. The HHI is calculated as the sum of the square of the market shares of each firm in the market.

[28] HHIs based on actual capacity defined according to MEL (Maximum Export Limit) data from Elexon for each half-hourly period.

Volume-weighted average accepted bid prices (£/MWh), April 2005 to June 2008

		Region		
	Export constraint	*Scotland*	*E&W*	*Diff*
Coal	*Yes*	*11.8*	*25.6*	*-13.8*
	No	*22.6*	*24.6*	*-2.1*
	Diff	*-10.8*		
Gas	*Yes*	*15.7*	*25.2*	*-9.5*
	No	*25.0*	*25.8*	*-0.8*
	Diff	*-9.3*		

3.34. As noted above, CAP170 could apply to any non-compliant boundary, and there might be expected to be positive impacts in terms of reduced costs to the extent that a Category 5 Intertripping Scheme replaces more costly alternative actions behind such boundaries. However, in the circumstances discussed in our recent consultation on market power issues referred to above, we consider that the expected benefits associated with CAP170 could be more significant.

3.35. As we set out in our decision letter on CAP076 (which as previously discussed introduced the existing administered price intertrip arrangements), Ofgem agrees that, in general, administered payments are not optimal for the facilitation of competition. In the context of CAP076, we considered that such a mechanism better facilitated the Applicable CUSC Objectives than the status quo. In that context we noted that we were concerned about the risk of inappropriate, disproportionate costs being incurred by users of the transmission system (and ultimately borne by consumers).

Level of administered payment

3.36. If the payment generators receive for this service is regarded as inadequate and does not always reflect the costs associated with the provision of intertrip we note that an administered pricing arrangement might be regarded as a barrier to entry, or as having an adverse impact on existing generation.

3.37. As discussed earlier in this chapter, the administered payment proposed under CAP170 is the same as that which applies to the other categories of system-to-generator intertripping schemes. It may therefore be argued that, to the extent introducing an administered price is an improvement on the status quo and results in more efficient costs overall, then it is appropriate to remunerate generators in line with the existing administered price, which was determined to be reasonable by the CAP076 working group and should therefore remunerate generators appropriately for this service. In any case, we note that the level of payment for all providers of operational intertrip can be reviewed and if appropriate amended through an appropriate CUSC change. In particular, if CAP170 is approved, given that it is an urgent amendment proposal, in accordance with CUSC 8.21.1.9, the Panel shall determine whether or not

to submit the amendment for review by a working group. To the extent the Panel considered it appropriate, any review of the administered price that would apply to any category of system to generator intertrip could be undertaken as part of that review.

3.38. It might also be argued that CAP170 could create a barrier to entry or adversely impact the competitive position of existing generation, as generators may be concerned that they could be selected to provide administered intertrip when they were previously benefitting from commercial arrangements with NGET. It could be argued that this would introduce a new regulatory risk and have an adverse impact on investment decision in the GB generation market. In this context, we note that any uncertainty about the selection of generators required to provide this service is likely to be mitigated where NGET is required to comply with a clear methodology and where future and existing market participants can understand fully the criteria NGET will apply in identifying who will provide this service, and when that service will be utilised.

3.39. We note that NGET has proposed changes to its Procurement Guidelines and Balancing Principles Statement to establish the criteria it would apply when identifying the provider of this service, and what factors it would take into account when deciding how to utilise this service, as well as a worked example. We would welcome respondents' views on those proposed changes.

Discrimination issues

3.40. It might be argued that CAP170 introduces issues with regard to discrimination as a result of the fact that it applies:

(i) only to generation behind a non-complaint derogated boundary, and not to all generators, and

(ii) because it applies to only some, and not all generation behind such a boundary.

3.41. However, we note that situations can arise where differential treatment is lawful. This is sometimes referred to as due discrimination. Equally, differential treatment may be unlawful, and is sometimes referred to as undue discrimination. Undue discrimination is that which consists of treating like cases differently or unlike cases in the same way, without justification. It is the identification of relevant similarities (or differences) and the consequences of them along with consideration of justifications for different (or relevantly similar) treatment which is important in assessing whether or not treatment amounts to due or undue discrimination.

