From: **David.Densley@scottish-southern.co.uk**
Sent: 17 September 2004 11:13
To: Lavender, Richard
Subject: GB Transmission Charging - Additional comments on methodologies

Richard,

I have a further comment on the calculation of the 275kV expansion factor. SSE's main submission detailed reasons for using a weighted average of the 275 and 400kV expansion constant as has been done for the 132kV network.

The additional point concerns the calculation of the 275kV factor itself. Although NGC have not made public the methodology for calculating the individual constants, the load flow model uses figures relative to the base 400kV figure. I believe it is therefore possible to set a maximum possible value for the 275kV constant as follows.

The most expensive 275kV construction would be to build to 400kV standard, with steelwork to support the additional weight of the longer 400kV insulator strings. In terms of £/km this would therefore be the same as the cost of the 400kV lines. The current rating would also be identical, which means that the power transfer capability in the dc load flow model is simply in the ratio of the two voltages. This implies that the relative expansion constant for 275kV circuits can only be 400/275 or 1.45 as a maximum. If a lighter (and therefore cheaper) circuit construction with the same conductor size were used, the relative expansion factor would be even less.

I therefore fail to understand how a constant greater than 1.45 can be justified, since this would clearly be the most efficient way of providing 275kV circuit capacity.

David Densley

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