National Grid Company plc

National Grid

Response to the Ofgem/DTI Consultation Document:

Planning and Operating Standards Under BETTA

April 2003

Executive Summary

National Grid believes that there should be co-ordinated planning and operation of the GB transmission system underpinned by consistent treatment of security and management of the costs of security. In view of the involvement of three separate transmission licensees, we therefore believe that a single, conformed Great Britain Security and Quality of Supply Standard encompassing both planning and operating criteria that affords clear and consistent interpretation and application by all Great Britain's transmission licensees will be critical to the success of BETTA and the avoidance of discrimination. Such a single Standard will do much to ensure the delivery of appropriate transmission services and minimise the opportunities for disputes among the licensees and with customers.

The total expected cost of transmission may be represented by $T + O + X$ where T is the cost of transmission infrastructure, O is the expected cost of operating the system and X represents the expected costs arising to customers as a consequence of supply unreliability. In investment timescales, the aim is to make the necessary investments to provide an appropriate transmission infrastructure such that the system can be operated safely and the total cost of transmission minimised including not only infrastructure costs but also the costs of operation and the consequences of unreliability. The planning criteria within a Security Standard are the encapsulation of rules allowing the practical delivery of this objective and must be consistent with the operating criteria applied in operational timescales within which it is only possible to manage $O + X$.

The planning and operating criteria presently applied by the three transmission licensees have some differences; however, they have common roots and are consequently similar in many respects. For this reason, we believe that it will be possible to identify common principles regarding the management of risk, and that by so doing it will be possible to produce a single conformed Standard without significant recourse to regional delineation of different criteria. We believe that regional differences may place a significant constraint on the efficient and economic provision of transmission and require the imposition of arbitrary additional rules to manage security across the geographical boundaries.

We agree with the recommendation of Ofgem/DTI that a review of security criteria should be conducted with a view to identifying which aspects may be practically harmonised under BETTA from day one, and that this review should be undertaken by the transmission licensees through the SO/TO Expert Group (STEG) to a published timetable. However, in view of the critical inter-dependency of investment and the manner in which capacity is operated, we believe strongly that it will be in the best interests of Great Britain's transmission customers as a whole that planning and operating criteria are addressed together.

We agree with Ofgem/DTI that the review should not be fundamental, both because of the timescales and because the same philosophy that underlies all the existing standards was the subject of an exhaustive review in England and Wales in the 1990s and received the approval of the industry as a whole.

The review should explore different options for conformance of the present standards. Since the criteria presently applied by the three licensees have all evolved from the same standards pre-privatisation, we believe that a suitable focus for the development of a conformed Standard will be the reconciliation of areas of difference in the present criteria.

In order that the industry as a whole can have confidence in the results and the arrangements for BETTA going forward, the review should quantify as far as possible each option's impact on the total cost of transmission. Since a significant part of the impact will arise from any option finally recommended for planning criteria, it will be necessary for planning criteria to be part of the review. However, in view of the similarities of the present security standards, we do not expect there to be significant costs arising from conformance itself. Where appropriate, use could be made of derogations (possibly for a time-limited period) and/or 'customer choice' to manage any impact on existing customers and the overall costs of implementing a conformed Standard.

The scope for variations of 'levels of security' among different customers, while available to some extent on local connections, is inevitably limited by the interconnected nature of the transmission system in Great Britain and the need for it to be planned and operated in a co-ordinated manner. In order to discharge their obligations, the transmission licensees must therefore concern themselves with maintaining the security of the main interconnected system in the interests of all customers as codified in the security Standard. The role of the transmission charging methodology is then to ensure an appropriate recovery of the costs arising from application of the Standard. On this basis, the transmission charging methodology may be considered separately from the security criteria and so need not form part of a review of security standards.

1. Introduction

This document has been produced in response to the Ofgem/DTI consultation on "Planning and Operating Standards Under BETTA" published by Ofgem in March 2003.

