

Rebuttal Proof of Evidence - Construction

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Llandinam Repowering and Extension
Conjoined Wind Farm Inquiry (Powys)

Session 1: SSAC

BERR/2008/0003

On behalf of CeltPower

1. I have read and considered various of the proofs submitted by others opposed to the Llandinam re-powering scheme. I take issue with some of the comments made by Mr Roger Matthews on behalf of NRW; what he asks for in terms fails to understand or appreciate the construction process and carries with it a fundamental risk of fatally delaying construction of the scheme. Given the low level of curlew activity on the site, there can be no need for the restrictions NRW seeks; nonetheless, CeltPower has gone out of its way to make concessions to accommodate what NRW seeks. I return to this below.
2. I deal below with some general comments about Mr Matthews's evidence and refer in particular to two paragraphs of his evidence. In so far as I do not respond expressly to a particular point – whether made by Mr Matthews or by some other person's evidence, my silence on that point should not be taken as agreement with it.

General comments

3. Given the level of curlew presence on the site, it is difficult to understand the justification for any construction control. In any event, such control in any form can logically only be required in relation to those parts where curlews still exist. CP has nonetheless offered wider controls but NRW now seeks to expand this beyond the realms of what is justified or justifiable. It is not for me to express a view on the (lack of) likelihood of curlew being found in future years on any given part of the site. What I can say is that, dependent upon any such curlew activity; the NRW-proposed controls are disproportionate and potentially capable of wholly sterilising the times of year when construction activity most needs to occur.
4. In order to find a pragmatic solution, CeltPower has had discussions with NRW. The current BBPP (CPL-ORN-015A) is a working draft prepared by CeltPower seeking to capture elements of the agreement. The key points of agreement are that protection would be provided to curlew territories that are identified as active in surveys of 2013 or 2014. There would be a circular protected area around each territory centre. The exact location of the territory centre would be derived from the survey results, and so the territories cannot be defined with precision at present. Among the points not agreed are (a) the activities that could go on in those areas, and (b) the extent of those areas. As regards the extent of the areas, CeltPower had proposed an area of 500 m radius, while NRW has proposed an area of 800 m radius. The activities are discussed below.
5. So far as regards Mr Matthews' apparent assumption that the only curlew protection zone will be at the southern end of the site, i.e. Zone E. What NRW proposes by way of exclusion will still materially impact on construction activities. However CeltPower acknowledge that, assuming the territory centre is as can be derived from existing data (and as shown on the plan below), then in the event this is the single protected territory, it would be able to accept the proposed 800m buffer zone. There however remains the risk that curlew may occur elsewhere in materially more construction-sensitive areas of the site; that latter risk is unacceptable if there is to be any realistic prospect of letting construction contracts and

actually building the site – such risk relates specifically to the potential occupation within areas comprising the main spine road servicing the northern and southern aspects of the site. These also contain the main construction compound and planned substation / control building. If a curlew territory was occupied in this area (generally speaking the areas of 2008 curlew territories B and C), and no construction activity within that territory was permitted, it is likely construction activity at the site would be sterilised for up to 5 ½ months in any year. Given (i) the timing during fairer weather, (ii) the place the erection of the substation must necessarily have in the construction programme, and (iii) the need throughout electrical installation works to establish both the main electrical infrastructure within the substation and also progress the radial connection of turbines' electrical infrastructure, the delay would result in and exacerbate impact to the project construction programme and result in significant prolongation to the works beyond the 5 ½ months. This latter matter also requires consideration of the fact that the weather window that would be available in the event that the full 5 ½ months timescale were to apply would coincide with periods of the year when we will likely be subjected to high wind, seasonal winter weather (and temperature). This would again compound the impact on the overall construction programme; examples of such impact include the impracticability of concrete works in conditions below 10oC or of turbine lifts which must take place at relatively low wind speeds.

