

**IN THE ENVIRONMENT COURT  
WELLINGTON REGISTRY**

**I TE KŌTI TAIAO O AOTEAROA  
TE WHANGANUI-A-TARA ROHE**

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**ENV-2024-WLG-001**

**UNDER** the Resource Management Act 1991

**IN THE MATTER** the direct referral of applications for resource consents by  
under section 87G of the Act for the Mt Munro Wind Farm

**BY** **MERIDIAN ENERGY LIMITED**  
Applicant

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**STATEMENT OF EVIDENCE OF JOHN MCKENSEY**

**ON BEHALF OF TARARUA DISTRICT COUNCIL AND MASTERTON DISTRICT COUNCIL**

**LIGHTING**

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Dated: 23 August 2024

  
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## STATEMENT OF EVIDENCE OF JOHN MCKENSEY

### A. INTRODUCTION

- [1] My name is John Mckensey. I am an Executive Engineer at LDP Ltd (Leading Design Professionals).
- [2] I prepared a report on the application required by s 87F of the Resource Management Act 1991 (**RMA**) on behalf of Manawatū-Whanganui Regional Council (**Horizons**), Wellington Regional Council (**WRC**), Tararua District Council (**TDC**), and Masterton District Council (**MDC**) (the **Consent Authorities**) dated 15 March 2024 (**s 87F Report**).
- [3] In my s 87F Report, I reviewed the application from Meridian Energy Limited (the **Applicant** or **Meridian**) for resource consent applications lodged with the District Councils for the Mt Munro Wind Farm (**Mt Munro Project** or **Project**) in relation to lighting. The s 87F Report provided recommendations to improve or further clarify aspects of the resource consent applications, including with regard to conditions, should the Court be minded to grant resource consents.
- [4] I confirm I have the qualifications and experience set out at paragraphs 5-12 of my s 87F Report.
- [5] On 29 July 2024, I participated in expert conferencing on Lighting, resulting in a joint witness statement dated 30 July 2024 (the **Lighting JWS**). I confirm the contents of the Lighting JWS.

### B. CODE OF CONDUCT

- [6] I repeat the confirmation provided in my s 87F Report that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This evidence has been prepared in accordance with that Code. Statements expressed in this evidence are within my areas of expertise, except where I state I am relying on the opinion or evidence of other witnesses.

**C. SCOPE OF EVIDENCE**

[7] My statement will cover the following:

- (a) The extent to which issues identified in my s 87F Report have been resolved through mediation, Meridian evidence, and expert conferencing;
- (b) A response to section 274 party evidence; and
- (c) Conditions.

[8] In addition to the material that was reviewed for my s 87F Report, I have reviewed the following:

- (a) Statements of Evidence of Glen Wright (Lighting), Thomas Anderson (Planning) and Rhys Girvan (Landscape and Visual Assessment) dated 24 May 2024, on behalf of Meridian;
- (b) The proposed changes to conditions filed with Mr Anderson's evidence (the **Meridian conditions**);
- (c) Further information provided post-mediation from Meridian dated 27 June 2024, 3 July 2024, 11 July 2024, and 26 July 2024;
- (d) Evidence of Janet McIlraith (s 274 party) dated 10 July 2024;
- (e) Evidence of Robin Olliver (s 274 party) dated 10 July 2024;
- (f) Evidence of Hastwell/Mt Munro Protection Society Inc. (s 274 party) dated 10 July 2024;
- (g) Evidence (Social Impact Report) of John Maxwell (s 274 party) dated 10 July 2024;
- (h) Joint Statement of Planning Experts dated 9 August 2024 (**Planning JWS**); and

- (i) The proposed consent conditions attached to the evidence of Mr Damien McGahan on behalf of the Consent Authorities (the **August Proposed Conditions**).

#### **D. OUTSTANDING ISSUES**

- [9] Following mediation, expert conferencing and review of the Meridian evidence and Lighting JWS I have identified no further matters that remain at issue following preparation of my s 87F Report.
- [10] Mr Wright confirmed in his evidence and the Lighting JWS that he agreed with the conclusions and recommendations in my s 87F Report. As a result, there are no outstanding areas of disagreement between us.
- [11] The only outstanding issue arising from my s 87F Report, were my recommendations for conditions.<sup>1</sup> I raised this as a matter to be addressed during expert conferencing as recorded in the Lighting JWS.<sup>2</sup> My recommendations in respect of conditions remain and are reiterated in section F of my evidence.

