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12h March 2020
Our reference: G/P/661694/04/05/20 Rev00
Energy Consents Unit Ref: ECU00000563
Highland Council Ref: 19/01861/S36

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VIA EMAIL

SECTION 36 APPLICATION FOR THE PROPOSED KIRKAN WIND FARM

Dear Mark, Simon,

As you will be aware, RSK co-ordinated the Environmental Impact Assessment (EIA) for Coriolis Energy and ESB's proposed Kirkan Wind Farm, submitted March 2019, together with Supplementary Environmental Information (SEI) submitted October 2019. Landscape and visual impact assessment (LVIA) has been undertaken by Ramboll Environ, whilst David Bell Planning provides planning support.

Following the receipt of SNH's recent response (dated 12/02/2020, their ref: CNS/REN/WF/**157312**) detailing their position, following their earlier response (dated 02/07/2019, their ref: CNS/REN/WF/**155235**), we would wish to take the opportunity to provide a clarifications and commentary response, so as to ensure that Highland Council in particular are appraised of our views in advance of the anticipated consideration of the scheme at the upcoming North Planning Applications Committee, 21st April 2020.

SNH Consultation Responses

SNH's latest summary response is as follows:

> *"We object to this proposal due to the significant adverse effects on the qualities of wild land areas (WLA) 28 Fisherfield-Letterewe-Fannichs, and 29 Rhiddoroch-Beinn Dearg-Ben Wyvis. However, we consider that a wind farm may be accommodated on this site subject to the significant effects of the turbine lighting being substantially reduced."*

As such, it may reasonably be concluded that, whilst other aspects of the proposed development's effects have been touched upon within the SNH response, the unmitigated impact of aviation lighting upon wild land is considered to be the only issue rising to the level of being a determining matter. Nevertheless, each of the aspects raised between both letters are addressed by this current response.

Table 2 to this letter sets out clarifications and responses to points raised in the SNH responses.

Wild land policy position

Since the Kirkan scheme is not located within any Wild Land Area (WLA), then it is clear and has been confirmed by recent Inquiry decisions (Limekiln 1 s.36 and Whitelaw Brae s.36 and Carn Gorm) that in terms of national planning policy, the SPP paragraph 215 test does not apply. Rather, under SPP paragraph 169, wild land is one of a number of material considerations but with no guidance given as to the matter of weight, which will be a judgment for the decision maker in a given case.

Notwithstanding the above, recent decisions (Whitelaw Brae s.36; Limekiln 2 s.36 and Drum Hollistan s.36) have established that the degree of visibility from the most sensitive core areas of a WLA (classes 7 & 8) are key. It is these considerations that informed the production of ES figure TA4.6.1 (Relative Wildness and Visibility) along with the analysis at paragraphs 4.7.22-23 of the EIA-R. By way of clarification, Table 1 below shows the more detailed findings of this visibility analysis for both WLA 28 and WLA 29. It should be noted that the analysis of visibility is based upon the findings of the blade tip ZTV and do not reflect the precise number, distance or relative prominence of Kirkan turbines, or their baseline or cumulative context, all of which are equally important in consideration of the effects of the Kirkan scheme on WLAs 28 and 29.

Table 1: Wild land visibility analysis	**WLA 28**	**WLA 29**
Total WLA extent	80,437 ha	90,463 ha
Visibility of one or more Kirkan turbines within whole of WLA	*3,668 ha* 4.6%	*10,504 ha* 11.6%
Visibility of one or more Kirkan turbines from "higher value" (HV) wild land (class 7 & 8)	*951 h*a 2.9% of 33,064 ha HV	*3,431 ha* 10.4% of 32,901 ha HV
Visibility of between 13-17 turbines from higher value wild land	*379 ha* 1.1% of HV	*1,898 ha* 5.8% of HV
Visibility of between 9 - 12 turbines from higher value wild land	*113 ha* 0.3% of HV	*376 ha* 1.1% of HV
Visibility of between 5 - 8 turbines from higher value wild land	*157 ha* 0.5% of HV	*479 ha* 1.5% of HV
Visibility of between 1 - 4 turbines from higher value wild land	*303 ha* *0*.9% of HV	*678 ha* 2.1% of HV
Visibility of one or more Kirkan turbines only (without Lochluichart/ Corriemoillie turbines) within whole of WLA	*420 h*a 0.5%	*1,621 ha* 1.8%
Visibility of one or more Kirkan turbines only – from higher value wild land	*98 ha* 0.3% of HV	*553 ha* 1.7% of HV