3.42. With regard to bullet point (i) above, we note that CAP170 applies to generators behind derogated non-compliant boundaries only and that there is currently only one derogated non-compliant boundary, the Cheviot boundary. It may be argued that the proposal discriminates against generators at any derogated non-compliant boundary to which it is applied (compared to generators elsewhere on the system), and in particular that it discriminates against generators behind the Cheviot boundary, ie generators in Scotland. It might also be argued however that there is objective justification for targeted treatment for generators located behind non-compliant derogated boundaries.

We consider that benefits enjoyed by such generators being allowed to access the system and the market ahead of transmission reinforcement should be balanced by an appropriate duty to contribute to limit the costs caused by the overselling of access rights. We further note that the arrangement put in place by CAP076 was aimed at striking a similar level of balance for generators under similar circumstances of generating capacity exceeding relevant transmission capacity. Lastly, in respect of the Cheviot boundary, the argument for due discrimination may be given further weight, to the extent that there are issues with market power behind that boundary. Our initial assessment is that CAP170 does not give rise to undue discrimination against generators behind a non-complaint derogated boundary, but we would welcome respondents' views on this.

3.43. With regard to bullet point (ii) above, CAP170 could result in a requirement for some (and not all) generators behind a derogated boundary to provide intertrip at an administered price. Again, it might be argued that this is an unfair is difference in treatment. We note that it is proposed that there will be a methodology, set out in NGET's Procurement Guidelines, to clarify the criteria NGET will apply in identifying which generators are appropriate to provide the Category 5 Intertrip Scheme. In addition, NGET has consulted on proposed criteria that it will apply when making a decision about whether to arm a Category 5 Intertrip Scheme. We would expect that in developing these criteria, NGET has taken account of the need to ensure that there is objective justification for requiring some, and not all generators, behind a derogated boundary to enter into these arrangements. We note these proposed criteria are relatively high level and note the concerns that have been expressed within the industry with regard to the lack of transparency around what criteria NGET would apply. We would therefore welcome respondents' views on whether the changes NGET has proposed to its Procurement Guidelines and Balancing Principle Statement provide adequate clarity to users in respect of the methodology envisaged in the CAP170 final Amendment Report.

Impact on sustainable development

3.44. We have considered CAP170 in the context of the five sustainable development themes, set out below, which were identified by the Authority, drawing on the UK Government's Sustainable Development strategy that sets out how Ofgem will contribute to the sustainability agenda[29].

Managing the transition to a low carbon economy

3.45. The aim of CAP170 is to reduce the costs associate with the provision of intertrip. As such, we do not expect CAP170 to have an impact on managing the transition to a low carbon economy, because we do not anticipate it will have a significant impact on the type of generation on the system. We would welcome respondents' views on this.

[29] See Ofgem's second annual Sustainable Development Report, November 2007

Promoting energy savings

3.46. Again, the aim of CAP170 is to reduce the costs associated with the provision of intertrip. As such, we do not expect CAP170 to have an impact on to promoting energy savings. We would welcome respondents' views on this.

Eradicating fuel poverty and protecting vulnerable customers

3.47. The Authority has duties in relation to the impact of proposals on the sick, disabled, elderly, those on low incomes and rural customers, as well as to contribute to the achievement of sustainable development. In considering the impact of the proposals, we are required to have regard to DECC guidance regarding the attainment of social and environmental policies.

3.48. The analysis set out earlier in this chapter indicates that CAP170 might be expected to reduce the costs associated with constraints on the transmission system. We would anticipate that some of these reductions in costs might be expected to filter through to a reduction in consumer bills. In this way, CAP170 might be expected to benefit all consumers including vulnerable ones. We would welcome respondents' views on this.

