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Dualchas Nàdair na h-Alba  
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Mark Ashton  
Energy Consents Unit  
Scottish Government

Our Ref: CNS/REN/WF/155235

2 July 2019

Dear Mr Ashton

**THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND)  
REGULATIONS 2017  
ELECTRICITY ACT 1989 SECTION 36 AND SCHEDULE 8: APPLICATION FOR THE  
PROPOSED KIRKAN WIND FARM IN THE PLANNING AUTHORITY AREA OF THE  
HIGHLAND COUNCIL.**

Thank you for your consultation on the above proposal dated 23 April 2019.

**Summary**

**We object to this proposal until further information detailed below is obtained from the applicant.**

There is currently insufficient information to determine the magnitude of effect of the proposed lighting on Wild Land Areas (WLA) 29 Rhiddoroch – Beinn Dearg – Ben Wyvis and 28 Fisherfield – Letterewe – Fannichs. We will comment further once the additional information is available.

**Background**

We have had a number of pre-application communications with the applicants and their agents, including attending the formal pre-application meeting at the Inverness Town House, and provided scoping advice and gatecheck advice.

**Appraisal of the impacts of the proposal and advice**

In low light conditions the lighting proposed for the Kirkan wind farm will substantially add to the current four visible lights experienced from the south-west of WLA 29. The lighting aspect of the proposal will have significant effects on the appreciation of remoteness and the sense of sanctuary and solitude which underpin qualities of both WLA 28 and 29. It is likely to be the magnitude of these significant effects on the qualities of these WLAs which will determine our ultimate position in relation to this application.

In order to advise on the effect of the proposed lighting we require the following additional information:

Scottish Natural Heritage, Fodderty Way, Dingwall Business Park, Dingwall IV15 9XB  
Tel: 01463 701 610 [www.nature.scot](http://www.nature.scot)

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- Comparative ZTV illustrating the current extent of visible lighting from the current cardinal lights (which we understand are 200 candela) and the proposed Kirkan lights.
- Photomontages of the proposed aviation lighting from within WLAs 28 and 29.
- Wireframes from within WLAs 28 and 29 clearly identifying the current lit turbines and the proposed turbines.

Further detail can be found in Annex 1.

**Concluding remarks**

We ask to be advised at the earliest possible stage about any proposed modification, conditions or legal agreements relevant to our interest.

Should you have any queries about this letter, please contact Nathan McLaughlan ([Nathan.mclaughlan@nature.scot](mailto:Nathan.mclaughlan@nature.scot)) for further advice.

Yours sincerely

**George Hogg**

Area Manager

South Highland

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## Annex 1

### Impacts on the qualities of WLAs

1.1 The applicant has made an assessment of effects on the qualities of the relevant Wild Land Areas (WLAs) following the steps outlined within the draft 2017 guidance for assessing effects on wild land. The information provided within the EIAR enables us to take a view on the significance of effect on wild land in the daylight, however **there is a lack of visual information illustrating the effects of the proposed lighting away from the roads.**

1.2 There are three WLAs likely to be affected by the proposal:

- Rhiddoroch - Beinn Dearg - Ben Wyvis WLA 29 (3.9km to the nearest turbine);
- Central Highlands WLA 24 (11.3 km to the nearest turbine); and
- Fisherfield – Letterewe - Fannichs WLA 28 (3.6 km to the nearest turbine).

The baseline for the wild land assessment of the Kirkan wind farm rightly includes the adjacent wind farms of Lochluichart, Corriemoillie and Lochluichart extension. These wind farms were consented but not constructed at the time of the wild land descriptions being drafted. We are in agreement with the wild land study areas described within Tables 4.6.2 and 4.6.3 of the EIAR. We also agree with the conclusions of the EIAR that although there will be some adverse effects on WLA 24 Central Highlands, due to their nature and limited extent they will not result in significant effects on its qualities. The following advice therefore focusses on effects on WLAs 28 and 29.

#### Effects on Rhiddoroch - Beinn Dearg - Ben Wyvis WLA 29

1.3 Our appraisal of the qualities of WLA 29 focusses on those which are well expressed within the applicants study area, these being the three identified below. The fourth quality has not been appraised as it focusses on cnocan landscapes found in the north west of the WLA.

