

Environment and Sustainability Committee

Inquiry into Energy Policy and Planning in Wales

EPP 148 – Graham and Jackie Ellis

22nd Sept 2011

Dear Sir/Madam,

We live at Sarnau with my family. We have recently attended a number of the consultation road shows concerning the Mid Wales connection Project.

We have a number of points we would like to make as we strongly object to the plans.

We do not like the fact that we are being forced, to choose between our communities affected by the Cefn Coch Substation and the communities affected by the Abermule substation. This is placing community against community.

Meifod

Routes through Meifod would decimate and completely alter the appearance of this beautiful untouched valley. There are no trunk roads, existing pylons or railway links. Meifod is known for its outdoor leisure activities which is why there are several caravan parks and loads of B&Bs. These businesses and others in the valley that rely on tourism would be greatly affected by 150ft pylons filling the valley, as well as many local people who walk through the valley on one of the many routed walks.

There are no major roads at all only minor roads with many single track, with many rising steep in many places. These would undoubtedly have to be re-built or re-routed to give access for the construction of overhead or underground power lines.

This is an mainly an agricultural area with large numbers of livestock, and nearness to electro magnetic fields has been shown to alter the milk yield of cows and as cables can hang as low as 7.6m above the ground, farmers may also have to invest in different farm machinery.

Routes through here would run through the Powys conservation areas of Meifod and Llansantfraid

(routes from Abermule do not run through conservation areas)

Trefnanney/Sarnau/Penrhos

Route area F4 on figure 7.1 document 4157745. This is an old river valley with a small scale landscape where the visual impact of 150ft Pylons would completely overwhelm the valley. The bottom of the valley lies at only 80 to 90m, with the sides only 115m at its lowest rising to only 154m at its highest point with sections of the valley very narrow.

Following the valley floor, the Pylon line would completely fill the valley in places and would be able to be seen above the skyline made even worse, if the path would have to follow undulations in the landscape. This would alter the skyline forever.

It's is such a quiet valley you can literally, if it were not for the birds singing this time of year hear 'a pin drop' In the quiet of cold winter days I think you can! Because of the natural amphitheatre shape of the valley sound travels within it and is audible from long distances thus the 'hum' from the power lines will be heard constantly throughout the valley. This would be compounded by the fact that this is a damp valley with low lying mist, increasing the volume and intensity of the 'hum' from the power lines. As it is far from main roads there would be no background noise to hide any 'hum' so aural pollution would be high.

Biodiversity

Wildlife in this area is fabulous and supports a range of habitats. These include broadleaved woodland (many with bluebells an indicator species of significant age), wet woodland, large ancient hedgerows, semi-improved grassland, lowland meadows, permanent pasture and arable land.

The Holywell Brook and Sarnau Brook are significant landscape and biodiversity features. They link a range of wetland habitats in the valley bottom including pools, wetlands and damp semi-improved pastures.

Birds found in the valley include species of conservation concern such as peregrine falcon as well as populations of skylark, curlew, lapwing, yellowhammer, nuthatches. The curlew is an Amber list species that is particularly abundant. A range of bat species live in many old buildings and trees; brown hare, frogs, toads, newts and snakes and many mammals are attracted by the many ponds and watercourses. There have also been sightings of otters within the valley, red kite have also been seen.

Birds of Conservation Concern, (Red List species) that have breeding populations in the valley include; lapwing, cuckoo, skylark, fieldfare, songthrush, redwing, starling, house sparrow, tree sparrow and yellowhammer. Amber List species include; mallard, red kite, kestrel, jack snipe, curlew, barn owl, swift, house martin and dunnock.

Powys BAP (Biodiversity Action Plan) species found in the valley include; tree sparrow, red kite, curlew, lapwing, brown hare, otter and pipistrelle bat. Powys BAP habitats in the valley include; rivers & streams, coniferous plantations, farmland, linear habitats (hedges and verges), traditional orchards, lowland meadows and wet woodland.

Health

The Draper Report commissioned by the Department of Health in 2005 found that children who lived within 200m of high voltage lines had a 70% higher risk of developing leukaemia than those who lived 600m away. Experts claim that this could account for 5 extra cases or 1% of the 400 cases of childhood leukaemia that occur in one year. It has also been suggested, by scientists, that there is also a link with brain tumours and motor neurone disease.

This becomes even more of a concern in this narrow valley, especially as up to date maps do not appear, to have been used, by the National Grid, when proposing a possible route through this valley, as settlements, individual dwellings, building plots and in the case of Arddleen all the new new large housing estates developments that have been built in the last few years are all missing off the plans and would be affected by this route.

Energy/carbon used during construction.

National Grid suggested that we ask Renewable UK if they had done any research on the carbon emitted during construction of the grid connection ... and RenewableUK suggested we ask National Grid.