Ensuring a secure and reliable gas and electricity supply

3.49. CAP170 would potentially have an impact on security of supply if the reduction in payments made on to generators accelerated the closure of certain generation plant. However, the scale of the reduction in generator revenues is of the order of £40 million, which amounts to less than 2% of the revenue earned by Scottish generators in a typical year.

Supporting improved environmental performance

3.50. The aim of CAP170 is to reduce the costs associate with the provision of intertrip. As such, we do not expect CAP170 to have an impact on supporting improved environmental performance. We would welcome respondents' views on this.

Impact on health and safety

3.51. The aim of CAP170 is to reduce the costs associate with the provision of intertrip. As such, we do not consider that CAP170 will have an impact on health and safety. Again, we would welcome respondents' views on this.

Risks and unintended consequences

Urgency

3.52. CAP170 has been raised as an Urgent Amendment Proposal. One impact of this is that the timetable for developing and consulting on the proposal has been reduced compared to the process that might otherwise be expected to be followed. The CUSC Urgency process meant that there was no opportunity to establish a working group to analyse the proposal or to develop working group alternatives to the original proposal. CAP170 seeks to introduce changes to address what may be regarded as complex issues that may warrant further consideration than is usually available through the Urgent Amendment Proposal process.

3.53. We recognise the potential limitations associated with the Urgent Amendment Proposal process. In addition to the complex nature of the proposed change, there have been further consequential changes proposed to related documents for industry to consider. However, we also note that this Impact Assessment has been undertaken as the Authority considers that the proposal is important for the purposes of Section 5A of the Utilities Act. In accordance with our standard timetable for carrying out Impact Assessments, we have provided parties with a period of six weeks to consider the issues discussed in this document and respond. We consider that this will give parties an opportunity to raise any issues that they do not believe they have had an opportunity to raise in the course of NGET's consultations on CAP170 and the consequential changes. In addition, the CUSC provides for a working group review to be undertaken if any Urgent Amendment Proposal is approved. Were CAP170 to be approved, we would expect that process to provide an opportunity for the issues CAP170 seeks to address to be further considered, and further proposals raised if appropriate. We would welcome respondents' views on the impacts off the process for developing and consulting on CAP170 and the consequential changes.

Existing Commercial Contracts

3.54. NGET currently has a number of existing commercial contracts in respect of the provision of intertrip for the Cheviot boundary. We note that such commercial arrangements are outside the scope of the CUSC. If CAP170 were to be approved, we would expect NGET to enter into appropriate agreements under the CUSC, with administered prices.

3.55. In our Final Proposals document for the SO incentives for 2009/10, we noted that measures such as CAP170, if agreed, could have a significant impact on the constraint costs. We explained that, in the event that there are material changes to the market arrangements governing these costs, we would be seeking to ensure that this is recognised within the incentive structure. We set out that such a change might be achieved through means of revision to the incentive target and associated scheme parameters, or as a result of an Income Adjusting Event (IAE). If appropriate, we would expect NGET to raise such an IAE or other parties to raise an IAE in the event that NGET failed to do so.

Potential disputes following implementation

3.56. NGET has proposed that CAP170 should be implemented immediately upon a decision being made by the Authority. The implementation of CAP170 would trigger a process whereby within five days of the implementation date, upon identification of a requirement for a Category 5 Intertripping Scheme, NGET is entitled to issue agreements to vary the relevant Bilateral Agreements with amended Appendix F3s providing details for the Category 5 Intertripping Scheme. The relevant User would either sign and return the varied Bilateral Agreement or make a referral to the Authority for the terms to be settled, if they dispute the changes NGET has proposed to make to their bilateral agreement in respect of the provision of Category 5 Intertripping Scheme.

3.57. We note that were CAP170 to be approved, then to the extent that parties dispute any proposal by NGET to require them to provide a Category 5 Intertrip Scheme, the Authority has the power to settle the terms offered through the formal determination route. Whilst the Authority would endeavour to take forward such determinations in as short timescales as possible, depending on the number and scope of disputes, the need to go through the determination process could delay the cost savings we have indicated might be expected if CAP170 were implemented.