- Quality 1: *A range of awe-inspiring massive, high rounded hills and plateaux, as well as steep rocky peaks and ridges, offering elevated panoramas;*
- Quality 2: *Long and deep penetrating glens with steep, arresting side slopes that limit views, some containing access routes and clearly influenced by estate management;* and
- Quality 3: *A very large interior with a strong sense of remoteness and sanctuary that seems even more extensive where appearing to continue into neighbouring wild land areas.*

1.4 WLA 29 is extensive and lies to the north-west, north and east of the proposal. It lies adjacent to other WLAs and when intervening human elements are not visible can appear to extend uninterrupted into them. The proposed turbines will either be viewed in front of the existing operational turbine cluster or to the side of it, appearing as an extension with little notable physical separation between the schemes (VPs 15, 16, 6 and 19). However, the Kirkan turbines will be distinctly taller than the current operational schemes, resulting in a range of significant landscape and visual effects as a direct result of its poor design and placement (see paragraph 2.1 below on other landscape and visual effects). **The effects on wild land qualities 1 and 3 of WLA 29 are significant**, these being:

- The proposal will result in significant adverse effects on quality 1, as represented by VPs 19, 6 and 15, namely the appreciation and sense of awe from the wide open elevated panoramas; and on quality 3, a sense of sanctuary and solitude, as a result of the proposal being both closer to WLA 29 than the existing operational cluster. The Kirkan turbines are also more prominent due to them being much larger than other built elements in the landscape. We recognise that there are existing significant adverse effects on these attributes and responses as a result of the existing

operational cluster which weakens the strength of this quality at the margins of this WLA. However the strong horizontal emphasis, a key aspect of quality 1, can still be experienced in panoramic views out to the south with the rise in landform between the existing turbines and the WLA providing a notable separation. The introduction of 175m turbines close to this WLA (and in front of this landform rise) will add substantially to the baseline effects, further weakening the degree to which this quality can be appreciated.

- Significant adverse effects on the perceived extent of this WLA and the resulting sense of remoteness particularly from areas where adjacent wind farms are not visible. These effects will occur in locations within WLA 29 where currently views extend uninterrupted into the neighbouring WLA 28 due to a lack of visible intervening human elements. There are no viewpoints representing these areas, primarily within Strath Vaich, but they can be identified on one of the cumulative ZTVs (Figure 4.6a). The proposed turbines will add complexity due to the contrasting scale of the turbines with others in the baseline. The proposal is a poor fit with existing developments, drawing the eye whilst adding confusing and very large scale indicators (quality 3).

### **Effects on Fisherfield – Letterewe - Fannichs WLA 28**

1.5 Our appraisal of WLA 28 has focussed on quality 1 as the other three qualities are not strongly expressed in areas affected by the proposal and are unlikely to result in significant effects.

- Quality 1: *An awe-inspiring range of colossal, steep, rocky and rugged mountains interlinked around deep and arresting corries, glens and lochs.*

WLA 28 lies to the west of the proposal where the turbines will generally be seen adjacent to and behind the existing operational cluster appearing as an extension with little notable physical separation between the schemes (VP 13). The extension of obvious human elements in addition to the substantial increase in prominence of turbines will affect parts of this WLA which are very sensitive to this form of development (represented by VP 13). The currently very strong sense of naturalness and remoteness resulting from the arresting large scale rugged mountains extends across a vast area of this WLA. Although there is some reduction in the expression of these attributes as a result of the existing wind farm cluster, particularly in eastward facing views, the effects of the additional Kirkan turbines will be substantially greater. These attributes (sense of naturalness and remoteness) are key contributors to how this wild land quality is experienced and impacts on the attributes will diminish the strength of the quality. **Effects on quality 1 of WLA 28 will be significant.**

