



# Appendix 7.1

## **LVIA Constraints and Options Considered**

**Coolglass Wind Farm EIAR Volume 3**

**Coolglass Wind Farm Limited**

SLR Project No.: 501.V00727.00006

26 June 2023



<b>Project Name / County</b>	<b>Fossy Wind Farm</b>
<b>Desk Study</b>	
Key features of development (in terms of LVIA)	<ul style="list-style-type: none"> <li>• Four turbine clusters distributed across multiple elevated areas within a rolling plateau of farmland and forestry in south County Laois</li> </ul>
Study Area Radius	<ul style="list-style-type: none"> <li>• 20 km from edge of array</li> </ul>
ZTV Considerations	<ul style="list-style-type: none"> <li>• To Follow ...</li> </ul>
Relevant County Development Plans	<ul style="list-style-type: none"> <li>• Laois</li> <li>• Kilkenny</li> <li>• Kildare</li> <li>• Carlow</li> </ul>
Relevant Landscape Character Areas / Sensitivity ratings	<p>Laois</p> <ul style="list-style-type: none"> <li>• Hills and Upland Character Area <i>“The hills also act as orientating features. The Seven Hills, Cullenagh, Cullahill, <u>Fossy Mountains</u> and the upland areas around Swan, Luggacurren and Wolfhill are prominent by virtue of landmarks at their summits as well as their topography: A church on the Wolfhill acts as a prominent local landmark.”</i></li> <li>• Lowland Agricultural Landscape Character Area in the wider study area</li> </ul> <p>Kilkenny</p> <ul style="list-style-type: none"> <li>• Castlecomer Plateaux Landscape Character Area (B).</li> <li>• Castlecomer Western Transition Character Area (B2)</li> <li>• Kilkenny Northern Basin Character Area (F1)</li> <li>• Nore Valley (South) Character Area (H)</li> </ul> <p>Kildare</p> <ul style="list-style-type: none"> <li>• Southern Lowlands Character Area (Low Sensitivity)</li> <li>• River Valley Character Area (High Sensitivity)</li> </ul> <p>Carlow</p> <ul style="list-style-type: none"> <li>• Central Lowlands Character Areas</li> </ul>