3.58. We invite views on whether there are any further risks and unintended consequences associated with CAP170 which the Authority should consider in reaching its final decisions.

Other impacts including implementation costs

Implementation Costs

3.59. We understand that from NGET's perspective the costs associated with implementing CAP170 (if approved) are minimal, relating to administration costs of amending bilateral agreements with certain generators.

3.60. NGET has also indicated that in respect of the Cheviot boundary, costs are also expected to be minimal, as NGET will not be asking any providers beyond those that currently have intertrip schemes installed to install equipment.

3.61. If another boundary were to be derogated then it is possible a generator who does not presently have intertrip equipment would be asked to install it. We do not have specific information on how much this would cost, but NGET has indicated that the costs are likely to be low, i.e. less than £100k. Furthermore, the annual capability fee a generator would receive is intended to cover such installation costs.

3.62. We would welcome respondents' views on these cost indications provided by NGET, and any other implementation costs we have not identified.

Consequential changes

3.63. CAP170 impacts on other industry documents, as NGET has identified a number of changes that it considers are required to the Grid Code, its Procurement Guidelines and Balancing Principles Statement as a consequence of CAP170. These proposed changes are described in chapter 2, and have been taken into account in our analysis of the impacts of CAP170 set out above.

3.64. We also note that the proposed draft legal text set out in the CAP170 final Amendment Report does not reflect the changes to the CUSC that will be directed by the Secretary of State in June 2009, to give effect to the offshore regime that has been developed by Ofgem and DECC. For example, post June 2009, the CUSC term 'GB Transmission System' will be replaced with 'National Electricity Transmission System' or 'NETS'. The Authority expects NGET to develop a housekeeping change to ensure that, if CAP170 were to be approved and that approval was after the Secretary of State has directed changes for offshore transmission, the correct legal text would be included in the CUSC.

4. Way forward

Chapter Summary

This chapter sets out the way forward.

Question box

Question 1: Do respondents have any views on both the process and timetable that are proposed for the Authority making its decision on CAP170?

Way forward and timetable

4.1. This document provides six weeks for respondents to submit any comments.

4.2. The Authority will consider any responses to this consultation before reaching its decision on CAP170, B/09 and the changes NGET has proposed to its Procurement Guidelines and Balancing Principles Statement.

4.3. The Authority currently anticipates that it will publish its decisions by the end of July 2009.

Further information

4.4. Appendix 1 sets out both the details for responding to this consultation and the appropriate contact details should you have any questions. It also sets out a list of all the key areas where we have sought respondents' views in this document. Respondents' views are also welcomed on any other aspect of this document.

Appendices

Index

Appendix 1 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of each chapter heading and which are replicated below.

1.3. Responses should be received by 2 July 2009 and should be sent to:

Lesley Nugent
Senior Manager – Transmission
Ofgem
70 West Regent Street
Glasgow
G2 2QZ
0141 331 6007
lesley.nugent@ofgem.gov.uk

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.6. Next steps: The Authority will consider any responses to this consultation before reaching its final decisions. The Authority currently anticipates that it will publish its decisions by the end of July 2009.

1.7. Any questions on this document should, in the first instance, be directed to Lesley Nugent (contact details as above).

CHAPTER: One

There are no questions in this chapter.

CHAPTER: Two

There are no questions in this chapter.

CHAPTER: Three

Question 1: Do respondents consider we have appropriately identified, and where possible quantified, the impacts of CAP170, including environmental impacts? If not, what additional quantification is required?

Question 2: Do respondents consider that there are additional impacts that have not been fully addressed? Where respondents consider that there are additional impacts, what are these impacts?

Question 3: Do respondents wish to present any additional analysis that they consider would be relevant to assessing the direct and indirect impacts of the proposals?

