

# Landscape analysis for wind farms on the basis of transboundary EIA procedures

**Paulina Filipiak**  
Senior Specialist

General Directorate for Environmental  
Protection  
Department of Environmental Impact  
Assessment



# What is the landscape?

- an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors,
- an image resulting from human action on the environment,
- our living natural and cultural heritage, urban or rural, on land or in water.



# Legal background

## European Landscape Convention, 20 October 2000, Florence Convention

- promotes the protection, management and planning of European landscapes and organises European cooperation on landscape issues,
- defines e.g. landscape, landscape protection, landscape management and landscape planning,



# Recommendation

- „Landscape and wind turbines” adopted at the 6th Council of Europe Conference on the European Landscape Convention, 3-4 May 2011,
- creates basic principles for landscape evaluation of wind turbines construction,
- its aim is to define a method for placing wind turbines in the landscape while preserving its coherence.

# Recommendation



## Spatial planning:

- need to plan spatial development to preserve or restore the coherence of landscapes,
- inclusion of wind turbines in spatial planning,
- coordinate wind energy planning with other sectoral plans



# Recommendation

- Project-based approach to landscape integration:
  - defining the area to be studied – we must extend our analysis well beyond the planned location,
  - assessment of non-landscape aspects – wind energy potential, access, energy transportation conservation of species,
  - technical aspects – the energy transportation and access possibilities must be known,
  - species and biotopes – strategy for preservation of natural areas, protected areas and species,

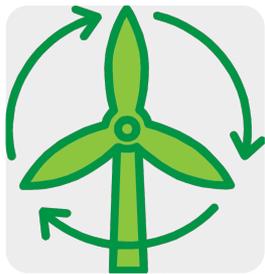
# Recommendation

- understanding the existing landscape – its history, social characteristics and its development to give the project a coherent shape and ensuring its continuity,
- morphology – topographical features, regularity or irregularity, distance of the horizon, proportions between landscape components,
- landscape heritage – land ownership, farming and building patterns, sites with emblematic values,
- socio-cultural aspects – landscape perception must be identified and understood (what is beautiful and what is ordinary)



# Recommendation

- identifying issues and goals – the goals determine the landscape strategy and priorities the issues identified (whether the intention is to preserve through exclusion zones, transform or add),
- drawing up the landscape integration plan – landscape criteria for the selection or exclusion of sites (pragmatic and comprehensible) to reduce subjective element
- communicating about the project – visual communication (3D modelling, photomontage, films) to show all the areas from which the wind turbines will be visible,



# Recommendation

## Landscape principles:

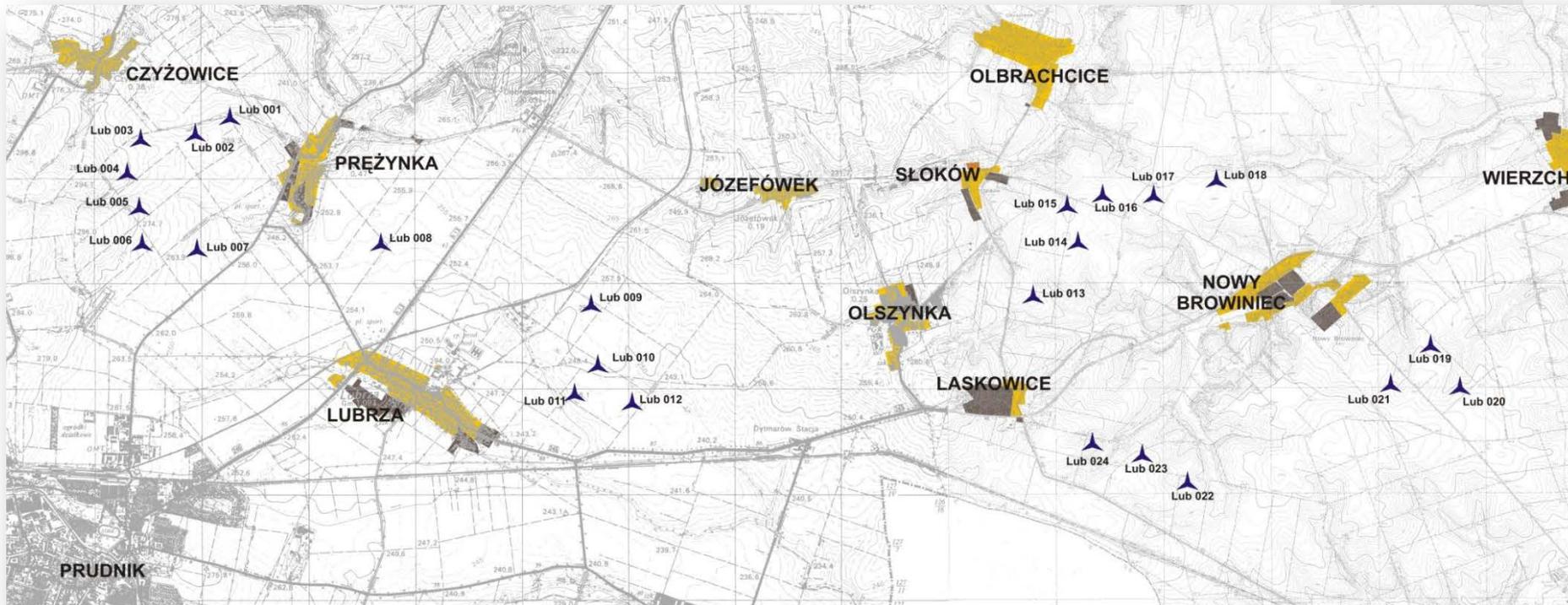
- scales, rhythm and coherence of units – wind turbines should be sited in uniform areas and avoid areas of uneven terrain with many changes of morphology and areas densely structured by various components,
- respecting lines of force – rivers, roads, valleys, ridges make major contribution to the landscape coherence,
- respecting proportion and rhythm
- co-visibility and situation of saturation – saturation point may be reached and wind turbines might be nuisance to the population which experience the sense of fatigue
- relationship with the built-up areas