The above table demonstrates that (i) the vast majority of both WLAs would be completely unaffected, (ii) that the vast majorities of higher value wild land would similarly be completely unaffected, (iii) that the quantitative degrees of visibility of turbines from higher value land even then are limited, and (iv) the Kirkan turbines would overwhelmingly be seen in the context of existing developments and therefore not represent a wholly new element in views out of the WLAs. Notably in respect of cumulative impacts, the Reporter in the Limekiln 2 Inquiry Report concluded in that case, that given the existing baseline of human influence and development that cumulative impacts would need to be "extraordinarily adverse" in order to rise to the level of being a determining matter.

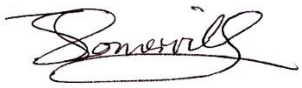
Summary

In view of these responses and clarifications, it is the Applicant's position that the information provided underlines and confirms the acceptability of the proposed development. Furthermore, it is trusted that the information will allow SNH to reconsider its stance on the application in relation to the relatively narrow determining issue raised in its consulotation response.

If you have any queries, please contact me at the address given above or by email (jsomerville@rsk.co.uk).

Yours sincerely,

For RSK Environment Limited



Mr Joe Somerville
Associate Director

Input by
Mr Robert Bainsfair
Landscape Consultant

Reviewed by
Mr Mike Kelly
Technical Director

Input by
Mr David Bell
Director - David Bell Planning

Appendix 1: Email correspondence with CAA (Andy Wells)

Table 2: Comments and clarification

SNH Response	Reference	Comments
SNH Consultation Response to ECU of the 2nd July 2019 (Ref. CNS/REN/WF/155235)	Covering letter, Page 1, Paragraph 3: Appraisal of Impacts of the proposal and advice	SNH make reference to Kirkan substantially adding to current lighting during *"low light conditions"*. This is considered misleading. Whilst turbine lights would activate during periods approaching dusk or similar light levels, they are likely to be seen in the context of varying conditions of ambient light that would render them less evident, as the prominence of artificial lighting is directly related to the degree of contrast (i.e. darkness). This is illustrated by comparing the light conditions in the night visualisations for Viewpoints 6: Summit of Ben Wyvis (from where the western view towards the Kirkan site is subject to natural illumination by the setting sun) and Viewpoint 13: Summit of An Coileachan (from where the proposed development would be seen to the east, in a darker aspect). The relevance of this is that hill walkers are most likely to be on hill summits during hours of daylight or whilst there is ambient light when they are still able to appreciate the characteristics of the landscape and views. In this context hill walkers are likely to experience the turbine lighting in the context of lower degrees of contrast when lights would have a lesser prominence.
	Annex 1, Impacts on the qualities of WLAs Paragraph 1.2	It is noted that SNH acknowledge that the Lochluichart, Corriemoillie and Lochluichart extensions were not included in their published wild land descriptions despite being consented previously. This is an important omission, especially as SNH themselves acknowledge that these schemes have a *'significant'* influence on the WLAs, as mentioned in paragraph 1.4 of the annex, It is therefore respectfully suggested that the analysis of the baseline provided in TA4.6 of the applicants EIAR is referenced for a more complete and up to date reflection of the baseline.
	Annex 1: Impacts on the qualities of WLAs Paragraph 1.4, bullet 1	SNH make reference to Viewpoints 6, 15 and 19 in order to substantiate their assertions regarding *" significant adverse effects on quality 1,……., 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*

