nationalgrid

CONSULTATION DOCUMENT

Modification Proposal to the Use of System Charging Methodology

GB ECM 02

Negative Demand Tariffs

3 August 2005

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1. Executive Summary

This paper sets out for consultation National Grid's proposals for modification of the Use of System Charging Methodology to manage negative demand charges that can occur from the DCLF ICRP TNUoS Transport and Tariff model. This paper is published on the National Grid website at the following address:

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 the 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 (excluding any payments between Transmission Licensees which are made in accordance with the STC) incurred by Transmission Licensees in their Transmission Businesses; and

c. to take account of the developments in Transmission Licensees' Transmission Businesses.

In addition, National Grid is obliged under Condition C7 of its Transmission Licence to ensure that National Grid shall not make charges which unduly discriminate between classes of customer.

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, except with the consent of the Authority.

This document sets out National Grid's proposals in response to Condition 1[1] of the Authority's approval of National Grid's revised GB Transmission Charging proposals[2].

[1] Page 43 'NGC's proposed GB electricity transmission use of system charging methodology - The Authority's decisions' March 2005 80/05 available on Ofgem's website: http://www.ofgem.gov.uk/ofgem/index.jsp

[2] GB Transmission Charging: Use of System Charging Methodology Revised Proposals Conclusion Report to the Authority available on National Grid's industry information website at: http://www.nationalgridinfo.co.uk/charging/index.html

It is proposed that this modification would better meet the Relevant Objectives in Licence Condition C5 5(a), (b) and (c) as listed above and satisfies Condition 1 referred to above.

3. Background to the Issue

As part of the approval[2] of the GB Use of System Methodology, in accordance with Licence Condition C4, the Authority included a number of conditions. Condition 1 was to invite views and to consult on alternative methods of addressing the issue of negative demand charges and to bring forward a proposal to modify the use of system charging methodology in this regard consistent with implementation in April 2006.

At the Transmission Charging Methodology Forum[3], TCMF, on 12 April 2005, National Grid discussed the process it intended to adopt in carrying out Condition 1. Noting that the issue had been discussed and considered in depth during the process leading up to the approval of the GB charging methodology, National Grid proposed to seek further Industry views through a questionnaire focussing on specific options and issues.

A questionnaire[4] was circulated to the industry in May 2005. 18 responses were received. Further to this National Grid presented a high level summary of the responses at the TCMF in July 2005. In summary, the majority of respondents indicated a preference to avoid negative demand charges by adjusting the proportion of National Grid's revenue recovered between generation and demand. A more detailed explanation of the responses is provided later in this consultation document.

4. Explanation of the Issue

4.1 Negative demand charges

National Grid believes that negative demand charges, under the current charging regime, would provide inappropriate signals to market participants at times of peak system demand, principally forecast Triad periods. Clearly, security of supply could be affected in operational timescales if actions were taken as a result of these signals.

The current charging regime for Half Hourly metered (HH) demand is based on the average demand taken over the Triad. The Triad represents the three settlements periods of highest transmission system demand within a financial year. These are the half hour settlement period of system peak and the two half hour settlement periods of next highest demand, which are separated by at least 10 clear days, between November and February of the financial year.

For supplier Balancing Mechanism Units (BMUs), and BMUs associated with Exemptable Generation and Derogated Distribution Interconnectors with a Bilateral Embedded Generation Agreement, if the average half hourly metered volume over

[3] Minutes and presentations of the TCMF are available at http://www.nationalgridinfo.co.uk/charging/mn_presentations_120405.html

[4] Transmission Network Use of System charges questionnaire on negative demand charges, available at http://www.nationalgridinfo.co.uk/charging/index.html

the Triad results in an import , the BMU will be charged the relevant kW tariff multiplied by the average import (over the three Triad settlement periods).

If the relevant kW tariff is negative under a Triad charging regime, rather than reducing demand, Users would actually be incentivised to increase demand on forecast Triad periods. Likewise, embedded generation within supplier BM Units would be incentivised to shut down to increase the overall metered demand.

National Grid believes that actions taken by parties in response to these signals to maximise benefits could present a real threat to system security. The overall effect from demand, both from not reducing demand in the traditional manner and further seeking to increase demand, may be comparatively small. However, when combined with the action of embedded generation shutting down the overall effect will have a negative impact on security of supply and therefore needs to be addressed. As well as increasing the demand to be met, embedded generation that shuts down does not have a direct relationship with National Grid and hence is not readily available to National Grid through established arrangements (i.e. through the Balancing Mechanism or other Balancing Services in operational timescales). Indeed, considering the expected growth in embedded generation in northern areas the overall problem is likely to increase significantly in the near future.

In order to avoid these inappropriate signals and resulting behaviours the existing approved methodology includes a 'collar'. This prevents negative demand tariffs by setting a deminimus level of £0/kW for the demand tariff in the tariff model. This deminimus level also feeds through to the energy consumption tariff (p/kWh) used for non half hourly (NHH) demands. The final tariff is actually positive due to the adjustment for small generators in Scotland being applied at the end of the tariff setting process.

4.2 Why negative demand tariffs appear

National Grid's Direct Current Load Flow (DCLF) Investment Cost Related Pricing (ICRP) Transmission Network Use of System (TNUoS) Great Britain Transport and Tariff model[5] will produce negative demand tariffs under certain circumstances. The transport model essentially produces a 'cost' of increasing generation or demand at each node on the system, reflecting the consequential change in power flows on the transmission system. The tariff model calculates nodal costs and then produces an average 'cost' for a number of zones. There are currently 14 demand zones, the boundaries of these represent the historic boundaries between Distribution Network Operators (Grid Supply Point groups). The differences in these average costs feed through to the tariff model and ultimately provide the basis for cost reflective signals.

