Nant Mithil Energy Park, Powys.
PEDW DNS Application Ref: DNS CAS-01907-D7Q6Z1.

CPRW-RE-think Chapter 9 on

Aviation & Telecommunications

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Evidence by CPRW-RE-think on:

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This chapter highlights two aspects of the Proposal: stakeholder engagement and the impact of turbine lighting on radar and dark skies; and the unconsidered impacts by the Applicant's proposal to radio, DAB, and mobile phone services.

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Table of Contents

1. INTRODUCTION AVIATION

1.1. This chapter will focus on the fundamental issue of the impact on safe flying over and near the proposed wind farm.

1.2. It will also address App. 12.1 which covers the Aviation and Mitigation report and the impact to local residents and dark skies.

1.3. This chapter will question if all the necessary stakeholders have been fully consulted prior to the Applicants submission to PEDW.

1.4. It will also focus on the serious and unconsidered impacts by the Applicant to radio, DAB, and mobile phone services.

2. STAKEHOLDER ENGAGEMENT.

2.1. Neither Chapter 12 or App. 12.1 show any evidence that the Ministry of Defence (MoD) has been consulted directly by the Applicant.

2.2. The Welsh Air Ambulance fly over Mid Wales on life saving missions and always need to take the most direct route when possible, to help save lives. We cannot find any evidence that the Welsh Air Ambulance have been consulted by the Applicant.

2.3. No responses are visible from Atkins who represent Dwr Cymru's radio communications links. This company represent some significant telecommunications services and their feedback is important in determining the impact of this proposed wind farm on their telecommunication services.

2.4. The date which the stakeholders was consulted appears to be 10/11/23. Since then, it is known from looking at other documents that the location and quantity of the proposed wind turbines have changed. Why were the stakeholders not consulted again after the wind farm layout had changed later on?

2.5. Some of the suggested mitigation is the moving of wind turbines to take them out of Radio Link path. However there does not appear to be any suggestion that after relocating a mast for Vodafone, all the other stakeholders would be consulted.

3. INCORRECT INFORMATION

3.1. The document shows a mast for Vodafone at a location close to wind turbine number 31. According to OS maps and https://www.cellmapper.net/ there does not appear to be a telecommunications tower at this location. There does however appear to be telecommunications towers elsewhere close to the proposed wind farm.

4. DIRECT IMPACT TO SAFE FLYING.

4.1. With a height of up to 220m above ground and covering a site over 5km wide, the wind turbines will present low flying aircraft with a physical barrier to safe flying.

4.2. Residents of the region have observed on many occasions that planes and helicopters fly low over the skies of Radnorshire. This has been confirmed by observing ATS-B Data on sites such as https://globe.adsbexchange.com/ and https://www.flightradar24.com/52.27,-3.22/11.

4.3. We are also very concerned that there appears to be no mention of any investigation or mitigation into the wake turbulence that would be produced by the turning blades. We believe that this is a major aviation hazard which has not been considered by the Applicant.

5. IMPACT TO RADAR.

5.1. Radar works by sending pulsed RF energy and detecting the reflected signal. Wind farms are already known to be able to generate false detections.

5.2. NATS and the MoD both have schemes which will help to mitigate the deterioration of radar coverage as a result of wind farms. To date there are no 220m high wind turbines installed on land, therefore, it can be assumed that there has been no testing carried out for wind turbines of the size proposed for Nant Mithil.

5.3. In press released from NATS, it would appear that they have started to upgrade some radars with more modern technology which helps to mitigate against the impact of wind farms. However, there is no indication that NATS will upgrade all the necessary radars before construction is planned to start at Nant Mithil. There is a serious risk to life due to false radar for flights over Mid Wales. We would expect that no acceptance of this proposal can take place until the radar has been upgraded and the upgrades proved to provide full mitigation.

5.4. The MoD under their scheme “Njord” are replacing key UK Radars so that the wind farms such as the one proposed at Nant Mithil do not leave the UK blind to attacks. Press releases from the MoD indicate that contracts to replace the MoD’s Radars will take place in the 2030’s. This is much later than the planned construction dates for Nant Mithil. Again we ask that there is no acceptance of this proposed wind farm until the radar has been replaced.

