

# **CONSULTATION DOCUMENT**

**Modification Proposal to the Use of  
System Charging Methodology**

**UoSCM-M-11**

**Introduction of Year Round TNUoS  
charges**

12 September 2003

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## 1. Executive Summary

This paper sets out for consultation National Grid's proposed modification to the Use of System Charging Methodology to introduce a non-locational flat year round tariff to recover 10% of the annual Transmission Network Use of System (TNUoS) revenue across daytime hours, specifically daily between 0700hrs and 1900hrs.

It provides consistency with the proposed Connection and Use of System Code (CUSC) Amendment CAP054: "Adoption of Year Round TNUoS charges".

It also includes a synopsis of user views and issues raised regarding the proposed modification as received following National Grid's July 2003 Initial Charging Methodologies Consultation. National Grid's response to each of the points raised by users is provided to indicate why National Grid determined it was appropriate to raise this modification.

This paper is published on the National Grid website at the following address:

[http://www.nationalgrid.com/uk/indinfo/charging/mn\\_modifications.html](http://www.nationalgrid.com/uk/indinfo/charging/mn_modifications.html)

## 2. Introduction

National Grid is obliged under the Transmission Licence:

- (i) to make revisions to the Charging Statements in order that the information set out in these statements shall continue to be accurate in all material respects;
- (ii) to keep the Use of System Charging Methodology at all time under review;
- (iii) to make such modifications of the Use of System Charging Methodology as may be requisite for the purpose of better achieving the relevant objectives, which are:
  - a. to facilitate effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity;
  - b. to result in charges which reflect, as far as reasonably practicable, the costs incurred by National Grid in its Transmission Business;and, so far as is consistent with sub-paragraphs (a) and (b);
  - c. to take account of the developments in National Grid's Transmission Business.

Before making a modification to the Use of System Charging Methodology, National Grid is required by the Transmission Licence to consult CUSC users on the proposed modification and allow them a period of not less than 28 days within which to make written representations. The Authority can consent to a shorter consultation period.

The purpose of this document is to set out for consultation National Grid's proposal to modify the Statement of the Use of System Charging Methodology to introduce a flat, non-locational, year round charge based on MWh usage to recover 10% of the TNUoS revenue.

It is proposed that this modification would better meet the Relevant Objective in Licence Condition C7A 5(b), as listed above under (iii) b, namely to apply charges which reflect, as far as reasonably practicable, the costs incurred by National Grid in its Transmission Business.

### 3. Background to the Issue

In the context of its relevant Transmission Licence obligations and reinforced by recent commitments made to Ofgem, National Grid has been undertaking a Review of its Transmission Charging Methodologies, covering both Connection and Use of System issues, in consultation with users. This review originally commenced in February 2002 and has progressed through the media of workshops, discussion papers, industry consultations and seminars.

In February 2003, National Grid made eight formal commitments to Ofgem to review and, if appropriate, bring forward proposals for reform of the contractual framework and charging methodologies, above those made in the interim period, with a timescale for implementing any proposals of April 2004. These commitments are listed in the Ofgem publication, "NGC system operator incentive scheme from 1 April 2003 – 31 March 2004: Final Proposals and Statutory Licence Consultation, March 2003".

One of the commitments was to review the time period over which TNUoS charges apply, including specifically whether it was appropriate to introduce charges applicable to periods of less than one year.

In March 2003, National Grid highlighted both the analysis that needed to be undertaken and the issues which needed to be considered to justify and construct within year TNUoS charges to the Transmission Charging Methodologies Forum (TCMF). Updated analysis and conclusions were subsequently presented to the TCMF each month.

Furthermore, on 30 May 2003, National Grid issued a specific within year charging consultation to users. It provided a background paper ([see Appendix 1](#)) presenting the results of National Grid's assessment of the justification for within year charges and outlining three alternative strawmen with National Grid's initial views of them. The consultation sought users' views on a number of key issues including National Grid's indicated rationale for introducing within year charges and the preferred form of within year charging regime.

Subsequently, in July 2003, National Grid issued an Initial Charging Methodologies Consultation where it outlined its conclusions from the review process. National Grid indicated a number of proposed amendments to the current Charging Methodology for (Connection and) Use of System for implementation with effect from 1 April 2004. It sought final responses from users on both its review conclusions and proposed amendments to the Charging Methodology, before tabling formal amendments to the Charging Methodology statements and any associated amendments to CUSC.

Within the July 2003 Initial Charging Methodologies Consultation, National Grid outlined users' feedback from the within year charging consultation and its responses to the issues raised. Based on previous user feedback it also provided a more detailed explanation of how it deemed it appropriate for 10% of TNUoS revenues to be recovered from a within year or year round charge ([see Appendix 2](#)).

In addition, based on user responses to the within year charging consultation and further work of its own, National Grid outlined its proposal to raise a modification to the Use of System Charging Methodology. It proposed to introduce a flat, non-locational, year round charge based on MWh usage between 0700-1900 to recover 10% of the TNUoS revenue and views were sought from users on this proposal.

A synopsis of users' responses received regarding the proposed introduction of such a year round TNUoS charge is outlined in Section 5, together with National Grid's views on each of the main points raised.

Although there was small majority of respondents against the proposed introduction of a year round TNUoS charge, a significant minority offered support for some form of year round TNUoS charging. Furthermore, National Grid did not believe that the arguments raised by those opposed to the change were sufficient in the context of its relevant Licence objectives to justify retaining the status quo.

National Grid noted some respondents' views that it would be more appropriately applied throughout the year (i.e. 24/7) on the basis that it would minimise systems impact for users and would not unnecessarily disadvantage smaller suppliers. However, the structure of the year round TNUoS charge as proposed best reflects the relevant costs imposed on National Grid's system (thus best meeting Licence Condition C7A 5(b)) and National Grid felt insufficient evidence had been provided to change it to, say, 24/7 on the above basis.

Thus this modification paper proposes the changes to the Statement of the Use of System Charging Methodology (see [Appendix 3](#)) required to introduce a flat, non-locational, year round charge based on annual MWh usage to recover 10% of the TNUoS revenue.

#### 4. Explanation of the Issues

Following its review of temporal charges and responses to the consultations in May 2003 and July 2003, National Grid proposes to introduce a non-locational flat year round p/MWh charge for both generation and demand applied daily between 0700hrs and 1900hrs. Specifically, National Grid proposes to recover 10% of its allowed TNUoS revenue for a relevant year from such a charge, for the reasons outlined below;

- (i) National Grid's own analysis of the drivers of its transmission investment, as outlined in Appendices 1 & 2, indicates that 11% was required to meet non-peak related conditions but highlighted there was a degree of subjectivity in its derivation. Hence it is deemed appropriate to recover, in round terms, a 10% level of TNUoS revenue from a year round charge for the remainder of the Price Control period. Going forward, it is intended that the 10% level would be reviewed for each Price Control period
- (ii) National Grid's assessment of the drivers of year round TNUoS charges indicates that the vast majority is driven by daytime considerations and thus a charge applied in daytime hours, specifically between 0700hrs and 1900hrs, is the most cost reflective application of a year round TNUoS charge.
- (iii) National Grid's assessment of potential different options for year round charging (see Appendix 1) deemed that simple application of the annual methodology into distinct seasons or periods would not only require major changes to industry codes and contracts but would present significant risks to system security.
- (iv) The locational nature of year round costs is likely to be different from the locational nature of peak/capacity based costs. Therefore using the peak tariffs to derive locational year round tariffs may introduce inappropriate incentives.

