



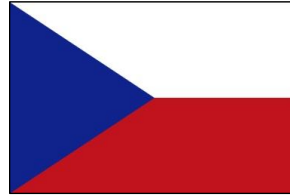
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Wind Potential in the Czech Republic

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Thomas Arnold, *TÜV SÜD Industry Service GmbH.*
December 2010

Czech Republic – Country Specific Information



Czech Republic

Germany

Area

78 866 km²

357 104 km²

Population

10,5 Mio.

82 Mio.

Population density

133 ppl. / km²

229 ppl. / km²

Gross electricity demand

68,6 TWh/year

639.1 TWh/year

Energy share from RES

8,5%

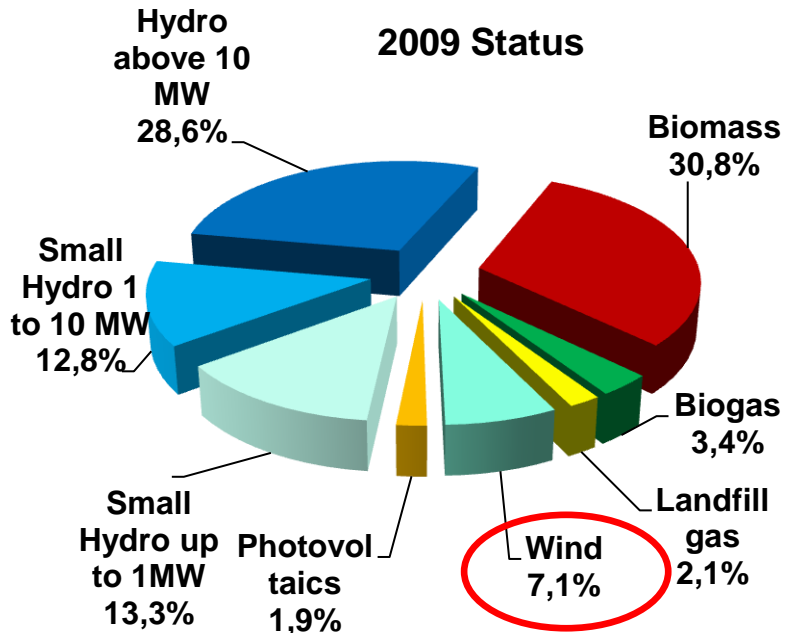
14,8%

Target share from RES in 2020

13%

18%

Czech Republic – Renewable Targets and Action Plan

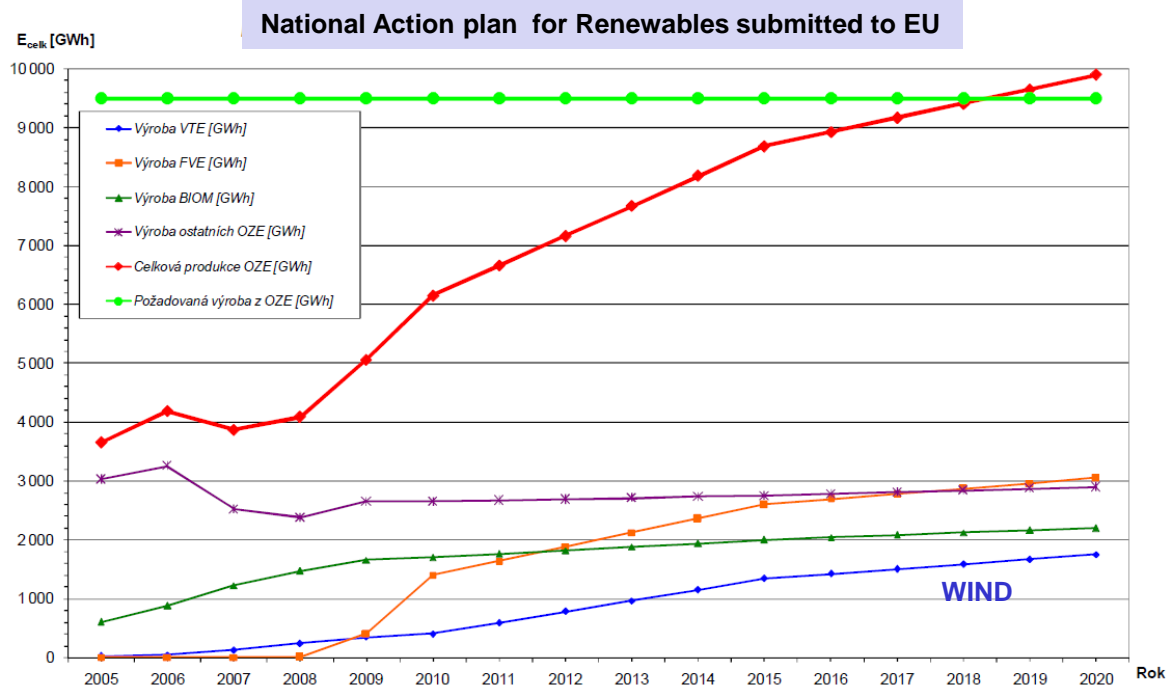


The Czech government submitted the 2010 NREAP to European Commission with the following assumptions :

Solar boom is eradicated and only residential roof top PV installations will thrive

50MW of new wind installations annually

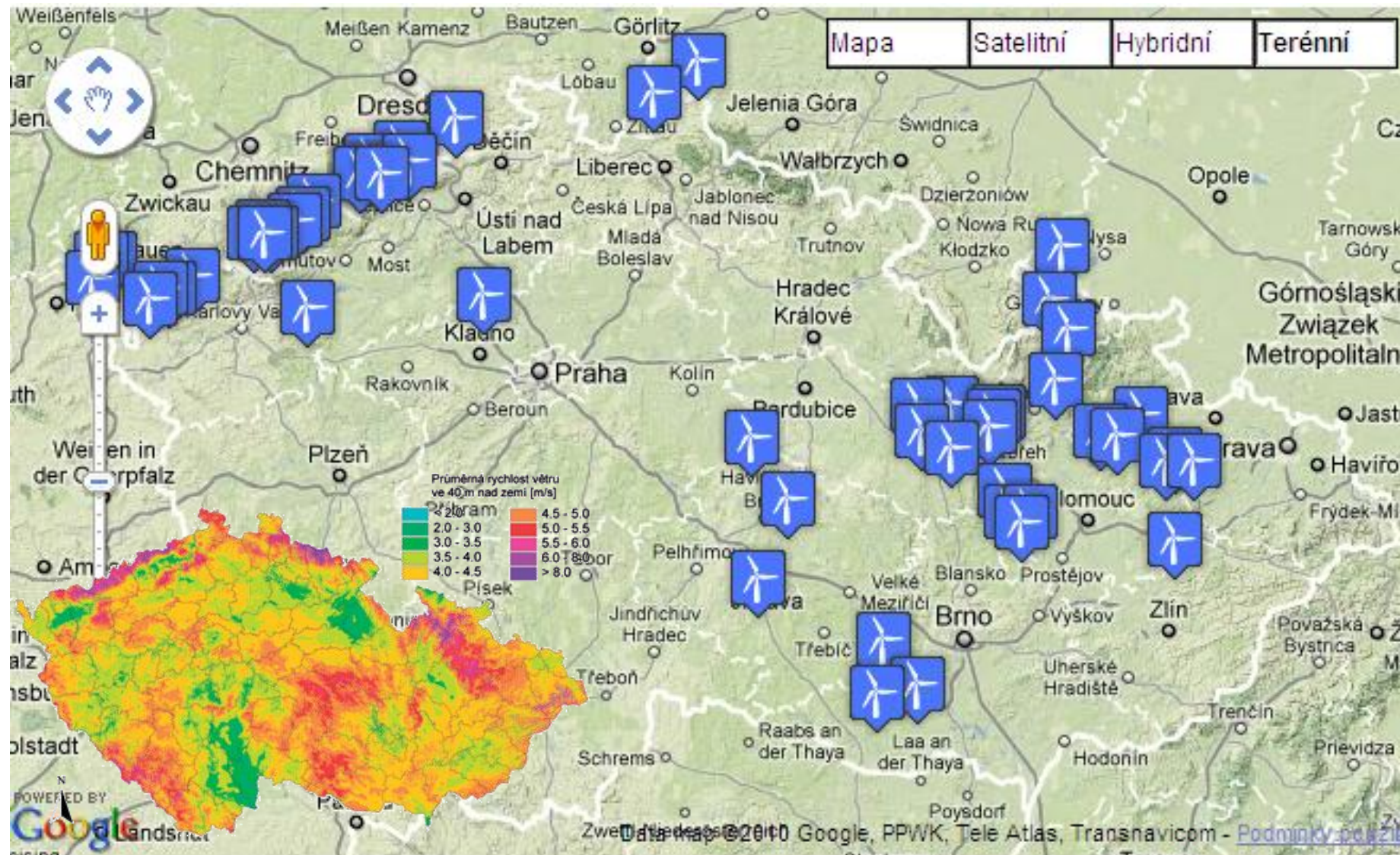
Moderate growth in biomass exploitation, below widely anticipated potential