The tariff model also adjusts these zonal average costs to ensure that the appropriate revenue is recovered. The current model works on the basis of 73% recovered from demand and 27% recovered from generation. Increasing the amount of revenue recovered from demand makes it less likely that negative demand tariffs will occur.

The current Transport and Tariff model, without a collar, would produce a negative demand tariff of approximately £1.58/kW for 2005/6 in Zone 1, the Scottish Hydro Electric Distribution area. The minimum level of revenue recovery from demand that

[5] See chapter 2 of 'The Statement of Use of System Charging Methodology' for a more detailed explanation of the transport and tariff model, available at http://www.nationalgridinfo.co.uk/charging/mn_charging.html

would be required in order to remove negative demand tariffs in 2005/6, in the absence of a deminimus tariff collar, would be approximately 82%.

4.3 Negative demand charges under the current methodology

The issue of negative demand charges was discussed and consulted upon in great detail in the process of producing the approved Use of System charging methodology.

National Grid's revised proposals consultation in December 2004[6] recognised that there are a number of ways for dealing both with negative demand charges, and the views expressed by the Authority in its rejection of National Grid's original proposals. In considering these views National Grid developed an alternative solution where the GB charging methodology would incorporate a minimum £0/kW demand tariff principle. This proposed that the lowest a demand tariff could go would be £0/kW (and 0p/kWh for Non Half Hourly metered demand), and the excess revenue would then be divided non-locationally to reduce the tariff in all other demand zones equally and maintaining the overall G/D split.

Following consultation this option was proposed to the Authority in National Grid's revised proposals report[7]. The Authority subsequently approved this approach, subject to Condition 1.

4.4 Condition 1 Review Process

In April 2005, National Grid presented the TCMF with an indicative work plan to further each of the five conditions that arose from the Authority's approval of the revised Use of System Charging Methodology. In order to address Condition 1, National Grid proposed to issue a questionnaire to gauge industry views on the issue of negative demand charges.

Following consideration of the responses to the questionnaire National Grid would then issue a consultation at the end of July 2005 covering National Grid's firm proposals (this consultation).

Following this consultation National Grid will consider further the views of respondents along with the Transmission Licence requirements on National Grid, to form firm proposals for the way forward. These firm proposals will be presented to the Authority consistent with the timescales required to implement the proposed solution in April 2006.

4.5 Options for dealing with negative demand tariffs

Following discussion at the TCMF National Grid issued a questionnaire[8] to gauge industry views on various options for negative demand charges.

National Grid was notified of a mistake in the supporting indicative tariff information supplied along with the questionnaire during the response period. National Grid

[6] 'GB Transmission Charging: Use of System Charging Methodology Revised proposals Consultation', available at http://www.nationalgridinfo.co.uk/charging/mn_charging.html

[7] 'GB Transmission Charging: use of System Charging Methodology Revised Proposals Conclusion Report to the Authority', 28 January 2005, available at http://www.nationalgridinfo.co.uk/charging/mn_charging.html

[8] ' Transmission Network Use of System Charges Questionnaire on Negative Demand Charges', May 2005, available at http://www.nationalgrid.com/uk/indinfo/charging/mn_TNUoS.html

amended the questionnaire and informed all CUSC parties, and the closing date for the questionnaire was extended by one week to take account of these changes.

The questionnaire presented three main options: allowing negative demand charges, squeezing the differential to avoid negative demand charges and altering the G/D split to remove the negative demand charges. The questionnaire also included the option for the respondents to suggest any other alternative method of dealing with negative demand charges.

The option of allowing negative demand charges included three sub options:

(i) that allowed negative demand charges at the same time as retaining full Triad signals,
(ii) spreading the charging base for negative zones, and
(iii) full commoditisation for negative zones (a p/kWh charge as opposed to a capacity £/kW charge).

The two latter options sought, in varying degrees, to remove the negative impact of Triad signals (with negative demand charges) on demand and embedded generation at times of system peak.

To demonstrate the proposal to remove negative demand charges by adjusting the G/D split four tariff scenarios were presented. These were a 18:82 split, a 10:90 split, a 0:100 split and a 0:100 split with other adjustments to indicate how large the margin was before negative demand charges could occur even with a 0:100 G/D split.

The options and scenarios covered were:

Note: HH indicates half hourly metered, generally large industrial customers who can load manage; NHH indicated non-half hourly meters e.g. residential type meters. As a rough indicator, the general split is one third HH and two thirds NHH.

Option 1 – Allow negative demand charges with the existing charging base

This represents no change from existing tariffs for generation. HH demand would be metered on 3 peaks separated by 10 days (i.e. the Triad). Embedded generation and demand would be subject to negative demand charges as metered on Triad.

Option 2 – Allow negative demand charges with a wider HH charging base

For negative demand zones **only** (currently zone 1), the HH charge would be based on energy usage between 16:00 hrs and 19:00 hrs (i.e. the current NHH charging base). All HH demand in negative zones would be subject to the NHH energy charge (p/kWh).

Option 3 – Allow negative demand charges with a fully commoditised charging base

Similar to option 2 above, except the charging base would be spread over the full day. All HH demand would be subject to an energy charge based on the sum of metered demand over 24 hours.

Option 4 – Removal of negative demand charges by 'squeezing' tariff differentials

Generation and demand differentials would be reduced by a common factor that removed the negative demand charge i.e. reduced the differentials.

Option 5 – Removal of negative demand charges by altering the G:D split

Indicative tariffs were calculated using a G:D split of 18:82 which is the minimum adjustment required to give positive demand charges based on 2005/6 tariffs. In addition tariffs were given for:

Option 5-i) a G/D split of 10:90; and

Option 5-ii) a G/D split of 0:100; and

Option 5-iii) a G/D split of 0:100, but with increased scaling of the locational element by approximately 25% (with the total allowed revenue figure remaining unchanged). This illustrates how much the input data (e.g. the expansion constant or security factor) has to change to result in negative demand charges.