Table 2: Comments and clarification

SNH Response	Reference	Comments
		closer to WLA 29 than the existing operational cluster." However, they undermine this argument somewhat by stating that they *"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*." Their assertion that the strong horizontal emphasis of the landscape outwith the WLA is a key aspect of quality 1 is refuted. Seen from Viewpoint 6 and 19 at the summits of Ben Wyvis and Little Wyvis, respectively, such horizontality is more a feature of views to the south of the summit, away from the Proposed Development which would be seen to the west. Views west of these summits are typified by the lower lying undulating topography and mixture of moorland, forest cover and existing/consented wind farms of the Corriemoillie and Kinlochluichart Forest areas. Beyond this the backdrop to the view is formed by a series of angular steep sided summits including Beinn Eighe, Slioch, Mullach Coire Mhic Fhrearchair, and An Teallach. In views to the south from Viewpoints 14: Summit of Beinn Dearg, and 15: Summit of Meall a' Ghrianain, the form of the interlocking ridgelines that can be seen receding into the distance in this direction cannot be said to be truly horizontal in either the foreground, middle ground or background of the view as the landscape undulates and contains arching undulating landforms with more angular summits. Moreover, SNH are considered to have underplayed the influence of the existing and consented wind turbines which occupy the middle-ground of the view, adjoining the Proposed Development and have a maximum blade tip height that appears consistent in respect of elevation to that of the Proposed Development.
	Annex 1: Impacts on the qualities of WLAs	SNH suggest that significant adverse effects on the perceived remoteness of WLA 29 would occur, particularly in areas where adjacent wind farms are not visible, *"primarily within Strath Vaich"*). However, analysis of the cumulative ZTV provided

Table 2: Comments and clarification

SNH Response	Reference	Comments
	Paragraph 1.4, bullet 2	with the EIAR (Figures 4.6a-g) indicates that the Proposed Development would only be seen on its own from a localised section at the southern extents of the strath, on the margins of the WLA (wherefrom the Fairburn wind farm would also be visible in part). Moreover, according to SNH's own relative wildness mapping Strath Vaich has a lower degree of wildness (especially remoteness) due to the presence of estate tracks and buildings, as well the hydroelectricity dam present (see Figure TA4.6.1). SNH's final point in paragraph 1.4, concerning the purported "poor fit with existing developments" has been repeated in their response to ECU of the 12th February 2020 and is commented upon in the table below.
	Annex 1: Impacts on the qualities of WLAs Paragraph 1.5	SNH state that they have concentrated on quality 1 of WLA 28 which is defined as *"an awe-inspiring range of colossal, steep, rocky and rugged mountains interlinked around deep and arresting corries, glens and lochs,"* SNH concede that the other qualities attributed to this WLA are not strongly expressed in areas affected by the proposal and are unlikely to result in significant effects. SNH's assertion that the very strong sense of naturalness and remoteness resulting from the arresting large scale rugged mountains extends across a vast area of this WLA is tempered by what they acknowledge as a reduction in the expression of these attributes as a result of the existing wind farm cluster of Lochluichart, Lochluichart Extension and Corriemoillie, which are prominent in views eastward from the WLA. In the light of this initial statement their subsequent assertion that, despite this context "*the effects of the additional Kirkan turbines will be substantially greater"* and significant is perplexing, especially upon examination of the cumulative ZTV in Figure 4.6a of the EIAR, and visualisations for Viewpoint 13. The ZTV indicates that the Lochluichart turbines have a considerably larger viewshed than either the Corriemoillie Wind Farm or Proposed Development. It is