Furthermore, any newly introduced model able to derive the relevant locational nature of such costs would introduce a significant and undesirable amount of complexity into the tariff setting process. Hence National Grid believes that a flat charge would avoid inappropriate incentives and retain acceptable transparency, stability and predictability of charges for users.

- (v) National Grid believes it remains appropriate that such a year round charge should be levied in the same proportion as peak/capacity based TNUoS charges, namely if applied for 2003/04 in the ratio circa 27:73 for generation and demand respectively. This maintains the overall generation/demand balance of transmission revenue recovery i.e. that recovered from connection and TNUoS charges.
- (vi) National Grid believes it is most appropriate to apply a rolling monthly billing and reconciliation process based on outturn settlement data. This seems to be most appropriate in the context of administrative considerations for both users and National Grid as well as providing for acceptable predictability of cashflow and reasonable credit risk management.

## 5. User Responses to National Grid's July 2003 Consultation

This section includes a synopsis of user views and issues raised regarding the proposed modification as received following National Grid's July 2003 Initial Charging Methodologies Consultation. National Grid's response to each of the points raised by users is provided to indicate why National Grid subsequently determined it was still appropriate to raise this modification.

*Of 23 responses received from users, 10 respondents supported the introduction of some form of year round TNUoS charges. However, a number of these provided suggested amendments to National Grid indicative proposals as outlined in the July 2003 consultation. The remaining 13 respondents were split between the views that (i) there was a significant detrimental impact and should not proceed or (ii) the change was of no impact thus not worth pursuing.*

### 5.1 Support

Ten respondents offered support for the introduction of some form of year round TNUoS charges on the basis they concurred with National Grid's view that they would lead to a more cost reflective structure of TNUoS charges and thus would better meet Licence Condition C7A 5(b) namely to apply charges which reflect, as far as reasonably practicable, the costs incurred by National Grid in its Transmission Business.

*National Grid is reassured that a significant number of users agree with its views that this proposed modification to the Statement of the Use of System Charging Methodology would better meet its relevant Licence objectives.*

### 5.2 Proposed Variations in Structure

Nine respondents supporting the introduction of a year round charging regime in principle suggested amendments to the form of the year round TNUoS charge as proposed by National Grid in its July 2003 Initial Consultation. These are indicated below together with National Grid's responses consistent with the formal proposal National Grid has put forward under this modification document.

#### **The year round charge should be applied across all hours in the charging year**

Five respondents suggested it would be more appropriate to apply the year round charge fully across the year as opposed to the 0700-1900 period suggested by National Grid in the July 2003 consultation document. Essentially they each questioned the rationale behind restrictively applying the charge to the daily peak period which accounted for only 55% of system use in terms of MWh energy.

*In the July 2003 Consultation, National Grid indicated that it felt it unlikely that investment would be required for night-time conditions within off peak periods. In further reviewing the drivers of off peak investment (as highlighted in Appendix 2) National Grid has reaffirmed that these almost exclusively apply to daytime periods and predominantly reflect conditions imposed by particular patterns of generation and daytime demand, locally regionally or indeed nationally. Hence, in this modification proposal National Grid continues to propose applying the year round charge daily between 0700hrs and 1900hrs for the charging year.*

### **The split should be higher and should be robustly justified**

Five respondents suggested that National Grid's proposed 10% allocation of TNUoS revenues to year round TNUoS charges was too low and either requested more information on its justification or suggested reasons that it should be higher. The range of year round revenue allocation these users proposed was from 11% to 100%. One user suggested that as National Grid's own analysis indicated that the appropriate allocation should be 11% then it was clearly correct to apply this more accurate figure rather than the proxy 10% National Grid had put forward. One user suggested that it should be 50% on the basis that the system would need to be larger if National Grid did not undertake outages.

Finally, two users suggested that it should be 100%, at least for generation if not for demand as well. This was on the basis that it reflected generation's year round use of the system and it would not affect locational signals provided in the capacity charge (though there would be a zero sum overall revenue from the generation capacity charges). A further user was happy with the split if it were proven to be driven by demand.

*The belief that outages prevent the existence of a larger system is misplaced as this is simply not the case. In addition, from a practical point of view outages will always be required on any network of assets to ensure at the very least maintenance is undertaken to ensure the network is able to cope with requirements placed on it by the market. Therefore, this proposed rationale for adopting a higher allocation is unsound.*

*It is true to say that individual generation peak can arise at any time of the year. However, by definition national generation peak arises at the time of national demand peak and given that it is this overall system condition which drives the majority of transmission investment, National Grid believes it is appropriate that revenue recovery from both generation and demand year round TNUoS charges reflects this.*

*However, National Grid agrees that it is important that the allocation of revenue recovery to year round TNUoS charges is robustly justified, especially as the basis of the modification is to provide more cost reflective charges. National Grid believes that the material previously provided to users in May 2003 and July 2003 (see Appendices 1 & 2) provides a clear underlying rationale for deriving a pragmatic 10% allocation to year round TNUoS charges for the remainder of this Price Control period.*

*National Grid is unable to provide all the numerical detail underlying its analysis due to its commercially confidential nature but clearly Ofgem is able to do so in reviewing National Grid's allowable capital expenditure under its Price Control. In addition, National Grid believes the examples of drivers of such year round investment which were provided and the high level results of the analysis figures are sufficient to justify revenue allocation to year round TNUoS charges.*

*National Grid proposed 10% in recognition that there is a degree of subjectivity in allocating capital expenditure to peak or year round drivers as certain investment schemes will have elements of both drivers. As such it was felt that 11% may imply an undue level of accuracy*

*in the analysis and that it was thus appropriate to adopt a pragmatic round figure for setting year round TNUoS charges.*

*As noted above National Grid believes it has justified its revenue allocation to year round TNUoS charges and that this is based on the system conditions it encounters outside the winter peak period, namely those conditions created by varying combinations of demand AND generation across the system.*

### **Generation Year Round TNUoS recovery should be different from demand**

A couple of respondents in the context of the issue raised above suggested that generation should be treated differently from demand in terms of the effective capacity/commodity split derived from peak and year round charges. Both respondents suggested this reflected the different impact of generation and demand. One also suggested demand was inelastic and would effectively see the same overall charge but in a different structure so it did not merit the extra administrative burden. One respondent suggested it would be in line with European developments.