National Grid welcomes the opportunity to respond, and does so through consideration of the following issues:

1. the purpose of planning and operating standards for electrical transmission;
2. the need for a conformed Great Britain Security and Quality of Supply Standard;
3. options for conformance;
4. the impact of a conformed Standard;
5. the delivery of a conformed Standard.

A summary of National Grid's responses to Ofgem/DTI's views and proposals is given at the end.

National Grid believes that it will be in the best interests of the Great Britain transmission licensees and customers that there is one document detailing the Great Britain Security and Quality of Standard, and encompassing both planning and operating criteria. The term "Great Britain Security and Quality of Supply Standard", or GB SQSS, will therefore be used throughout the rest of this document.

2. The purpose of planning and operating standards for electrical transmission

The total costs of transmission may be described as constituting three parts:

1. the cost of transmission infrastructure;
2. the cost of operating the transmission system in the delivery of power;
3. the costs arising to customers as a consequence of supply unreliability.

These three terms may be denoted by the symbols T, O and X respectively so that the total cost of transmission is $T + O + X$. The most efficient transmission service is one in which the expected total cost $T + O + X$ is minimised.

As well as providing adequate power quality, a transmission operator will be concerned with the sustainability of operation of transmission plant, in particular that current and stability limits are observed. The system is 'adequate' when power is supplied to customers with appropriate quality and system limits are observed. However, a power system is always exposed to unplanned and uncontrollable external events that are uncertain in their nature and timing.

Faced with such uncertainties, an operator may seek a probabilistic minimisation of the expected value of $O + X$, but the possible unplanned events are so numerous and their effects so complex that to do so with any confidence is a practical impossibility. Thus, in order that the risks of failure to deliver power and protect power plant can nevertheless be managed, power system utilities around the world have developed 'security standards' that specify not only that the system should be 'adequate' in its planned state, but also that certain limits

should be observed following certain unplanned events. Each set of security standards defines both the limits and the 'secured' unplanned events. These both set the broad expectation of $O + X$ and put the task of minimising $O + X$ within a practical context.

In the planning timescales in which investment in system infrastructure takes place, the planner must deliver a system that can be operated safely, and must be mindful of future $O + X$. Given the cost of infrastructure, the overall cost of $T + O + X$ should be minimised in the long-term. However, while the expected $O + X$ are hard to determine in operational planning because of the uncertainty of unplanned events, they are even harder to estimate further out from real time when the state of the planned system is also uncertain. Thus, further security standards are often developed to allow the planner to make approximately the right investments for management of $T + O + X$. In order to do so, these 'planning standards' must be consistent with the operating standards. In Great Britain, the formulation of planning standards has also recognised that as greater confidence is obtained regarding expected future $O + X$, additional investments to those required by the basic planning criteria may also be justified on an economic basis, i.e. so as to minimise $T + O + X$ in the longer term. In England and Wales, these planning and operating standards have been written into one self-consistent Security and Quality of Supply Standard.

3. The need for a conformed Great Britain Security and Quality of Supply Standard

The three Great Britain transmission licensees and transmission customers all have significant stakes in security standards since they are fundamental to determining the service received from transmission and the cost of transmission in both investment planning and operational timescales. The consequences of inappropriately set standards or their inaccurate interpretation could be very large including one or more of the following: injury to members of the public; damage to transmission or customers' plant; unacceptably high frequency and/or duration of interruptions to supply; high system constraint costs; excessive commitment of capital to providing unnecessary system capacity.

The planning and operating criteria presently applied by the three transmission licensees in Great Britain (GB) in their respective areas have some differences; however, they have common roots and are consequently similar in many respects. The differences contribute to the need to have managed interconnectors at the interfaces to permit transfer of power across the boundaries.

Ofgem/DTI's stated objective of BETTA is to introduce wholesale electricity trading and transmission arrangements for GB which enable competitive markets to develop further. Ofgem/DTI has further identified as a principal building block of BETTA the removal of current arrangements on use of the Anglo-Scottish interconnector, by subsuming interconnector assets into the transmission businesses of the licensees that own those assets, and providing access to and use of those assets on the same terms as the rest of the transmission system. Such a removal of current interconnector arrangements will require more closely co-ordinated planning and operation of the systems presently owned and operated by the three GB transmission licensees.