Question 4: Do respondents wish to raise any other issues that they have not had the opportunity to raise in the course of NGET's consultations on CAP170 and the consequential changes given the urgent timescales?

Question 5: Do respondents have any views on the implementation issues associated with CAP170, including the nature, scope and development timescales for consequential changes to other documents?

Question 6: Do respondents consider there are any further risks and unintended consequences associated with CAP170 which the Authority should consider in reaching its decision?

CHAPTER: Four

Question 1: Do respondents have any views on both the process and timetable that are proposed for the Authority making its decision on CAP170?

Appendix 2 – Assumptions behind quantitative analysis

Establishing non-compliant volume

1.1. Assessment of the Cheviot boundary under intact network conditions reveals that the current export capability of the system across this boundary is 2200MW. Given the level of generation and demand above this boundary, NGET has estimated that the required transfer capacity of the boundary in for example 2009/10 would need to be 4013MW. Therefore, the Cheviot boundary can be seen to be deficient by 1813MW. Thus the potential volume of constraints over and above the existing system capability is assumed to be 1813MW.

1.2. This calculation can be done for each year for any derogated non-compliant boundary to calculate the volume of 'non-compliant' constraints.

Calculating historical cost savings

1.3. To calculate historical Balancing Mechanism costs savings, NGET has assumed that the arming of intertrip increases the transfer limit of the Cheviot boundary by 1320MW. This equates to additional flows of 660MWh per half-hour trading period and assuming 75% availability of the intertrip scheme(s), then for every half hour period having intertrip in place would increase flows by around 500MWh per half hour period (with a consequential reduction in the BM actions that have historically been used to constrain this volume of generation). The post CAP170 scenario assumes that at any one time, two intertrip units totalling 500MWh can be armed.

1.4. The volume of intertrips armed is calculated by considering the number of periods when the constraint was active and hence the intertrip under CAP170 would have been armed, by the number of units that would have been armed – 250MWh per unit armed.

1.5. The number of units armed per period is based on the volume of BM actions in that half hour. If the volume of actions is between 0 and 250 MWh, then one unit would have been armed. If the volume of actions is above 250 MWh, then two units would have been armed.

1.6. If less than 250MWh of BM actions were taken, the volume of BM actions could not reduce by more than 250MWh however the volume of intertrips armed would have increased by 250MWh since the intertrip volume armed is discrete and not variable. This can be seen in the graph in chapter 3 where in some cases the volume of BM actions, contracts and intertrips armed is larger post CAP170 than the status quo pre CAP170.

1.7. It was assumed that no unit was armed and disarmed more than once in a day and that the number of units armed is dictated by the maximum volume of actions. Therefore the number of units armed per day is the highest number of armed units at any given point in that day. For example, if the constraint was active for 15 periods, five of them requiring the arming of two units, then it is assumed that those two units would have been armed throughout the whole of the 15 periods.

Calculating forecast cost savings

1.8. The analysis assumes that all required Category 5 Intertrip Schemes with administered prices can commence without any delay. Therefore it ignores the potential transitional effect of costs of any run-off period for existing commercial contracts.

1.9. The administered price applied in the analysis is the 2005 price set out in CUSC section 4, schedule 4 (ie a payment of around £30,000 for arming and £400,000 for tripping).

Appendix 3 – The Authority's Powers and Duties

1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority ("the Authority"), the regulator of the gas and electricity industries in Great Britain. This Appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

1.2. The Authority's powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts.

1.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly[30].

1.4. The Authority's principal objective when carrying out certain of its functions under each of the Gas Act and the Electricity Act is to protect the interests of existing and future consumers, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the shipping, transportation or supply of gas conveyed through pipes, and the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors.

1.5. The Authority must when carrying out those functions have regard to:

- the need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- the need to secure that all reasonable demands for electricity are met;
- the need to secure that licence holders are able to finance the activities which are the subject of obligations on them[31];
- the need to contribute to the achievement of sustainable development; and
- the interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas[32].