4.6 Industry response to the questionnaire

There were 18 responses to the questionnaire, one was marked confidential. The non confidential responses are available on National Grid Industry Information Website (http://www.nationalgrid.com/uk/indinfo/charging/index.html).

In summary, the responses to the questionnaire were:

Option 1 - Allow negative demand charges, but retain the existing charging base

Two respondents indicated option 1 as their most favoured approach. Both majored on the benefits to large industrial consumers from maintaining the Triad as it currently exists. They indicated that they Triad managed, and suggested that any increased revenue recovered from demand would have a negative impact on them. Both indicated that if a system were introduced that reduced the Triad benefits they would not Triad manage.

Respondents also noted the benefits of minimum change to processes and systems with this option.

11 respondents indicated problems with this option. 6 indicated this as the least favoured option. The reasons ranged from it was 'no solution' and 'bizarre' to more general concerns about security of supply. The general view was that this did not address the concern that it encouraged demand to increase on peak and embedded generation to reduce output on peak, which in combination reduced overall security of supply.

One respondent indicated that under option 1 they would actively change processes to increase demand at Triad.

Options 2 and 3 - Allow negative demand but adjust the demand base.

Only two respondents partially supported these options. One noted that a narrower charging base between options 1 and 2 might be more appropriate. They suggested it could be designed to avoid the incentives for demand increase and remove the benefit for embedded generation to come off at times of peak, but at the same time incentivise demand to reduce at peak. The other respondent thought more work was required on an appropriate charging base that achieved the same.

14 respondents indicated they did not support a change to the charging base. The general reason suggested was that it was inappropriate and disproportionate response to the problem. In addition, most respondents commented on the negative impact of muting or removing the Triad on security of supply and especially customers who actively participate in Triad management.

Several respondents commented that options 2 and 3 would have an impact on processes and systems. As a consequence there would be some IS costs and greater lead-time for development may be required. One party indicated IS costs for itself in the region of £100k.

3 respondents clearly stated they would either increase demand or stop managing demand at Triad, leading to increased demand on peak.

Option 4 - Removal of negative demand charges by squeezing the differential

There was no direct support for this option, although one respondent indicated it was better than changing the G/D split. The main comments were that squeezing reduces the differential and distorts signals; the actual process for squeezing reduces cost reflectivity; the squeezing factor would be arbitrary and could vary year on year.

A number of respondents indicated tacit support for some form of squeezing or that a review should be conducted on the parameters in the model as they believed the differentials were overstated in the first place. One supported squeezing that extends to generation on the basis that transmission connected generation should not be discriminated against.

Option 5 - Removal of negative demand charges by altering the G/D split

11 respondents indicated this as their preferred option. The main reasons being that it retained the full differential derived from the model; it avoids the negative demand charges and hence the perverse incentive to increase demand and reduce generation in negative zones; it retains the Triad effect so benefits security of supply; it actually increases the embedded benefit so enhances positive signals on both embedded generation and demand.

Many respondents also noted a benefit from moving towards a G/D split of 0:100 as this would be more in line with the arrangements in Europe.

Other comments made in favour were that it benefited smaller generators who can not currently pass through TNUoS costs as effectively as larger integrated generators / suppliers; and it clearly sharpens the incentive on demand who can manage over peaks (i.e. avoids a percentage of the signal being indirectly passed through energy costs).

Several respondents indicated the change should be to 0:100 immediately or in one step, others indicated that a clear timetable for the move to 0:100 was required. The majority appeared to support a phased implementation, indicating that a clear timetable would reduce uncertainty and help to ensure that correct costs could be passed through.

4 respondents indicated that altering the G/D split was their least preferred option. They indicated that it was disproportionate to the perceived problem of negative demand charges and would increase their charges. They indicated they were not

confident that the benefit to generators would be passed through in energy prices and so represented a windfall gain to generators.

Option 6 - Other

Excluding the suggestion that lays somewhere between option 1 and 2 (negative charges that give the correct long term signal but do not increase demand growth on the day of peak or embedded generation to shut down on peak), the only other suggestion was that the collar of £0/kW be retained.

3 respondents support the current collar in negative demand zones on the basis that it avoids negative charges, hence avoids security of supply issues of incorrect signals to demand and generation on peak. Also it is simple and results in minimum change.

4.7 National Grid's view

In addition to better meeting the charging principles in the licence, National Grid believe it is important that:

1. The solution does not encourage embedded generation to shut down at times of peak system demand;
2. The solution does not encourage customers to increase demand at times of peak system demand;
3. The solution protects cost reflectivity, as far as possible;
4. The solution maintains inter-zonal signals i.e. a zone being more or less expensive than the adjacent zones;
5. The solution is proportionate to the issue being addressed;
6. The solution should not be overly complex, and any increase in complexity must show a clear benefit;
7. The cost of implementing new charging arrangements should not outweigh the benefit of an option compared to alternatives; and
8. Where possible the positive signal to Triad manage is retained;

The DCLF ICRP model produces tariff differentials and it is these combined with the 'sharpness' of the Triad mechanism that provides cost reflectivity. For example, reducing the tariff differentials weakens the incentive for demand to site in the north and similarly weakens the disincentive to site in the south. In addition, providing the demand charges are positive, all demand or embedded generation, in the north and south, are incentivised to reduce the demand 'seen' by the transmission system over forecast Triad periods. This will feed through to future transmission investment plans.

National Grid maintains that it is the differential rather than the absolute cost that that provides cost reflectivity. The absolute cost will change as a result of 'shifting' the differential up or down in order to ensure the correct amount of revenue is recovered. All generators or suppliers will seek to recover their costs from the end customer. So, in theory, given effective competition and liquidity in the energy market, the non-locational element in the TNUoS charge should be recoverable equally by all parties irrespective of location or whether it is originally levied on generation or demand. For demand that Triad manages this represents an additional benefit in that the market price of energy should not include the residual element of TNUoS applied to generation.