# STUDY CASES



# 1. Onshore wind farm Lubrza in Poland, close to Czech Republic, 29 wind turbines



## □ Criteria analyzed by PoO:

- geomorphology and topography – wavy uplands, hills 250-268 m above sea level, declines in the area >10%,
- land use and types of land cover – cropland, meadows and pastures, woodlands,
- cultural heritage – no valuable areas,
- visual impacts – impact zones, line of sight,
- visualisation – photomontage, seven vantage points in close villages, co-visibility with others wind farms
- built-up area – villages beyond the location of wind farm,
- transboundary landscape – all above criteria analyzed in a transboundary context.

**No significant impacts on valuable landscape.**

# Affected Party (AP) was of opinion:

- the landscape evaluation made so far was not so exhaustive, not enough analysis regarding tourism,
- that's why the landscape analysis shall be performed on the basis of methodology applied by AP (which is in force in the neighbouring community Krnov),
- such analysis shall be made for all planned wind farms in this region, including cumulative impacts with projects on the both side of border accordingly to the Czech methodology,
- specific vantage points for visualisation should be used, including historical and tourist aspects and weather conditions within different seasons.

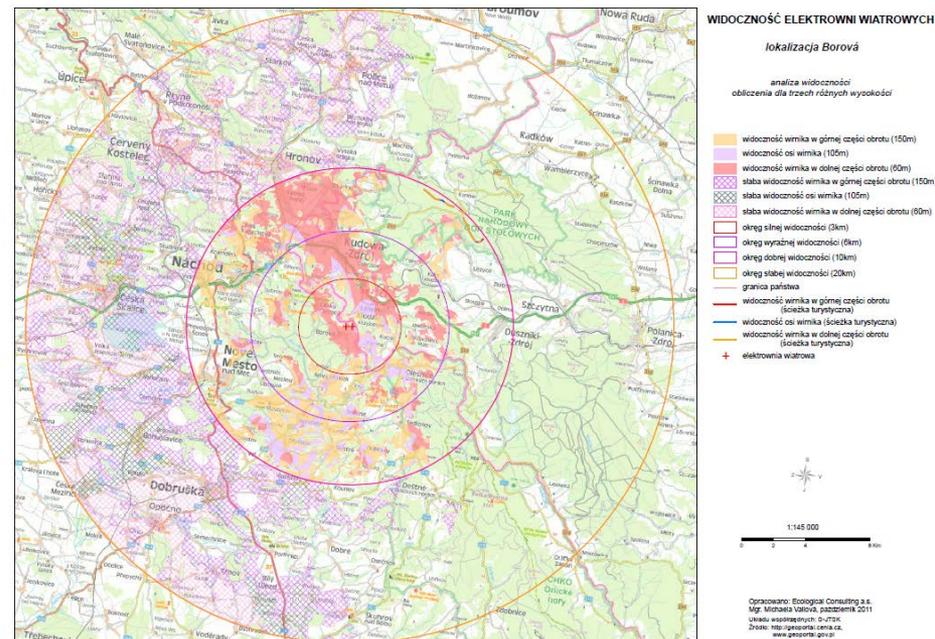
## 2. Onshore wind farm Borova in Czech Republic, close to Poland, 2 wind turbines



## Criteria analyzed by PoO:

- typical features of nature – hilly terrain, woodland, pastureland and cropland located in alternate sequence,
- cultural and historical features – no valuable monuments which might be influenced by wind turbines,
- areas of valuable nature – no identified, wind farm is planned to be located on the grassland,
- areas of esthetic values – are located in long distance,
- protected areas – no protected area is closely located to the wind farm,
- cultural dominants – churches,
- harmony and relationship,
- visualisation,
- transboundary landscape.