6. CeltPower has gone some way towards meeting NRW's aspirations, and I do not draw back from this, but there must be a limit. Even a five hundred metre stand-off from territory centres poses material problems; to extend this to eight hundred metres is unacceptable. Additionally, even where an exclusion zone is proposed, whether at five or at eight hundred metres, the following activities still need to be able to proceed:

- Cable installation and all associated civil engineering works to the extent that the completion of cabling works are prohibited at strategic locations on the site
- Substation /control building construction and all associated electrical apparatus installation, termination and testing
- Construction compound and laydown area operations
- Construction of main spine road
- Movement of construction related traffic through exclusion zones

NRW has agreed that construction traffic should be able to move through zones B and C (as marked on the plan of curlew territory centres below) whether or not they are occupied. It appears from Mr Matthews's proof that they have also conceded that the main construction compound and laydown area should be able to function even if zone B is occupied.

In the event that significant additional curlew territories are identified either via surveys or emergently during each breeding seasons and to the extent that multiple aspects of the site are excluded from permissible construction activity then agreement, under condition, will be required for a full review of the BBPP to allow some construction activity to be undertaken.

Array cabling

7. This can be further explained by reference to the following Indicative Array Layout sketched over the project layout. The sketch presumes, crudely at this stage in the absence of an electrical design, that the structure of the project will be in four separate arrays which would connect in a branch structure from the individual turbines back into the substation/control building - as illustrated by individually coloured zones.
8. Critically as the arrays overlap multiple larger core size cables will be seen in the trench within the zone nearest the substation/control building containing four feeder cables of approximately 600mm diameter for each of the arrays, with the resultant cable trench increasing in width as the number and size of cables increases and ranging in width from 600mm for a single power cable servicing an individual turbines, up to ~5m with four feeder cables and associated earth and fibre cabling as the cable is routed and connected into substation. The feeder cables will be installed individually for each Array in sequence and follow the necessary continuity and load testing for power, earth and fibre cabling. The civil elements of these works will largely involve traditional excavators employed to excavate for trenches and associated jointing chambers and subsequent backfilling works. For the electrical installation works - cables are pulled manually from cable drums which in themselves are positioned from a frame on an excavator adjacent to the trench. All jointing and termination activities are undertaken by 2 man teams whom will traverse the site conducting in line connections/terminations. During this time access to the substation building and associated cabling trench will be required for cable terminations and jointing, testing and subsequent backfilling of cable trench with this activity spanning significant months of the construction programme.
9. The appended plan shows five curlew zones of 800 m diameter (as sought by NRW) roughly as they would appear if the population found to be on the site at the time of construction was the same as in 2008. Assuming there is a prohibition on digging of cable trenches and laying of cables, then if zone B were found to be occupied in the 2014 curlew survey, no turbines at all could be connected and the circuits could not be tested until the links were completed. This would be the case even if it was only zone B that was found to be occupied in the 2014 survey.
10. Zone E (at the extreme southern end of the site) is to be subject to protection, since breeding curlew were found there in 2013. This will restrict access for the connection of spur end turbines. Since connection is made from turbines back into substation, the array cannot be connected during the curlew breeding season. The same would apply if the territory at the northern end of the site was occupied.
11. Therefore, if curlew activity were detected in the inner zone of either the northern or southern sections of the site this would most likely affect both the ability to cable within the immediate occupied array and also the cabling from the most southern array back into the substation /control building. The consequence would be that the cable installation works, their subsequent testing, and final terminations in advance of energisation could not be carried out. Such delay to cabling works would either delaying turbine erection works or could potentially result in turbines being erected with subsequent failure to energise leading

to needs for connection to generated power in order to provide conditioning power supply for apparatus.

Substation, related works and cable testing

12. Prohibition of erection of the substation/control building or of cabling activities within any zone including the substation/control building would obstruct progress of any electrical array connection works; it would seriously and unacceptably impact upon the overall construction programme. The array cable circuit installations could not be completed, tested or connected and associated civil works could not be completed. Consequently cabling could not be connected either to the turbines or substation/control building. The wind farm could not be energised, and export of power could not begin. It is therefore essential that the substation can be erected and all civil and electrical construction activities within and in relation to the connection of the substation/control building is permitted across all potential breeding seasons. As detailed above any delays to connection of cabling results in a compound impact to the delivery and subsequent erection, commissioning and testing of turbines which would have a demonstrable impact upon the construction programme and consequently the overall viability of the project arising as a consequence of contractual uncertainty and associated risk arising from the various constraining factors under consideration.