When all demand zones are positive, all embedded generators benefit to a greater or lesser extent depending on their location and contractual relationships. The absolute benefit is in line with the differential, providing a larger benefit in the south. However,

when demand charges become negative (i.e. flip) rather than receiving a benefit to avoid demand take (reduce demand or increase embedded generation), the signal flips to increase demand and reduce embedded generation (maximise metered demand to maximise the benefit). National Grid believes this negative demand charge signal could have a detrimental impact on security of supply - increasing the demand required to meet at peak. Also, the costs of generating in a negative demand zone at suspected Triad peaks would be dominated by the lost benefit of Triad avoidance. Under a tight margin this TNUoS avoidance could have an undue influence on the marginal price in the market. The embedded generation affected would not be Balancing Mechanism plant, nor have any contractual relationship with National Grid, and hence not readily available to National Grid in the short term (i.e. to re-despatch to meet increased demand).

To avoid the negative consequences on security of supply National Grid believes it is essential to remove the inappropriate signal generated by the combination of negative demand charges and the Triad mechanism. However, we also believe it is very important to maintain, to the greatest extent possible, the full differential derived from the transport and tariff model to provide cost reflective charges.

Of the options discussed below National Grid believes that adjusting the proportion of revenue collected between generation and demand (the G/D split), to remove negative charges, but retain the full cost reflective signal, is, on balance, the most appropriate solution. Three other effects of this solution are that it produces more negative generation zones in the south, it increases the small generation discount by approximately 25% and enhances embedded benefits. Increasing the amount paid by demand clearly increases the available Triad benefit. It also increases the absolute differential between the demand and generation tariff as a result of the larger charging base for generation compared with demand (i.e. shifting revenue from G to D has a bigger £/kW effect on demand as the revenue is prorated across less megawatts).

An additional benefit, also noted by many of the respondents to the questionnaire, is that it moves GB charging arrangements towards a G/D split of 0:100 which is more in line with the rest of Europe. Respondents are aware of the position in Europe and this may be causing uncertainty that they need to manage. Moving towards the European norm in a clear and planned manner would reduce uncertainty and seek to ensure that generation in GB is competing with European generation in Europe and GB on a more consistent playing field.

Whilst we believe the change to the G/D split is on balance our preferred solution to negative demand tariffs, there are a number of additional issues to consider including how to deal with any negative tariffs if the effect of the G/D change is exhausted. These are discussed below alongside our views on each of the options considered.

In the Authority's rejection of National Grid's original proposals the issue of proportionality was highlighted as a concern. National Grid understands that all costs are eventually borne by the customer. Providing the market allows the change in revenue streams to pass through there should be no additional impact on customers. National Grid are proposing that the implementation date is chosen to ensure that parties have sufficient time to incorporate changes into contractual arrangements. In addition, moving the G/D split in one step would also serve to reduce the risk of changes to prices not reflecting a change to the G/D split by providing a clear change over time.

Option 1: Allow negative demand charges, but retain the existing charging base

Given the inappropriate signals discussed above (to increase demand and reduce generation at peak in negative demand charging zones) National Grid believe the methodology should avoid negative demand charges in conjunction with the existing Triad mechanism. Therefore National Grid does not support this Option 1.

To put the implications in perspective, if the Triad effect was 2% then the demand increase in the north of Scotland is only likely to be 30MW. However, in addition to this the transmission system demand will include embedded generation turning down. The demand effect could be considered small but still appreciable, but with the predicted increase in embedded generation the overall effect could become a significant factor in system security. Also, as the system changes there is the real potential for more zones to become negative, increasing the problem.

This also has an effect on stability of the charges and customer processes. When zones 'flip' to the negative charging arrangements not only do the level and sign of the charges change, but it brings about distinctly different real time practices, confirmed by the respondents to the questionnaire.

Option 2: Negative charges, with a wider charging bases (similar basis to NHH)

Option 2 allows negative demand charges, but adjusts the charging base (only in the negative zones) to reduce the effect of inappropriate signals. This is a significant change to the existing methodology and adds another level of complexity on the basis that the revised methodology only applies to negative demand zones and other charging arrangements remain in place.

From National Grid's reading of the responses to the questionnaire it appears that some of the respondents did not fully appreciate that the charge to the charging bases was limited to the negative zone and therefore would not affect them.

It is arguable whether this option completely removes the incentive to increase demand, the effect is obviously much more dependant on the energy price, however, it fails to give the sharpest signal for demand management at peak. Given sufficient liquidity in the energy market the energy price should be sufficient to encourage generation to run or for demand to reduce appropriately i.e. TNUoS charges do not dominate.

This option would have IS implications for National Grid. Considering the synergies, overall costs would be reduced if the same charging base as for NHH demand were used. Through the questionnaire responses Industry participants have indicated they would also have costs.

As the charging base widens the charges move away from a capacity based charge (kW) towards a commodity (kWh) charge. This approach is not entirely consistent with previous analysis that indicated National Grid invests in capacity for peak system demand and so the most cost reflective charging arrangements are those based around peak usage. However, there would still be a cost reflective message for demand to site in that zone compared with other zones.

A downside of this option is the partial removal of the Triad signals to manage demand on system peaks. It should be noted that this adjusted charging base would only be applicable in negative zones and therefore this effect would be fairly minimal. If more zones become negative then it obviously exacerbates this effect.

Similar to option 1, but to a lesser degree, option 2 also leads to stability issues in the charging and operating arrangements when zones flip to negative demand charges.

Given the above concerns this is not National Grid's preferred option, as we believe that overall option 5 (changing the G/D split) is more cost reflective. However, a significant advantage of option 2 is its robustness against all scenarios (i.e. it can deal effectively with any future negative demand charges after the change to the G/D split has been implemented). We believe this option represents a reasonable compromise as a secondary mechanism to deal with negative demand tariffs, dealing with the issues of system security with only a marginal loss of cost reflectivity such that other effects can be considered as secondary.

