



- Legend:**
- Proposed Turbines
 - 10km Radii
 - 45km Study Area
 - ⊙ Viewpoint

Intensity of Turbine Light shown in Candelas (cd)

Vertical angle	Turbine Lighting Intensity	
	2000cd scenario	200cd scenario
Above 6°	<100cd	<10cd
2° to 6°	775 to 100cd	77.5 to 10cd
0° to 2°	2100 to 775cd	210 to 77.5cd
0° to -1°	2100 to 750cd	210 to 75cd
-1° to -2°	750 to 75cd	75 to 7.5cd
-2° to -3°	75 to 32cd	7.5 to 3.2cd
-3° to -4°	32 to 13cd	3.2 to 1.3cd
Below -4°	<13cd	<1.3cd

Notes

- The lighting intensity for each of the vertical angles shown is based on information provided by an aviation warning light manufacturer (see TA 5.1).
- Reduced intensity turbine lighting (200cd) based on 'Air Navigation Order 2016 (CAP393) Article 223 (8) which allows the 2000cd turbine light to be 'reduced to not less than 10% of the minimum peak intensity specified' i.e., 200cd 'if visibility in all directions from every wind turbine generator in a group is more than 5km'.
- Perception of theoretical candela intensity does not take account of distance.
- ZTV calculations do not take into account surface features such as forestry or buildings.
- ZTV calculations for turbine lighting intensity are based on visible aviation lighting mounted on the turbine nacelle.
- The ZTV calculates the degree of vertical angle from the study area shown to each of the Proposed Development turbines.
- ZTV calculations represent a worst-case situation where predicted lighting intensity may be as a result of only one turbine in the layout.

Hub:	164m	Observer height:	2m
DTM:	OS T5/T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included

Coordinate System: British National Grid
 Projection: Transverse Mercator
 Datum: OSGB 1936
 Units: Meter



- Viewpoints**
1. Doughnot Hill
 2. Minor road (John Muir Way/NCR 7) north of site
 3. A82 near Bellsmyre Roundabout (A813 junction)
 4. Balloch Country Park access road
 5. A811 Near Balloch
 6. The Whangie
 7. Duncryne Hill
 8. Dumbarton Rock
 9. Cameron House seaplane jetty
 10. Langbank
 11. Inchcailloch
 12. Endrick Viewpoint
 13. Finlaystone Estate
 14. WHW Near Drymen
 15. Ben Bowie
 16. Dumgoyne Hill
 17. Balmaha Harbour
 18. Port Glasgow
 19. Conic Hill
 20. Waterbus
 21. Bat a Charchel
 22. Balfron Cemetery
 23. Luss Campsite
 24. Salloch
 25. Lyle Hill, Greenock
 26. Beinn Dubh
 27. Inverbeg
 28. Misty Law
 29. Ben Lomond
 30. Dunoon
 31. Ben Venue
 32. Tarbet
 33. Ben Ledi

Rev	Date	Description	Drn	Chk	App
01	25/09/2023	First Draft	SH	AW	JW

Vale of Leven Wind Farm



TITLE: Figure 5.9c
 Lighting Intensity ZTV
 (45km Radius)

ID:P663510_TAG000_Layout_A3_L