Table 2: Comments and clarification

SNH Response	Reference	Comments
		also the case, as shown in the visualisations for Viewpoint 13 in Figures 4.20a-d, that the Proposed Development would be seen more distantly and partly overlapped by the intervening Lochluichart and Corriemoillie developments, and partially screened by intervening topography, thereby lessening their prominence and their influence on the WLA.
	Paragraph 1.7: Aviation Lighting	SNH make reference to the summit of Ben Wyvis being only 5 km from the existing lit turbines at Lochluichart. This is incorrect. The existing Lochluichart turbines are located over 13.5 km from this summit, whilst the Proposed Development would be located over 9 km from this summit (as evidenced at Viewpoint 6). This distance is important on the basis of the accepted mitigation of aviation lighting, as explained in the lighting assessment in Technical Appendix 4.9 of the EIAR. SNH go on to acknowledge that *"beyond distances of 5 km from the light sources perceived intensity will reduce to 200 candela."* However, this is also incorrect. The mitigation is that during periods of clear meteorological visibility the turbine lights will be reduced in actual intensity to 200 candela. The matter of perception is related to a number of interrelated matters pertaining to actual intensity, distance, angle at which the lights are viewed (as regulatory light intensity requirements are dependent on the angle of light generated, as indicated in Figure 5.1 and Chapter 5 of the Supplementary Environmental Information SEI - submission dated September 2019), as well as the visual acuity of receptors.
	Paragraph 1.10	SNH's commentary on lighting is entirely anecdotal, does not provide detailed or substantiated evidence and does not reflect the detailed understanding that has evolved and is represented in the lighting assessment provided in TA 4.9 of the EIAR, or the subsequent material provided in the SEI submission. As this is essential for a sound detailed understanding of how such lighting functions and how it is experienced, it is therefore respectfully suggested that reference is made to the robust analysis and assessment provided in both the EIAR and subsequent SEI.

Table 2: Comments and clarification

SNH Response	Reference	Comments
SNH Consultation Response to ECU of the 12th February 2020 in respect of the SEI supplied by the applicant on the 1st November 2019 **SNH Ref. CNS/REN/WF/157312**	Summary – Page 1 of document	SNH appear to have accepted siting of the development in principle. The issues appear to boil down to the size of the turbines relative to the neighbouring existing/consented schemes and potential lighting requirements. Under current market conditions, energy yield assessments were undertaken and financial modelling prepared to establish the design parameters that would support a viable wind farm development at the site. As turbine efficiency increases with turbine height, larger more productive turbines that maximise energy yields needed to be considered, resulting in the proposed blade tip height. In short, larger more productive turbines that maximise energy yields needed to be considered, resulting in the proposed maximum heights. Government has recognised the need for this. An important driver of the Scottish Energy Strategy (2017) is the recognition of the requirements of the renewable energy industry to improve efficiency by utilising taller turbines with larger rotor diameters to operate in the market following the removal of government subsidy through Renewables Obligation Certificates and subsequently Contracts for Difference. Enabling these requirements is essential in order to meet the ambitious, but achievable, targets set out in the Scottish Energy Strategy and as now updated by way of the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. Furthermore, the Scottish Government's Onshore Wind Policy Statement (OWPS) sets out that the *Scottish Government will support new and repowered wind farms and recognises that if wind farms are to continue to contribute to Government targets without subsidy this inevitably means the use of larger turbines, where appropriately located. Such wind turbines can capture more of the available wind resource and improve the efficiency of wind turbines developments. With the necessary support for such large turbine projects by Scottish Ministers, statutory and non-statutory consultees the ambitious 2030 and 2045 renewable energy and net zero energy and emission reduction targets can be met*. Paragraph 23 of the

