

Lighting and Marking of Wind Farm Turbines

1. Purpose and Scope	2
2. Authority	2
3. References.....	2
4. Conditions and Limitations	2

1. Purpose and Scope

To ensure consistent conditions and limitations are imposed in determinations made under Part 77 in relation to wind farm turbines.

2. Authority

The Manager Aeronautical Services is the owner of this document and is responsible for the regular review and maintenance of this document. The Manager Aeronautical Services is responsible for ensuring that this document follows and meets the Responsibility, Application, Accountability, Monitoring, Approval/Amendments and Availability criteria described in the [Development and Control of CAA Policies and Procedures](#).

3. References

Rule 77.19(a) requires the Director to determine any structure 120 m or higher is a hazard in navigable airspace.

Rule 77.19(h) allows the Director to determine, based on the circumstances of each proposal, if a structure between 60 m and 120 m high is a hazard in navigable airspace.

Rule 77.21 (d) allows the Director to impose conditions or limitations for the marking and lighting of structures.

4. Conditions and Limitations

Unless the aeronautical study finds that there are specific circumstances that:

- (a) require a higher level of lighting or marking; or
- (b) in the case of wind farms with turbines between 60 m and 120 m, allow a lower level of marking or lighting;

the following minimum conditions and limitations are to be included in all determinations:

1. Selected individual turbines at wind farms with turbines over 60 m high will be required to have lighting.
2. The highest turbines, those at the extremities of the site, and other turbines around the perimeter of the site will be lit.¹ The spacing between lit turbines will not exceed 1 NM (1850 m).²
3. Lighting will be medium intensity red as defined in Rule Part 77, Appendix B10, i.e. an effective intensity of not less than 1600 candela of red light, and will flash between 20 and 60 times per minute.
4. The obstruction lights shall be located on or above the top of the nacelle, shall be visible from all directions, and may be shielded below the horizontal plane.
5. Obstruction lights at intermediate levels will not be required.
6. The painting of turbines with obstruction marking will not be required.

¹ The objective in marking or lighting obstacles is to ensure pilots will see them with sufficient time to be able to avoid them. Assuming the time to react and avoid the obstacle is 1 minute, and that the aircraft is travelling at 180 knots, the obstacle (or lighting) must be visible from 3 NM. This is consistent with the minimum visibility requirement of 5 km (2.7 NM) for VFR operations in uncontrolled airspace.

² Obstruction lights with a spacing of 1 NM will subtend an angle of 19° at 3 NM so both lights will be well within the normal field of view of a pilot. Closer spacing of the lights is therefore considered unnecessary.

7. All wind farms will be depicted on aeronautical charts.