*As noted above, as national generation peak arises at the time of national demand peak and given that it is this overall system condition which drives the majority of transmission investment, National Grid believes it is appropriate that revenue recovery from both generation and demand year round TNUoS charges should reflect this. In addition, not all demand is inelastic, hence it can react to the amended charging structure and thus it could be deemed discriminatory not to provide appropriate signals to demand as well as generation.*

*The argument over demand charge structure is an interesting one as it seems to contradict the view of a number of respondents (see below) who believe it shifts charges unduly between classes of demand user and in particular weakens triad incentives due to changes in providers' cost base. National Grid believes that it does change the overall charges seen by different users (including suppliers) and as it is more cost reflective then it is appropriate to do so.*

*Whilst National Grid cannot dispute that there will be an additional administrative burden on users and itself, it does not believe this is sufficient to justify modifying the proposed change. Indeed, though clearly where possible National Grid would seek to avoid imposing unnecessary additional administration or system costs on users or itself in the context of its relevant Licence objectives, this argument is only relevant where it becomes sufficiently onerous to restrict competition. No evidence of this has been forthcoming.*

*Finally National Grid notes ongoing developments in European tariff structures and over-riding policy but highlights that to date the exact nature of these developments is unclear, and thus it would not be appropriate to pre-guess the outcome.*

### **Year Round Proposal does not fully address partial system use by certain users**

Two respondents, whilst supportive of the proposed year round TNUoS charges, felt they did not fully address the issue of applying reduced charges to users who are unable to access/use or who do not wish to access/use the system for periods within the year. One suggested that this needed to be addressed further perhaps as a separate modification proposal. One suggested it did not meet National Grid's relevant commitment to Ofgem.

*National Grid recognises the issue raised in this area. The issue of access related charging does not form part of the incremental charging reform being undertaken as it would require a fundamental review of user firm access rights and thus form part of the wider transmission access debate. It would, for example, have significant implications for all aspects of National*

*Grid's interface with users, from contracts, to physical connection, to revenue recovery mechanisms.*

*National Grid's relevant commitment to Ofgem was; "to use all reasonable endeavours to review and, if appropriate, bring forward proposals for reform of the contractual framework and charging methodologies, for implementation in April 2004, in respect of the time period over which TNUoS charges apply, looking specifically at charges applicable to periods of less than one year..." National Grid believes it has met this commitment in reviewing charges, determining some form of within year charge was appropriate and in bringing a proposal forward consistent with better meeting its Licence objectives.*

*However, National Grid accepts the argument that there may be further scope to address the use of charging those users who are unable to use the system except for part of the year due to, for example, commissioning timescales of network or generation assets. Hence, outside of the scope of this modification proposal National Grid will continue to review this area to see if some suitable additional reform would be practical.*

### **Impact on off-peak tariffs, embedded generation, interconnectors and pumped storage needs to be considered**

One respondent suggested National Grid had not undertaken a full assessment of the impact of its proposals on the areas identified above and that it was important that this was done in implementing any year round charging proposal.

*Whilst National Grid has not explicitly examined the impact on all of these areas it is clearly cognisant of potential effects which are intuitively obvious. National Grid would anticipate off-peak tariffs would rise to reflect the transfer in cost. Embedded generation might see extra opportunities for provision of demand reduction year round, whilst interconnectors and pumped storage would see the same effects as those for generation and demand combined. In any event, this does not detract from National Grid's driver for introducing year round charges, namely Licence Condition C7A 5(b) to apply charges which reflect, as far as reasonably practicable, the costs incurred by National Grid in its Transmission Business.*

## **5.3 Opposing Views**

A synopsis of the main opposing views arising from users' responses to the July 2003 Initial Consultation is provided below together with National Grid comments.

### **Insufficient justification has been provided by National Grid to propose change**

Six respondents suggested that National Grid had yet to provide either any case or one of sufficient strength to justify the introduction of year round TNUoS charges.

*As noted above National Grid believes the material it provided in its May 2003 and July 2003 consultations and provided in Appendices 1 & 2 is sufficient to explain the rationale and justification for the introduction of year round charges to recover 10% of its TNUoS revenues.*

### **The reduced triad signal adversely affects load management incentives**

Five respondents, comprising large industrial users or their representative bodies, argued that the reduced triad signals created by introducing year round TNUoS charges would undermine load management incentives to a detrimental extent. Some argued that there may be an impact on security of supply.

*National Grid accepts that the introduction of year round TNUoS charges in themselves would reduce the triad signal (by an estimated £1.11/kW). However it does not agree that this dilution is sufficient to undermine incentives to load manage as under this modification proposal 90% of the signal remains. It does not believe that existing load management will*

cease and thus incur this residual 90% cost. It also believes the magnitude of the triad signal remains sufficiently high to incentivise further load management. Hence, National Grid remains of the view that at this level of allocation there is no adverse implication for security of supply. Indeed the proposal may slightly improve security of supply in periods outside of winter peak due to the small incentive to reduce demand year round. This may become more important in future, in the context of changing load patterns due to climate change (e.g. air conditioning).

National Grid also notes that if its proposed change to the connection boundary as outlined in the connection charging methodology modification proposal CCM-M-07 were adopted, the transfer in revenue required to be recovered via TNUoS, *ceteris paribus*, would result in higher triad charges by some £2.45/kW. Hence if both this modification (UoSCM-M-11) and CCM-M-07 were implemented triad charges would actually increase by circa £1.3/kW.

### **Year Round TNUoS charges are not cost reflective and discriminate between different classes of user**

Two respondents suggested the proposal was not cost reflective. One commented that National Grid suggested off-peak investment was only required in some areas and that in any case use of historic average costs was inappropriate in a marginal pricing framework. The respondent highlighted 5 key questions that should be addressed by National Grid, three of which are addressed above (and in Appendices 1 & 2), the other two being locationality of drivers and appropriate charge base. The second respondent raised the issue of discrimination citing, as an example, the transfer in charge between weather sensitive and non-weather sensitive load as being discriminatory since one would be paying for the other.

National Grid believes that the proposal is cost reflective. Indeed this is the basis of the proposal in terms of better meeting its relevant Licence objectives. As highlighted several times above it believes this justification is provided in Appendices 1 & 2. This background material also indicates examples of the circumstances which drive off peak investment. These, by their very nature, can be seen to potentially arise in all parts of the system and therefore it is deemed appropriate to levy a flat national charge to all users. As the charge reflects year round issues, MWh is the obvious charge base as it clearly reflects year round use of the system.