The National Grid have made some past attempts at estimating carbon produced used during construction, but there do not seem to be any clearly agreed guidelines on what is included/excluded during this estimation and there are no figures available for this project.

There will also be around 160 pylons, each 50m tall. One source I found gave the

weight of steel required for each pylon as 82 tons. At 5kg of CO₂e per kg of steel this gives a carbon footprint for steel used in pylons alone of 65600 tons. That is the same carbon footprint as 120318MWh of grid electricity. At 25% efficiency a 1.5MW turbine would take more than 36 years to compensate for just this part of the carbon emitted during construction of the grid connection.

As we understand it there would be a minimum of 6 cables for each supply path (3 phases times 2 cables per phase, possibly 4) – so a minimum of 300km of aluminium cable for each 3 phase route. The modern aluminium cables weigh about 2kg per meter. At 20kg of CO₂e per kg of aluminium that is 6000 tons of carbon per supply route. Or another two years of output from a 1.5MW turbine.

There will also be a concrete foundation under each foot of each pylon. So at 4 feet per pylon, times 160 pylons, times (lets assume a minimum) 3 cubic metres under each foot. That's more than 4000 tons of concrete and another 660 tons of carbon (excluding transport).

On top of all this there will be the petrol and diesel used in transporting all these thousands of tons of materials, plus the use of diggers and earth movers during construction. There will also be carbon released by felling trees or uprooting hedges for access and clearance for the transmission path.

This brings us to the substation – 20 acres of steel and concrete and another huge construction project. All these materials will need to be transported to a remote location, along with all the plant equipment needed for such a large undertaking. I can find no figures to calculate the carbon used in substation construction, but it would be fair to say that they would be considerable! There is also some power lost during voltage conversion at the substation and subsequent transmission (perhaps around 6%). This will add to the payback time for the carbon lost during construction.

The question must be why??

The question with this project is whether the energy generated (and carbon saved) justifies the building of the extra infrastructure. Many on-shore wind farms can feed in to the local grid using smaller 132kv lines. This one is different - it requires a huge addition to the grid infrastructure. Both the substation and the pylons will require thousands of tons of concrete, steel and aluminium. All have high energy/carbon requirements. On top of this huge amounts of fossil fuels will be used for transport and construction, not to mention the carbon released by felling trees and uprooting hedges. To build a 20 acre substation and 50 kilometres of 50 meter tall 400kV pylons seriously undermines the environmental viability of the project.

RenewableUK ("The voice of wind & marine energy") say that the first thing they look for when planning a wind farm is a nearby grid connection, they seem equally surprised by the choice of location for sighting the turbines! They would not have chosen this location. This one (according to National Grid) is as far away from any existing grid connection as it is possible to get - barring Lands End! Why can't the Welsh assembly see that this is the wrong location for the wind farm?

Alternatives?

Wind turbines produce around £150,000 of energy but are subsidised to the tune of £250,000, has the world gone mad? The subsidies would be better spent being given

to householders to have solar panels or the new ridgeblades on their roofs. This would encourage people to save energy so that they can sell what they don't use back into the National grid

If there has to be a wind farm, then the cables HAVE to go underground

Underground cables have unique properties for transmitting power - they are out of sight, often require only a narrow band of land to install, emit no electric field and can be engineered to emit no magnetic fields, have better power loss characteristics and can absorb emergency power loads. As a result, underground cables assist the transmission of power across:

- Densely populated urban areas;
- Areas where land is unavailable or planning consent is difficult;
- Rivers and other natural obstacles;
- Land with outstanding natural or environmental heritage;
- Areas of significant or prestigious infrastructural development; and
- Land whose value must be maintained for future urban expansion and rural development.

Cost Effective Solution

In the past, the higher cost of underground cables was a significant deterrent to their use. However, with lower cost production methods, improved technologies and increased reliability, the cost differential between underground cables and overhead power lines is narrowing, currently about 3 times the cost but dropping all the time, This means that power project developers are more frequently turning to underground cables as an economic and technically effective alternative when physical obstructions or public opinion hinder the development of networks. Opportunity costs from lengthy planning delays are reduced and the expense and complexity of public legal cases are minimized.

Apart from the reduced visual impacts, underground cables also offer lower maintenance costs than overhead lines. They are also less susceptible to weather-related issues such as storm damage, interruptions, costs of storm damage surveys and precautionary storm shutdowns. In addition, underground cables contain high quantities of copper, the most conductive engineering metal, resulting in 30 percent lower power losses than overhead lines at high circuit loads and improved system efficiency.

At different consultation road shows we attended, the National Grid figures quoted by them varied between 17 and 10 times for the added cost of underground cables. That really is trying to disguise the true cost at our expense.

As highlighted recently by Liam Fox the Defence Secretary the costs over 40 yrs are CHEAPER if cables are routed underground, this MUST be the long term solution not a short term cost saving solution that will blight our countryside and our lives forever.

Regards

Graham & Jackie Ellis