Table 2: Comments and clarification

SNH Response	Reference	Comments
		OWPS states that by necessity the mover to larget and morepowerful (higher capacity) turbines “will mean taller towers and blade tip heights”. Recent decisions such as *Hagshw Hill* (26 February 2020) (14 turbines at 200m to tip) have acknowledged the benefits of locating wind energy development in already established areas for wind energy development and the importance of deploying new technological capabilities in delivering the Government’s strategic priorities in relation to renewable energy and climate change action. In the Hagshaw decision, the Scottish Ministers make it clear that the Scottish Energfy Strategy is to “*guide energy policy decisions*” (page 8) and that the OWPS “*reaffirms the vital role for onshore wind in meeting Scotland’s energy targets*”.
	Appraisal of the impacts of the proposal and advice, page 2 of response	SNH’s assertion that the design of the proposed development is poor is disputed. It has been carefully sited to limit the extent of its viewshed and to utilise the enclosing topography to reduce its scale when viewed from the majority of key receptor locations in the vicinity, as evinced by the limited extent of theoretical visibility from the majority of key receptor locations such as roads and settlements in the area. It has also been positioned to add to an existing cluster of development, thereby avoiding the dispersal of development and consequent spreading of cumulative effects. With regard to lighting of the proposed developments turbines, the key consideration is not whether the lights would avoid cumulative effects on the WLA, but whether such effects would be significant. The proposed limitation of lighting to perimeter or cardinal turbines is considered to represent sufficient mitigation of such effects as to avoid such significant effects, as set out in paragraphs 5.6 to 5.12 of the SEI, and illustrated in the comparative visualisations in: - Figures 5.4a and 5.4b: Viewpoint 6 (Ben Wyvis); - Figures 5.5a and 5.5b: Viewpoint 13 (Summit of Summit of Faire nam Fiadh, Fannich range); - Figure 5.6a and 5.6b: Viewpoint 14 (Beinn Dearg)

Table 2: Comments and clarification

SNH Response	Reference	Comments
	Annex 1: Landscape Advice Paragraph 1, page 3 of response: Applicant's Assessment of Effects	It is welcomed that SNH acknowledge the high standard of night visualisations provided in the SEI. It is important to note that SNH have taken, as the basis of their deliberations, solely the worst-case scenario in respect of potential lighting of Kirkan turbines and not commented upon the mitigating effect of perimeter or cardinal lighting, despite the SEI containing material covering such an option. There is considered a good prospect that cardinal lighting such as that proposed will be accepted by the CAA as (1) it has been confirmed to be an inclusion in their forthcoming revised consultation guidance on turbine lighting (expected to be published in March 2020), as confirmed by Andy Wells (email dated 17/02/2020 and attached to this letter at Appendix 1), (2) the indicative scheme shown at Figure 12.1 of the EIA-R has been approved in principle by Andy Wells (email dated 13/09/20190, attached to this letter at Appendix 1), (3) the CAA signed off on the Viking wind farm aviation lighting scheme in October 2019 (lighting 16 out of 103 x 155m to tip turbines), and furthermore (4) this was a message that he also delivered at SNH's own workshop on Aviation Lighting that was held on 6 November 2019.
	Paragraph 1.2 of the response	As noted in paragraph 5.7 of the SEI, SNH, in their published Wild Land Area descriptions of WLA 28 and 29, include no reference to night characteristics or darkness. Neither did they raise this in their scoping response. Whilst they provide some commentary on this matter in their response of the 2nd July 2019 (Ref. CNS/REN/WF/155235) the explanation is limited to the *"appreciation of remoteness and the sense of sanctuary and solitude which underpin qualities of both WLA 28 and 29."* However, in their latest response of February 2020, SNH suggest that *"the sense of risk is highly likely to be increased after dark once orientating features are no longer visible."* This appears inconsistent

Table 2: Comments and clarification

SNH Response	Reference	Comments
		with their previous response, as the perceptions of risk and sanctuary are contradictory. It is also the case that SNH place reliance upon views from exposed summits and elevated slopes which do not exhibit strong associations of sanctuary. Locations with the greatest degree of sanctuary are likely to be on lower ground where there is enclosure and shelter from the elements. This was illustrated during our night reconnaissance to Beinn Dearg (Viewpoint 14) where hill walkers were observed wild camping by Loch a' Choire Ghranda. No hill walkers were observed during visits to Beinn Wyvis or the Fannichs. With regard to the sense of risk as a result of the lack of orientation, this underplays the degree of orientation provided by lighting associated with vehicles moving along the A835 and the existing turbines lights in the Lochluichart scheme, which are 200 candela, and therefore consistent with the lighting of the proposed development during periods of clear meteorological visibility exceeding 5 km, which would apply to the vast majority of locations with WLA28 and WLA29.
	Paragraphs 2.9, 2.10 and 2.13 of the response (WLA28)	See Table 1 for a detailed summary of visibility of Kirkan turbines within WLA 28. The proposed development would result in negligible additional visibility of wind energy development within the WLA (0.5% of the total area, and only 0.3% of the overall higher value wild land) and would be seen behind the intervening Lochluichart and Corriemoillie turbines. Moreover, as illustrated in Volume 3: Figure 4.20d of the ES, Kirkan turbines would be partially obscured by intervening topography thereby reducing both its prominence and perceived scale. Given the existing context of wind farm development to the east of this WLA it is difficult to reconcile SNH's assertion that the WLA has a high susceptibility in the