Main track spine

13. The main windfarm track network must be completed before the finalisation of electrical layout for the site. In practical terms the finalised route and associated length of access tracks will inform the final electrical connections and associated cable length and cable jointing locations. It is therefore imperative that the track layouts are completed in a logical (Array) sequence to allow finalisation of cable and jointing requirements on an array by array basis. This in practice is delivered by the completion of main spine road and spurs in sequence. Following this electrical design will be finalised and cabling confirmed for site in phased manner. Following confirmation of the active exclusion zones it may be possible to phase Arrays to either north or south extremities of the site and as previously detailed dispensation for these activities may be required in the event that curlew exclusion zones occur within and across strategically critical cable routes across the site which has the potential to entirely sterilise cabling works across the site.
14. In order to maintain viable site works sequencing it is essential that the spine road from the substation/control building to the junction due south of T17 in the north and the junction by T37 in the south is built or widened as early as possible. This may mean that the work has to take place during the 1st breeding season if works commence on site in late 2014 or early 2015. Furthermore it is noted and acknowledged that NRW have previously confirmed their agreement that following completion of these works access for construction traffic across these routes will be permitted.

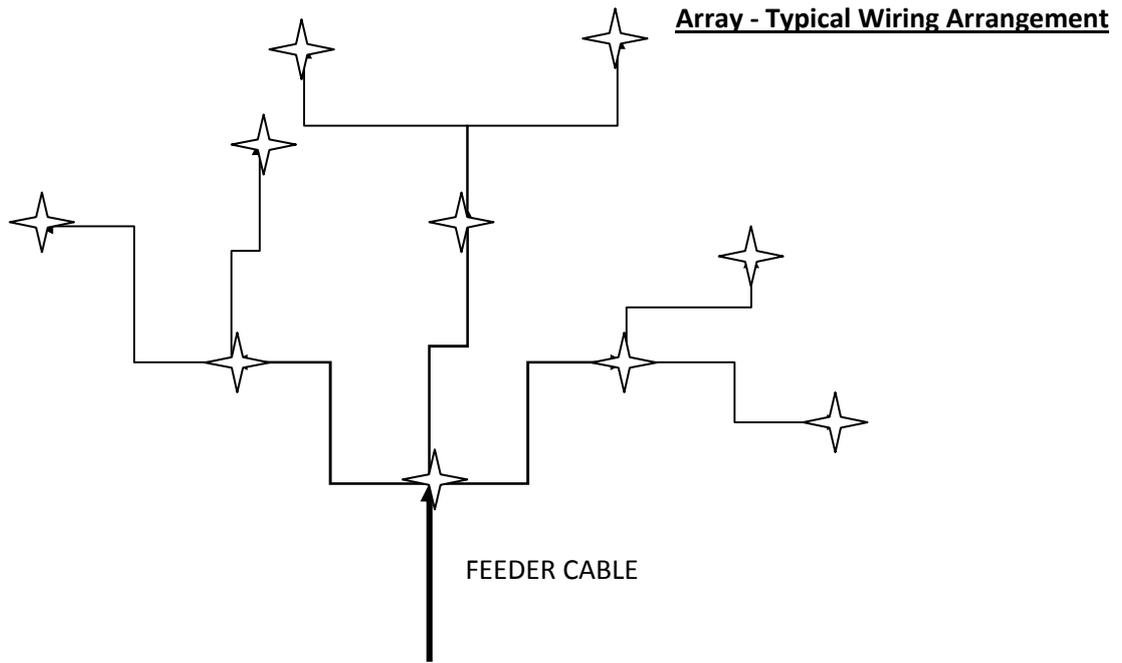
Construction Compound and Laydown Areas

15. NRW has agreed that the construction compound and laydown areas are elements of the development without which construction cannot go ahead. They are required to ensure the efficient and effective control and management of construction works across the entire windfarm site, whilst also permitting the continued progression of substation works in support of works sequencing.