5.5. The MoD and other national air forces often use the MoD Low Fly zones in Wales to undertake exercises. Some of these planes may carry the latest MoD Radar technology. However, it can be assumed that many, especially some of the support vehicles and overseas planes may not be equipped with Radar that can militate against the Nant Mithil Wind farm. We are concerned that due to the fast and low flying

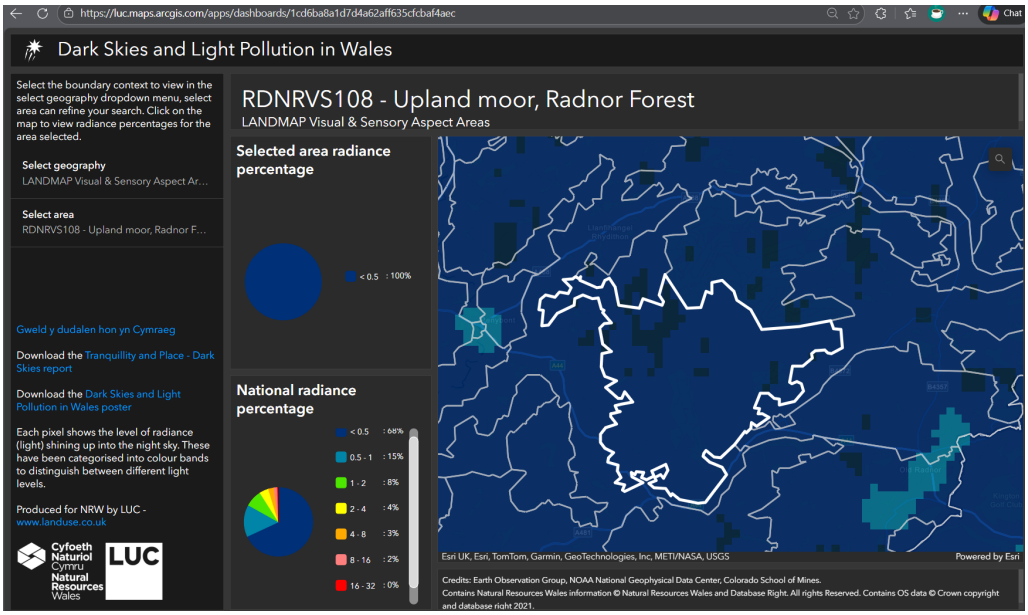
carried out by the military planes in Mid Wales, pilots may not be properly notified in time to take necessary action to avoid flying into the turbines.

6. LIGHTING AND LOSS OF DARK SKIES

6.1. App. 12.1 shows that to address some of the guidance and rules from the MoD and the CAA some turbines will need lights on top.

6.2. The wind farm is in a location with dark skies as shown on this dark sky map figure 1.

Figure 1: Map of Radnor Forest showing 100% of area has lowest levels of light



https://luc.maps.arcgis.com/apps/dashboards/1cd6ba8a1d7d4a62aff635cfcbaf4aec

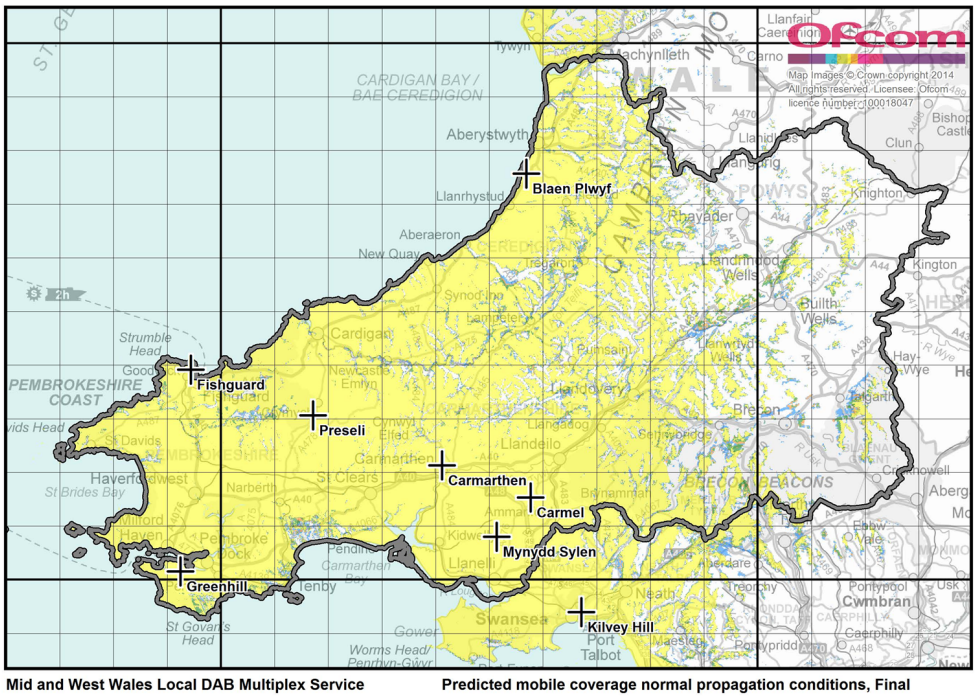
6.3. The lighting on the top of the wind turbines will result in this region no longer being a dark sky. Interest in the skies has increased over the recent years, with many local residents enjoying observing comets, distant stars and the northern lights. The lights on the proposed wind turbines will mean that local residents will no longer be able to enjoy this area for its dark skies. The nearby observatory near Knighton will be impacted by the lights when observing the night sky in the direction of the proposed wind farm. We do not believe that the Applicant has fully considered the impact to local residents and organisations.

