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***Response to National Grid Consultation Documents –
CCM-M-07, UoSCM-M-10 and UoSCM-M-11***

Dear Alex,

Thank you for the opportunity to respond and comment upon your consultation documents detailing the proposed modifications to the Connection and Use of System Charging Methodologies for implementation from April 2004. Magnox Electric's views on the issues raised within the consultation documents are set out below. Summarising our key conclusions;

- **We support the proposed changes in CCM-M-07 to the connection boundary and agree this would remove some of the significant barriers to market entry and exit and will better facilitate effective competition.**
- **We support the proposal in UoSCM-M-10 to employ a DC Loadflow Model as a basis for deriving TNUoS Charges and the proposal to employ forward looking estimate of the value of assets required for system enhancement as a more accurate estimate of Long Run Marginal Costs (LRMC).**
- **We agree with the methodology you have proposed for the inclusion of the costs of security on a locational basis.**
- **The use of a model based on the inclusion of a Security Factor in UoSCM-M-10 as a surrogate for a more accurate approach on the basis of being able to supply a simple model to users over better achievement of the relevant objectives we feel cannot be justified. The Secure DC Loadflow model clearly better meets your relevant licence objectives than does your proposed approach.**
- **We agree with the principle of including an element of TNUoS charges based upon non-peak investment related costs. But we have serious concerns that the proposed modification is over simplistic in its application and has not been tested against a methodology more firmly rooted in economic principles. Therefore we do not support the proposal in UoSCM-M-11.**

Our detailed responses follow.

a. Modification Proposal - Connection Charging Methodology

The current connection charging methodology attempts to directly allocate those elements of costs associated with connecting customers to the transmission system. This approach can be justified on the grounds that it directly reflects the costs users impose by connecting to the system. However, experience has illustrated that designing a methodology that accurately and fairly allocated these costs results in a complex, inflexible and relatively impenetrable approach for calculating connection charges that includes elements that limit its ability to achieve significant gains in economic efficiency.

- The methodology includes very strong incentives to minimise the costs to the individual of connection/entry to and disconnection/exit from the network potentially at the expense of system-wide efficiency ie. connection at a point on the system which includes significant spare capacity can be ignored in favour of connection at a point at which connection assets and hence costs can be shared.
- The inclusion of Generation Only Spurs produces the opposite effect to that outlined above. Significant spare capacity at a point on the system which is classified as a generator only spur could be ignored because of the significant charges associated with connecting at that point.
- The methodology introduces a large element of uncertainty to connection charges for current users, potential new entrants and those exiting the market. Significant changes to users' charges can occur prompted by the actions of both other users and/or NGC. It is clear that users cannot act in an economically efficient manner with respect to connection to or disconnection from the system when a large element of the costs they face are exogenous to their own actions and consequently carry a significant amount of uncertainty.

All of the issues highlighted above are inherent within any 'Deep Connection' charging methodology and become more pronounced with deeper connections. We would therefore concur with NGC's view that a move towards a more shallow connection charging methodology would overcome the serious shortcomings of the current methodology in delivering system wide economic efficiency. In doing so the changes would remove the significant barriers to efficient market entry and exit that currently exist and clearly better meet NGC's relevant licence objectives, particularly with reference to the development of competition.

b. Modification Proposal – Calculation of Locational TNUoS Tariffs

We agree with your conclusions and the consensus of user opinions that a DC Load Flow model is the most suitable incremental development of TNUoS charges and does provide improvements to the cost reflectivity of charging by providing a more realistic simulation of the transmission network when compared to the current approach.

The proposed changes to the derivation of the expansion constant are also clearly improvements on the current approach. Marginal Costs are by definition forward looking and deriving the expansion constant on a forward looking estimate of the

value of assets required for system enhancement is clearly consistent with a more accurate estimate of Long Run Marginal Costs (LRMC). Furthermore, accounting for cost differences between these classes of assets will again improve the accuracy of the estimates of LRMC derived from the model and the overall cost reflectivity of the methodology. We would therefore agree that these proposed changes would improve the charging methodology and better meet NGC's licence objectives.

The treatment of substation assets within TNUoS charges is a key issue given their potential impact upon the size of differentials between zones. There is little argument that substation costs are locational at the 'micro' level i.e. the configuration and size of substations will differ slightly at each specific connection point. However, it is less clear that at any level above this that there is any identifiable locational bias to substation costs. Your analysis seems to support this reasonable conclusion. Both on the basis of these results and the charging methodology operating on a zonal rather than a nodal basis, we would agree that it would be appropriate not to include substation assets in the calculation of the expansion constant, but instead include them in the flat element of the charge.

