

Transmission Investment for Renewable Generation

Response by National Grid Transco

1. Given our duty to develop and maintain an economic and efficient transmission system, we welcome Ofgem's consultation and willingness to consider additional funding in order to address the requirements of renewable generation in the north of the country. Our response covers the following issues:
 - i) The reasons why a review of funding arrangements was required and how these have been affected by recent regulatory developments and decisions.
 - ii) The overall effect of Ofgem's proposed approach (which means that we will need to delay reinforcement of the Anglo-Scottish interconnector circuits and those elsewhere in the north of England).
 - iii) The fact that the transmission system will not have capacity in accordance with the GB Security and Quality of Supply Standard (GB SQSS) and the consequent need for derogation (as described in Licence Condition C17) relieving us from obligation in this respect, together with an appropriate allowance under the SO incentive scheme for the cost of constraints that will result on the transmission system.
 - iv) Our concerns with the methodology and results obtained by SKM, particularly with respect to the consequences in terms of constraints and associated costs that will be passed to customers.
 - v) Detailed points concerning the proposed regulatory treatment of investments in each category identified by Ofgem.

Reason for review of reinforcement funding arrangements

2. In previous responses, we have highlighted the reasons why it is difficult to demonstrate the efficiency of the investments needed to accommodate new renewable generation in Scotland through the discovery of the willingness of users to pay for them. Updating these issues to reflect recent regulatory developments and decisions, they can be summarised as:
 - (a) Commitments to new interconnector capacity from current or new users in Scotland (by seeking new interconnector agreements) are not possible with the imminent introduction of BETTA.
 - (b) Many renewable generators will be embedded in distribution networks and not subject to transmission charges or bound by an agreement with a Transmission licensee.
 - (c) Small 132kV transmission connected generators and certain renewables in remote areas of Scotland will be subject to reduced/subsidised transmission charges and so not subject to the full incremental costs of network upgrades.
 - (d) The prohibition on making offers to generators on or before 1 January 2005 that are contingent upon upgrades to the Anglo-Scottish interconnector or works directly consequential to such reinforcement¹.
3. For these reasons, we consider it not to be feasible to obtain financial commitments for the development of infrastructure from many of those generators who may give rise to the need. However, rather than wait for developments to take place and observe the

¹ The initial allocation of GB transmission system access rights under BETTA, An Ofgem/DTI conclusions document, 26 August 2004.

constraints that could arise, and given the requirements in the Government's Energy White Paper for transmission companies to progress network reinforcements, we and the other transmission licensees approached Ofgem to ascertain whether they would deem certain reinforcements to be efficient so that they could be progressed (and thereby also allow funding as no suitable allowance had been included in current price controls.)

Overall impact of Ofgem's proposals

4. In this consultation Ofgem propose three different treatments of the various reinforcements that have been identified as potentially necessary to accommodate renewable generation as identified by transmission licensees. The three treatments are:
 - a) **For 'baseline' works**, which appear to have a strong cost-benefit and low uncertainty, provide funding for the expected cost of the works for the first few years of the asset lifetime with a commitment to provide a level of ongoing funding (through price controls) at some later date. Ofgem do not propose to include any reinforcements in England & Wales in this category.
 - b) **For 'incremental' works**, where more uncertainty exists, provide funding for pre-construction works only but wait for the next price review which will lead to funding as per the first category (above) or the third (below). Ofgem propose that the reinforcement of the Anglo-Scottish interconnector circuits and other NGC reinforcements in the north east of England are included in this category.
 - c) **On the remaining 'additional' works**, no funding but Ofgem will consider the introduction of revenue drivers for delivery of specific outputs and will consider ongoing funding of assets initially funded by long-term financial commitments by users. Ofgem propose that reinforcements in the Heysham area of NGC's system are included in this category.
5. Comments on the proposed arrangements associated with each of these categories are given below. In overview, however, the fact that the majority of developers of new projects in Scotland will have entered into agreements prior to BETTA Go-live which grants access to the GB transmission system independent of any reinforcements in England & Wales, together with the fact that many developers will also be subject to reduced/subsidised transmission charges, means that it is very unlikely that we will find any users that are willing to enter cost-reflective long-term financial commitments to justify or fund the reinforcements that are not classified as the 'baseline' category in this consultation.
6. In the absence of such funding, and in the absence of assurances from Ofgem that investments other than those in the 'baseline' category will be remunerated in the future, we conclude that it would not be financially prudent to commit investment (other than for pre-construction works permitted in the second category). **For this reason, we intend to cancel construction outages booked on the interconnector circuits for next year and postpone this investment.**