Whilst National Grid's charges are meant to provide forward looking incentives they are also required to recover sufficient revenue to operate its Transmission Business. The forward looking element of these charges in itself is not sufficient to ensure revenue recovery. This is a long recognised problem by those familiar with marginal pricing models. Hence the generally accepted method of ensuring full revenue recovery is to apply charges in a cost reflective manner. In the case of year round TNUoS charges the only incentive is nationally to reduce demand and hence it is appropriate to levy a charge which reflects the year round costs imposed by users on the network. The most accurate means of doing this within a Price Control period is to review actual and planned expenditure within the Price Control period. This is the method National Grid adopted to derive its 10% allocation. However at the start of the next Price Control (2006/07), it would clearly be more appropriate to use the ratio derived from National Grid allowed capital expenditure for the new Price Control period.

The example used to indicate potential discrimination would appear to indicate the reverse. For example air conditioning load is weather sensitive demand which is a relatively new phenomenon in the UK. It is also one of the reasons for the increasing need for transmission investment for off peak considerations. Hence it seems entirely appropriate that this weather sensitive load is captured in the TNUoS charging regime in line with its use whereas at present it would not be at all. Another example is industrial load, which is largely non-weather sensitive and imposes a year round requirement on the transmission system. Again it seems entirely appropriate that such load should be charged accordingly rather than being

*allowed to potentially entirely escape TNUoS charges as at present. As such a change in the allocation of charges is clearly more cost reflective then it cannot be discriminatory by definition.*

### **NHH demand already provides revenue via an energy charge which exceeds 10%**

One user argued that given NHH demand already pays an energy charge and that this charge accounts for a greater proportion of TNUoS recovery than 10% that this was sufficient in itself.

*National Grid does not accept this argument as the NHH demand tariffs are derived from the peak TNUoS charging model and were introduced in their current form to facilitate supplier competition. Hence they are locational peak TNUoS charges applied to wider definition of peak than HH demand, and do not confirm to the principles of the year round TNUoS charge. Hence National Grid believes its proposal is a genuine addition to the charging structure and consistent with concept of applying peak and year round charges to all users.*

### **There is no competitive benefit, material value is low and no efficiency gain for National Grid**

Three respondents suggested there was no competitive benefit provided by the proposal. Two of these suggested the proposal was insufficiently material to warrant change. Another suggested there would be also no gain in transmission efficiency. All concluded that this meant the introduction of year round TNUoS charges was not merited.

*National Grid notes this view but highlights that it is proposing the introduction of year round TNUoS charges because it better meets its relevant Licence objective C7A 5(b) namely to apply charges which reflect, as far as reasonably practicable, the costs incurred by National Grid in its Transmission Business. This alone is sufficient grounds to justify raising the modification proposal.*

*The materiality of the change is the source of differing views as some users feel it is too material. National Grid believes 10% is not insignificant and thus is sufficiently material that it cannot be ignored.*

*Finally, National Grid believes there may well be some gains in efficiency of transmission investment from the introduction of year round TNUoS charging as it incentivises greater demand efficiency outside of the winter peak period without unduly undermining the existing winter peak incentives.*

### **There is a significant impact on billing and metering systems and this could introduce relative competitive disadvantages to certain suppliers**

Five respondents, comprising large users and suppliers, indicated that the proposal will significantly impact on their billing and metering processes. Three of these claimed this would be detrimental to supply competition and one further suggested that insufficient lead time would be available to implement such a change into their systems and processes.

*National Grid accepts that there will be an impact on users' systems. However the nature of billing and reconciliation is very similar and would be integrated into the existing process operated between National Grid and its customers. Furthermore, no evidence has been provided that it would be impractical to adopt such a charging regime from a practical systems and process perspective for April 2004, or that it is of sufficient cost that it might restrict supplier competition. On this basis, as National Grid believes its proposed year round charge structure is the most cost reflective of the options it considered, there is insufficient reason to modify it.*

*In terms of competitive disadvantage, for any given location all suppliers will face the same charge for the same customer. National Grid does not believe that any extra competitive disbenefit or change in relative competitive profile is introduced above that which may exist in the current market due to, for example, size, rate of growth or customer base of different suppliers. These differentiators in any event are natural features of any market.*

### **There is undue interaction of TNUoS and BSUoS charges**

One respondent suggested that there may be inappropriate transfer of revenues from BSUoS to TNUoS in, for example, the management of voltage issues.

*Subject to Ofgem's consent under the TO Price Control and latterly the SO Incentive Schemes, National Grid has always been able to invest in transmission assets to relieve persistent and/or expensive operational conditions, where it is deemed the most cost effective solution. This capital expenditure has always been accepted by Ofgem as appropriately recovered via TNUoS charges. It also agrees with National Grid that the appropriate mixture of TO and SO initiatives is essential to ensure the most efficient combined planning and operation of the network. This ultimately leads to the lowest cost solution to end consumers. The introduction of year round TNUoS charges does not affect this situation in any manner and thus National Grid does not believe the argument is valid.*

### **Year round charge is simply a commodity charge**

One respondent did not support the proposal as they felt it was merely a commodity charge and should be justified as such.

*Whilst National Grid has not defined the year round charge as a commodity charge it accepts that the end product it is proposing is similar to such a charge. However as highlighted above it believes it has provided sufficient justification for the introduction of such a charge regardless of what it is called or described as.*

## **6. Proposed Modification**

### **6.1. Proposed Changes to the Use of System Charging Methodology**

National Grid proposes to modify the Use of System Charging Methodology to introduce a new element to TNUoS charges, namely a year round charge which recovers 10% of TNUoS revenues between 0700hrs and 1900hrs daily on a non-locational flat p/MWh basis for the remainder of this Price Control period. The remaining 90% of the revenue would continue to be charged on the current annual peak and capacity basis.

A charge would be applied to both generation and demand for the relevant charging year to ensure proportional revenue recovery from generation and demand in line with that applied to peak/capacity based TNUoS charges (circa 27:73 in 2003/04). Going forward, the level of recovery to be achieved via year round TNUoS charges would be reviewed for each distinct Price Control period.

The generation year round charge would be levied on generators based on the net metered volume from all BM Units forming the power station (as identified in the relevant Bilateral Connection Agreement or Bilateral Embedded Generation Agreement) in each relevant settlement period. The generation year round charge would be levied on an Interconnector for all relevant periods when the Interconnector is exporting power to the transmission system (i.e. importing power to England and Wales).

The demand year round charge would be levied on all parties liable for demand charges (as listed in Chapter 4.1 of the Statement of the Use of System Charging Methodology) taking power off the transmission system during relevant settlement periods. Supplier BM Units,

Exempt Export BM Units and Derogated Distribution Interconnector BM Units exporting power to the transmission system during relevant settlement periods will be paid the demand year round tariff multiplied by the BM Unit metered volume.

## **6.2. Justification for proposed modification**

The proposed modification would better meet the Relevant Objective in Licence Condition C7A 5(b) to reflect the costs incurred by National Grid in its transmission business in the following way:

- By better reflecting the fact that c.10% of incremental investment in transmission assets is driven by year round conditions, rather than system demand peak or peak generation capacity

National Grid believes this modification is non-discriminatory, with respect to any specific user or class of users, in accordance with Licence Condition C7C.