Therefore, subject to responses including any concerning the practicability of implementing for April 2006 and the overall cost, National Grid proposes that the methodology is amended to incorporate a wider charging base for negative demand zones **only** to be used as a secondary action to deal with negative demand tariffs after the change to the G/D split has been implemented. This option uses the same charging base as used for NHH demand i.e. all year round 1600 to 1900hrs. We believe this is a sensible option as suppliers are used to dealing with this charging base with NHH consumers and it does not create a new unique charging base which we believe would be far more complex for the industry to accommodate. This option would provide robustness in the model for future changes to the system when the G/D split fails to fully remove negative demand charges. If the change to the G/D split cannot be implemented until April 2007 to address implementation, proportionality and cost pass through concerns, this option could also replace the collar as an interim solution in 2006/7.

National Grid are particularly interested in views on whether the option is a realistic interim solution for 2006/7 or whether alternatives should be considered including the retention of the collar for an additional year.

If the criteria for use of option 2 is linked solely to whether a zone has negative demand charges then there may be considerable uncertainty regarding whether or not the wider charging base mechanism would be used in any given year e.g. if the test is simply that negative tariffs exist. There is also the possibility that charges could fluctuate from positive to negative over a number of years, with the only notice being with the publication of the final tariffs in January. It may therefore be appropriate to consider criteria that provides greater certainty regarding the use of this option. This could be achieved with the establishment of a range within which the mechanism could be implemented with the appropriate notice period e.g. 12 months. If tariffs moved within the range e.g. £0-0.50/kW then National Grid could give 12 months notice if it was expected that tariffs would move towards negativity, and then the wider charging base would be used for the relevant zones irrespective of whether the tariffs were positive or negative (within the notified range). Such an approach would give users more certainty regarding how they would be charged.

National Grid would be interested in Industry views as to whether the benefits of the above outweigh the additional complexity in the criteria.

Option 3: Negative charges, but full commoditisation

This option adjusts the charging base to full commoditisation in negative demand zones. The arguments for and against are similar to those for option 2, but the effects are all exaggerated. In particular, it moves the charging methodology completely

away from a capacity based charge and therefore in National Grid's view would be less cost reflective. It may also have significantly higher implementation and enduring process costs for the industry and National Grid.

Introducing a new charging arrangement exclusively for HH demand in negative zones would increase complexity by 50%. This is based on the assumption that the existing arrangements for NHH demand being charged between 16:00 and 19:00 are retained. As an enduring solution it would be less complex if NHH and HH arrangements were harmonised, however this would be a much more significant change for no appreciable benefit.

Given the move away from the cost reflective principles, the wider impact to charging systems and process and the increased complexity, National Grid does not propose this as a solution to negative demand charges.

Option 4: Removing negative demand charges but squeezing the differentials

This reduces the differentials to avoid the negative demand charges. Effectively it reduces the cost reflective signals derived from the model and “squeezes” the tariffs closer together until demand tariff negativity is removed. The overall differential between the north and south and each zone is therefore reduced. Demand in the south and generation in the north would pay less and generation in the south and demand in the north would pay more. Overall, generation and demand at the extremities of the system would see a bigger change than a user closer to the centre of the system. On grounds of cost reflectivity and proportionality National Grid does not support this option.

However, it does retain a differential between each zone, albeit reduced, something that the current methodology with the collar would not do if two zones became negative.

The choice of the squeezing factor is mechanistic, purely chosen to remove the negative demand tariff and therefore could change year on year. This would impact on the overall stability and predictability of the differentials.

In presenting this option to the industry in the questionnaire both the generation and demand differentials were squeezed, therefore reducing the cost reflective signal for both. A solution that only squeezed demand differentials may be a more proportionate response. One respondent mentioned discrimination between embedded and directly connected generators as a reason for squeezing both generation and demand. However, given these parties are exposed to different charges in different ways, which although the differential is similar the residual in the calculation is significantly different, and the obligations and rights are vastly different. National Grid does not believe it would necessarily be discriminatory to squeeze only demand to remove negative demand charges.

However, National Grid does not propose this as solution on the basis that it does not better meet the relevant objectives, particularly cost reflectivity, compared with the alternative options.

Option 5: Removing negative demand charges by altering the G/D split

This solution retains the full differential as well as addressing the security of supply concerns. It is not envisaged that implementation would require any significant changes to IS systems or processes, although a higher number of generators would

be subject to negative generation tariffs and therefore be required to demonstrate their availability over the winter months. In avoiding any new processes it benefits from simplicity and is already understood. It was also supported by a large number of the respondents to the questionnaire.

A consequence of changing the G/D split is an increase in the overall embedded benefits that a supplier or generator can receive and so actually improves the sharpness of the Triad signal, and hence could have a beneficial effect on security of supply. An additional benefit is that it moves the GB charges towards those of Europe where G/D is more commonly 0%/100%.

One of the major arguments against this option is that it is disproportionate, moving a significant amount of revenue recovery (£160m for a 10:90 and £285m for a 0:100 G/D split, based on 2005/6 revenues) from generation to demand in response to a perceived security of supply issue and to avoid negative demand charges that pay out in the order of £2.5m (taken from a 2005/6 tariff model).

We believe that there is a security of supply risk, even if only one zone is negative, from encouraging demand to increase at peak and generation to turn off. Although the demand in zone 1 is relatively small, so the 'pure' demand effect may be minor, the majority of the problem is likely to be linked to generation reducing export. The zone that this affects at the moment is envisaged to have a significant increase in embedded generation within normal planning timescales. Also, the next zone likely to have negative demand charges is zone 2 (South of Scotland) where there is also large activity in terms of embedded generation. As noted earlier, the contractual framework avoids these embedded generators from having a direct relationship with the GBSO. Therefore the GBSO would not have any readily available mechanism for countering the generation shutting down.