	<p><i>“The Central lowlands character area is deemed to be moderately sensitive to development. It has capacity to absorb most types of development subject to the implementation of appropriate mitigation measures.”</i></p> <ul style="list-style-type: none"> <li>• Killeshin Hills Character Areas <i>“The area is almost entirely a rural agricultural landscape with a moderate level of sensitivity and moderate potential capacity to absorb different types of development”</i></li> <li>• Variety of landscape types within the above character areas <i>within</i> the study area: <ul style="list-style-type: none"> <li>○ Broad River Valley</li> <li>○ Built up areas (Carlow)</li> <li>○ Farmed Lowland</li> <li>○ Farmed Ridges</li> <li>○ Uplands</li> </ul> </li> <li>• Sensitivity rated separately to the landscape character areas:</li> </ul> <p><b>Sensitivity Mapping</b></p> <table border="1" data-bbox="443 936 1380 1344"> <thead> <tr> <th></th> <th colspan="5">SENSITIVITY</th> </tr> <tr> <th></th> <th>1 Least</th> <th>2 Decreasing</th> <th>3 Moderate</th> <th>4 Increasing</th> <th>5 Most</th> </tr> </thead> <tbody> <tr> <td>Built Up Areas</td> <td style="background-color: #90EE90;"></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Farmed Lowland</td> <td></td> <td style="background-color: #FFFF00;"></td> <td style="background-color: #FFFF00;"></td> <td style="background-color: #FFA500; text-align: center;">*</td> <td></td> </tr> <tr> <td>Broad River Valley</td> <td></td> <td></td> <td></td> <td style="background-color: #FFA500;"></td> <td></td> </tr> <tr> <td>Farmed Ridges</td> <td></td> <td></td> <td></td> <td style="background-color: #FFA500;"></td> <td></td> </tr> <tr> <td>Narrow River Valley</td> <td></td> <td></td> <td></td> <td></td> <td style="background-color: #FF0000;"></td> </tr> <tr> <td>Rolling Rough Grazing</td> <td></td> <td></td> <td></td> <td></td> <td style="background-color: #FF0000;"></td> </tr> <tr> <td>Uplands</td> <td></td> <td></td> <td></td> <td></td> <td style="background-color: #FF0000;"></td> </tr> </tbody> </table> <p><small>Table 1 Assignment of Landscape Sensitivities to Principal Landscape Character Areas and Landscape Types from Locil and Cregan 2011 [Note that Farmed Lowland is classified as Increasing Sensitivity Level 4 south of Borris on account of small scale and proximity and inter-visibility with River Valleys and Uplands]</small></p>		SENSITIVITY						1 Least	2 Decreasing	3 Moderate	4 Increasing	5 Most	Built Up Areas						Farmed Lowland				*		Broad River Valley						Farmed Ridges						Narrow River Valley						Rolling Rough Grazing						Uplands					
	SENSITIVITY																																																						
	1 Least	2 Decreasing	3 Moderate	4 Increasing	5 Most																																																		
Built Up Areas																																																							
Farmed Lowland				*																																																			
Broad River Valley																																																							
Farmed Ridges																																																							
Narrow River Valley																																																							
Rolling Rough Grazing																																																							
Uplands																																																							
<p>Relevant Scenic Route / View Designations</p>	<p>Laois</p> <ul style="list-style-type: none"> <li>• Scenic Views directed at the site are located along the N80</li> <li>• View closest to site facing AWAY (North)</li> </ul> <p>Kilkenny</p> <ul style="list-style-type: none"> <li>• Not directed at site</li> </ul> <p>Kildare</p> <ul style="list-style-type: none"> <li>• The Barrow River Corridor – Many bridges as scenic views in Co. Kildare Plan. (Listed North – South) <ul style="list-style-type: none"> <li>○ Dunrally Bridge</li> <li>○ Milltown Bridge</li> <li>○ Bert Bridge</li> <li>○ Bunberry Bridge</li> <li>○ Mill Bridge</li> <li>○ Tankardstown Bridge</li> <li>○ Maganey Bridge</li> </ul> </li> </ul>																																																						



	<ul style="list-style-type: none"> <li>○ Greese Bridge</li> <li>● Scenic views from Co. Kildare – View 24 (Views across Barrow Valley) between R415 and N78 at Burtown (L8017)</li> </ul> <p>Carlow</p> <ul style="list-style-type: none"> <li>● Scenic Routes 6, 7, 8, 9</li> <li>● Views/Prospects 22, 23, 31, 32, 33</li> </ul>
Wind Energy Strategy Designation	<ul style="list-style-type: none"> <li>● 'Area not open to consideration' as per the vast majority of the County.</li> </ul>
Key settlements / distances	<ul style="list-style-type: none"> <li>● <b>Portlaoise</b> – 10km</li> <li>● Abbeyleix – 10km</li> <li>● <b>Carlow</b> – 11km</li> <li>● Stradbally – 7.5km</li> <li>● Timahoe – 2.5km</li> <li>● Swan – 1.5km</li> <li>● Newtown – 1.5km</li> <li>● Castlecomer – 11km</li> <li>● <b>Athy</b> – 12km</li> <li>● Ballyroan – 8km</li> <li>● Ballylynan (Ballylinan?) – 7km</li> <li>● Leighlinbrindge – 18km</li> <li>● Castledermot – 20km</li> <li>● Durrrow – 16km</li> </ul>
Major Routes / nearest point	<ul style="list-style-type: none"> <li>● M9 – 15km</li> <li>● M7 – 10km</li> <li>● N78 – 2km</li> <li>● N80 – 4km</li> <li>● N77 – 10km</li> </ul>
Local Housing characteristics	<ul style="list-style-type: none"> <li>● Individual farmsteads and rural lifestyle dwellings amongst proposal</li> <li>● Clusters/ ribbons at many road intersections</li> <li>● Settlements as identified above</li> </ul>
Key amenity and heritage features	<p>Historic/Amenity attractions</p> <ul style="list-style-type: none"> <li>● Rock of Dunamase (10km) (Key feature)</li> <li>● Timahoe Round Tower (2.5km)</li> <li>● Barrow way (12km)</li> <li>● De Vesci Estate (13km)</li> <li>● Emo Court &amp; Demesne (17km)</li> <li>● Stradbally Hall and Park/Festival venue (6km)</li> <li>● Burton House and Gardens (19km)</li> <li>● Ballinubbert Gardens and House (7km)</li> <li>● Kilkea Castle Hotel and Golf Resort (16km)</li> <li>● Pass of the Plumes (8km)</li> <li>● Durrrow Castle (16km)</li> <li>● Edge of Ballyfin Estate/Demesne (20km)</li> </ul>