If, as Ofgem/DTI intends, customers across GB are to have more equitable access to the benefits of competition in GB-wide wholesale electricity trading, the more closely co-

ordinated planning and operation of the GB transmission networks must be underpinned by consistent treatment of security and management of the costs of security.

In light of the differences in the standards presently applied in the different regions bounded by managed interconnectors, we agree with Ofgem/DTI that there should be an objective and transparent framework to allow for the consistent interpretation of standards by the transmission licensees, and that, as a minimum, definitions should be harmonised. We believe that these objectives apply equally to investment planning and operation.

We believe that the best way to guarantee equitable access to the benefits of competition in GB-wide wholesale electricity trading and the avoidance of discrimination is for there to be a single GB Security and Quality of Supply Standard with consistency in identification and elimination of unacceptable risks. Furthermore, we agree with the views of the three transmission licensees reported in the consultation that "any option chosen with respect to planning standards should give due regard to interactions with operational standards and the need for co-ordination between planning and operational timescales". We believe that this implies that the single GB Security and Quality of Supply Standard should encompass both operating and investment planning criteria.

We agree with Ofgem/DTI that a detailed review of existing standards should be undertaken with a view to identifying which aspects may be practically harmonised under BETTA from day 1. While the relative cost impact of different options for conformance will be a relevant output of the review, we note that the market reform itself will have an impact on the cost of transmission regardless of what security criteria are adopted under BETTA.

Below, we respond more fully to Ofgem/DTI's views on how such a review may be conducted and on what it might be expected to deliver.

4. Options for conformance

A key task in conforming the present standards will be to identify the relevant 'secured events'. Although, on the surface, it might appear that the secured events presently considered in the different regions of Great Britain are different, they were all originally defined based on the same considerations: the likelihood of a particular event, and its impact.

The product of likelihood and impact represents the risk associated with the event. A particular event may have a low probability of occurring, but a very high impact (say a regional system collapse), and so it would be prudent to secure against it; another event may have a relatively high probability, but little impact. Against this background one can explain at least part of the rationale behind securing the 132kV system only to '*N*-1' – because of a 132kV system's limited capacity, the impact of an event is relatively limited. The same idea applies when detailing different secured events for different sizes of demand group.

In practice, a probabilistic analysis of every operating scenario is unrealistic; thus, one must identify a fixed set of events that it is generally prudent to secure against. However, the present operating standards applied by GB transmission licensees all provide the scope to change the list of secured events when the perceived risk is significantly different from normal expectations, either much lower or much higher.

We note that Ofgem/DTI has alluded to practical limitations that may dictate what can be put in place for day 1 of BETTA. We agree that, in the first instance, conformance of aspects of a Security Standard relating to system operation may be treated as a higher priority than conformance of investment planning criteria, but we urge that the consequences of different degrees of conformance are properly understood before any decision is made on the nature of a conformed GB Security and Quality of Supply Standard for day 1 of BETTA.

The discussion that follows describes what we presently judge would be the consequences of some of the main available options. However, it would be for the review to determine these as objectively as possible. In the discussion, it is assumed that definitions would, in all cases, be harmonised.

4.1 Options for operating criteria

The transmission systems in England and Wales, the south of Scotland and the north of Scotland are interconnected but they are presently operated semi-independently and the transfers between them are subject to the restrictions associated with their 'managed' status. The impact of this is that while on occasions the ownership boundaries coincide with the most limiting electrical boundary, in general terms the location of a transfer restriction on the interconnection itself is arbitrary.

We expect that the removal of the present interconnector arrangements will allow the GB system as a whole to be operated more efficiently than at present. The Great Britain system operator would be able to identify and enforce binding transmission constraints that include parts of the networks of different transmission licensees, for example between the north of England and south of Scotland, and not be obliged to impose artificial restrictions associated with ownership boundaries.