To the extent that the costs of security are locational and it is appropriate to charge on this basis, then we would advocate the use of a Secure DC Loadflow model as the basis for deriving tariffs. Your proposal to use of a derived 'security factor' to approximate the locational bias of security would not in our opinion better achieve NGC's licence objectives. The Secure DC Loadflow model approach clearly better meets your licence objective of reflecting the costs incurred in operating the transmission system and its adoption is reasonably practicable.

One of the key drawbacks of employing a security factor in deriving locational tariffs was illustrated in the diagram included in your previous consultation document on this issue. The use of the security factor as applied in your approach seemingly both over and underestimates estimate the nodal costs of MWkm for large ranges of nodes when compared to the secure DC Loadflow Model. Deviations from the true costs of security of the magnitude suggested by your analysis would provide incorrect tariffs and potentially distortionary incentives on users at those nodes and within zones.

You have via your charging review workshops and previous consultations illustrated that the use of a Secure DC Loadflow model to derive locational tariffs provides an accurate estimate of incremental costs of transmission, is practicable can be implemented within practical cost parameters and time-scales. All of these are clear licence condition objectives which are clearly better met via the use of the Secure DC Loadflow Model when compared to the proposed approach. Your preference for simplicity over better achievement of your licence objectives cannot be justified.

Although the value of the ability for your customers to have the tools to analyse the basis of their TNUoS charges should not be underestimated or dismissed, it cannot take precedence over licence conditions in deciding on the charging methodology. A model employing a security factor of 1.9 as a reasonable, but less accurate, approximation of incremental investment could clearly form the basis of a model available to users for analysing and estimating charges derived by NGC from a full Secure DC Loadflow Model and we would encourage NGC to do so.

c. Modification Proposal – Introduction of Year Round TNUoS Charges

The analysis you have carried out on the drivers of transmission investment has indicated that, as might be expected, a proportion of total costs was required to meet non-peak related conditions. On the results of such analysis we would agree that it would be wholly appropriate to investigate further the appropriateness of charging users on a separate basis for these elements of cost.

However, we would argue that the analysis carried out to date, although necessary is not sufficient to provide a robust basis for your proposed mechanism for charging for these elements of costs. Your proposals result in a relatively large transfer of costs from low to high load factor generators. As such it is vitally important to ensure that those costs are correctly allocated to those users imposing the costs on the system to avoid any distortionary effects on their use of the system and actions in the market.

The basis of your analysis and in particular the detail of the calculation used to derive your 10% cost figure is not easy to follow or understand and consequently not transparent – a principle on which NGC places large importance in other areas of its charging methodology. Without the detail necessary to review your proposal comment is unfortunately restricted to your general approach and principles.

Your Charging Principles Statement correctly sets out one of your objectives to ‘charge on the basis of services provided and on the basis of incremental rather than average costs, and so promote the optimal use of and investment in the transmission system.’ You will obviously recognise that the existence of separate drivers of costs means that costs can be marginal with respect to marginal changes in those individual drivers (not simply peak demand) and hence give rise to separate marginal cost and prices. An analysis of the marginal costs of increments/decrements to non-peak investment drivers would identify any disparities between costs based on average rather than marginal costs, the extent of the existence of economies of scale, the accuracy of the 10% of total investment costs your analysis has estimated and indeed if daytime MWh is the marginal driver of these costs.

NGC has identified in other arenas that setting prices on anything other than marginal costs can produce perverse incentives on market participants and hence encourage them to act less than efficiently. This is equally true of charging under an average cost approach where the charging base does not accurately represent the driver(s) of those costs which is aiming to recover – MWh may be obvious the obvious charging base but it has not been proven that it is necessarily the correct method for allocating large elements of fixed costs between users.

Without a true understanding of the nature of these costs there is a serious danger that the charge will introduce uncertain incentives both on customers’ use of the transmission system and their participation in the wider electricity market. Without this level of understanding, a relative increase in cost reflectivity could lead to an adverse deterioration in the achievement of your objective to promote competition in the wider electricity market. It is therefore not clear without further work that this proposal overall better meets your relevant objectives.

We are not opposed to the principle of charging for non-peak investment related costs within the TNUoS framework. Rather we are concerned that the charge be

introduced which is based firmly upon the economic principles of efficient pricing, properly reflects the underlying cost base and does not introduce any perverse incentives and distortionary effects to the market.

Again, thank you for the opportunity to comment on your proposals. If you require any further information or clarification on any of the issues raised above than please do not hesitate in contacting me.

Yours sincerely

Nigel Burrows
Regulation & Market Access Manager