	<p>Nature and Landscape Attractions</p> <ul style="list-style-type: none"> <li>• Abbeyleix Bog Reserve (12km)</li> <li>• Castlecomer Discovery Park (8km)</li> <li>• Oughaval Woods Walks (6km)</li> <li>• Durrow Woods Walks (15km)</li> <li>• Moore Abbey Woods (20km)</li> <li>• Mullaghreelan Wood/Rath (17km)</li> <li>• Rockview walkways (8km)</li> <li>• Cullenagh Mountain (5km)</li> <li>• Barrow River</li> <li>• River Nore</li> </ul>
<p>Ecological Designation (indicating landscapes of naturalistic value)</p>	<p>Overall (from Geohive):</p> <ul style="list-style-type: none"> <li>• River Barrow and River Nore SAC</li> <li>• Ballyprior Grassland SAC</li> <li>• Clonreher Bog NHA</li> <li>• Coan Bogs NHA</li> <li>• Lisbigney Bog Proposed NHA</li> <li>• Timahoe Esker Proposed NHA</li> <li>• Ballylynan Proposed NHA</li> <li>• Clopook Wood Proposed NHA</li> <li>• River Nore/Abbeyleix Woods Complex Proposed NHA (Freshwater pearl mussel habitat, mixed deciduous woodland of great antiquity)</li> <li>• River Nore SPA</li> </ul>
<p><b>Notes Following Fieldwork</b></p>	
<p>No. of VPs captured / likely</p>	<p>Nine key views captured to date to be used for options analysis and design refinement / Another c. 20 views likely to be required for the full LVIA</p>
<p>Wireframe montages necessary?</p>	<p>Yes/ to examine the four initial array options from key receptor locations</p>



VP No.	No. of turbines potentially visible (wireframe overlay)	Nature of visibility (comparison)	Option scoring (1 – most preferred, 4 least preferred)	Potential for significant impacts
VP1	<p>Option 1 = 2 full, 1 partial  Option 2 = 3 full, 2 partial  Option 3 = 2 full, 4 partial  Option 4 = 3 full, 4 partial</p>	<p>Two turbines from Option 1 seen in a clear and unambiguous manner rising over the nearby forested ridge. Each successive option adds turbines, partial blades sets and blade tips to the scene generating greater degrees of clutter intensity and ambiguity.</p> <p>The scale differential between turbines is not readily discernible and the turbines do not appear visually overbearing.</p>	<p>Option 1 = 1  Option 2 = 2  Option 3 = 3  Option 4 = 4</p>	No (for all options)
VP2	<p>Option 1 = 2 full, 4 partial  Option 2 = 3 full, 5 partial  Option 3 = 3 full, 7 partial  Option 4 = 4 full, 13 partial</p>	<p>Less than 5 turbines from Option 1 likely to be intermittently visible from this general area over different parts of the nearby forested ridge. The scheme has reasonable scale but low intensity. Each successive option adds turbines, partial blades sets and blade tips to the scene generating greater degrees of clutter intensity and ambiguity.</p> <p>The scale differential between turbines is not readily discernible and the turbines do not appear visually overbearing</p>	<p>Option 1 = 1  Option 2 = 2  Option 3 = 3  Option 4 = 4</p>	No (for all options)
VP3	<p>Option 1 = 5 full  Option 2 = 6 full, 2 partial  Option 3 = 6 full, 2 partial  Option 4 = 8 full, 4 partial</p>	<p>five turbines from Option 1 are seen in a clear and unambiguous manner rising over the nearby farmed / forested ridge with a loose and even spacing and profile that matches the underlying ridge. Each successive option adds turbines, partial blades sets and blade tips to the scene generating greater degrees of clutter and intensity whilst upsetting the legible spacing.</p>	<p>Option 1 = 1  Option 2 = 2  Option 3 = 3  Option 4 = 4</p>	Marginal (for all options)