1.6. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

[30] However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.
[31] under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Act in the case of Electricity Act functions
[32] The Authority may have regard to other descriptions of consumers.

- promote efficiency and economy on the part of those licensed[33] under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
- protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity; and
- secure a diverse and viable long-term energy supply.

1.7. In carrying out the functions referred to, the Authority must also have regard, to:

- the effect on the environment of activities connected with the conveyance of gas through pipes or with the generation, transmission, distribution or supply of electricity;
- 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 that appear to it to represent the best regulatory practice; and
- certain statutory guidance on social and environmental matters issued by the Secretary of State.

1.8. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation[34] and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

[33] or persons authorised by exemptions to carry on any activity.
[34] Council Regulation (EC) 1/2003.

Appendix 4 – Legal and assessment framework

Introduction

1.1. This Appendix summarises the legal and assessment framework for amendments to the Connection and Use of System Code (CUSC).

Procedure for proposing and assessing amendments to the CUSC

1.2. The CUSC sets out the standard commercial terms between generators (and other network users) and NGET. The CUSC also sets out the set series of procedures which must be followed in relation to proposals to amend the CUSC. Anyone who is party to the CUSC can propose an amendment to the CUSC. Once a CUSC amendment proposal has been raised, the CUSC Panel assess it before referring it to the Authority for a decision.

1.3. Any proposed amendment to the CUSC should address a defect and must better facilitate the achievement of the applicable CUSC objectives than the existing CUSC baseline. These objectives[35] are;

a. The efficient discharge by National Grid of the obligations imposed on it by the Act and the Transmission Licence; and

b. Facilitating effective competition in the generation and supply of electricity and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity.

1.4. Where the CUSC Amendments Panel ('the Panel') considers it necessary, particularly for more complex amendments, a working group may be created to fully consider a proposal. The working group may propose working group alternative amendments. A working group's findings will be consulted upon, at which stage any CUSC Party may request further alternative amendments are raised. Such requests are examined and considered by the working group and are only progressed if the majority of the working group or the working group chairman believe the request will better facilitate the Applicable CUSC Objectives compared against the current version of the CUSC.

1.5. The CUSC provides for Amendments to be considered under more Urgent and expedited timeframes if necessary.

1.6. A CUSC Party can recommend that a proposal should be treated as an Urgent Amendment Proposal. The Panel then consider such recommendation and themselves

[35] The applicable CUSC objectives are set out in standard licence condition C10 of the electricity transmission licence of NGET.

make a recommendation to the Authority as to whether an Amendment should be treated as an Urgent Amendment Proposal and they also recommend a timetable which such an Amendment should follow.

1.7. The Authority, in making its decision on the Urgent status of an Amendment Proposal considers such an Amendment will display at least one of the following characteristics;

- there is a real likelihood of significant commercial impact upon NGET, Industry Parties or Customers if a proposed modification is not treated as an Urgent Amendment Proposal
- safety and security of the network is likely to be impacted if a proposed modification is not treated as an Urgent Amendment Proposal, and/or
- the proposal is linked to an imminent date related event.

1.8. When making a decision on Urgency the Authority does not make any judgements on the merits of the actual proposal.

1.9. The Urgent Amendments process under the CUSC allows for deviation from all or any part of the Amendment Procedures as may be considered appropriate in the circumstances.

1.10. Each proposal and alternative amendment will be assessed and voted upon by the Panel before the Final Amendment Report is submitted to the Authority. The Final Amendment Report includes the recommendation from the Panel on whether or not the proposal or alternatives should be made on the basis of whether each of the individual proposals better facilitate the applicable CUSC objectives when compared against the current baseline. It also includes a proposed implementation date in the event that the proposal is approved by the Authority.

1.11. CUSC amendment proposals are also assessed in the context of section 9 of the Electricity Act 1989. This requires transmission licensees to:

- Develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and
- Facilitate competition in the supply and generation of electricity.