7. IMPACT TO DAB AND DIGITAL TV SERVICES

7.1. Arqiva own and maintain a large number of radio and TV masts throughout the UK. It is noted from the Arqiva response that the responsibility of determining the impact to domestic users of DAB Radio and Digital TV is that of the Applicant and not Arqiva. They state, "*We would recommend that the developer undertakes its own reception*

survey to understand the potential for interference to television and radio reception, and consideration is made for a planning condition requiring the developer to mitigate the impact of any degradation of television and radio reception caused by tall buildings & wind turbines, similar to many other wind turbine and wind farm schemes." Wind turbines can affect the DAB Radio and Digital TV Services by blocking, diffracting and reflecting the RF signals. For the domestic user this can result in additional signal loss and data errors which can result in loss of signal. There is no reception survey of the impact to DAB Coverage. We have undertaken a desktop assessment using OFCOM published data for DAB Radio coverage (figure 2).

Figure 2: DAB Radio coverage prediction for Mid and West Wales



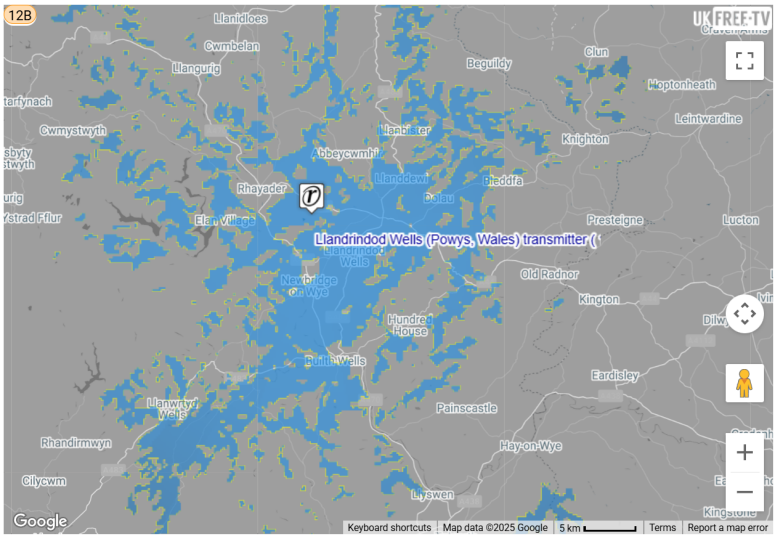
Mid and West Wales Local DAB Multiplex Service Predicted mobile coverage normal propagation conditions, Final

https://www.ofcom.org.uk/tv-radio-and-on-demand/coverage-and-transmitters/dab-coverage-plans

7.2. As it can be seen from the existing propagation coverage map for DAB Radio in Mid and West Wales (figure 3), the region where the wind farm is proposed in the north east of this map is already showing as a poor coverage area. A repeater for the DAB Radio signals is located on a transmitter tower close to Llandrindod Wells.

