

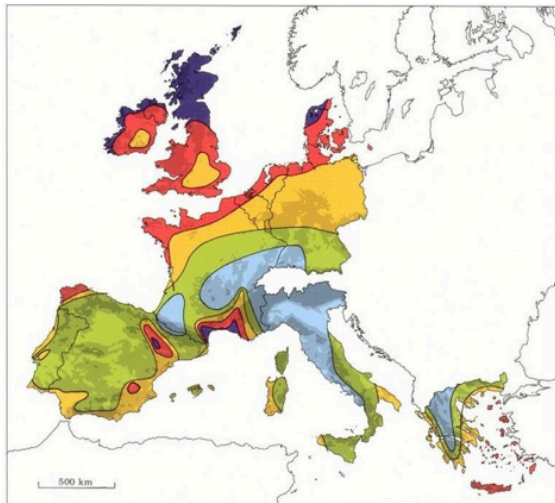
SWC Country report Belgium

Mark Runacres (Vrije Universiteit Brussel)

April 2018



Reasonable wind conditions



Wind resources ¹ at 50 metres above ground level for five different topographic conditions									
Sheltered terrain ²		Open plain ³		At a sea coast ⁴		Open sea ⁵		Hills and ridges ⁶	
m s^{-1}	Wm^{-2}	m s^{-1}	Wm^{-2}	m s^{-1}	Wm^{-2}	m s^{-1}	Wm^{-2}	m s^{-1}	Wm^{-2}
> 6.0	> 250	> 7.5	> 600	> 8.5	> 700	> 9.0	> 800	> 11.5	> 1800
5.0-6.0	150-250	6.5-7.5	300-500	7.0-8.5	400-700	8.0-9.0	600-800	10.0-11.5	1200-1800
4.5-5.0	100-150	5.5-6.5	200-300	6.0-7.0	250-400	7.0-8.0	400-600	8.5-10.0	700-1200
3.5-4.5	50-100	4.5-5.5	100-200	5.0-6.0	150-250	5.5-7.0	200-400	7.0- 8.5	400- 700
< 3.5	< 50	< 4.5	< 100	< 5.0	< 150	< 5.5	< 200	< 7.0	< 400

Current situation

- ▶ Less than 20 small wind turbines installed
- ▶ Regulatory issues were and are main impediment. Municipal authorities are very reluctant to grant permits.
- ▶ Incentives were not too bad. Have decreased over past few years.

Pilot projects SWT West-Flanders

- ▶ Windiest province of Belgium ($V \approx 5$ m/s at $h = 15$ m)
- ▶ Province has a regulatory framework
 - ▶ Good integration with spatial planning
 - ▶ Expected AEP is a criterion when examining permit
 - ▶ Wind and performance measurements to assess the installation.

New support programme medium-sized wind

...

Electricity prices

True electricity prices for agriculture can be as high as 0.25 EUR/kWh

Industrial activity

- ▶ Xant (100 kW 21 m, 95 kW 23 m, HAWT): first turbine installed 2017
- ▶ FairWind (VAWT): partnership with Engie (10 kW and 50 kW offered through Electrabel/Engie website).

Market challenges and opportunities

- ▶ Wind speeds OK in part of the country. Interest from SMEs and agriculture.
- ▶ At least one province has a good regulatory framework.
- ▶ Large population density. Not a lot of free space. In principle, this is an opportunity for smaller-scale wind.
- ▶ Small wind does not have a good reputation. Too many (> 750 under 100 kW) turbines to choose from.