## **6.3. Proposed Changes to the Statement of the Use of System Charging Methodology**

To accommodate both this modification and the modification raised to introduce a DCLF ICRP charging model including revised Expansion Constant and Security treatment for calculating peak TNUoS charges (UoSCM-M-10), an illustration of the impact on the Statement of the Use of System Charging Methodology is provided in the separate Appendices document.

Note that the above Appendices document is drafted to assume adoption of CCM-M-07 – “Implementation of PLUGS”.

National Grid welcomes comments from users on the illustrative drafting of the Statement of the Use of System Charging Methodology to accommodate its Modification Proposals UoSCM-M-10 and UoSCM-M-11 (and CCM-M-07) as outlined in the separate Appendices document.

## **6.4. Suggested Alternatives**

None.

## **6.5. Implementation date**

1 April 2004.

## **6.6. Indicative Impact on the Use of System Charges**

Under the proposed recovery of 10% of TNUoS revenues via year round charges, the year round generation charge would be approximately 7p/MWh and the year round demand charge would be approximately 19p/MWh.

The impact on “peak” TNUoS capacity based charges would be to reduce zonal generation £/kW tariffs by approximately £0.34/kW (in each zone) and zonal demand £/kW tariffs by approximately £1.11/kW.

There would also be a reduction in NHH zonal demand p/kWh “peak” consumption tariffs of approximately 0.15p/kWh.

## 6.7. Impacts on Other Industry Documents

Metered volume data for the final months of the Charging Year will not be available in time to complete generation charge reconciliation by the end of the Charging Year as required by the CUSC. A CUSC amendment is therefore required in order to enable reconciliation of year round charges related to generation after the end of the Charging Year. This will be raised under CAP054 "Adoption of Year Round TNUoS Charges".

## 7. Responses to this Consultation

Comments and views are invited on all the issues raised in this consultation document. In order that your comments and views are included in National Grid's report to the Authority, responses must be received by **10 October 2003**.

If you wish to provide comments on this review, then responses are welcome via e-mail to [Alex.Thomason@ngtuk.com](mailto:Alex.Thomason@ngtuk.com).

Alternatively, written comments may be addressed to:

Alex Thomason  
Commercial Frameworks  
National Grid Transco  
NGT House  
Warwick Technology Park  
Gallows Hill  
CV34 6DA

If you have further queries, please do not hesitate to contact Alex on **01926 656379**.

## **Appendix 1: Background Paper to May 2003 Within Year Charging Consultation**

Since Vesting, NGC's key driver of investment (as reflected in the Planning Standards) has been to provide a transmission system, which is able to meet demand at winter peak and to allow generators to generate up to their contracted capacity. Current annual TNUoS charges reflect this in the way they are applied to generation and demand customers, in that generators are charged on the highest TEC in the year, and half-hourly demand is charged on the basis of their demand take over Triad.

However, increasingly National Grid has had to consider off-peak conditions in determining some transmission investment due to the impact, amongst other things, of changing generation and demand patterns throughout the year. Hence it is appropriate as part of National Grid's commitment to Ofgem to review the temporal nature of transmission tariffs, to consider whether there is sufficient justification for a Within Year Tariff regime and what form that it may take. In addition, a number of users have indicated their desire to avoid some of their TNUoS liability if they are not using the system for a portion of the year.

### ***Analysis of Justification for Introduction of a Within Year Tariff Regime***

Two aspects of work have been undertaken to determine the strength of justification for introducing a Within Year Tariff (WYT) regime and its potential form. These have been (i) a high level qualitative assessment of drivers of long term investment and (ii) a detailed examination of year round power flows on its network.

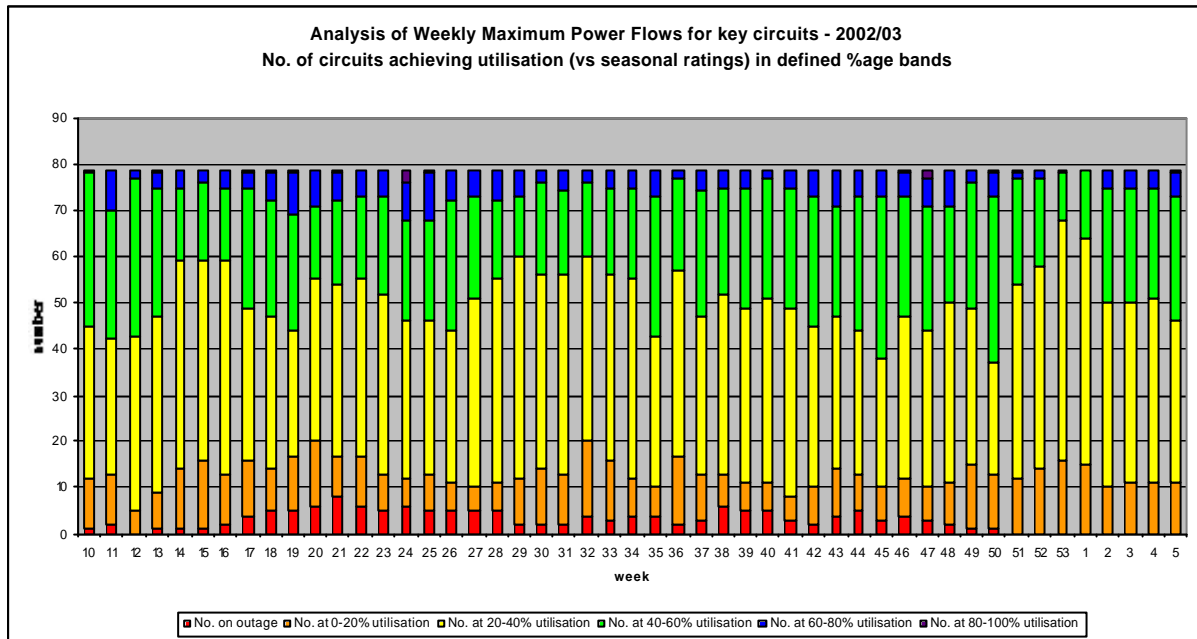
It is difficult to definitively quantify the proportion of capital expenditure that National Grid undertakes due to peak considerations versus those that for non-peak considerations. This is because assets in which National Grid invests to address peak issues can provide benefits off-peak and vice versa. Furthermore, as part of its Licence obligation to make effective, economic and efficient investment, National Grid will often optimise the type of investment it undertakes to provide benefits both for peak and off-peak conditions. Hence in any exercise which seeks to quantify specific drivers of investment involve a significant degree of subjectivity or the use of a reasonable proxy measure.