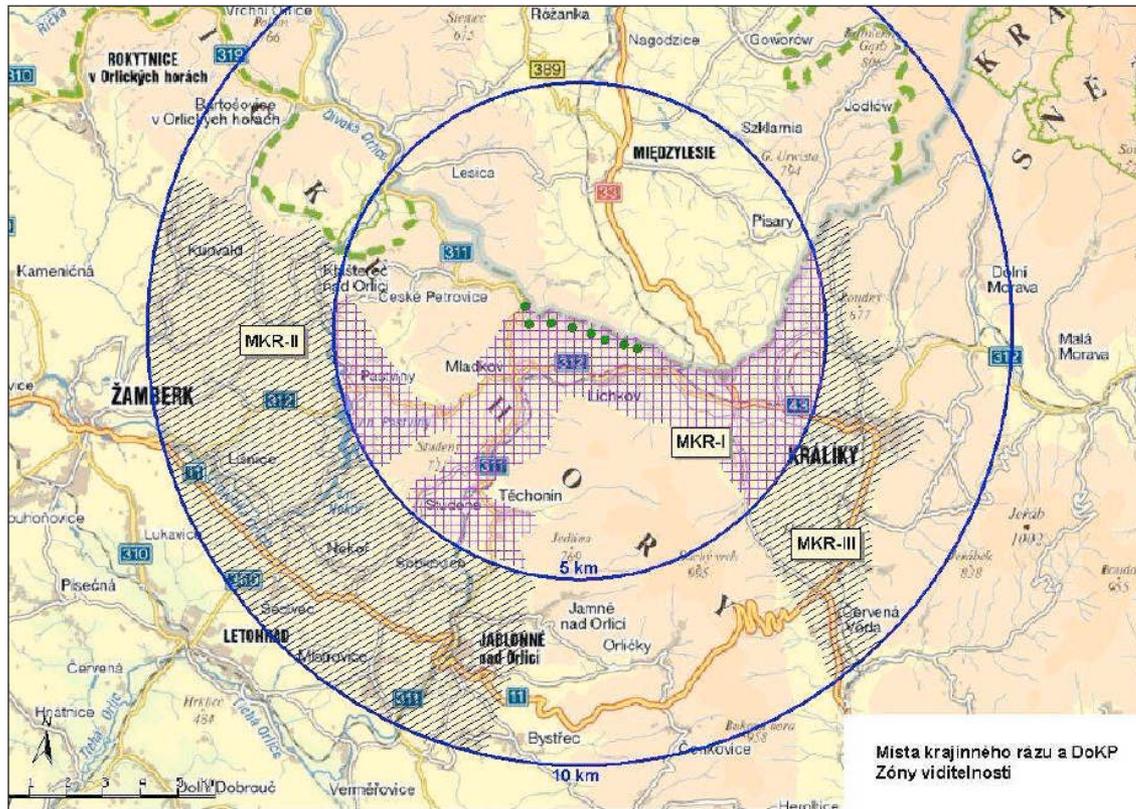
Medium and low  
impacts  
of insignificant nature



# Affected Party (AP) was of opinion:

- not sufficient landscape analysis on the AP's territory,
- on the AP's territory are existing areas of valuable nature,
- planned wind farm is in close neighbourhood of woodland and habitat of valuable species of birds (*Black Stork - Ciconia nigra*) exposed on collision with turbines,
- AP gave the scoping statement and is still waiting for the EIA report with more detailed landscape evaluation!

### 3. Onshore wind farm in Lichkov Mladkov in Czech Republic, close to Poland, 7 wind turbines



## □ Criteria analyzed:

- topography, morphology – hilly and mountainous terrain, sedimentary rocks, ridges of mountains
- land cover and land use
- build-up areas
- spatial aspect
- maps of visibility – scale 1:50 000, no visibility from
- photomontage – 9 vantage points, 11 pictures
- impacts – positive, neutral and negative
- transboundary landscape – croplands, meadows, pastureland, no examination of protected areas due to dominance of agriculture, build-up areas in the valley

## Affected Party (AP) was of opinion:

- not sufficient landscape analysis on the AP's territory,
- on the AP's territory are existing areas of valuable nature, such as Natura 2000 (Birds),
- no analysis of impacts on the landscape of protected areas on the AP's territory,
- significant disturbance into mountainous terrain,
- construction of wind turbines on the ridges upon the valley where people live may influence on their visual and esthetic perception of the landscape,
- high percentage of subjectivity element in the expert's conclusions!



**Finally the project has not been granted  
mainly due to its potential significant impact  
on Natura 2000 sites!**

# CONCLUSIONS

- it is commonly known that wind farms interfere into landscape and create new dominants,
- the landscape is perceived subjectively, that's why it is difficult to assess and to have the objective results of landscape analysis,
- lack of detailed legal requirements, each country perform landscape evaluation differently, but common approach exists,
- existance of recommendations which in fact are not widespread within countries and thus are not so commonly use,
- nevertheless, in the EIA reports the similar criteria of analysis of landscape are used,

# CONCLUSIONS

- lack of standardized methodology used for all regions,
- the criteria of landscape evaluation depends on the particular specific areas,
- different interpretations of results, especially if analysis were performed in a transboundary context,

# Questions

- how to interpret the outcomes of landscape evaluation if there are no unified standards?
- when we can say that impacts on the landscape are significant if landscape is perceived subjectively and no standards exist?
- while transboundary EIA, which country methodology or approach should be applied to assess impacts on the landscape? PoO or AP?

**Any solutions?**

**Thank you for your attention**