Appendix 1

Statement of Works conclusion for West Burton 132kV

This Statement of Works (SoW) study accounts for the overall reduction in demand due to embedded generation connecting in Western Power Distribution (WPD) East Midlands network supplied via NGET owned West Burton 132kV GSP. This reduction was modelled for the pre-connection case (1/12/2014) and the post-connection case (31/03/2015) using the demand and fault level data supplied with the application.

Voltage studies:

Based on the data submissions made with SOW application, we assumed the total of 98MW and 0 MVAr load reduction for the West Burton GSP.

This increases the voltages on NGET's 400kV system. We already have high voltage problems in this region of the network. Any reduction in demand will increase the degree of non-compliance. We, therefore, need to agree a strategy to address the problems of embedded generation and demand reduction.

The methodology adopted was to calculate the equivalent reactive compensation required at West Burton 400kV substation to bring the post-connection voltages down to their pre-connection levels. This compensation could take a number of forms, such as shunt reactors on the distribution or transmission system or an appropriate choice of generator power factor.

GSP	P demand reduction	Q demand reduction	Equivalent reactive compensation needed
West Burton 132kV	98MW	0 MVAr	10 MVAr

Thermal studies:

No reverse flows due to the reduction in demand were identified and therefore the site is thermally compliant.

Fault levels:

After running a sample of fault level studies it is estimated a maximum increase in fault level of 2% at West Burton substations due to the new connections.