National Grid undertook a qualitative assessment of the drivers of long term transmission investment, examining recent capital expenditure and trying to identify the primary drivers of that expenditure. It highlighted that winter peak conditions and power flows remain the principal driver of long term transmission investment, largely driven by demand change in import groups. However, it is estimated that approximately 10% of long-term investment can be said to be primarily driven by conditions that can arise in summer or year round in some areas requiring, for example, investment in voltage support, additional security or infrastructure. This estimate of 10% is backed up by analysis of National Grid's incurred and planned capital expenditure over the period 1998 to 2008. This showed that of new infrastructure investment, just over 89% could be said to be driven by winter peak conditions, while just under 11% of investment was driven by off peak conditions.

For the year round analysis of network power flows, weekly peak power flow data for a number of key power flow boundaries and circuits was examined for a 2 year period. The boundaries were formed by taking different combinations of the TNUoS Generation charging zones and chosen to reflect areas of prime focus for National Grid in transmission investment. From this analysis an assessment was made of;

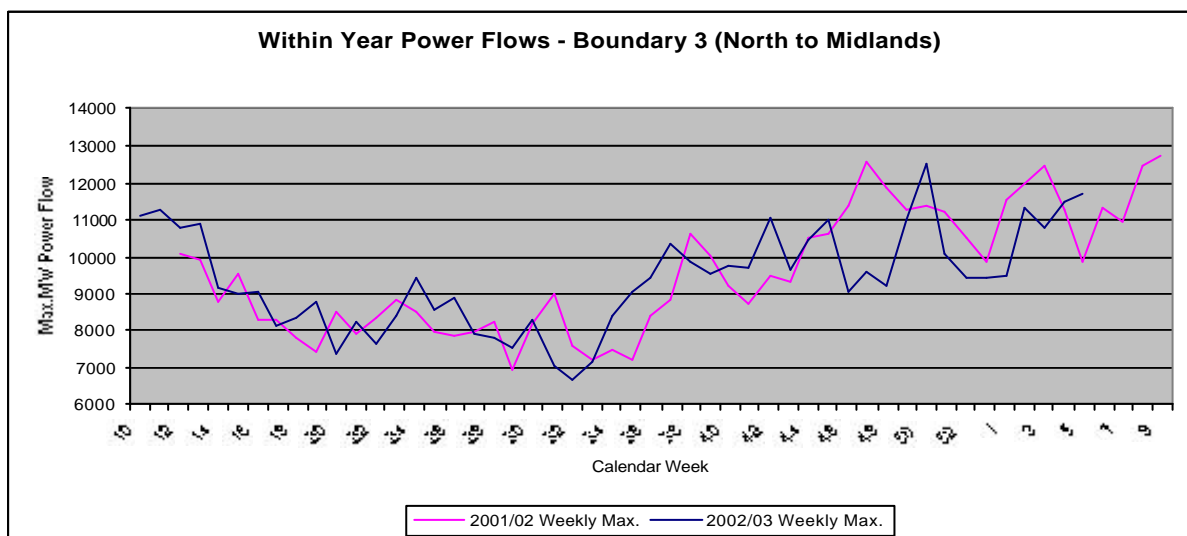
- (i) how power flows varied across each boundary during the year
- (ii) how consistent this behaviour was across different years
- (iii) the "stress" on the system at different times of the year

The chart below shows the percentage utilisation of nearly 80 circuits, which make up the boundaries analysed, over the year 2002/03.



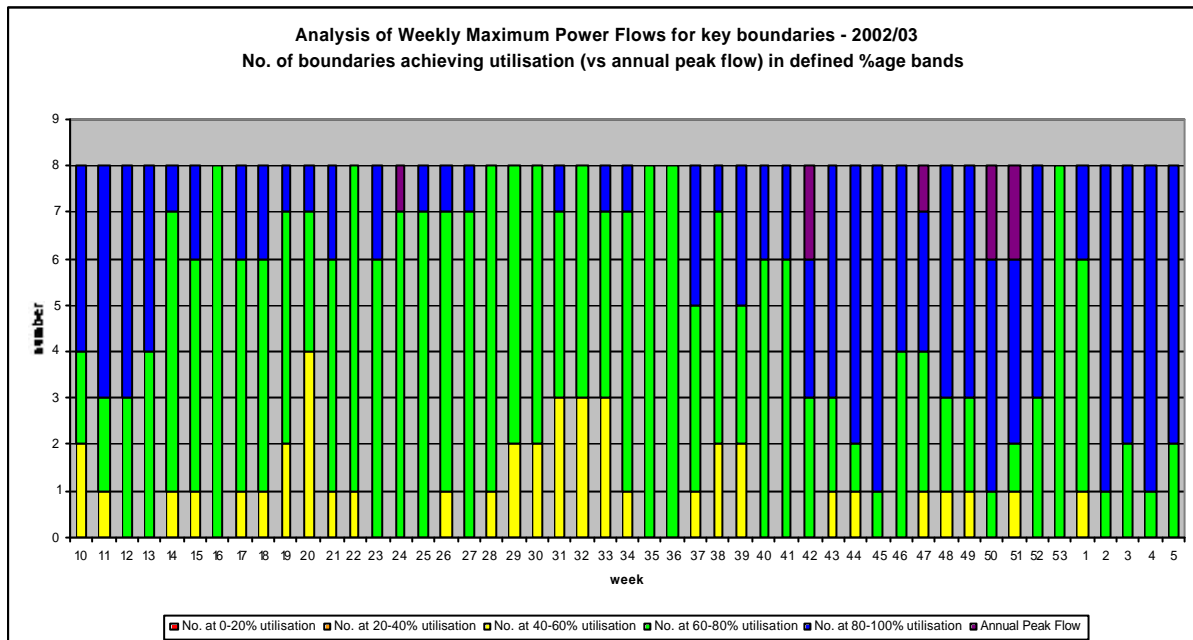
On a circuit basis, the chart shows that it is difficult to identify a clear seasonal pattern, with utilisation fairly even over the year. This can be explained by the fact that over summer, while flows over the system are lower, some circuits are on outage, leaving the remaining circuits to pick up a greater share of the system flows.

However, when assessed on a boundary basis, for the majority of the boundaries, particularly the main trunk boundaries, it was found that there is a clear and consistent underlying seasonal cycle of flows between summer and winter. Week to week variations within year and across years can be accounted for by variations in generation pattern and demand fluctuation due to weather.



This behaviour is clearly highlighted in the chart above, which illustrates the weekly/monthly peak power flows for SYS Boundary 3 - North to Midlands in 2001/02 & 2002/03.

To provide an overview of year round power flows for the boundaries studied, the chart below illustrates how many boundaries were being utilised at different percentages of capacity across 2002/03;



This chart clearly shows the summer/winter seasonal pattern of utilisation where winter presents greater power flows across boundaries in general. However, one of the boundaries studied experienced its peak power flow in summer and another two boundaries demonstrated only marginally seasonal behaviour. Further investigation of the results suggested that this was due to 3 areas of behaviour;

- (i) Localised import groups where the output of a dominant generator overrides the natural demand cycle, driving power flows.
- (ii) High merit export groups where greater levels of power exports can occur off peak.
- (iii) Localised areas with dominant bi-flow interconnectors whose behaviour dominated underlying generation and demand cycles in that zone.