		The scale differential between turbines is not readily discernible and the turbines appear equally overbearing relative to the middle distance dwelling		
<b>VP4</b>	<p>Option 1 = 4 full, 1 partial</p> <p>Option 2 = 8 full, 1 partial</p> <p>Option 3 = 8 full, 1 partial</p> <p>Option 4 = 10 full, 2 partial</p>	Of all views, this one illustrates the benefit of fewer (marginally taller) turbines relative to the greater number of turbines of each successive array. Option 1 is legible and orderly with a modest intensity. By comparison, Option 4 is cluttered and disorderly with excessive intensity.	<p>Option 1 = 1</p> <p>Option 2 = 2</p> <p>Option 3 = 3</p> <p>Option 4 = 4</p>	No (for all options)
<b>VP5</b>	<p>Option 1 = 1 full, 4 partial</p> <p>Option 2 = 1 full, 7 partial</p> <p>Option 3 = 1 full, 8 partial</p> <p>Option 4 = 2 full, 11 partial</p>	<p>Despite being located near the centre of the overall scheme this open and elevated location has limited views of turbines and shows the absorption capacity of the undulating plateau ridge. All views of turbines are ambiguous with the greater numbers of turbines adding to clutter.</p> <p>The scale differential between turbines is not readily discernible and the turbines do not appear visually overbearing.</p>	<p>Option 1 = 1</p> <p>Option 2 = 2</p> <p>Option 3 = 3</p> <p>Option 4 = 4</p>	No (for all options)
<b>VP6</b>	<p>Option 1 = 9 full, 2 partial</p> <p>Option 2 = 12 full, 4 partial</p> <p>Option 3 = 13 full, 5 partial</p> <p>Option 4 = 16 full, 6 partial</p>	<p>The turbines from all options are going to be a dominating visual presence across the forested plateau, but only for Option 2 and Option 4 is that presence likely to feel physically overbearing due to the close proximity of the nearest turbine.</p> <p>There is a relaxed and relatively even spacing of turbines for Option 1 but the increasing numbers of turbines for each subsequent array result in clutter and overwhelming intensity.</p>	<p>Option 1 = 1</p> <p>Option 2 = 3</p> <p>Option 3 = 2</p> <p>Option 4 = 4</p>	Marginal for Option 1, Yes for all other options