Table 2: Comments and clarification

SNH Response	Reference	Comments
		vicinity and that the effect of the proposed development would be substantially greater than these existing turbines. With regard to lighting impacts, SNH's conclusions assume no mitigation of turbine lighting, whilst, as previously noted there is considered a good prospect of the adoption of cardinal or perimeter lighting which would provide effective mitigation of lighting effects, as indicated in Figure 5.5c of the SEI.
	Paragraphs 2.1,	It is noted that SNH acknowledge that the proposed turbines would either be viewed in front of the existing Lochluichart and Corriemoillie cluster or to the side of it, appearing as an extension with little notable physical separation between the schemes. It is also the case that the extent to which the Proposed Development would be seen on its own (i.e. without the adjoining wind farm developments) would be minimal. The Proposed Developments was located outwith areas subject to national and local landscape designation and classifications. It is also in a location where there is an established clustering of development, which is considered preferable to an alternative location that would result in a greater dispersal of wind farm sites with consequent spreading of cumulative effects.
	Paragraph 2.3 (WLA 29)	See Table 1 for a detailed summary of visibility of Kirkan turbines within WLA 29. The proposed development would result in negligible additional visibility of wind energy development within the WLA (1.8% of the total area, and only 1.7 % of the overall higher value wild land). SNH acknowledge the significant effect of the existing wind turbines at Corriemoillie and Lochluichart on wild land characteristics, which suggests that the susceptibility

Table 2: Comments and clarification

SNH Response	Reference	Comments
		of the WLA is lessened, both on the margins of this WLA and in locations from where views to the south are affected. South-western and western aspects, including linking views to WLA28 are generally the most susceptible to new development, being largely untouched by human developments. It is also the case that the prominence of the proposed development would be lessened to a degree by their distance, back clothing and silhouetted appearance to the south of key receptor locations in WLA29 such as Viewpoint 15 at Summit of Meall à Ghrianain.
	Paragraph 2.4	SNH, in paragraph 2.4, acknowledge that lighting is an existing feature experienced from within some parts of the WLAs in the location of the proposal, and that these lights can appear relatively bright. The description of existing cardinal lights as 'flashing' is misleading. The effect of rotor movement on the lights is more akin to flickering as there is no increase in lighting intensity. Moreover, this effect is entirely conditioned by wind direction. Assuming that prevailing wind direction is from the south-west, turbine lights would generally be seen as constant, as the rotors would be faced away from the key viewpoints in the WLA. This is evident in the night baseline image for Viewpoints14 at Beinn Dearg (Ref. Figure 5.6a) and was confirmed during night field reconnaissance. SNH's comments regarding the prominence of other light sources, such as vehicles on the A835 is misleading. Depending on the lighting system used for vehicles, headlight intensity can be as high as 20,000 to 75,000 candela, considerably brighter than aviation lights. Which is why they are often associate with issues of glare and light spray and are designed to illuminate both the road and roadside obstructions making them particularly intrusive. Coupled with vehicle movement, this represents a not inconsiderable distraction when viewed from parts of the WLA. The intermittent nature of vehicle lights far from making them less intrusive can make them more distracting than steady aviation lighting.

Table 2: Comments and clarification

SNH Response	Reference	Comments
		The colour of vehicle lighting (white or blue white) adds to the prominence of vehicle lights and is also notably more prominent than the red of aviation lighting.