In terms of the changes to the revenue collection split, GB may be encouraged to harmonise with Europe through European legislation at some time in the future, and this is clearly the view of many respondents to the questionnaire. As such it would be better in terms of predictability if we publish a clear timetable for this move. Harmonisation would reduce overall market uncertainty and also aid competition and ensure all parties are on a level playing field in terms of average G/D split.

In both the Authority's rejection of National Grid's original GB charging methodology and a number of responses to the questionnaire concern was raised as to whether a change in the revenue recovery split between G and D would feed through to a reduction in energy prices in the short term. Clearly with the amounts of money moving from generation to demand this is a major concern. If the reduction in generation costs was not passed through, generators would receive a temporary gain with an increased cost to suppliers and consumers. These views imply a concern that the energy market is either not competitive or lacks sufficient liquidity within year. We do not believe that such a view should necessarily unduly influence the charging methodologies, however an appropriately phased implementation and / or lead time may serve to address these concerns and therefore to facilitate the pass through of the lower generation costs.

National Grid has considered how best a change to the G/D split could be implemented. The questionnaire responses indicated this was an issue, but there was no clear option preferred by all respondents. Three options we have considered are phasing over a period of time (e.g. 13.5 % change on two successive years), increasing the implementation lead-time (i.e. April 2007 rather than April 2006) or a combination of both of these options. The main advantage of phasing is that it is a

gradual move. However we believe to remove uncertainty a phased approach has to be against the background of a defined timetable. It should also be noted that until tariffs are calculated for 2006/7 it cannot be guaranteed that a phased change would remove negative demand tariffs. A single change to the G/D split, with an increased lead-time, would be more transparent in providing a clear date when the full change should be reflected in the contractual arrangements.

On balance, National Grid believes it would be simpler and more transparent if there was a single step change, but with a greater lead-time. This would allow users to contract in advance with certainty and with a minimum number of changes to deal with. Therefore National Grid's preferred implementation approach would be to change the G/D split by a single step to 0:100 (100% recovered from demand) in April 2007.

Option 6: Other

Given the wording of Condition 1 National Grid does not believe retaining the current collar is a viable enduring solution. However, we believe there is merit in considering retention of the collar as an interim solution to facilitate a longer lead time, given our preference for option 5 with a longer lead time.

On the basis of cost reflectivity alone, option 2 is preferable as an interim measure compared to the collar. However the collar is obviously more preferable in terms of simplicity. In addition, the overall cost and timescales of implementing option 2 against the alternatives needs to be considered. National Grid is interested in the views of the Industry as to the most efficient interim arrangement should increased lead time for implementation of a change to the G/D split change be recommended to the Authority.

4.8 Phasing and implementation

Based on the response to the questionnaire and having also reviewed National Grid's internal system and processes:

- Options 1 and 2 require little or no phasing. In both cases it appears that the majority of respondents to the questionnaire could manage a move to option 1 or 2 within the normal charging calendar process (i.e. 150 days notice of a change in the methodology with final tariffs notified by the end of January for the following April).
- Option 3 requires no phasing, however given it is a more complex change it may not be fully implementable by April 2006.
- Option 4 requires no phasing and can be implemented for April 2006
- Option 5 - in general the industry supported phasing, but also that the number of steps be minimised. As discussed earlier, on balance National Grid believes that an increased lead time with a single step to a G/D split of 0:100 is the most efficient and simple approach.

5. Proposed Modification

5.1 Proposal

National Grid believes that changing the G/D split is the most appropriate response to negative demand charges and that on balance it better meets the relevant objectives whilst addressing the concerns expressed about the inappropriate signals.

Having considered the views expressed by the Authority and the responses to the questionnaire, National Grid proposes that, to ensure the changes to revenue flow are correctly dealt with, the change to G/D split should be delayed until April 2007. However the methodology submitted to the Authority in November 2005 would include this as a change to provide a clear timetable.

To minimise the number of successive changes and taking account of the lead time, National Grid proposes that the G/D split should be 0/100 from April 2007.

To address how negative demand charges should be dealt with in 2006/7, National Grid believes there are two alternative options: negative demand charges with a charging base the same as NHH demand; or retaining the collar. Based on the discussions above, National Grid believes that allowing negative demand charges with a charging base the same as to NHH demand would better meet the relevant objectives. However, National Grid recognises that modifications to parties' systems could be required for a change from April 2006, and that due to their possibly temporary nature, that retention of the collar may be more appropriate as an interim solution. National Grid particularly request further information from Industry participants on the implementation issues for negative demand charges with a charging base the same as to NHH demand to inform our final recommendation to the Authority.

National Grid also proposes that the option of allowing negative demands with a charging bases the same as NHH demand, be included in the methodology as a secondary mechanism to provide future robustness. Responses on this issue would also be used to inform National Grid of the most appropriate interim solution as discussed above.

5.2 Justification for proposed modification

The proposed modification would better meet the Relevant Objectives in Licence Condition C7A 5(a), (b) and (c) of:

- facilitating effective competition in the generation and supply of electricity and (so far as is consistent therewith) in the sale, distribution and purchase of electricity; and

- to result in charges which reflect, as far as reasonably practicable, the costs incurred by National Grid in its Transmission Business; and

- taking account of the developments in National Grid's Transmission Business.

