



Application by SP Manweb PLC, dated 2 December 2009 for consent under Section 37 of the Electricity Act 1989 to install and keep installed a 132kV overhead electric line connection from the proposed Llandinam Wind Farm to Welshpool Substation (the "Application")

PAPER RESPONDING TO AN INSPECTOR QUERY RAISED DURING SESSION 4 REGARDING SEPARATION DISTANCES BETWEEN PARALLEL 132KV OVERHEAD LINES

1. A question has been put to SPM regarding the minimum required separation distance between two parallel 132kV overhead lines on wood pole structures.
2. Technical Specification 43-8 Issue 3 2004 Overhead Line Clearances provides guidance for clearances of structures adjacent to overhead lines. The separation of overhead lines is not specifically noted in this document but examples can be followed to derive to the minimum separation distance between overhead lines. Furthermore a sketch showing the method adapted to establish a typical minimum clearance is attached.
3. The main principle is that failure of a wood pole structure, and possible toppling over of this structure, should not encroach safety critical distances to live equipment nor affect the stability of a second circuit running in parallel. Also maintenance equipment such as scaffolding or scissor lifts used to access structures have to be considered when assessing separation.
4. Technical Specification 43-8 Issue 3 2004 Overhead Line Clearances table 6.2 item 6.2 and 6.2.2 iii state two limits:
 - 4.1 The safety clearance for a 132kV bare overhead line conductor is 1.4m
 - 4.2 The falling distance of a permanent structure is 0.8m
5. These minimum safety critical distances have to be maintained at all times.
6. The attached diagram takes into account conductor sag, conductor swing, safety and falling clearances. The typical minimum separation distance quoted makes some assumptions such as level ground between line routes, conductor sag, and equivalent structure heights. It excludes clearances to supporting stay wires from the adjacent circuit.
7. If stay wires or other obstacles dictate an increased separation distance for a given structure, the separation of the whole of the straight line section has to be increased to avoid installation of additional stay wires.
8. The attached diagram shows the principle to establish the minimum separation distance assuming a 14M conductor height. In this case the separation distance is approximately 20M.
9. It should be noted that this note is based purely on engineering considerations. It may be that, for example, landscape and visual impacts, heritage, and/ or land rights issues dictate a greater distance is required at certain points.