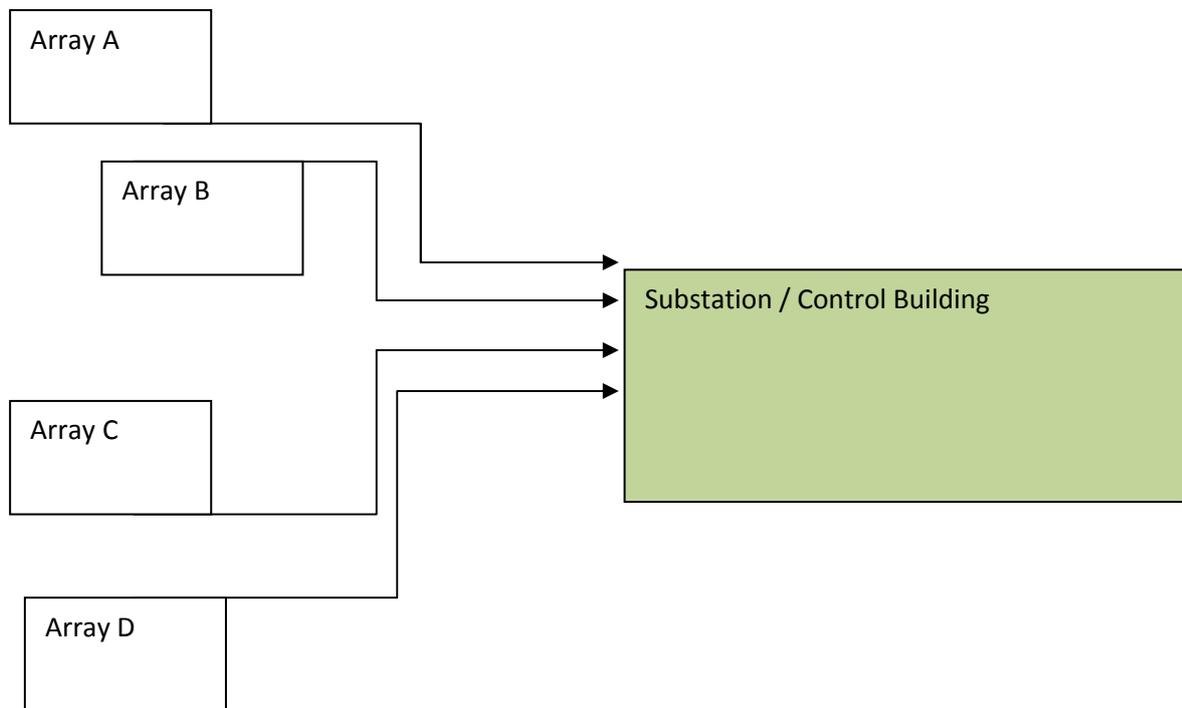
Summary comments on Mr Matthews's proof

16. If Mr Matthews's view is that the occupation of a single zone at the south end of the site would have less impact than if all the territories were occupied, that is correct, though the impact would not be removed. However, as detailed above, the impact would be compounded because there would be an impact on the normal sequencing of civil and electrical works. Further consideration must be given to the necessity to progress both civil and electrical works in less favourable weather.