The modification will achieve these objectives in the following manner:

- removing the deminimus £0/kW collar and facilitating the full differential established in the transport and tariff model would improve the cost reflectivity of the charges;

- establishing as a secondary measure the use of the NHH demand charging base to deal with negative demand charges is more cost reflective that the other options considered;

- the use of the existing NHH demand charging base within the secondary action would reduce implementation costs;

- delaying the change to the G/D split until April 2007 would ensure the proportionality of the proposals and facilitate competition by enabling effective pass through of the higher demand charges;

- harmonising the average generation and distribution charges with external markets would facilitate competition;

- reducing future uncertainty and improving the stability and predictability of charges would facilitate competition

National Grid also believes the recommended proposals meet the requirements of Condition 1 placed on National Grid as part of the approval of the GB Use of System Methodology by the Authority in accordance with Standard Licence Condition C4.

5.3 Implementation date

The interim solution for 2006/7 is proposed for implementation from 1 April 2006.

The change to the G/D split, to 0/100, is proposed to be implemented from 1 April 2007. The above changes would be incorporated in a report to the Authority in early October 2005, with the methodology change taking place by the end of October, subject to the Authority's right to veto.

5.4 Proposed Changes to the Statement of the Use of System Charging Methodology

It is proposed that the Statement of the Use of System Charging Methodology be modified in line with the agreed methodology. On the basis of National Grid's preferred solution. The areas of the methodology statement that would change include:

- references to the deminimus demand charge of £0/kW and 0p/kWh would be removed;
- the G/D split from April 2007 would change to 0:100 rather than 27:73 which would apply until then;
- the definition of the secondary mechanism for negative demand tariffs using the NHH demand charging base, including the charging arrangements for demand and embedded generation;
- Suppliers in demand zones with a negative half hourly zonal tariff (£/kW) would all be subject to the charges in line with non-half hourly demand (p/kWh) arrangements for that zone.

The examples in the appendix to the methodology statement would not be revised to reflect the changed G/D split until the methodology was updated for 2007/8.

If the Authority does not veto National Grid's proposals, a revised Statement of the Use of System Charging Methodology will be circulated for comment later this year, prior to formal publication.

5.5 Proposed Changes to the Statement of Use of System Charges

Tariffs reflecting the revised methodology would be published in The Statement of Use of System Charges effective from 1 April 2006.

5.6 Illustrative Impact on the Use of System Charges

Appendix 1 to this consultation contains illustrative charges for the option discussed in this consultation. This includes National Grid's preferred option:

- Option 5-2 - A G/D split of 0:100, implemented from April 2007, and
- Option 2 - Allowing negative charges but charging all demand in negative demand zones as if it were non half hourly demand (i.e. p/kWh rate 16:00 hrs to 19:00 hrs), from April 2006.

Note: When the G/D split is changed this negates the effect of option 2, even with option 2 remaining in the methodology (i.e. negative demand charges would no longer be expected). Therefore from April 2007 the charges would reflect the changes represented by option 5-2 and not option 2.

Option 5 is displayed with four sub options, as detailed in the questionnaire:

- Option 5 is a G:D split of 18:82, this minimum to remove negative demand charges in 2005/6.
- Option 5-1 is a G:D split of 10:90.
- Option 5-2 represents a G/D split of 0:100.
- Option 5-3 represents a G/D split of 0:100, with a 25% adjustment to the security factor.

All of the illustrative charges are provided to show the relative effect of the proposed changes against the existing methodology. Therefore the existing 2005/6 network model used in setting the 2005/6 charges has been used. To ensure an equitable comparison can be made, the relevant parameters used have not been indexed. Illustrative charges have not explicitly been provided for the retention of the collar, however the 2005/6 charges have been provided for comparison (these include the collar).

5.7 Impacts on Other Industry Documents

None are envisaged.

6. 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 **31 August 2005**. If you wish to provide comments on this modification proposal, responses are welcome via email to:

Patrick.Hynes@ngtuk.com

Or alternatively, written comments may be addressed to:

Patrick Hynes
Commercial Frameworks
National Grid Transco
NGT House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

Please clearly mark any response that should be treated on a confidential basis, the detail of which will not be published within the final report to this consultation paper.

If you have further queries, please do not hesitate to contact Patrick on **01926 656319.**

Appendix 1: Illustrative Impact on the Transmission Network Use of System Charges

Demand — **Half Hour Demand Tariffs**

Zone No.	Zone Name.	Existing 2005/06 HH Zonal Tariff (£/kW)	Option (i) HH Tariff Variance (£/kW)	Option (ii) HH Tariff Variance (£/kW)	Option (iii) HH Tariff Variance (£/kW)	Option (iv) HH Tariff Variance(£/kW)	Option (v) HH Tariff Variance (£/kW)	Option (v)-1 HH Tariff Variance (£/kW)	Option (v)-2 HH Tariff Variance (£/kW)	Option (v)-3 HH Tariff Variance (£/kW)
1	Northern Scotland	0.04	-1.58	-0.04	-0.04	0.07	0.06	1.52	3.34	-0.05
2	Southern Scotland	4.11	0.04	0.04	0.04	1.07	1.69	3.15	4.97	2.88
3	Northern	7.39	0.04	0.04	0.04	0.70	1.69	3.15	4.97	3.62
4	North West	11.14	0.04	0.04	0.04	0.29	1.69	3.15	4.97	4.47
5	Yorkshire	11.18	0.04	0.04	0.04	0.28	1.69	3.15	4.97	4.48
6	N Wales & Mersey	11.21	0.04	0.04	0.04	0.28	1.69	3.15	4.97	4.49
7	East Midlands	13.47	0.04	0.04	0.04	0.03	1.69	3.15	4.97	5.01
8	Midlands	15.03	0.04	0.04	0.04	-0.15	1.69	3.15	4.97	5.36
9	Eastern	14.03	0.04	0.04	0.04	-0.03	1.69	3.15	4.97	5.13
10	South Wales	18.32	0.04	0.04	0.04	-0.51	1.69	3.15	4.97	6.11
11	South East	15.99	0.04	0.04	0.04	-0.25	1.69	3.15	4.97	5.58
12	London	18.52	0.04	0.04	0.04	-0.53	1.69	3.15	4.97	6.16
13	Southern	17.83	0.04	0.04	0.04	-0.46	1.69	3.15	4.97	6.00
14	South Western	20.49	0.04	0.04	0.04	-0.75	1.69	3.15	4.97	6.60

