Wind Turbine Consultation Map Legend

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Tervuursesteenweg 303 B-1820 Steenokkerzeel
Dienst Urbanisme - Service Urbanisme

This Wind Turbine Consultation Map was drawn up by Belgocontrol to offer wind turbine building developers a better insight into their project's success rate regarding the aspects that are under the responsibility of Belgocontrol.

DISCLAIMER

The map reflects the situation as it is in June 2017. [Please always check our website for the latest version.] Below you can find the criteria as they are applied by Belgocontrol.

A review of the wind turbines' construction in light of the map and the criteria never replaces the preliminary or formal opinion of Belgocontrol. A request always has to be submitted following the established procedure (urba@belgocontrol.be, through the Belgian Civil Aviation Authority (DGLV/DGTA), the competent authority or through the *Omgevingsloket*).

The Wind Turbine Consultation Map is drawn up for wind turbines with a maximum tip height of 200 m. For larger turbines, as well as for wind farms as from 20 turbines (including turbines that have already been built and/or licensed) or as from 10 turbines depending on their geographical location, an ad hoc assessment will always be necessary and this map will not provide a basis.

In evaluating the possible impact of a wind turbine, its blades are always taken into account. If the blades enter a certain zone (orange, red, hatched,…), the complete wind turbine will then be analysed based on the entered zone. Wind turbines that already have been licensed or built, as well as requests for which a favourable preliminary opinion was delivered, are taken into consideration in the evaluation, because of the possible cumulative effect of a cluster of wind turbines.

There is no specific formula regarding height, number and location on which it can be predicted whether and how many turbines can be allowed in the vicinity of a radar without them having an (inadmissible) impact on aviation. Every building permit has to be examined separately, in relation to the specific aviation activities and to the turbines that have already been built on and/or licensed for that specific location.

Wherever possible Belgocontrol will propose mitigating solutions or continue consultation rounds in order to deliver its opinions.

If it would be decided, against the negative opinion of Belgocontrol, to build wind turbines, Belgocontrol cannot be held responsible for any possible consequences.

PROCESS

The Urbanism service receives all requests, centralizes and processes the studies and evaluations, communicates with external parties and sends out the motivated opinions.

In evaluating the case files, the Urbanism service make use of qualified experts if necessary (operational, communication, navigation, surveillance and meteorology). Every request for opinions on wind turbines is analysed with regard to its potential impact on the technical installations (among other things those for communication, navigation and surveillance) that Belgocontrol manages.

It is also examined whether the wind turbines' construction at the requested location does not hamper operations or flight procedures at the airports that Belgocontrol controls.

CRITERIA

The criteria that Belgocontrol uses are based on existing ICAO regulations, studies carried out for Belgocontrol, on international studies that Belgocontrol participated in (among other commissioned by Eurocontrol), on international guidelines, on information exchanged in various fora in which Belgocontrol actively participates (ICAO, Eurocontrol, etc.), on experience of other ANSPs and on Belgocontrol's own experience.

Those criteria are shown in colour on the map (contours, hatched and completely coloured zones). Within a CTR various criteria overlap (installations and procedures). It is not possible to visualize the overlaps; in such cases the most stringent criterion is shown on the map.

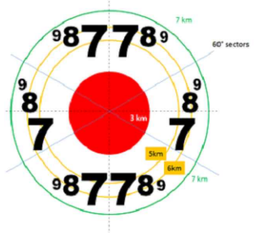
The various zones are:

- light blue clear zone: in this zone only a simple in-company study will be carried out for the construction of a restricted number of wind turbines (< 20) with a maximum height of 200 m, taking into account the MSA (Minimum Sector Altitude), and depending on the geographical specifications of the location with regard to the Belgocontrol installations and procedures.
- orange zones: in those zones there is always an impact on the Belgocontrol installations and/or operations. A more thorough study has to be conducted.

  The contours of the orange zone clearly indicate which equipment or operations have to be protected. As far as visually possible it is indicated where various restrictions overlap.
  - dark blue contours: protection of the CTR including a 1.5 nm buffer;
  - blue contours: PANS-OPS box (at 55 km of the ARP (Aerodrome Reference Point);
  - light blue contours: MSA (Minimum Vectoring Altitude);
  - hatched blue zone: PANS-OPS zone, at 15 km of the ARP (Aerodrome Reference Point);
  - green contours: protection of DVOR/DME/RDF/NDB (Navaids);
  - pink contours: protection of the radar (primary and/or secondary) in a 10-16 km radius around the radar. In almost all cases, primary and secondary radars are physically placed on top of each other. It is always necessary to carry out an external study for this zone;
- red zones: in those zones there is an unacceptable impact of the wind turbines on the Belgocontrol installations and/or procedures.
  - green contours: in the zone within a 0-3 km radius around the DVOR and RDF no wind turbines are allowed.
  - pink contours: in the zone within a 0-10 km radius of the radars (primary and/or secondary) no wind turbines are allowed. For establishing this no-go zone Belgocontrol based itself on numerous external studies that show that neither positive opinions nor mitigating solutions are possible.
  - red contours: in the zone within a 0-1 km radius around the NDB no wind turbines are allowed.
- hatched red zone: protection zone for Defence, namely the Koksijde CTR and the Florennes TMA. In those zones Defence uses the Belgocontrol radars and clutter on its radar images is unacceptable.
- purple zone (International Airport of Kortrijk-Wevelgem): requests for wind turbines in this zone will be subject to a simple evaluation by Belgocontrol, which will be transferred to the Belgian Civil Aviation Authority (DGLV/DGTA) that is responsible for the uncontrolled airspace.

The criteria for the DVOR and RDF are specified below.

- distance (WT-DVOR) < 3 km: no wind turbines are allowed (red zone - zone a);
- distance (WT-DVOR) 3-7 km and per 60°sector where the North serves as a reference point:
  - in the 3 km - 5 km zone (zone b) a maximum of 7 WT is allowed per 60° sector;
  - in the 5 km - 6km zone (zone c) and when there is no WT in zone b, a maximum of 8 WT is allowed per 60° sector;
  - in the 6 km - 7 km zone (zone d) and when there aren't any WT in zone b AND c, a maximum of 9 WT is allowed per 60° sector;
  - if there are already WT in zone b, then 7 WT is the allowed maximum number in the whole 60° sector (zone b, c and d).
- distance (WT-DVOR) > 7 km: no limitation because of the DVOR/DME/RDF/NDB.



External and ad-hoc studies.

For each request of wind farms as from 20 wind turbines (including the ones already built and licensed) and for wind farms with over 10 wind turbines on specific geographical locations (e.g. near a CTR) a more detailed study is required. Based on the request Belgocontrol will determine which aspects will have to be analysed in detail and whether the study shall have to be carried out by Belgocontrol or by an external study agency.

In case of external studies, Belgocontrol will always determine the content and evaluate the study afterwards.