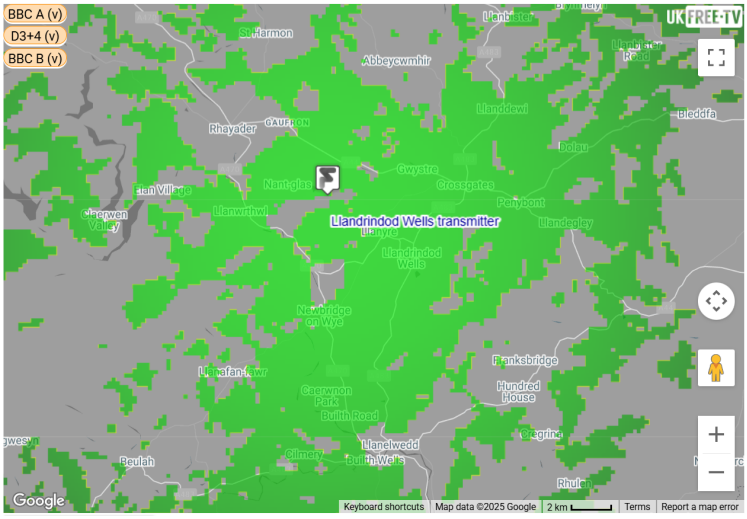
7.3. A desktop predicted coverage prediction for TV Signals from the Llandrindod Wells TV transmitter (figure 4) shows that the residents to the west of the location of the proposed wind farm are already experiencing patchy TV coverage. Some residents close to New Radnor have confirmed this to us. We are concerned that the additional potential degradation of TV and DAB Radio signals to the residents close to the proposed wind farm has not been taken into consideration.

Figure 3: Predicted DAB Radio Coverage from the Llandrindod Wells Transmitter



https://ukfree.tv/transmitters/dab/Llandrindod+Wells

Figure 4: Predicted TV Coverage from the Llandrindod Wells TV Transmitter



https://ukfree.tv/transmitters/tv/Llandrindod_Wells

8. IMPACT TO MOBILE PHONE SERVICES

8.1. Mobile phone transmitter towers are connected in a network back to the phone companies exchange equipment, usually by Fibre cables. However, due to the remote nature of Mid Wales, many of the transmitter towers are connected via a Point-to-Point Microwave Radio link. These are very narrow beams of bi-directional radio

signals at very high frequencies. Similar to a light or a laser beam, if there is an object in its path the connection is broken. Also, if the microwave beam passes close to a tall object, such as a wind turbine, the signal can be reflected and diffracted resulting in less signal arriving at the other end. This can cause a reduction in total capacity on the radio link as well as a complete loss.

8.2. Several companies such as MBNL. Vodafone and BT have raised objections, with some desktop mitigation visible in App. 2.4. However, there does not appear to be any confirmation from these phone companies that the mitigation or method of calculations is satisfactory.

8.3. The wind farm itself proposed a further issue to mobile phone users near the site from additional EMF. As the turbines rotate, they will generate electricity but also radiate EMF. This will cause additional noise and interference to mobile phone users in the area and this can lead to loss or reduction of service. This part of Mid Wales already has patchy 4G services and there is a concern than this proposed wind farm will deny many local residents and visitors with a reliable mobile phone service.

9. IMPACT TO OTHER TELECOMMUNICATIONS SERVICES

9.1. UHF radio communication links are vital to the maintenance and operation of national utilities such as those provided by National Grid and Dwr Cymru. By remote monitoring and controlling their systems through the use of these telecommunications links they are able to respond quicker in remote locations so that residents are not without water or power for too long when an incident occurs.

9.2. It is noted that the maintainer of the radio links network for National Grid, JRC Ltd, have sent an objection stating that some or all of the proposed development breaches the limits that have been set by the Energy Industry for Radio links, both under 1GHz and over 1GHz. This objection was received after the Applicant submitted their plans into PEDW and therefore we do not believe that it has been considered. We are therefore concerned that this proposed wind farm would have an impact on the radio system used by National Grid.

9.3. It is not known if the radio network for Dwr Cymru is affected as there appears to be no response from them.

10. CONCLUSIONS

10.1. The Applicant has not fully consulted all stakeholders and has not fully considered the impact of their proposed turbines on flight safety. This is a serious risk to life.

10.2. The Applicant has not considered the ability of the Welsh Air Ambulance to reach people in an emergency. Helicopters may have to fly a longer route around the wind farms.

10.3. App. 2.4 appears to have missing and incomplete data and it is a concern that the full assessment of the telecommunications impact has not been fully assessed.

10.4. The impact to digital TV users, DAB radio listeners and mobile phone users has not been considered. We are concerned that the proposed wind farm could deny many local residents of reliable DAB radio, digital terrestrial TV and mobile phone services, so critical for people living with poor communication far from urban areas, as a direct result of this wind farm being constructed and operated.

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