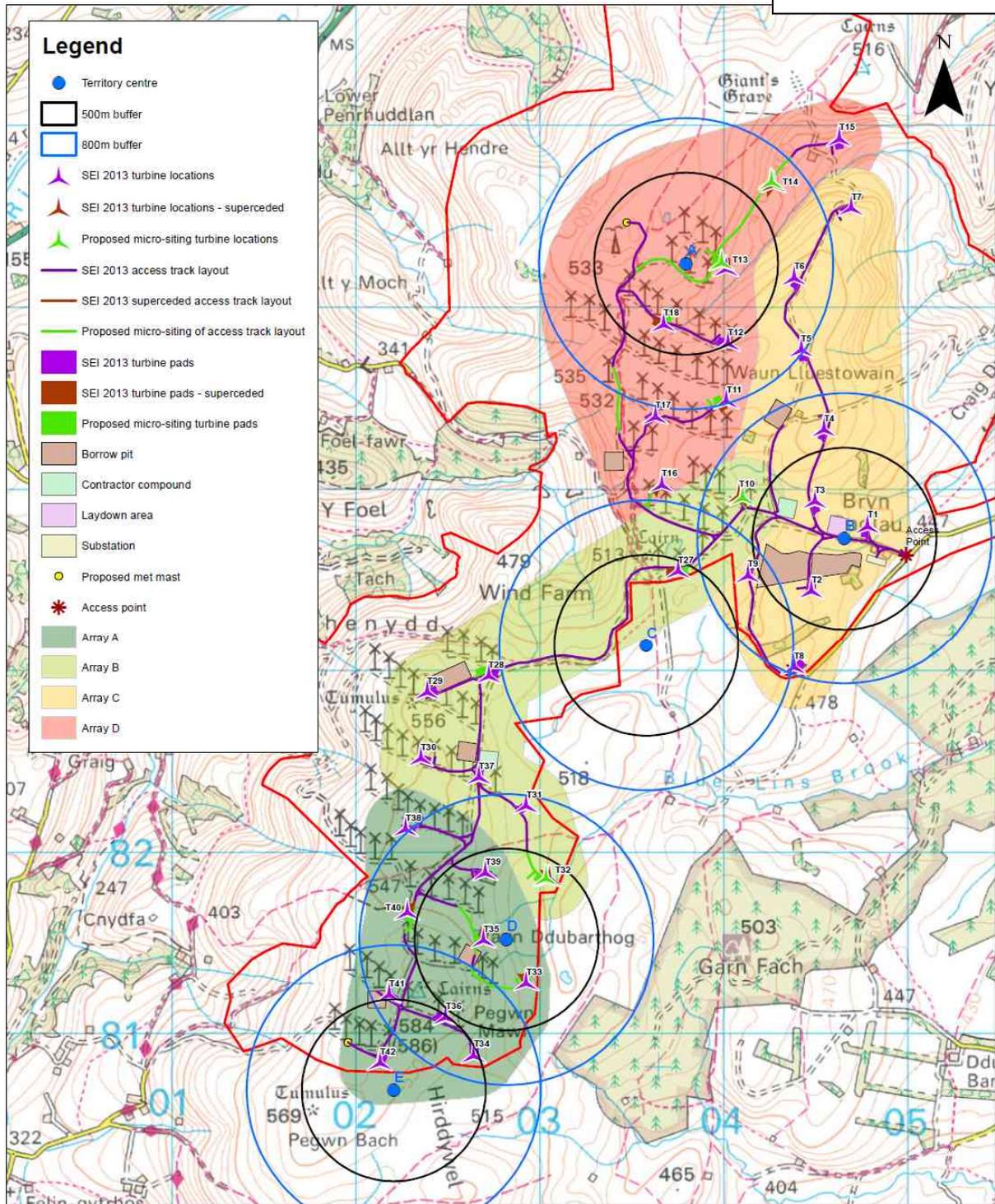
What is key for progress on the wind farm is the activities permitted in the curlew zone. The effect of an 800m buffer as opposed to a 500 m buffer is the increased probability of impact upon project infrastructure.



Feeder Cable wiring - Typical Arrangement near substation/control building



Indicative Array Layout



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Llandinam
Curlew Territory Centres

Rev	Date	By	Comment
A2	27/08/13	DF	Second Issue Review.
A1	27/08/13	KM	Second Issue.

1:20,000 Scale @ A3

Figure	Date	Rev	Dwg No.	Datum:
11	27/08/13	A3	LLA-P-011	OSGB36 Projection:TM

Mr Matthew's paragraph 3.7

12. Mr Matthews states it is regrettable that the proposed location of the construction compound and layout area did not take into account the distribution of breeding curlew. The location of the construction compound was considered alongside a number of simple yet critical logistical factors and associated overall site factors - such as environmentally restricted areas. Whilst part of this included reference to historic distribution of curlew site it was on balance clear that no appropriate location could be identified to avoid multiple such parameters it is clear also that if such a location had been identified it could similarly have been located within an emergent curlew site at the time of construction works commencing. At the time of the 2013 SEI, when the latest design update was carried out, the prediction was that there would be no more than one breeding pair of curlew on the site.