Trevor Hunter

From: Wells Andy <Andrew.Wells@caa.co.uk>
Sent: 17 February 2020 12:26
To: Trevor Hunter
Subject: RE: Kirkan Wind Farm proposed development

Hi Trevor,

In principle, the answer is yes to your first question. Clearly if the responses to the consultation throw up some unexpected issues, then we will need to revise the proposal and re consult but I would still expect some form of change within the next 3 years.

In answer to your second question, the principles of ICAO Annex 14 Section 6.2.4 are proposed to be adopted but with further clarification of maximum distances between unlit turbines.

Hope that helps,

Kind regards

Andy

Andy Wells
Policy Lead CNS and Spectrum
Future Safety
Civil Aviation Authority

Tel: 0330 138 3166
Mob: 07786 171876

Follow us on Twitter: @UK_CAA

From: Trevor Hunter <Trevor.Hunter@coriolis-energy.com>
Sent: 17 February 2020 12:15
To: Wells Andy <Andrew.Wells@caa.co.uk>
Subject: RE: Kirkan Wind Farm proposed development

Thanks Andy

Would the plan and expectation be for this to be adopted within the next 3 years then? And would the caveats for consultation be expected to be fundamentally similar to ICAO (as per your email below)?

I will certainly make sure to be subscribed to 'Sky Wise'.

Best regards,

Trevor Hunter
Project Manager
Coriolis Energy

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Address: 22-24 King Street, Maidenhead, Berkshire SL6 1EF

From: Wells Andy <Andrew.Wells@caa.co.uk>
Sent: 17 February 2020 12:00
To: Trevor Hunter <Trevor.Hunter@coriolis-energy.com>
Subject: RE: Kirkan Wind Farm proposed development

Hi Trevor,

Thanks for the enquiry. We are planning to issue an updated CAP764 for consultation at the end of March 2020. This will contain proposals for moving to perimeter lighting for a windfarm, subject to certain caveats.

I would be happy to point you in the direction of the consultation when it is published if you wish or you may receive an alert if you happen to subscribe to the 'Sky Wise' system.

Kind regards

Andy

Andy Wells
Policy Lead CNS and Spectrum
Future Safety
Civil Aviation Authority

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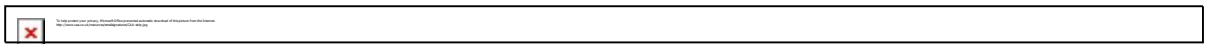

From: Trevor Hunter <Trevor.Hunter@coriolis-energy.com>
Sent: 13 February 2020 15:47
To: Wells Andy <Andrew.Wells@caa.co.uk>; Ian Fletcher <ianfletcher@windbusiness.co.uk>
Subject: RE: Kirkan Wind Farm proposed development
Importance: High

Hello Andy,

Many thanks for your previous response to Ian regarding our 'Kirkan wind farm' cardinal lighting proposals.

Regarding the timing of new CAA policy in this area being adopted, do you think there is a reasonable prospect of this coming into force within the next 3 years? Can you give any update as to current status and timelines?

I would be very grateful if were able to respond in short order as we are under our own timescale pressures for a decision on this scheme. Happy to discuss further over the phone if you'd wish, my details are as shown below (mobile usually best).

Best regards,

Trevor Hunter
Project Manager
Coriolis Energy

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Email: trevor.hunter@coriolis-energy.com
Website: www.coriolis-energy.com
Address: 22-24 King Street, Maidenhead, Berkshire SL6 1EF

From: Wells Andy <Andrew.Wells@caa.co.uk>
Sent: 13 September 2019 09:31
To: Ian Fletcher <ianfletcher@windbusiness.co.uk>
Subject: Kirkan Wind Farm proposed development

Dear Ian,

Thank you for the e-mail and our subsequent discussion on the details of the Kirkan Wind Farm proposed development.

As you are aware, the current requirements for lighting onshore are specified by law in the Air Navigation Order (2016) Article 222. This requires that all obstacles over 150m above ground level are fitted with medium intensity steady red lights positioned as close as possible to the top of the obstacle.