#### **E. RESPONSE TO SECTION 274 PARTY EVIDENCE**

- [12] I have reviewed the section 274 party evidence of Janet McIlwraith, Robin Olliver, the Hastwell/Mt Munro Protection Society Inc. and John Maxwell. Each of the submitters address lighting matters (summarised below) and I respond with my opinion in relation to the significant matters raised.

##### **Janet McIlwraith**

- [13] Ms McIlwraith has raised concerns that the aviation warning lights will affect their amenity values;<sup>3</sup> attract insects, and predators as a result;<sup>4</sup> and Matariki and the 'dark sky' will be lost as a result of aviation warning lights.<sup>5</sup>

<sup>1</sup> Section 87F Report – John Mckensey (Lighting), 15 March 2024 at [56].

<sup>2</sup> Lighting JWS, at page 5, item 13.

<sup>3</sup> Statement of Evidence of Janet McIlwraith, 10 July 2024, at [20].

<sup>4</sup> At [21].

<sup>5</sup> At [22].

- [14] In my opinion, there will be a potential effect on amenity but principally only in relation to views of the overall vista of the night sky from locations that have direct visibility of the aviation warning lights, and then effects will be low to moderate. As to attracting insects, aviation warning lights are monochromatic red. In general, insects do not tend to see red light<sup>6</sup> and as such are unlikely to be attracted. This was confirmed in the Lighting JWS.<sup>7</sup>
- [15] An aviation warning light will generate a localised effect close to each light. Viewing astronomical phenomena close to the alignment of an aviation warning light will diminish the visibility of the phenomena, but as angular separation increases, visibility will improve rapidly. The enjoyment of a currently dark sky will be affected for sensitive receivers (**Observers**) where an aviation warning light is introduced in their view. The degree of any such effect will vary with location, but in my opinion, any such effects at current dwelling locations that have a view of the wind turbines will be low-moderate.

**Robin Olliver**

- [16] Mr Olliver raises concerns that:
- (a) In comparison to the Pahiatua Track, there will be very bright lights flashing which are disorienting and dangerous especially for motorbike riders;<sup>8</sup>
  - (b) The blades will pass in front of the mid tower lower lights, so they appear to be flashing on and off;<sup>9</sup>
  - (c) The lower lights will be very visible on the dull and foggy days;<sup>10</sup>
  - (d) They'll no longer be able to see Matariki or the stars, and the lights may affect the Dark Sky reserve;<sup>11</sup> and

<sup>6</sup> National Light Pollution Guidelines for Wildlife – May 2023 – Australian Government – Figure 2 (Comparative light perception among different species groups).

<sup>7</sup> Lighting JWS, at page 5, item 11.

<sup>8</sup> Statement of Evidence of Robin Olliver, 10 July 2024, at page 4.

<sup>9</sup> At page 4.

<sup>10</sup> At page 4.

<sup>11</sup> At pages 4-5.

- (e) The bright flashing red aviation lights may impact on their ability to carry out daily activities, and sleeping patterns.<sup>12</sup>

- [17] I note the wind turbines on the Pahiatua Track are close to the road, with six turbines within 300m of the road. One is approximately 80m away from the road. At such distances, the aviation warning lights will appear much brighter than they will for the viewing distances expected between an Observer and the Mt Munro wind turbines. The visibility of any red light cast onto the tower or surrounds will also become much less evident with distance.
- [18] While the blades will pass in front of the mid tower lower lights, the considerably lower intensity of these lights relative to the intensity of the high level lights will mean that at the Observer distances expected at Mt Munro, the flashing effect will be much less evident.
- [19] Dull (i.e. overcast) conditions would make little, if any difference to the visibility of the mid-tower lights. Foggy conditions will diffuse the light such that the source will be less obvious but there will be more of a glow in the air close to the light. However, in my view, the Observer distances are such that any such effect will be negligible.
- [20] In relation to the visibility of Matariki and the stars, I refer to the discussion above at paragraph [15]. As to the effect on the dark sky reserve, this issue was addressed in my s 87F Report, where I noted that the wind turbine lighting will not affect the status of this reserve.<sup>13</sup>
- [21] The aviation warning lights will only be visible when looking generally towards a turbine, so not all views will be affected. While there can be a distracting effect when looking at the lights, at the Observer distances involved I consider any such effects are very unlikely to be sufficient to cause any significant issues for carrying out daily activities.
- [22] The Observer distances are such that there will be no measurable illuminance/light spill at any residence. If there is no direct line of site from a bedroom window to a turbine, there will be no noticeable effect from the

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<sup>12</sup> At page 5.