Need for Derogation from Security Standards in North of England and Appropriate Constraint Cost Allowance

7. The number of generators that have already entered agreements with transmission licensees will result in the network not conforming to the requirements of network security standards from BETTA Go-live. Moreover, it is now certain that more generators will receive access rights before reinforcements will take place. **Therefore, we will apply for a derogation to relieve us from our obligation to meet the security standard in the North of England and across the Anglo-Scottish border when the current interconnector arrangements cease to apply.**
8. As there is the potential for the development of a considerable volume of new generation in Scotland prior to either the closure of existing generation in Scotland or the

establishment of new network capacity to England & Wales, there is the risk of significant constraint costs. Therefore an appropriate allowance for constraint costs must be included in future system operator incentive schemes under BETTA. While SKM have provided their views on potential constraint costs, we do not believe these would provide a sufficient allowance for the constraint costs that may reasonably be expected to occur.

SKM's assessment of efficient investment

9. SKM have raised the issue of the appropriateness of the existing Transmission Licence standards for planning and designing transmission systems for the inclusion of wind. We agree that this matter needs to be further addressed and we will develop a programme for its review. Meanwhile, NGC and the other transmission licensees are bound by their existing Transmission Licence conditions and will require derogation as stated above. We envisage this derogation applying until either revised standards are developed and approved by Ofgem, or the investments that we have identified as being required under these standards have been completed.
10. In their analysis of the proportion of wind to be included in transmission planning studies, SKM state that the underlying principle of the security standards is to ensure satisfactory reliability of supplies to demand and that due to the low correlation of wind output to demand levels, only 20% of installed wind capacity should be included in studies. Whereas we agree that there is evidence that only 20% of a portfolio of wind will, in the long-term, contribute to security of demand countrywide, it is clearly an error to suggest that, on that basis, transmission capacity need only be provided to permit just 20% of wind capacity to contribute. **If wind is restricted to a maximum of a 20% contribution by transmission limitations then it would be sure to contribute less than 20% to security of supply.** Given the uncertainties concerning how wind should be included in the existing deterministic security criteria, we agree with SKM that a cost-benefit assessment of transmission reinforcements is appropriate for informing the decision on their justification. However, by focusing on fuel costs and by excluding the costs of maintaining security of supply, their analysis is fundamentally flawed.
11. In terms of constraint costs, SKM have presented three approaches to assessing the cost of constrained energy.
 - a) **An 'economic' valuation of conventional generation costs** which assumes that constraint costs are determined by the variation in marginal fuel costs of the constrained on and constrained off generators. This ignores the need for constrained-on generators to fund fixed costs associated with capacity that would not otherwise be funded by other contracts. **This approach results in a valuation of constraint costs that departs significantly from costs observed in the NETA markets and currently incurred by NGC as system operator. It is also inconsistent with the mechanisms intended to deliver security of supply under NETA.**
 - b) **A market based valuation of constraint costs**, which SKM reject, based upon an assessment of the average difference between System Buy Price (SBP) and System Sell Price (SSP) under NETA. SKM fail to note that such an approach may, at best, illustrate a lower bound on the value of transmission capacity. This is because system related balancing actions including constraint costs are deliberately tagged out before determination of SBP and SSP and so this approach will systematically underestimate the true cost of constraints. SKM have also failed to represent the effect of the imbalance price modification P78 which replaces either SBP or SSP with a forward market price rather than the price of system operator accepted actions when the market is long or short, respectively. This also results in a considerable under estimate of the cost of constraints that are incurred by the system operator and hence consumers. SKM note that, in the future, flexible plant will need to be retained in service at lower load factor in order to respond in periods of low wind and they argue that this will result in increased competition and so lower balancing prices. Such a view is

illogical because, to cover the costs of such plant at lower load factor, will require higher not lower prices.