Article 222(6) provides scope for the CAA to grant permission for lighting requirements in accordance "with a particular case or class of cases or generally." In the case of wind turbines above 150m, we have published a policy statement, "Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level" dated 1 July 2017 which provides lighting requirements for all UK land based wind turbine generators which have a maximum blade tip height at or above 150m AGL as follows:

a. The person in charge of the wind turbine generator must ensure that it is fitted with a medium intensity (2000 candela) red light positioned as close as practicable to the top of the fixed structure. A second light serving as an alternative should be provided in case of failure of the operating light.
b. The lights required by paragraph (a) must be so fitted to show when displayed in all directions without interruption.
c. Additionally, at least three (to provide 360 degree coverage) low-intensity Type B6 lights (32 candela) lights should be provided at an intermediate level of half the nacelle height.
…
g. If the horizontal meteorological visibility in all directions from every wind turbine generator in a group is more than 5 km, the intensity for the light positioned as close as practicable to the top of the fixed structure required to be fitted to

any generator in the windfarm and displayed may be reduced to not less than 10% of the minimum peak intensity specified for a light of this type.

The International Civil Aviation Organisation (ICAO) has published updated standards and recommended practices (SARPs) in Annex 14 to the Chicago Convention, Aerodromes, Volume I, Aerodrome Design and Operations 8th edition (Jul 2018)

Lighting

6.2.4.3 **Recommendation.—** *When lighting is deemed necessary, in the case of a wind farm, i.e. a group of two or more wind turbines, the wind farm should be regarded as an extensive object and the lights should be installed:*
a) to identify the perimeter of the wind farm;
b) respecting the maximum spacing, in accordance with 6.2.3.15 [longitudinal intervals not exceeding 900 m for medium intensity lights]*, between the lights along the perimeter, unless a dedicated assessment shows that a greater spacing can be used;*
c) so that, where flashing lights are used, they flash simultaneously throughout the wind farm;
d) so that, within a wind farm, any wind turbines of significantly higher elevation are also identified wherever they are located; and
e) at locations prescribed in a), b) and d), respecting the following criteria:
i) for wind turbines of less than 150 m in overall height (hub height plus vertical blade height), medium-intensity lighting on the nacelle should be provided;
ii) for wind turbines from 150 m to 315 m in overall height, in addition to the medium-intensity light installed on the nacelle, a second light serving as an alternate should be provided in case of failure of the operating light. The lights should be installed to assure that the output of either light is not blocked by the other; and
iii) in addition, for wind turbines from 150 m to 315 m in overall height, an intermediate level at half the nacelle height of at least three low-intensity Type E lights, as specified in 6.2.1.3, should be provided. If an aeronautical study shows that low-intensity Type E lights are not suitable, low-intensity Type A or B lights may be used.

As we discussed, we are minded to adopt the ICAO SARPs in respect of lighting of wind turbines in the interests of enhancing global standardisation and to somewhat reduce the visual impact of obstruction lighting on UK onshore wind turbine developments in the future. We will begin UK stakeholder engagement on this issue shortly, ahead of formal consultation on a change to the policy statement; however we would envisage that this would apply to new developments from the date of implementation and we would not seek to apply any new policy retrospectively to turbines that have been built, are being built or have already received planning consent. However as you might expect, as this is subject to consultation with stakeholders, I am unable to provide a guarantee that the current lighting policy will change.

Taking into account the above, I have reviewed your proposed aviation obstruction lighting plan for the Kirkan Wind Farm proposed development. I am content that the lighting plan appears to be in the spirit of the proposed CAA policy direction and we would like to request additional information relating to the distance between the proposed lit turbines on the perimeter (on account of item 6.2.4.3b of ICAO Annex 14) and heights AMSL of the proposed turbines (on account of item 6.2.4.3d of ICAO Annex 14). Due to the inherent uncertainties with the future content and timescales associated with any change to UK policy, I would highlight that we must agree the final lighting plan prior to construction.

Kind regards

Andy

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