1.12. As transmission licensee, NGET is also required by its licence not to unduly discriminate between any persons or any class or classes of person or persons in discharging its functions.

Legal Framework for Decision

1.13. After receipt of the Final Amendment Report, the Authority makes a decision as to whether or not to direct implementation of the Amendment Proposal or any of the

alternatives. It makes its decision in the context of a prescribed legal and assessment framework as set out below.

Impact assessment

1.14. Section 5A of the Utilities Act 2000 (Duty of the Authority to carry out an impact assessment) imposes a duty on the Authority to undertake an impact assessment in certain cases.

1.15. Section 5A of the Utilities Act 2000 applies where:

(a) the Authority is proposing to do anything for the purposes of, or in connection with, the carrying out of any function exercisable by it under or by virtue of Part 1 of the Gas Act 1986 or the Electricity Act 1989; and

(b) it appears to the Authority that the proposal is important within the meaning set out in section 5A,

but does not apply where the urgency of the matter makes it impracticable or inappropriate for the Authority to comply with the requirements of section 5A.

1.16. Where section 5A applies, before the implementation of a proposal, the Authority must either carry out and publish an impact assessment or publish a statement setting out its reasons for believing that it is unnecessary for it to undertake an impact assessment. An impact assessment must include an assessment of the likely effects on the environment of a proposal.

1.17. Section 5A(2) sets out the matters which would determine whether or not a proposal is "important" for the purposes of section 5A. These are where a proposal:

a. Involves a major change in the activities carried out by the Authority;

b. Has a significant impact on market participants in the gas or electricity sectors;

c. Has a significant impact upon persons engaged in commercial activities connected to the gas or electricity sectors;

d. Has a significant impact on the general public in GB or in a part of GB; or

e. Has significant effects on the environment.

Decision-making process

1.18. With regard to a CUSC amendment the Authority must assess the amendment proposal against the applicable CUSC objectives set out above. The Authority must

also consider whether the proposal is compliant with its wider statutory duties, including those arising under European law. Further, the Authority must determine which of the options available to the Authority is best calculated to further the Authority's principal objective to protect the interests of consumers (including existing and future consumers) in relation to electricity conveyed, wherever appropriate by promoting effective competition.

1.19. A brief description of the Authority's powers and duties is set out at Appendix 3 of this document. Neither the above summary nor the summary at Appendix 3 is intended to be a substitute for referring to the relevant legal instruments.

Appendix 5 – Glossary

A

Access Rights

The rights to flow specified volume of electricity, usually from a specified location (node or zone) to an explicitly or implicitly defined destination (e.g. market hub), and for a defined period. For firm access rights, a failure to deliver access due to insufficient network capacity is associated with financial compensation. For non-firm access rights, the flow is terminated without compensation when capacity is unavailable.

The Authority/Ofgem

Ofgem is the Office of the Gas and Electricity Markets, which supports the Gas and Electricity Markets Authority (GEMA), the body established by section 1 of the Utilities Act 2000 to regulate the gas and electricity markets in GB.

B

Balancing Mechanism (BM)

The Balancing Mechanism is the principal tool used by the System Operator to balance the electricity transmission system on a second-by-second basis, by procuring commercial services (Balancing Services) from generators, suppliers and customers post gate closure, in accordance with the relevant provisions of the Balancing and Settlement Code (BSC) and the Grid Code.

Balancing Services

The services that the electricity System Operator needs to procure to balance the transmission system.

Balancing and Settlement Code (BSC)

The legal document setting out rules and governance arrangements for electricity balancing and settlement in Great Britain. All licensed electricity generators and suppliers must sign up to the BSC and other interested parties may also choose to do so.

Balancing Services Use of System (charges) (BSUoS)

The charge levied by the SO on users of the transmission system, in order to recover the costs the SO incurs in the Balancing Mechanism and in procuring Balancing Services. They are charged on a half-hourly basis based on proportion of total output and demand.