- c) **Economic valuation of renewable generation constraint costs** by including the ROC buy out price and the fuel saving for a conventional replacement generator. We note that by including the ROC buy out price rather than the ROC market price, SKM have taken a low view of the costs of constraining renewable generation that assumes that suppliers' renewable obligations will be fulfilled by renewable generation without the need for buy-backs. This is clearly not the case today. SKM have also ignored the value of Levy Exemption Certificates (LECs) that wind generators would lose if constrained. In terms of the price of replacement (constrained-on) energy, SKM ignores the fixed costs of constrained-on generators, as mentioned above.
12. Where a constraint is managed by constraining off wind generation then we agree approach (c) is appropriate, although SKM's cost estimates, for the reasons given above, tend to underestimate the actual constraint costs. However, such an under-estimate would not be material to the interpretation of SKM's cost-benefit analysis.
13. Where a constraint is managed by constraining off wind and/or conventional generation then the range of potential constraint costs would be bounded by approaches (b) and (c). In assessing where in this range the cost of constrained energy lies, it is necessary to give consideration to whether conventional generation would face competitive pressures to offer constrained-off bids that are less than the compensation required by wind for the loss of ROC and LEC receipts. An analysis of competition in generation providing constrained-off bids in exporting zones could be used to inform this.
14. We disagree that approach (a), SKM's preferred approach, is applicable under NETA due to the necessity in an energy only market for constrained-on generators to fund capacity from offered prices.

Constraint cost consequences

15. In general, we agree with Ofgem that different reinforcements have different potential benefits that are subject to more or less uncertainty. Therefore, we agree it is sensible to progress some reinforcements at different rates. However, a key consideration must be the consequences of late delivery of each infrastructure component.
16. SKM's analysis appears to be restricted to identifying the core constraint reduction benefits that are most certain to be delivered, i.e. those that demonstrate a cost-benefit using approach (a) above. In our view, Ofgem should assess the proposed investments according to the costs likely to be borne by consumers through the funding of reinforcements under the TO price controls and the funding of constraint management under the GBSO price control. Therefore, we urge Ofgem to consider the full range of volumes and costs of constraints that might arise under approaches (b) and (c) and the probability of these costs arising in identifying the risk of increased costs falling on consumers if the necessary infrastructure is delayed.
17. SKM's approach (a) above values the constrained energy at between £1/MWh and £5/MWh. At this value the reinforcements proposed by NGC would not be justified on a cost-benefit analysis. However, under approach (b), SKM determines a value for constrained energy at £10/MWh. Even though we believe this considerably underestimates the market costs, the majority of reinforcements proposed by NGC would pass a cost-benefit test at this value. Hence, should Ofgem wish to assess the proposed investments according to the costs likely to be borne by consumers, then the majority of reinforcements proposed by NGC should proceed immediately.

Proposed regulatory treatment of investments in different categories

18. Our comments on the proposed regulatory treatment of investments under each of the proposed categories are as follows:

Ofgem's proposals for 'baseline' works

19. We agree with the proposal in paragraph 5.15 that licensees should receive an additional revenue allowance for interest during construction and subsequently return and depreciation of these projects. Transmission Investment for Renewable Investment is additional to the level of capex that was assumed at the last review. Therefore, it has not been included in the RAV assumptions for this period and there is no allowance to fund return and depreciation of this investment in the current price controls.
20. However, we disagree with the proposal that the interest should be funded at the cost of debt. The proposal implies that efficient, timely investment associated with renewable generation can be funded at lower cost than other transmission investments and activities. We see no justification for this and therefore interest during construction should be allowed at the weighted average cost of capital underlying the main price control.
21. Paragraph 5.15 goes on to say that once the licensee has demonstrated that the project has delivered the required outputs they would receive a revenue allowance consistent with the cost of capital and depreciation. However, paragraph 5.17 states that, subject to delivery of outputs, the actual costs would be incorporated into the RAV after a period of 5 to 10 years. We seek clarification of the basis for the return and depreciation allowance between project completion and entry of actual expenditure into the RAV. We assume that the interest during construction allowance prior to project completion (at WACC for the reasons given above), together with the cost of capital and depreciation allowance post project completion, would be set ex-ante, whereas, the inclusion of actual costs into the RAV 5 to 10 years later would be set ex-post. As such, a rolling capex incentive is being proposed where licensees will retain the difference between assumed and actual project costs for a period of up to 10 years. It is not obvious, and is not explicit in Ofgem's document, why Ofgem is proposing to sharpen the incentive to reduce capital costs, relative to the incentives embodied in existing TO price controls.
22. Paragraph 5.16 proposes that returns be increased or decreased depending upon the delivered outputs relative to those set at the start of the project and the impact of this variance upon users of the system. The definition of the outputs will need careful consideration, especially when it is economic to construct capacity which is not fully utilised immediately and/or when outputs are dependent on the actions of other network licensees.

Ofgem's proposals for 'incremental' works

23. We welcome the decision to provide funding for the planning stage of these projects. Without this funding we would not be encouraged to further develop these projects making it difficult to assess at a later date whether the benefits of these projects outweigh the costs, and risking undue delays where they are found to be beneficial.
24. Paragraph 5.24 suggests that Ofgem would review whether these projects should be treated as baseline or additional investment before an application for planning permission is made and that the next full transmission price controls would provide a timely opportunity. We agree that Ofgem should give backing to projects prior to applying for planning permission. However, we note that some projects may not require permission, being within existing consents, and that to avoid construction delays we would expect to make some applications during 2005, in advance of the next full transmission review. Therefore we would expect licensees to bring projects to Ofgem for review either prior to applications for planning consents or prior to letting contracts.

25. Paragraph 5.27 considers how the development costs should be treated. These costs would normally be included in the main price control capex assumptions and therefore would be effectively added to the RAV. We believe that a consistent treatment of these development costs should apply.

Ofgem's proposals for 'additional' works

26. In Ofgem's proposals for transmission price controls under BETTA, Ofgem propose that NGC's revenue driver (Gt) should not be extended in scope beyond its application to generation connected to and/or using the transmission system in England & Wales until a further review is undertaken as part of the next main price review. In addition no additional revenues will arise under the Gt term due to applications for increases in interconnector capacity with the change of status of the Anglo-Scottish circuits under BETTA. We conclude therefore that no additional revenues will result from additional network investment prior to the next price control period.
27. The development of a revenue driver is a matter for the main transmission review but we would like to note that the difficulty with the current Gt term is its inability to adjust revenues to account for the development of generation that is not required to have an agreement under the CUSC, namely small embedded generation. Our expectation is that a considerable proportion of renewable generation will fall into this category and as such it seems unlikely that a suitable revenue driver could be developed.
28. In addition to the problems of embedded generation, and as has been mentioned above, Ofgem has also concluded in a recent BETTA document that all generators with network access agreements made with Scottish transmission licensees on or before 1 January 2005 can receive firm GB access rights without waiting for any England & Wales reinforcements. Given that many prospective developers are ensuring that they have such an agreement, we do not believe that it will be possible to find parties willing to enter financial commitments for network developments for some time.

If Ofgem would like to discuss the above note, it would be useful to contact, in the first instance, either Lewis Dale (01926 655837) or Stuart Boyle (01926 655588).