North Wales Wind Farm Connection

Response by Robin Barlow (Your reference: 10031190) on Nov 20th

To Deadline 4 Response by SP Manwebs to my Deadline 2 Representation

on Technical Issues primarily on the HDWP solution.

I thank SP Manweb for their extensive response. Their conclusion (their last paragraph) "For the above reasons, SP Manweb considers that the engineering solutions suggested by Mr Barlow are not appropriate in these circumstances" is not correct. Correct is that they have **not** sought to get any environmentally less obtrusive (and more expensive) design approved. Nowhere do they prove that a trident style design, possibly with a steel or concrete pole, cannot carry an earth. They have their two approved designs of yesteryear and are not budging: "The double wood pole design (or lattice tower) is required due to the need for an earth wire for this project. The only design approved by SP Manweb for this type of project is an overhead earth conductor ".

I appreciate that it is now too late in the process to get a new design approved – we must be thankfull that undergrounding is an approved solution for SP Manweb.

I will now take issue with their detailed response:

On Counterpoising

Safety: "Third party interference may lead to damage or separation of the earth conductor in which case the earth conductor cannot fulfil its function."
The same applies to the earth on the OHL and we know from statistics that OHLs are more vulnerable to damage.

***I**ntegrity: "Due to its location below ground level, it is technically difficult to monitor the integrity of a separate undergrounded earth conductor."*

But presumably 3 times less difficult than 3 underground conductors.

Trident:

"**In relation to Mr Barlow's statement that a Trident solution usually has a single pole, SP Manweb considers that this is not correct and that a Trident solution utilises a combination of single, double and quadruple pole structures. For example, on the recently constructed Legacy to Oswestry Trident line some 20km in length 22% (38) of the structures were of double pole design**".

I think 22% proves my point that usually (78%) it is a single pole.

"The Trident solution for Legacy to Oswestry identified by Mr Barlow does not carry an earth wire as an earth wire is not required along the line. This solution would not therefore be acceptable for the Proposed Development which requires SP Manweb to provide an earthed solution to maintain a safe level of Rise of Earth potential. There are no alternative SP Manweb earth systems in the vicinity of Clocaenog substation that could be utilised"

As the inspector in the Llandinam cojoined Inquiry noted in paragraph 475 "Nevertheless, during the inquiry SPM were asked as to whether it would be possible that less resistive ground part way along the route would enable a switch from HDWP to Trident to take place. SPM confirms that such a solution, incorporating a RES, would be technically feasible at a broadly comparable cost. Given that a Trident line is much less intrusive than a HDWP..."

Still on Trident

“Mr Barlow's reference to the 200mm2 Poplar connector is not relevant in the context of the Proposed Development because SP Manweb could not use this connector as it does not meet the design criteria for the contracted capacity of the Proposed Development. ”

Yes it is relevant as I am exploring what weight of wires the Trident can carry - I later go on to propose conductors that are lighter than Poplar so that 3 of these HTLS + an earth would weigh less than the Poplar wires carried on the Oswestry to Legacy Trident system.

Question P3: HWDP

Any redesigning and strengthening of the steel members into a slimmer version is likely not to meet these requirements.

Rubbish. It depends as well on the materials and assembly processes. At a cost of course.

“One of the most onerous resilience cases discussed in BS EN 50341 is the broken wire scenario where the line must limit the damage caused by a broken wire (the cascade effect). Whilst there are specific failure containment structures within the overall design to limit this effect, the steelwork on other structures affords some limited additional resilience, particularly with regard to pole twisting. Reducing the steelwork to a “single bar” would reduce this resiliance”

So the Trident Oswestry to Legacy 132 Kv does not pass this test ! Hard to envisage that the lighter more centrally located earthwire changes the statics/dynamics much.

Question P4: HTLS

“SP Manweb is currently evaluating several and is currently installing its first trial installation on a tower line in Scotland.”

Scottish Hydro already has production systems running with these cables (ST Fergus to Peterhead on a Trident at 132Kv) and of course subcontractors (Norpower) that can install them.