Bid

In the context of the Balancing Mechanism, a bid is a tool used by the SO, whereby a user submits data representing its willingness to reduce generation or increase demand. The SO then decides whether or not to accept the bid.

British Electricity Trading and Transmission Arrangements (BETTA)

The arrangements for the trading and transmission of electricity across Great Britain which were implemented on 1 April 2005, and which replaced the separate trading and transmission arrangements which existed prior to this date in Scotland and in England and Wales.

C

Connection and Use of System Code (CUSC)

Multi-party document creating contractual obligations among and between all users of the GB transmission system, parties connected to the GB transmission system and NGET in relation to their connection to and use of the transmission system.

Constraints

There are various parts of the transmission network where import or export capacity is limited. Constraints can become active when this capacity limit is reached. An export constraint is said to occur where total generation output in a given area exceeds the sum of demand plus transmission capacity to export from that area (i.e. excess supply over demand on one side of a transmission constraint). On the other hand, an import constraint occurs where there is an excess demand over supply on one side of a transmission constraint. Constraints may require the SO to take 'sub-economic' balancing actions.

D

Derogation

A direction issued by the Authority, granting relief from a licence obligation (for example in respect of compliance with the GB SQSS) for a specified period.

G

GB Security and Quality of Supply Standard

This sets out the minimum standards that the transmission licnesees are obliged to comply with when planning and operating the GB transmission system.

GB System Operator (GB SO)

The entity responsible for operating the GB transmission system and for entering into contracts with those who want to connect to and/or use the GB transmission system. NGET is the GB system operator.

GB Transmission System

The system of high voltage electric lines providing for the bulk transfer of electricity across Great Britain.

I

Intertrip

Intertrips are technical devices which are fitted to generation units to allow the unit to be "tripped off" in case of fault on the transmission circuit. Intertrips increase system stability and so allow the SO to safely increase the capacity of a transmission line above its normal limits.

K

Kilowatt (kW)/Megawatt (MW)/Gigawatt (GW)

A kW is the standard unit of electricity, roughly equivalent to the power output of a one-bar electric fire. A MW is a thousand kilowatts. A GW is a thousand megawatts.

Kilowatt hour (kWh)/Megawatt hour (MWh)/Gigawatt hour (GWh)

One kilowatt hour is the amount of electricity expended by a one kilowatt watt load drawing power for one hour. A MWh is a thousand kilowatt hours. A GWh is a thousand megawatt hours.

L

Long-run marginal costs (LRMC)

In the context of electricity transmission, long-run marginal costs are the marginal costs of establishing and using network capacity. They include, for example, marginal costs for network reinforcement, as well as resulting network losses and residual congestion costs.

O

Offer

In the context of the Balancing Mechanism, an offer is a tool used by the GBSO, whereby a user submits data parameterising its willingness to increase generation or reduce demand. NGET then decides whether or not to accept the offer.

S

Short-run marginal costs (SRMC)

In the context of electricity transmission, short-run marginal costs are the marginal costs of using established network capacity. They include, for example, network losses and congestion costs.

T

Transmission Owner (TO)

There are three separate transmission systems in Great Britain, owned by three Transmission Asset Owners, National Grid Electricity Transmission plc, Scottish Hydro Electric Transmission Ltd and Scottish Power Transmission Ltd.

Transmission Network Use of System (TNUoS) charges

Charges that allow NGET to recover the costs of providing and maintaining the assets that constitute the GB transmission system.

Appendix 6 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

- Do you have any comments about the overall process, which was adopted for this consultation?
- Do you have any comments about the overall tone and content of the report?
- Was the report easy to read and understand, could it have been better written?
- To what extent did the report's conclusions provide a balanced view?
- To what extent did the report make reasoned recommendations for improvement?
- Please add any further comments?

1.2. Please send your comments to:

Andrew MacFaul
Consultation Co-ordinator
Ofgem
9 Millbank
London
SW1P 3GE
andrew.macfaul@ofgem.gov.uk