

## **SINGLE POST DESIGN / EARTHING SUBSTATION.**

The reply the applicant gave to my question (deadline 5) regarding the possibility of a 200mm poplar conductor on trident design rated at 124mv in summer was as follows-

200mm Poplar is rated at 117.8MW in Summer (based upon a power factor of 0.95) which is below the requested capacity. As such the option suggested could not be utilised and it is for this reason that SP Manweb has not considered such an option in the Strategic Options Report.

The applicant in the hearing repeated its statement that it was not acceptable to them to build a line that could have connections to it that would be above its rating.

This answer and the applicants verbal statement are contrary to its own initial design for this project and shows that whilst they have the technical knowledge they have not given the panel a balanced assessment of any suggested alternative.

The initial contracted connections totalled 170MW which the applicant planned to connect with a 300mm upas conductor with a summer rating (based upon a power factor of 0.95) of 167.2MW. They were happy for the connection to exceed the rating of the line. With both Clocaenog and Brenig having a certificate for difference at even higher levels (96MW, 45MW) this would suggest that the applicant would have been willing to transmit a theoretical 191MW on a line that was rated at 167.2MW.

The applicant has stated that whilst two windfarms have now dropped out it is possible that as they have planning they could well be developed in future and need connecting.

For the same reasons that it is technically possible to connect windfarms with potential capacity of in excess of 190MW to a 167 summer rated line it is possible to connect the two remaining windfarms with a contracted connection of 125MW to a line with a summer rating of 117.8MV.

Part of the reasons why this is possible –

- There is a direct correlation between wind farm output and the rating of lines. Wind farms generate most in winter months when winds etc have a cooling effect on OHL which means a 124mv line will have a rating in winter of 140MV or at 0.95 power factor 133mv.
- Windmills require maintenance which means for a short period most likely in summer a windmill will be turned off. This is done in rotation and it makes it unlikely that all windmills would be generating at the same time in summer.
- In the unlikely scenario of all turbines being at capacity at the same time in summer it is possible to regulate the output so as not to exceed the rating of the line.

My view as stated at the hearing is that when reviewing the strategic options the possibility of either a 200mm poplar conductor or 300mm upas conductor on trident design should have been considered in combination with earthing the substation at another location.

The applicant stated at the hearings that in theory to earth the substation remotely would need a site of similar size to that of the town hall and that a site even if fenced off from the public could put the integrity of the company at risk. This question of security and integrity as I stated at the hearing baffles me as surely the substation being un-manned would pose a similar if not much greater risk to the public.

There are potentially a number of locations along the route that partly due to their geological nature could offer suitable ground for earthing. It is a grave concern that not even a desktop initial survey has been done of other locations. The discussion at the hearing came to a prompt end due to the fact that as the applicant was not going to add such an earthing compound to the application that it was a waste of time to continue the discussion. The applicant knew for nearly two months that the second windfarm did not require a connection yet we were only informed of this three working days from the latest hearings.

## **'SERIOUS CONCERN' AT ERIVIAT/A543 AND SUGGESTED CABLE OPTIONS**

The definition of 'serious concern' has been talked at lengths during the hearings with the applicants insistence that this basically means that there has to be a major adverse effect for the consideration of undergrounding the cable.

'The Applicant considers that effects that are over and above the effects you would normal associate with an overhead line are the equivalent of a major adverse effect in EIA terms'.

As I stated at the hearing the definition of serious concern used by the developer at the Brechfa Windfarm Connection was that serious concerns would occur when there were significant adverse effects that could not be adequately mitigated.

In my opinion where the line crosses the A543 and runs through parkland at Eriviat the visual and landscape effect give rise to serious concerns under both definitions as the effects are 'above the effects you would normal associate with an overhead line' and give rise to 'significant adverse effects that could not be adequately mitigated'.

I accept that it is normal for OHL to have some adverse visual and landscape effects but that normally you would expect a OHL to –

- Cross between features such as trees or backclothing to help reduce visibility.
- Not skyline.
- Cross straight across roads.
- Not interrupt views of AONB.

The line has been routed to avoid residential property ( I accept this) but it still gives rise to serious concerns.

The OHL at this site –

- Crosses at an angle that creates a linear feature from the road that will give a high degree of visual change due to the highly prominent structures and line in view.

-Interrupts views of the Clwydian AONB and other designated areas, the views will not be intermittent. For some receptors they will be transient but they would still be significantly visible for 20seconds travelling at 45mph. Many of the tourists on the A543 travel by coaches so the views are less transient and more visible.

- The road is designated as a principal tourist route and as such those travelling on it are highly susceptible to visual change.

- Views of the line skylines significantly from both directions and there will be cumulative effect of the single windmill at Gwaenynog and the more distant views of the windfarms.

- The effect of the line on the parkland at Eriviat would be irreversible and would have significant effect on the amenity associated with both the parkland (public footpath and views from the drive) and Eriviat Hall.

-The applicant planned mitigation to alleviate the landscape and visual effect at both sites is based mostly on roadside tree planting which cannot be achieved and even if it was acceptable from a road safety point of view would hide the present views and take decades to achieve any meaningful mitigation given the proximity of the poles and line to the road and drive.

#### Undergrounding the section A543/Eriviat Parkland

Had the applicant undertaken the exercise of costing undergrounding the line at this location it would have meant a section roughly 1km in length going from two fields distance south of the A543 to the furthest end of Eriviat Parkland where terminal posts could be located out of public view.

The extra cost of undergrounding the section including any terminal posts would be circa £1million. Given the effects of the OHL the benefits would be substantially more than the cost (costings previously submitted for effect on area).

#### Undergrounding a section between South of the A543 and North of Berain.

As there is also a clear case for undergrounding the line near Berain there is logic in connecting both sections (extra 2.5km) to form a 6km underground cable. As it would take circa 2.5km to underground through roads near Berain it would make sense to aim to the west of Henllan and therefore avoiding the Hafod Dingle. This would negate the need to have effect on a number of woodlands, Eriviat Bach, Pen Parc Llwyd and skylining from the Groes-Henllan road.

It would mean that one terminal post south of the A543 and one North of Berain would suffice and the entire length would cost in the region of £4m. This would be significant less than the costs to the local area both economic, heritage and wildlife.