<sup>13</sup> Section 87F Report – John Mckensey (Lighting), 15 March 2024, at page 19.

Aviation lights to a person in the bedroom. Only if the Observer has a bedroom window providing a direct line of sight to a turbine and there is no screening (e.g. curtains/blinds/foilage/buildings/topography/etc), could they potentially be aware of a light changing state. However, even then, the effect will be no more than low in my opinion.

#### **Hastwell/Mt Munro Protection Society Inc**

- [23] The Society disagrees with Mr Wright's conclusion that, *"Aside from the aviation warning lights, the proposal does not include any lighting that is on throughout every night"*, citing Civil Aviation Authority (CAA) requirements.<sup>14</sup>
- [24] I agree with Mr Wright. The lighting mentioned in the CAA requirements is entirely for the purpose of warning aviation of a potential hazard.
- [25] A further concern relates to the brightness of the flashing aviation lights on the nacelles, referring to experience of driving the Tararua ranges at night.<sup>15</sup>
- [26] I note the apparent brightness of the lights is influenced by distance. One example is our Sun. It is a star, with much the same order of brightness as many others we see in the night sky. However, our Sun is much closer than the other stars and thereby too bright to look at directly. Whereas other more distant stars are comfortable to view. The existing wind turbines located beside the Pahiatua Track in the Tararua Ranges are very close to the road. The wind turbines at Mt Munro will be considerably further from Observers and as such the related effects will be significantly less.

#### **John Maxwell**

- [27] Mr Maxwell raises concerns that mid-tower lighting will illuminate the tower;<sup>16</sup> residences further away from the turbines will still be affected by

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<sup>14</sup> Statement of Evidence of Hastwell/Mt Munro Protection Society Inc, 10 July 2024, at page 11.

<sup>15</sup> At page 11.

<sup>16</sup> Statement of Evidence of John Maxwell, 10 July 2024, at [31].



the ground-shielded lights;<sup>17</sup> and proposes possible mitigation by using radar technology to switch on tower lighting when aircraft approach.<sup>18</sup>

- [28] The proposed mid-tower lights have a very low intensity. I am of the opinion that any lighting effect on the tower will be negligible when viewed from the location of an Observer.
- [29] “Ground shielding” (otherwise known as optically controlled or omni-directional lighting) is a means of lessening effects of the warning lights located at the top of the nacelle. It is also discussed in the Lighting JWS.<sup>19</sup> Even distant observers will benefit provided they are below the height of the light.
- [30] The question of radar technology was addressed in the Lighting JWS.<sup>20</sup> While radar technology exists and is used in a number of countries at present, it has yet to be used in New Zealand. Importantly the technology has not been approved by the CAA and cannot be used at this time.

#### **F. CONDITIONS**

- [31] Mr Wright and I agreed in conferencing that all of the conditions recommended in my s 87F Report<sup>21</sup> should be included in the condition set for the Project.<sup>22</sup> The Planning JWS confirmed that the conditions should be updated in accordance with this recommendation.<sup>23</sup>
- [32] I have since reviewed the August Proposed Conditions and am comfortable that these conditions have been carried over in an appropriate manner.

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<sup>17</sup> At [31].

<sup>18</sup> At [31].

<sup>19</sup> Lighting JWS, at page 4, item 6.

<sup>20</sup> Lighting JWS, at page 4, item 9.

<sup>21</sup> Section 87F Report – John Mckensey (Lighting), 15 March 2024, at [58].

<sup>22</sup> Lighting JWS, at page 5, item 13.

<sup>23</sup> Planning JWS, at page 14.

**G. CONCLUSION**

- [33] The potential light sources associated with the Project and the nature and time of use of the lighting is described in detail in the evidence of Mr Wright, which I agree with.
- [34] All of the potential light sources, except for aviation warning lights, will be infrequently used and/or present only over a short duration, such that effects will be no more than low in my opinion.
- [35] The aviation warning lights as proposed are the minimum required by the CAA for compliance and as proposed by Meridian will include additional control for downward lighting components to further mitigate effects.
- [36] In my opinion, the effects of the aviation warning lights, and thereby the overall lighting effects of the Project, will be low to moderate, or no more than minor, provided my recommended conditions are adopted.

**23 August 2024**

**John Mckensey**