The consultation document cites the possibility of 'geographic' delineation of operating criteria with the northern Scottish, southern Scottish and England and Wales systems each being operated to their different existing standards. Without a single, consistent standard with common criteria for system operation across the whole of Great Britain, the efficient management noted above would be compromised with a strong likelihood of significantly higher constraint costs and possibly greater risks to overall system security.

In general terms, a geographic basis would concern four elements:

- the location of the contingencies ('secured events') being considered;
- the location of the system limiting factor;
- the location of the demand which is being secured; and
- the location of the generation whose access to the energy market may be constrained.

The location of the demand which is being secured or the generation that is being constrained could be on the opposite side of a border from where the critical secured event or the limiting factor are located. Thus, the definition of the secured events to be considered in one area will affect the service received by a customer in a different area. At the very least, such a situation is ambiguous: should the event to be secured against be defined by the standard applying in the region where the affected customer is located, by the standard applying in the region where the event is located, or by the standard applying where the limiting factor is?

In light of the above noted ambiguity, as well as having an impact on the cost of operating the Great Britain system, for day-to-day management of the system the retention of separate geographic standards would require some additional rules that are likely to be quite arbitrary. The 'harmonising of definitions in operating standards such that the GB system operator staff have a common set of definitions', while highly desirable of itself, would not address this issue.

We believe there will be significant practical benefits in avoiding different sets of rules in undertaking security studies. Thus, National Grid believes that the Great Britain system operator (GBSO) should operate the Great Britain system to a set of fully conformed operating criteria common to transmission across the whole of Great Britain, and that this will be the only efficient way to meet Ofgem/DTI's recommendation that "there should be an objective and transparent framework to allow for the consistent interpretation of standards by the GBSO".

4.2 Options for investment planning criteria

The basis for the planning criteria within security standards is similar to that for operating criteria, i.e. the practical management of risk with identification of events that should be secured against. However, in investment planning timescales, the background conditions against which security criteria should be applied are known with less certainty, and the aim is to deliver sufficient transmission capacity such that the system can operated efficiently within a context of management of overall economic management of transmission costs. Accordingly, the planning criteria presently applied by the three GB transmission licensees as part of their licence conditions address background conditions as well as secured events and supply quality, and make particular reference to economic criteria for investment in terms of operating costs.

The three GB transmission licensees' present capital expenditure forecasts have been based upon the existing planning criteria. However, while any change to the criteria may lead to changes in capital expenditure expectations, the changing market conditions would likely bring about significant changes anyway, for example due to different costs of operation, new generation connections, 'mothballing' of units, etc.. We believe that in due course it may be necessary for these changes to be addressed through relevant regulatory arrangements.

While the retention of some geographically delineated planning criteria may have a superficial attraction, we believe there would be some consequences that should be carefully addressed before deciding upon any particular option.

The connection criteria for generation and demand are the key factors in determining connection charges and are therefore likely to be of particular concern to individual customers. More 'onerous' criteria in one region will lead to higher connection charges than in another region. On the other hand, less 'onerous' criteria will give the customer a less reliable transmission service. In the case of generation, this latter circumstance will have a direct impact on other costs of transmission that should finally be borne by all users due to generators' role in controlling frequency and voltage.

While some provisions for variation of connection design are already made within existing security standards, these are within separate markets and are consistent with charging arrangements within those markets. In order to ensure equitable treatment of customers, the

introduction of a single GB wholesale electricity market should be accompanied by consistency in connection criteria (including 'customer choice') with which the charging principles[1] should in turn be consistent.

Due to the interconnected nature of the GB transmission licensees' systems, investments required by the standard applied in one region will often have an impact on a neighbouring system in increasing or decreasing the need for investment there. For example, an investment in one region may require additional investments in a neighbouring region in order to be effective. Also, the meeting of demand in one region may require investment in a neighbouring one which that region's planning criteria would not appear to warrant. Without a single set of planning criteria that is transparent and consistent across geographical boundaries, disputes may be expected to arise with the likely result of delayed investment and resulting compromise of the service delivered to customers and a probable rise in system operating costs.