Demand — **Non-Half Hour Demand Tariffs**

Zone No.	Zone Name.	Existing 2005/06 NHH Zonal Tariff (p/kWh)	Option (i) NHH Tariff Variance (p/kWh)	Option (ii) NHH Tariff Variance (p/kWh)	Option (iii) NHH Tariff Variance (p/kWh)	Option (iv) NHH Tariff Variance (p/kWh)	Option (v) NHH Tariff Variance (p/kWh)	Option (v)-1 NHH Tariff Variance (p/kWh)	Option (v)-2 NHH Tariff Variance (p/kWh)	Option (v)-3 NHH Tariff Variance (p/kWh)
1	Northern Scotland	0.0056	-0.4481	-0.2079	-0.0323	0.0203	0.0164	0.4294	0.9455	-0.0148
2	Southern Scotland	0.5617	0.0061	0.0060	0.0050	0.1456	0.2303	0.4295	0.6786	0.3925
3	Northern	0.9702	0.0059	0.0058	0.0047	0.0922	0.2213	0.4128	0.6521	0.4752
4	North West	1.4620	0.0059	0.0058	0.0047	0.0376	0.2214	0.4129	0.6524	0.5873
5	Yorkshire	1.4876	0.0059	0.0058	0.0048	0.0375	0.2244	0.4185	0.6612	0.5966
6	N Wales & Mersey	1.5124	0.0060	0.0059	0.0049	0.0376	0.2275	0.4244	0.6706	0.6059
7	East Midlands	1.8050	0.0060	0.0059	0.0049	0.0037	0.2261	0.4217	0.6662	0.6708
8	Midlands	2.0626	0.0061	0.0060	0.0050	-0.0200	0.2315	0.4318	0.6823	0.7358
9	Eastern	1.9099	0.0061	0.0060	0.0050	-0.0047	0.2296	0.4283	0.6767	0.6988
10	South Wales	2.3689	0.0058	0.0057	0.0046	-0.0661	0.2181	0.4069	0.6428	0.7901
11	South East	2.1676	0.0060	0.0060	0.0049	-0.0342	0.2286	0.4265	0.6738	0.7564
12	London	2.4549	0.0059	0.0058	0.0048	-0.0707	0.2236	0.4171	0.6590	0.8160
13	Southern	2.4466	0.0061	0.0060	0.0050	-0.0628	0.2314	0.4316	0.6819	0.8231
14	South Western	2.7284	0.0059	0.0059	0.0048	-0.1002	0.2246	0.4189	0.6619	0.8795

Generation

Zone No.	Zone Name	Existing 2005/06 Zonal Tariff (£/kW)	Option (i) Tariff Variance (£/kW)	Option (ii) Tariff Variance (£/kW)	Option (iii) Tariff Variance (£/kW)	Option (iv) Tariff Variance (£/kW)	Option (v) Tariff Variance (£/kW)	Option (v)-1 Tariff Variance (£/kW)	Option (v)-2 Tariff Variance (£/kW)	Option (v)-3 Tariff Variance (£/kW)
1	Peterhead	18.16	0.00	0.00	0.00	-1.59	-1.29	-2.44	-3.87	-0.62
2	North Scotland	20.93	0.00	0.00	0.00	-1.90	-1.29	-2.44	-3.87	0.01
3	Skye	23.10	0.00	0.00	0.00	-2.14	-1.29	-2.44	-3.87	0.50
4	Western Highland	18.92	0.00	0.00	0.00	-1.67	-1.29	-2.44	-3.87	-0.45
5	Central Highlands	15.36	0.00	0.00	0.00	-1.28	-1.29	-2.44	-3.87	-1.26
6	Cruachan	15.85	0.00	0.00	0.00	-1.33	-1.29	-2.44	-3.87	-1.15
7	Argyll	13.44	0.00	0.00	0.00	-1.06	-1.29	-2.44	-3.87	-1.69
8	Stirlingshire	12.61	0.00	0.00	0.00	-0.97	-1.29	-2.44	-3.87	-1.88
9	South Scotland	11.82	0.00	0.00	0.00	-0.88	-1.29	-2.44	-3.87	-2.06
10	North East England	8.09	0.00	0.00	0.00	-0.47	-1.29	-2.44	-3.87	-2.91
11	Humber, Lancashire & SW Scotland	4.91	0.00	0.00	0.00	-0.11	-1.29	-2.44	-3.87	-3.64
12	Anglesey	6.12	0.00	0.00	0.00	-0.25	-1.29	-2.44	-3.87	-3.36
13	Dinorwig	8.71	0.00	0.00	0.00	-0.54	-1.29	-2.44	-3.87	-2.77
14	South Yorks & North Wales	3.12	0.00	0.00	0.00	0.08	-1.29	-2.44	-3.87	-4.05
15	Midlands & South East	1.32	0.00	0.00	0.00	0.28	-1.29	-2.44	-3.87	-4.46
16	Central London	-5.71	0.00	0.00	0.00	1.07	-1.29	-2.44	-3.87	-6.06
17	North London	-0.22	0.00	0.00	0.00	0.45	-1.29	-2.44	-3.87	-4.81
18	Oxon & South Coast	-0.70	0.00	0.00	0.00	0.51	-1.29	-2.44	-3.87	-4.92
19	South Wales & Gloucester	-2.55	0.00	0.00	0.00	0.71	-1.29	-2.44	-3.87	-5.34
20	Wessex	-4.95	0.00	0.00	0.00	0.98	-1.29	-2.44	-3.87	-5.88
21	Peninsula	-8.04	0.00	0.00	0.00	1.32	-1.29	-2.44	-3.87	-6.59