This analysis supported the qualitative analysis of investment planning, namely that investment on the bulk of the network is being driven by winter peak with investment in some localised areas being driven by off peak conditions. Consequently, this suggests there may be some justification for charging some of the TNUoS revenue on a non-peak/capacity basis.

### **Potential Options for a Within Year Tariff regime**

In line with the Licence objectives, it is important that any Within Year Tariff regime reflects the costs incurred as far as reasonably possible and provides the appropriate incentives to participants such that it does not undermine the efficient and economic development and management of the system. National Grid has initially developed a number of options for a within year tariff which reflect the imposition of costs as discussed above.

The Strawmen outlined below are meant to illustrate fundamental types of approach which could be adopted, which National Grid has considered, and on which user's views are requested. The Strawmen cover the various components which could be used to construct a

WYT regime, and hence it is possible to take different aspects of these Strawmen to construct alternative Strawmen. Users may wish to bear this in mind.

### Strawman 1 – Summer/Winter Locational Capacity (TEC/Triad) Tariff

This strawman effectively creates a summer/winter split of TNUoS based on measures of summer and winter capacity requirements. Whilst this strawman sounds simple in principle, in practice it is not so straightforward.

Establishing separate seasonal capacity tariffs requires generation and demand assumptions to be made for each season which depending on their accuracy could have a significant impact on reconciliation and tariff stability for users. It is also not clear whether it is appropriate to assume the same network conditions for each season, whether it is appropriate to maintain the same tariff zones across seasons, or whether it is appropriate to vary locational differentials across seasons. One simple alternative would be generate a £/kW tariff as now, based on a system winter peak scenario, and derive summer tariffs from those, based on the proportion of revenue to be collected from the summer period.

For demand charges, the issue of how to determine the demand capacity requirement in summer would need to be resolved (note: only half-hourly metered demand, assessed on Triad is considered in these strawmen – the treatment of non half-hourly metered demand would also need to be considered). For example, it would not appear to be cost reflective to define a summer “Triad”, as non-peak costs are not directly related to any sort of summer “peak” demand. An alternative would be to charge the summer portion of the tariff based on the suppliers own “Triad” i.e. the three settlements period of highest demand take over the summer for each supplier. However, this would also not be particularly reflective of any summer cost drivers.

Under this Strawman, if a generator wished to reduce their TNUoS liability by reducing their capacity for a season, they would need to reduce their TEC for that season. However, under the current definition of TEC, if the TEC is reduced, the generator would lose that access right and would need to reapply for any subsequent increase in TEC. i.e. they could lose their current access rights from season to season. This would clearly add an additional risk to generators. The alternative would be to define a new set of terms reflecting say Summer Charging Transmission Export Capacity (SCTEC) and Winter Charging Transmission Export Capacity (WCTEC) which sit beneath the current definition of TEC. This would avoid the problems above but introduces another layer of complexity into the Charging Methodologies, related industry codes and user contracts. Generators in negative tariff zones would be required to “prove” their capability over the summer period as well as the winter in order to receive the same level of TNUoS payment as received at present.

National Grid’s initial view is that Strawman 1 has the advantage of applying a consistent tariff structure seasonally, and it would be possible to derive a tariff based on a relatively simple methodology. However, the impact of such a regime on TEC, the difficulty in defining a suitable capacity measure for summer demand, and the treatment of non half-hourly metered demand are more substantial implementation issues that would need to be resolved.

### Strawman 2 – Locational Capacity/Peak (TEC/Triad) Charge plus Summer Flat Commodity (kWh) Charge

This strawman presents a development of Strawman 1. I.e. that the non-peak related element of the charge could be charged out on a commodity, rather than capacity basis, and that the peak related element is charged out on an annual capacity basis for generators and a peak demand basis for demand. In the case of this strawman the commodity charge is a

flat (i.e. non-locational), summer charge. This strawman therefore deals with the issue highlighted above with regard to the fact that non-peak driven costs are not related to any sort of summer peak.

A key element would be determining the appropriate period for applying the kWh charge. For example, applying it over a 16:00-19:00 period, similar to that used currently for NHH demand charges, may provide too sharp a signal, and may lead to inappropriate incentive as market participants seek to avoid generating or taking demand in that period, when this period is not specifically a driver of costs. The summer kWh charge would, therefore need to be applied for 12 or 24 hours of each day to avoid this effect. Additionally under this Strawman there would be concern that there would be new incentives for generators in negative zones to reduce their output in summer, as they would be faced with a flat, positive charge to use the system in those periods. In fact the cost reflective signal should, if anything, be encouraging them to generate.

National Grid's initial view on Strawman 2 is that it better reflects the drivers of National Grid's investment by applying a peak demand and annual generation capacity charge, and allows non-peak costs to be charged in such a way that does not require the creation of non-cost reflective summer "peaks" for demand. It also does not require generators to change their TEC value through the year. However, not all non-peak costs are incurred for summer conditions only, as they may equally be incurred for non-peak winter conditions. Also a flat commodity charge would provide a non cost reflective signal to generators in negative zones in summer.

### *Strawman 3 – Locational Capacity/Peak (TEC/Triad) Charge & Year Round Locational Commodity (kWh) Charge*

This Strawman seeks to reflect National Grid's year round drivers of investment without introducing inappropriate incentives to generators. It does introduce some new design issues in terms of forecasting charge base for different components of the tariff but these do not appear to be problematic to implement in practice.

As with Strawman 2, in Strawman 3 the question of over what period the commodity charge applied is an important aspect. However, being locational and applied across the year, it maintains locational signals across the year which provide increased incentive to some generation but provides scope for some generators to control their TNUoS liability through control of their year round output. The locational commodity charge could be derived from £/kW capacity tariffs, similar to the way that the non half-hourly p/kWh tariffs are derived from the £/kW demand tariffs at present.

Thus on the face of it, Strawman 3 provides an appropriate balance of cost reflectivity and transparency/complexity in tariff structure. It does not raise any of the governance and contractual issues that Strawman 1 may or introduce any inappropriate incentives as Strawman 2 might.

National Grid's initial view on this Strawman 3 is that it better reflect the drivers of National Grid's investment and introduces new and appropriate incentives to generation year round.

However National Grid recognises that the above Strawman are not the only options and that indeed a number of hybrid Strawmen could be derived by taking different features of the three Strawmen above. Hence National Grid is continuing to assess potential alternatives and welcomes users input into that process.