We believe that with the removal of the present interconnector arrangements, the development and application of investment planning criteria that are consistent across Great Britain and give a clear indication of necessary system reinforcements in whichever part of the GB transmission system they are needed will be critical to ensuring

- equitable treatment of customers;
- appropriate responses to changes in demand and withdrawal of generation capacity;
- that new generation can connect in any part of Great Britain and have fair access to the market.

We agree with Ofgem/DTI that work on harmonisation of planning standards should be progressed at the first practicable opportunity. We believe that the fundamental principles shared between the planning criteria presently applied in different parts of Great Britain can and should underpin a set of conformed criteria for day 1 of BETTA.

4.3 Alignment of investment planning and operating criteria

In section 2, the total costs of transmission have been described as constituting three parts: the cost of transmission infrastructure (*T*); the cost of operating the transmission system in the delivery of power (*O*); the costs arising to customers as a consequence of supply unreliability (*X*). It is in the interests of customers as a whole that these costs are minimised.

If a system is planned and operated to a 'lower level' of security, while *T* and *O* may be expected to decrease, the total of *X* for all customers will increase. If the level of security is taken as fixed (and such influences as prevailing weather and plant reliability are constant), *X* overall will remain constant, but a reduction in investment in system infrastructure, i.e. in the capacity of the transmission system, will lead directly to an increase in *O* since the system will be more constrained, constraint payments to generators will rise and the market will be unable to utilise the most competitive sources of electrical energy.

It can thus be seen that if the total cost of transmission is to be minimised, the amount of capacity that is provided must be properly set. It is therefore clear that appropriate planning criteria are essential to the management of the total cost and must be well-aligned with

[1] The question of charging and its relationship with security standards is addressed in section 5.2.

operating criteria. We thus do not believe that operating and planning criteria can be considered in isolation from each other.

We agree with the views of the transmission licensees reported in the consultation document that, at the very least, some harmonisation of planning standards would be sensible, and that any option chosen with respect to planning standards should give due regard to interactions with operational standards and the need for co-ordination between planning and operation.

National Grid disagrees with Ofgem/DTI's assertion in the consultation summary that the three transmission licensees agree "that in the case of planning standards, under BETTA it would, initially at least, be appropriate to retain those standards presently applied to each of the three existing transmission systems". Rather, we believe that any review of the existing security standards and the options for conformance must address the impact of different options for planning standards. Consequently, the analytical work underpinning a proposal for a conformed set of planning criteria will in any case have been done. For this reason and because we agree with Ofgem/DTI that work on harmonisation of planning standards should be progressed at the first practicable opportunity, we believe that the objective should be to have a fully conformed Great Britain Security and Quality of Supply Standard (GB SQSS) addressing both planning and operation for day 1 of BETTA.

We note and agree with Ofgem/DTI's observation that "in most cases, more than one design option would satisfy the criteria within the planning standards. In such circumstances, the licensee needs to make technical and economic assessments of each option to select the optimum design solution". We also note the role of the Great Britain system operator (GBSO) in investment planning. As the operator of the GB system, we believe that the GBSO will be best placed to judge the operability of different system reinforcement proposals and their impact on balancing service costs. In order that the economic criteria of existing planning standards and, we would expect, of future conformed GB planning criteria can be met, the GBSO should be integral to major system investment decisions. In this context, the importance of transparent and consistent conformed planning criteria in minimising the opportunities for dispute between GBSO, transmission licensees and customers becomes very clear since whenever disputes arise, needed investments are likely to be delayed with consequential adverse impact on customers and the cost of operating the system.