		<p>The middleground turbine/s serves as a link between the near and far clusters and there is likely to be a greater sense of separation and reduced intensity without them (all options)</p> <p>The scale differential between turbines is not readily discernible.</p>		
<b>VP7</b>	<p>Option 1 = 8 full, 5 partial  Option 2 = 10 full, 8 partial  Option 3 = 9 full, 9 partial  Option 4 = 12 full, 14 partial</p>	<p>The turbines from all options are going to be prominent and extensive across the forested plateau, but the nearest turbine/s form the small cluster has a dipropionate effect on scale as without it/them the other clusters are all middle distance / lower ground.</p> <p>There is a relaxed and relatively even spacing of turbines for Option 1 but the increasing numbers of turbines for each subsequent array result in clutter and considerable intensity, particularly to the east.</p> <p>The small nearest turbine cluster provides ambiguity to the layout and will result in the sense of a surrounding continuum of turbines rather than 2/3 discrete clusters. Surprisingly, the ambiguity is less for option 4 where there are 3 turbines in this cluster rather than 1 isolated one as there is for all other options.</p> <p>The scale differential between turbines is not readily discernible.</p>	<p>Option 1 = 1  Option 2 = 2  Option 3 = 3  Option 4 = 4</p>	<p>Marginal for Options 1 &amp; 2, Yes for Options 3 &amp; 4</p>
<b>VP8</b>	<p>Option 1 = 2 full, 3 partial  Option 2 = 2 full, 4 partial  Option 3 = 2 full, 4 partial  Option 4 = 3 full, 4 partial</p>	<p>The only notable difference between the Options is that Option 4 has three fully visible turbine beyond the clubhouse, whereas there are only two for the other options.</p> <p>The scale differential between turbines is not readily discernible and the turbines do not appear visually overbearing.</p>	<p>Option 1 = 1  Option 2 = 2  Option 3 = 3  Option 4 = 4</p>	<p>No (for all options)</p>





<b>VP9</b>	Option 1 = 5 full, 2 partial Option 2 = 7 full, 2 partial Option 3 = 8 full, 2 partial Option 4 = 9 full, 4 partial	<p>The main consideration here is the nearest north-eastern cluster. The nearest turbines are slightly overbearing in terms of scale relative to the foreground dwellings, but they are also quite consolidated in a lateral sense. Whilst Option 1 is a consolidated cluster of five turbines, the additional turbines for each subsequent array add clutter and intensity.</p> <p>The scale differential between turbines is not readily discernible and the turbines do not appear visually overbearing</p>	Option 1 = 1 Option 2 = 2 Option 3 = 3 Option 4 = 4	No (for all options)



## Conclusion and Recommendations

Based on the analysis outlined above, the following key points can be made;

- The receiving landscape is not unduly constrained in terms of sensitive landscape designation and scenic route / view designations in any of the relevant County Development Plans.
- Notwithstanding, the absence of prohibitive landscape and visual designations, the Wind Energy Strategy for County Laois would tend to preclude development on this site as it does for almost all of the County. However, like several other neighbouring Counties, Laois has taken an approach to their Wind energy Strategy that contradicts national policy to promote facilitate renewable energy and this would otherwise appear to be an appropriate location. Furthermore, An Bord Pleanála have recently overridden contradictory Local Authority policy where it is deemed to contradict broader objectives (see Garreenleen Solar Farm in County Carlow)
- This is a gently rolling upland plateau with broad landform and land use patterns that can assimilate a wind farm of this scale and extent and where even tall turbines do not generally appear overbearing or generate conflicts of scale. However, this can occur locally where several large turbines are seen in close proximity to intervening dwellings. Separation distance from nearest dwellings should be maximised insofar as possible, particularly in the context of uphill views which tend to exacerbate the scale conflict.
- There is a barely discernible difference in the size of turbines across the four design options as 20m if difference in tip height is not that great in the context of c.180m tall WTGs. Consequently, the layout with the least number of turbines (Option 1 – 13 turbines) is the preferred option by a considerable margin in nearly all of the views analysed. The obvious trend thereafter is for increasing degree of clutter and intensity for each layout as the number of turbines increased.
- Not only does the higher number of turbines for the likes of Option 4 result in turbine overlap clutter and intensity, it is a less consolidated layout resulting in turbines being visible across a broader lateral extent and a likely stronger sense of being surrounded by turbines for nearest residential receptors. Further to this point, the single turbine / small cluster at Knocklead has the effect of linking the two larger clusters when they might better be perceived as discrete clusters. It also contributes disproportionately (for one turbine) to the potential for residents in the Brennanshill and Aghadreen areas to feel surrounded by turbines. Consideration should be given to dropping it, or alternatively, adding to it to form a proper cluster. The development would also be much more consolidated without the pair of southern turbines even though they do not result in any particular issues of overbearing or poor aesthetics.