### ***Way Forward on Adopting a Potential Within Year Tariff Regime***

National Grid's analysis suggests there may be justification for the introduction of some form of Within Year Tariff regime. Based on its analysis, National Grid has considered some potential Strawmen and evaluated their merits against its Licence objectives. At this stage National Grid has reached the following initial conclusions;

- (i) there is sufficient justification to introduce a bi-seasonal Within Year Tariff Regime and it would be viable to introduce such a regime for April 2004
- (ii) simple application of the annual methodology into distinct seasons would not only require major changes to industry codes and contracts but would present significant risks to system security
- (iii) the likely form of any potential Within Year tariff regime from April 2004 would be in line with Strawman 3, or something similar, namely for a locational Annual Capacity charge recovering the majority of regulated revenues supported by a locational Annual Commodity charge recovering a percentage of revenue reflecting relevant investment drivers.

National Grid intends to take its work on Within Year Tariffs forward based on the above and further internal review but continues to seek user feedback. To this end National Grid has issued a this specific consultation questionnaire on the potential introduction of Within Year Tariffs.

It is important that users provide feedback through this consultation, at the TNUoS Seminar on 5 June and/or at TCMF on 10 June as this will form a key part shaping the final conclusions on Within Year Tariffs that National Grid will take forward later in the summer.

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## Appendix 2: July 2003 Consultation – Justification of Deemed Within Year Split

### Discussion of Transmission Investment Drivers

Transmission investment is categorised as 'load related' or 'non load related'. Load related transmission investment is driven by changes to generation and demand in England and Wales and is divided between connection and infrastructure assets. Non-load related investment is driven by condition issues at sites where there is an existing requirement for transmission assets and again is divided between connection and infrastructure assets.

The requirement for investment is determined with an assessment of system performance against the requirements of the Security and Quality of Supply Standard (SQSS). For a better understanding of how National Grid arrives at a requirement for investment, it is necessary to discuss the SQSS in more detail. The SQSS is divided as follows:

#### Generation Connection Criteria

The Generation Connection Criteria cover the generation points of connection and reach into the main interconnected transmission system. As such, the assessment of a power station connection against the criteria will lead to investment requirements which include both connection and infrastructure assets. The Generation Connection Planning Criteria are divided into:

*i) Limits to loss of power infeed risks*

The limits to loss of power infeed risks ensure that the connection between the power station and the remainder of the main interconnected system is sufficient to allow National Grid to control system frequency within specified limits.

If a typical power station connection is considered, where a new substation is built next to the power station and connected to the remainder of the system with a new line, an assessment is made against these criteria. This will ensure that there are sufficient bus-coupler and bus-section circuit breakers in the new substation, and that there are sufficient transmission lines of adequate rating connecting the new substation to the remainder of the system. The assets identified by these criteria are currently defined as connection assets, but under the "Plugs" connection methodology, most would become infrastructure assets.

The loss of power infeed risks are determined by looking at both winter peak and year round conditions. However, it is generation capacity that drives the requirements for these assets, and therefore it is appropriate to categorise these investment costs as driven by the capacity of the generator.

*ii) Generation connection capacity requirements*

The generation connection capacity requirements ensure that with the power station at maximum output, a list of secured (n-2) events do not cause a loss of supply, thermal overloading, unacceptable voltage conditions or system instability. The conditions on the transmission system are set to those that ought reasonably to be expected to arise in the course of a year of operation.

For the typical power station connection described above, an assessment against these criteria will ensure not only that the new line connecting the new substation to the remainder of the system has sufficient rating but also that the existing lines around the new connection

have sufficient capacity. This is likely to trigger the reconductoring of existing routes i.e. infrastructure assets.

The generation connection capacity requirements are assessed against both winter peak and year round conditions. The condition that causes an investment requirement will depend upon the extent of local demand and the operating regimes of existing local power stations.

### **Main Interconnected System Criteria**

The Main Interconnected System Criteria extend from generation points of connection to demand points of connection on the HV side of GSP transformers.

The planning criteria consist of minimum transmission capacity requirements that ensure that a list of secured (n-2) events do not cause a loss of supply, thermal overloading, unacceptable voltage conditions or system instability. The Main Interconnected System Criteria specify that two backgrounds are considered, i.e.:

- i) The Planned Transfer Condition with power flows modified by the application of the Interconnection Allowance. The Planned Transfer Condition includes winter peak demand.
- ii) The conditions on the transmission system which ought reasonably to be expected to arise in the course of a year of operation.

An assessment of the system against these criteria will ensure that existing routes across main system boundaries have sufficient rating and there is sufficient reactive compensation equipment to keep system voltages within specified limits. This is likely to trigger requirements to re-conductor existing routes and install reactive compensation equipment, i.e. infrastructure assets.

For most of the main system boundaries, it is the planned transfer condition (winter peak) that gives the worst case and therefore drives investment. However, for demand groups reliant on limited, less economic generation the year round conditions may be the dominant driver of investment.

### **Demand Connection Criteria**

The Demand Connection Criteria cover demand connections which extend from the LV side of GSP transformers and reach into the main interconnected transmission system. The assessment of a demand connection against the criteria may lead to investment requirements which include both connection and infrastructure assets. At existing GSPs, transformer capacity is almost always the limiting factor and therefore the investment requirements are usually limited to connection assets.

### **Operational Criteria**

For each of the SQSS sections described above, the planning criteria define the minimum acceptable level of investment required. The SQSS allows National Grid to design to standards higher than those set out above provided the higher standards can be economically justified.

This allows National Grid to invest to cover operational (n-1-d) scenarios when scenarios is, by its very nature, based on year round conditions.

Investments of this type are often just an advancement of work that National Grid was going to do to meet planning criteria at a later date. Very often, the financing cost of the advancement is met by the BSIS scheme with the assets being rolled-up into the regulatory asset base as infrastructure assets at the end of the price review period.

### Capital Plan Analysis

In order to arrive at a split between investment carried out for generation capacity or demand peak and that which is carried out for year round system conditions, National Grid has analysed its capital plan covering the years 1998-9 to 2007-8, which is based on actual expenditure.

For the Load Related investments, each scheme has been categorised as 'winter peak' or 'year round' based solely on the main investment driver. The main problem with this categorisation is that many schemes are required for both 'winter peak' and 'year round' conditions. These schemes are almost always categorised as 'winter peak' since this is a more prescriptive criteria ('planned transfer modified by interconnection allowance' rather than 'conditions that ought reasonably be expected'), and this is therefore the primary driver of investment. The results of this analysis are shown in the table below.

Investment Category	Winter Peak £M	Year Round £M
Infrastructure driven by Generation or Demand Connection Criteria	100%	0%
Infrastructure driven by Main Interconnected Transmission System Criteria	89%	11%
Infrastructure driven by Operational Criteria	0%	100%
<b>TOTAL</b>	<b>89%</b>	<b>11%</b>

The above table shows that of incremental investment in transmission assets, approximately 90% is driven by peak demand conditions, or by the capacity of a generator, while around 10% is driven by year round non-peak conditions. National Grid believe that the 90:10 split represents a pragmatic split for peak/capacity and non-peak charges, based on analysis of incremental investment costs. Any assessment of the split of costs will, by its nature, be subjective, and open to alternative interpretations, as assets are in place all year round.