5. The impact of a conformed Standard

In considering the possible impact of different options for a conformed GB SQSS, it should be recognised that the BETTA changes to market arrangements may be expected to give rise changes in the overall cost of transmission regardless of the form of a GB SQSS. However, we believe that it will be imperative in any review of security standards leading to a recommendation of a conformed GB SQSS that the relative overall costs of *not* conforming certain aspects are estimated as well the relative costs of conformance.

Some of the likely influences on costs are discussed below.

5.1 Costs to transmission licensees

In its May 2002 report, Ofgem/DTI noted that "it was not intended that in moving to a conformed Standard, significant additional new investment in transmission would be

required". We note Ofgem/DTI's further observation in March 2003 that "with the introduction of different market arrangements through BETTA, judgements regarding what are economically justifiable investments in transmission capacity may change." We agree with this latter observation and therefore take the view that the earlier statement of May 2002 may not be sustainable.

It should be recognised that while it is reasonable for Ofgem/DTI to expect energy costs overall to reduce following the implementation of a full market arrangement between generation and supply across Great Britain under BETTA, there is the potential for an increase in system congestion costs.

If the costs of system congestion are to be managed going forward, there should be conformance of planning criteria and consistency with operating criteria within a GB Security and Quality of Supply Standard. The economic criteria relating to planning should be retained, and the GBSO should be party to investment decisions. In an extreme case, this could lead to a transmission licensee making an additional investment that it was not expecting, but which would be justified in the wider interests of customers as a whole. It would also reduce the possibility for generators to gain unfair advantage over competitors by exploiting differences in security criteria in different regions in order to receive constraint payments.

5.2 Costs to transmission customers

We note that in the consultation document, Ofgem/DTI has made the following observation: "To the extent that certain elements of the connection and use of system service provided to users is non-firm (i.e. they are not appropriately financially compensated in the event of being denied such access), then the application of differing standards may have an impact upon the way that it is appropriate for charges for connection and use of system to be structured under BETTA."

We further note Ofgem/DTI's suggestion that the security and quality of supply that different GB transmission customers would receive at day 1 of BETTA should be expected to be the same as that which they received prior to BETTA.

Some of the possible consequences of these issues are addressed in the following subsections.

5.2.1 'Level of security', quality of supply and firmness of connection

Because of the explicit reference to 'security', here we will take 'quality of supply' not to include reliability. We agree that transmission users in Great Britain should continue to expect similar 'quality of supply' to that which they receive now, i.e. the delivered voltage and its frequency.

The 'level of security' experienced by an individual customer depends on the connection they have and the security criteria to which the main system is designed and operated. That is, which events would cause interruptions to supply depend on these things. Because the standards currently applied in the transmission licensees' areas have common roots, we would not expect the 'level of security' to change significantly following the introduction of a conformed GB SQSS. However, some important caveats may be noted.

A connection offer in England and Wales is made on a firm basis given that the planning criteria have been met. The operating criteria concern secured events based on a planned pattern of outages against forecast initial power flows. In some cases, the capacity of the system is such that the expected pattern of flows and planned outages cannot be secured without restricting particular generators' access to the system. However, under such circumstances, the outputs of the generators in question are modified through the normal Balancing Mechanism arrangements.

With the introduction of BETTA, generators in Scotland might be expected to become entitled to the Balancing Mechanism payments noted above. It may be right to ask whether certain kinds of connection within a particular region of the main interconnected system (those secure against *N*-1 only for an intact system, for example) should be regarded as 'firm' since generators with these kinds of connection would be expected to be constrained off (and thus paid through the Balancing Mechanism) or to have an appropriate inter-trip in place whenever there is a planned outage. If these connections are to be regarded as 'firm', in large part the need for an upgrade of the connection or the system will be determined by the generator's own behaviour to the extent that the upgrade seems to be cheaper than continuing to pay for constraints. The net result would in either case be higher net transmission costs. The alternative would be for the connection not to be regarded as 'firm' and for the generator to have no entitlement to payment when its output is restricted.

We note that should a GB Security and Quality of Standard have geographically delineated generation connection criteria, connections with similar designs may be classed as 'non-firm' in one region but 'firm' in another. It would then be discriminatory to pay for restrictions of output for one and not the other.