Map of Existing Wind Turbines in the Czech Republic



Final installed power (to date 1.11.2010) is 210 MW



Czech Republic - Key Energy Sector Players and Regulatory Bodies



Utility companies >

ČEZ
E.on
PRE



Banks funding renewable projects

Unicredit Bank
Česka spořitelna (Erste)
ČSOB
KB
GE Money
Raiffaisen
Volksbank



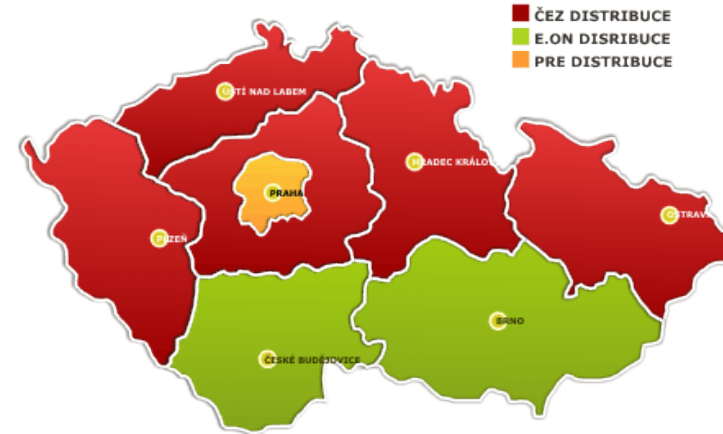
Investors in Wind

partial private equity with bank loans, due to small sizes of farms (1-3 turbines mostly)

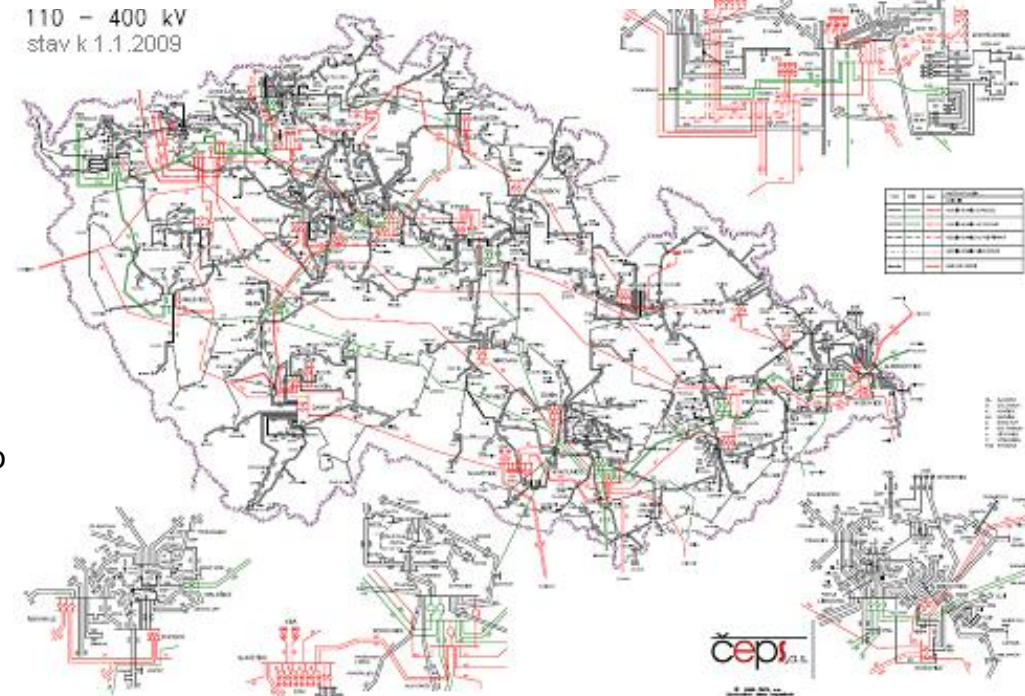
Energy Regulatory Office - administrative authority for regulation in the energy sector, main responsibility is to set the charges for electricity transmission and distribution, lay down and adjust the rules governing the electricity market, and specify the conditions for final customers' and generators' access to networks.