### **Summary of effects on WLAs**

1.6 The existing operational cluster of turbines already occupies a prominent, sometimes sky-lining position. The Kirkan turbines, being considerably larger will amplify the influence of human artefacts, reduce the sense of remoteness and adversely affect the current sense of sanctuary and solitude across parts of WLAs 28 and 29. The Kirkan wind farm will form a prominent extension to this existing wind energy development, considerably reducing the strength of wild land qualities across a substantial part of WLA 29 and across more limited, elevated locations within WLA 28. These effects are in addition to those from existing developments and undermine some of the considerable effort taken to mitigate impacts through the siting and design of the existing cluster of wind farms. **Due to the height of turbines proposed (175m to blade tip) there will be significant adverse effects on the qualities of WLAs 29 and 28.**

### **Aviation lighting**

1.7 All turbines taller than 150m to blade tip must be lit to maintain aviation safety. Aviation cardinal lighting<sup>1</sup> of the neighbouring current wind farm forms part of the baseline when assessing the Kirkan proposal. Our own appraisal of the effect of these existing lights

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<sup>1</sup> The lighting of only certain turbines along the perimeter of the wind farm, thereby limiting the number of lights visible at any given location.

from both the A835 (around 13km from the lit turbines) and from elevated locations such as Ben Wyvis<sup>i</sup> (around 5km from the lit turbines) leads us to conclude that they increase adverse effects on the qualities of wild land in low light conditions. The lights proposed as part of the Kirkan wind farm proposal will be red lights with an intensity of 2,000 candela. Compared with the baseline of four lights, they will be much greater in number, be more elevated in the landscape, and they will be closer to WLA 29 than the existing lighting. Appendix 4.9 of the EIAR states that beyond distances of 5km from the light source this perceived intensity will reduce to 200 candela. In our experience<sup>2</sup> 2000 candela lights are clearly visible at distances beyond 15km. Even 200 candela lights, although seen at a reduced intensity, are also still visible at this distance; this is the case even in a bright urban environment.

1.8 There are no photomontages showing the anticipated effects of proposed aviation lighting from remote landscapes and the information we have to date on this evolving area of landscape change is limited. Although we can provide some advice based on this information and professional experience and knowledge on the likelihood of effects, more information is required to make informed decisions on whether these effects will be significant on the qualities of WLAs. We agree with the conclusion of the EIAR that effects of aviation lighting on visual amenity are likely to be significant. However, these effects are likely to extend beyond 5km from the proposal and will affect wild land attributes and responses which underpin how the qualities are experienced as darkness is a key contributing characteristic to the appreciation of WLAs. The EIAR has not addressed the influence of darkness on the experience of wild land qualities nor does it recognise that lighting can have adverse effects beyond 5km.

1.9 WLAs are visited and appreciated by people not just during the hours of daylight. They are sanctuaries where dark skies can be experienced and enjoyed either at the start and finish of a day on the hill or as part of an overnight camping experience. WLAs are therefore highly sensitive to changes in light intensity where intrusions of red elevated lights will appear as new signs of obvious, contemporary land uses, thereby reducing a sense of remoteness. The lights, especially when viewed in a cluster, will attract the eye and ultimately reduce the sense of sanctuary and solitude experienced.

1.10 Our experience of aviation lighting on onshore wind farms is that it can appear as an eye catching feature in the landscape drawing attention at distances in excess of 15km; this finding comes from examples of turbines<sup>3</sup> with much less intense lighting (sub 200 candela) than that proposed for Kirkan wind farm. We are not aware of any evidence to support the effectiveness of the shielding proposed in the Lighting Visibility ZTV Figure TA4.9.1 and we do not believe that it will significantly reduce the effect of lights seen from some locations, including those within WLAs which are inherently highly sensitive to this form of change. In low light conditions the lighting proposed for the Kirkan wind farm will substantially add to the current four visible lights experienced from the south-west of WLA 29. We are not certain which of the existing turbines are lit (these have not been identified within the Kirkan EIAR), and there is no ZTV to show the extent of visibility of this lighting. We cannot discern the extent to which the Kirkan proposal introduces lighting into currently unlit areas, or otherwise adds to the baseline effects by virtue of the greater number and brightness of lights. This aspect of the proposal will have significant effects on the appreciation of remoteness, sense of sanctuary and solitude which underpin qualities of both WLA 28 and 29 and is likely to be to the degree that the qualities of these WLAs will be significantly affected. These effects will occur in locations where there will also be adverse effects during daylight hours.