5.2.2 Interaction with charging rules

Charges in England and Wales are set for transmission users for

1. connection
2. use of the system

In light of Ofgem/DTI's view that a GB Connection and Use of System Code and a Charging Methodology should be developed based upon those in England and Wales, it is reasonable to expect that similar types of charge might be set under BETTA.

We believe that it will always be necessary to ensure that a particular connection has no adverse impact on other customers or causes significant loss of power infeed risk. If there are no such issues, the nature of individual connections may be taken into account when determining charges for the connection, its 'firmness' and the consequent entitlement to payment when constrained off. (See the discussion above). However, in order to ensure equitable treatment of all transmission users, the same connection charging principles should be applied across Great Britain. By appropriate recourse to 'customer choice' provisions, these principles may be considered separately from normal security criteria.

The scope for variations of 'levels of security' among different customers, while available to some extent on local connections, is inevitably limited by the interconnected nature of the

transmission system in Great Britain and the need for it to be planned and operated in a co-ordinated manner. In order to discharge their obligations, the transmission licensees must therefore concern themselves with maintaining the security of the main interconnected system in the interests of all customers as codified in the security Standard. The role of the transmission charging methodology is then to ensure an appropriate recovery of the costs arising from application of the Standard. On this basis, the transmission use of system charging methodology may be considered separately from the security criteria and so need not form part of a review of security standards.

6. The delivery of a conformed Standard

We note and agree with Ofgem/DTI's recommendation that a detailed review of existing standards should be undertaken with a view to identifying which aspects may be practically harmonised under BETTA from day 1. We further believe that this review should encompass both planning and operating criteria.

Below we discuss the possible scope of a review and the criteria that should be used in identifying a conformance option to be recommended.

6.1 The scope of a review

We believe that the broad aim of a conformed GB Security and Quality of Supply Standard (SQSS) should be

- to provide the transmission licensees with a coherent standard applicable across the whole of GB from BETTA 'go live', and hence establish a consistent framework for the management of risks and costs for the benefit of all system users;
- to provide clear guidance on appropriate and necessary infrastructure reinforcements;
- to provide clear criteria for the connection of generation and demand.

We note that the planning and operating criteria presently applied by the three transmission licensees have some differences; however, they have common roots and are consequently similar in many respects. For this reason, we believe that it will be possible to identify common principles regarding the management of risk, and that by so doing it will be possible to produce a single conformed Standard without significant recourse to geographical delineation of different criteria.

We agree with Ofgem/DTI that the review before day 1 of BETTA should not be fundamental, i.e. that it should be restricted to conforming the present standards, both because of the timescales and because the same philosophy that underlies all the existing standards was the subject of an exhaustive review in England and Wales in the 1990s and received the approval of the industry as a whole. We further agree that

- the timetable for the work should be published;
- the work should be progressed by the transmission licensees and reported back to STEG;
- proposals from the review for harmonisation of standards should be subject to an Ofgem/DTI consultation.

We believe that a Programme of Work to develop a GB SQSS should aim to

- identify the key differences in the present security standards;
- conform the existing England and Wales 'Security and Quality of Supply Standard' and Scottish planning and operational security standards into a single GB Security and Quality of Supply Standard by
  - establishing a common language for expression of security criteria;
  - identifying the common, unifying principles regarding acceptable and unacceptable transmission system risks;
  - expressing planning and operational criteria in accordance with the identified principles and with, as far as possible, a proper balance between the likely costs of transmission infrastructure, balancing services for management of constraints and the costs to customers of unreliability in the supply of energy.
- quantify any significant issues resulting from the application of the GB Security and Quality of Supply Standard to existing networks and identify remedial actions.

The proposed security criteria should be to the benefit of transmission users as whole going forward. Where there are no adverse consequences for other transmission users, management of the impact of any changes on individual existing users may include the use of derogations, perhaps for some limited period.