ČEPS is a joint-stock company operating Transmission System (TS) of the Czech Republic by law.



Schematic of distribution and transmission networks in the CR



Feed-in tariff for wind in the Czech Republic

2230 CZK/MWh = 89 EUR/MWh (year 2010 and 2011)

Estimated wind potential for the Czech Republic

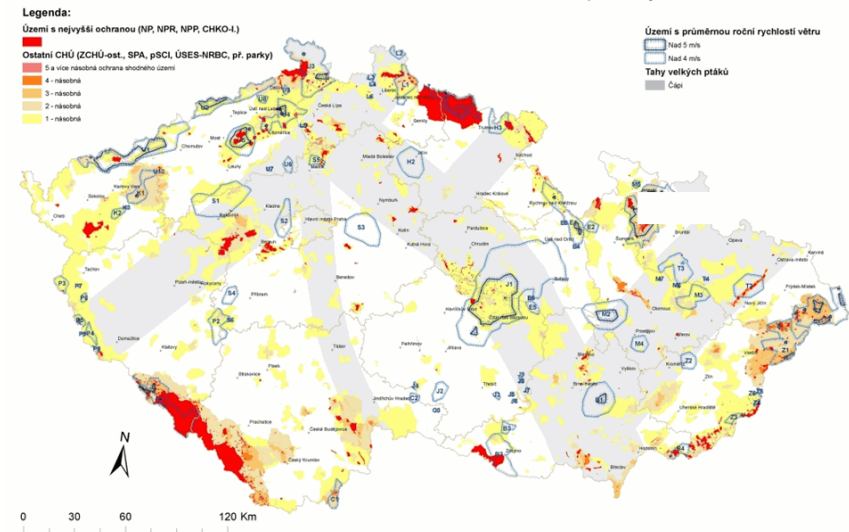
From theoretical potential is 60% excluded by law on the protection of nature and landscape protection areas, highlands and mountains. Further reduction then follows from the Government on health protection against adverse effects of noise and vibration. There is about 15-20% of the areas where it would be possible to implement the construction of wind turbines, that corresponds to **500-1000 MW** of installed power.

Project time

Public and regional authorities consider it noisy and detrimental to the landscape. As such, it is difficult to get construction permits for wind turbines. Mortality of projects on EIA is high. Currently the duration of preparation of a successful project is around 7 years on average.

Location of areas suitable for wind power

rozbor závažnosti střetů s ochranou přírody





Wide spectrum of accreditations, authorisations and notifications

Machinery industry, Energy sector, Civil engineering, Environment, Information Technology, Transport, ... and

Renewable energies (wind, photovoltaic, biogas, biomass)

- Supervision of investment projects
- Energy audits
- CE Product Certification
- Assessment of Projects (TDD) for banks
- Expert opinions

- ▶ Headquarters in Prague
- ▶ 9 regional subsidiaries
- ▶ 250 employees
- ▶ 16 mil. Euro revenues