1.11 A certain degree of mitigation has been undertaken as part of the EIA process and we recognise that additional measures to reduce the impacts of the aviation lighting have been identified, (such as reduced light intensity). Due to the high sensitivities of WLAs to this form of change we recommend seeking further mitigation or modifications to reduce their effects. The effects of the proposed lighting may be substantially reduced either by radar

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<sup>2</sup> We have produced a webinar on aviation lighting which can be found on our website [here](#).

<sup>3</sup> We have produced a webinar on aviation lighting which can be found on our website [here](#).

activated lighting<sup>4</sup> or by removing the requirement for lights all together by reducing the turbine height to less than 150m. We understand however that radar activated lighting requires CAA approval therefore we understand that this modification cannot form part of a condition to planning consent.

**1.12 In low light conditions the lighting proposed for the Kirkan wind farm will substantially add to the current four visible lights experienced from the south-west of WLA 29. The lighting aspect of the proposal will have significant effects on the appreciation of remoteness and the sense of sanctuary and solitude which underpin qualities of both WLA 28 and 29. It is likely to be the magnitude of these significant effects on the qualities of these WLAs which will determine our ultimate position in relation to this application. To enable us to understand the anticipated extent of the effects of the aviation lighting on the WLA's we require the following additional information:**

- **Comparative ZTV illustrating the current extent of visible lighting from the existing cardinal lights (which we understand are 200 candela) and the proposed Kirkan lights.**
- **Photomontages of the proposed aviation lighting from within WLAs 28 and 29.**
- **Wireframes from within WLAs 28 and 29 clearly identifying the current lit turbines and the proposed turbines.**

**In addition please advise us on any further modifications or adaptations to the application.**

#### **Other landscape and visual effects**

2.1 The proposal will introduce new visibility of turbines from the A835 between the Aultguish Inn and Loch Droma (whilst travelling in an easterly direction), a stretch of road approximately 12km long. This visibility is across areas where neighbouring wind farms are not visible due to the proposed scheme being located where there is less natural screening. This additional visibility (as illustrated in viewpoint 17 along Loch Glascarnoch) will result in the introduction of obvious large scale human elements intruding into a stretch of landscape which is a well travelled and enjoyed route as the main to road to Ullapool. This route includes a gateway recognised in THC's On-shore Wind Supplementary Guidance and Spatial Framework which was produced in partnership with us. The character of this landscape is clearly distinct, it separates the settled and managed landscapes in the east from the remoter, upland, rocky landscapes of the west. In daylight the turbines will be of a scale that they will compete with framed views out from this landscape to the east to the massif of Ben Wyvis and Little Wyvis. After dusk the aviation lighting will visually intrude into a landscape which is overwhelmingly dark. The current cardinal lighting of the existing turbines has altered the experienced of part of this route, and is at times a prominent feature where other features, including the turbines themselves are no longer visible. The addition of a further 17 lights, closer to the road and with a greater visual influence will result in further substantial and significant change. When viewed from the road at close proximity (<5km) there may be instances when the lights illuminate parts of the turbine blades causing a distracting and odd image. In addition when the wind is coming from the west, the lights may be viewed behind the blades and will therefore appear to flash in an apparently random pattern drawing the eye whilst adding to the visual confusion<sup>ii</sup>. **Both landscape and visual effects of the turbines both in daylight and after dusk will be significant along the A835.**

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<sup>4</sup> Radar activated lights - Such a system would mean that lights would only be activated by 'nearby' aircraft and could therefore only be on for a small proportion of time. We would require more information on the frequency and duration of lit turbines in order to advise with more certainty on this aspect but we consider it likely that this would substantially reduce the degree of effect.

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<sup>ii</sup> Hill of Glaschyle (Moray) wind farm - The developer of the site (Muirden energy) has recently removed the lights due to complaints from the local community. It is understood they have been replaced with infra red (radar activated) lights which are not visible to the naked eye but we are unable to confirm this.