6.2 Review criteria

We agree with Ofgem/DTI that the review of security standards should consider

- the cost of harmonisation;
- that there may be different standards depending on geographical, climatic and economic factors.

We further believe that a comparison of different options for conformance should include the relative impact on the total cost of transmission under BETTA and the degree of continuity with present standards.

We note and agree with Ofgem/DTI's views published in December 2001 that

- certain parts of a GB transmission system and/or connections may either exceed or not comply with any revised or conformed standard and that this may require licensees to seek derogations from the Authority or new infrastructure to be installed;
- equitable participation in a GB market under BETTA depends on the extent to which standards applied to connection of different participants differ.

We believe, however, that the recovery of the costs of meeting planning and operating standards may be considered separately.

We believe that the review should also note Ofgem/DTI's recommendation that security and quality of supply that different GB transmission customers would receive at day 1 of BETTA is expected to be the same as that which they received prior to BETTA.

7. Summary of National Grid's response to Ofgem/DTI's main recommendations

Ofgem/DTI's initial views and proposals	National Grid's response	Further discussion in this document
to accept the recommendation of the transmission licensees that a more detailed review of existing standards be undertaken with a view to identifying which aspects may be practically harmonised under BETTA from day one, and to request the transmission licensees to commence this work. This review will also need to consider the costs of harmonisation	We agree. The review should evaluate the pros and cons of each conformance option, including both quite full conformance and retention of present geographically delineated criteria, for both operating and planning criteria. This is in order that the final recommendation made can be fully justified.	Need for conformance: *section 3* Options for conformance: *section 4* The impact of a conformed Standard: *section 5* The scope of and criteria used in a review: *section 6*
that Ofgem/DTI should develop a timetable for this work with the transmission licensees and that this timetable should subsequently be published	We agree.	The scope of and criteria used in a review: *section 6*
that the work will be progressed by the transmission licensees and reported back to STEG	We agree.	The scope of and criteria used in a review: *section 6*
any proposals relating to harmonisation of operational standards identified as part of this analysis will be the subject of a Ofgem/DTI consultation	We agree. However, we strongly recommend that the review noted above should also produce and justify proposals on planning criteria since these will be critical to minimising the total cost of transmission, reducing the scope for dispute between the three transmission licensees and maximising confidence going forward. Since any recommended options for conformance should in any case be substantiated in comparison with other options, we believe that it is reasonable to expect the transmission licensees conducting the review to produce proposals on conformance of planning criteria.	Options for conformance: *section 4* The impact of a conformed Standard: *section 5* The scope of and criteria used in a review: *section 6*

Ofgem/DTI's initial views and proposals	National Grid's response	Further discussion in this document
that in any event, the security and quality of supply that different GB transmission customers would receive at day one of BETTA is expected to be the same as that which they received prior to the implementation of BETTA	We agree that customers should be able to expect the same quality of supply as they receive now, and that there should be no significant change in the 'level of security'. However, this latter aspect should be considered in light of security of the GB system as a whole; where appropriate, use could be made of derogations (possibly for a time-limited period) and/or 'customer choice' to manage any impact on existing customers and the overall costs of implementing a conformed Standard.	The impact of a conformed Standard: *section 5* The scope of and criteria used in a review: *section 6*
the fact that different standards may apply to different users of the GB transmission system should be taken into account in the development of the connection and use of system charging methodology to apply under BETTA, and	The scope for variations of 'levels of security' among different customers is inevitably limited by the interconnected nature of the transmission system in Great Britain and the need for it to be planned and operated in a co-ordinated manner. In order to discharge their obligations, the transmission licensees must therefore concern themselves with maintaining the security of the main interconnected system in the interests of all customers as codified in the security Standard. The role of the transmission charging methodology is then to ensure an appropriate recovery of the costs arising from application of the Standard. On this basis, we believe that the transmission charging methodology may be considered separately from the security criteria and so need not form part of a review of security standards.	The impact of a conformed Standard: *section 5* The scope of and criteria used in a review: *section 6*