Services of TÜV SÜD for Wind Business in the CR



Manufacturers

CE Marking, Type certification

Investors

Site assesment

Wind Measurement, Wind Expert Report

Environmental Impact Assessment

Technical Due Diligence

Supervision during Construction, Witness of Commissioning

Wind farm certification

Operators

Assessment of documentation acc. to Czech and European requirements

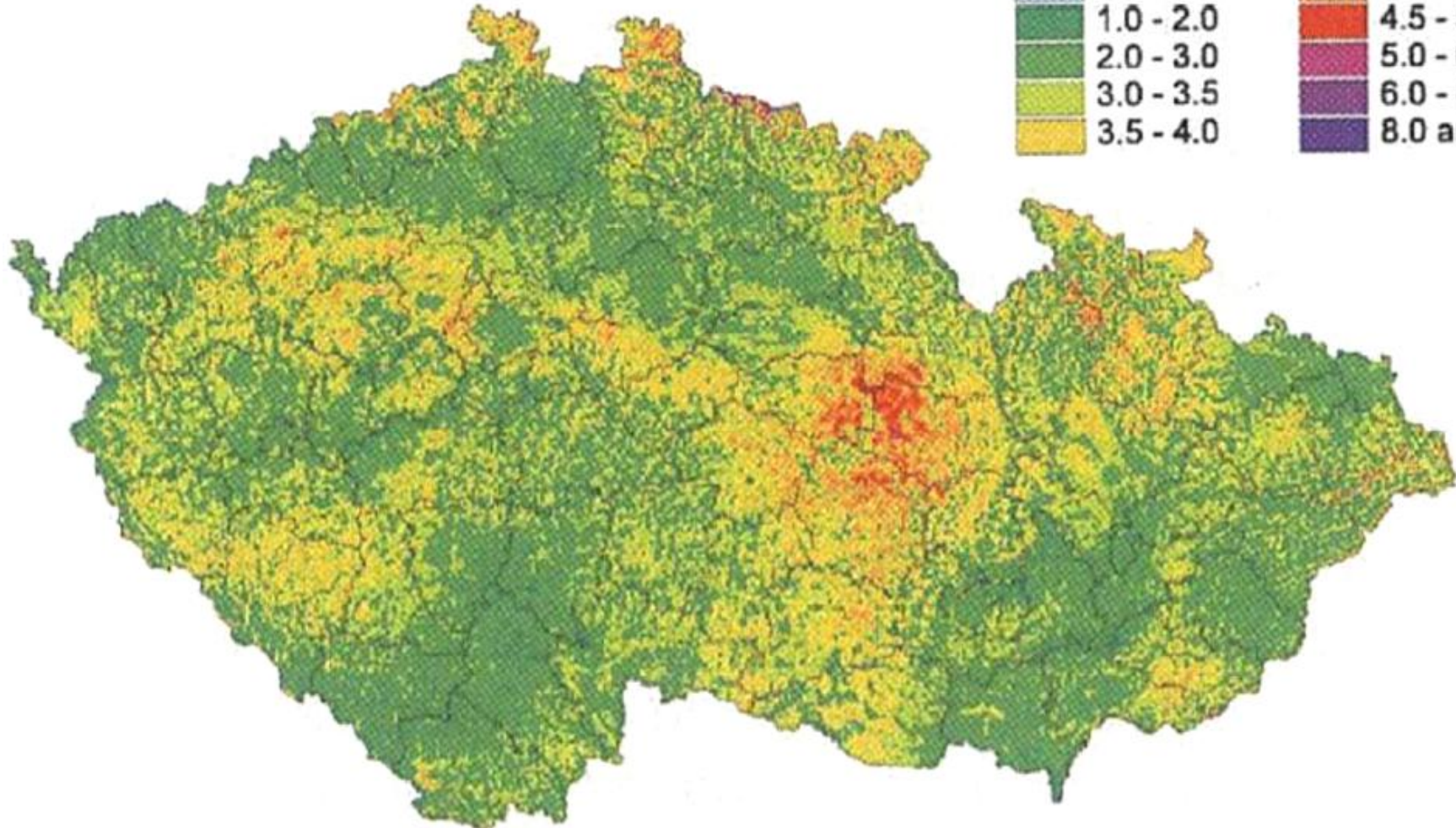
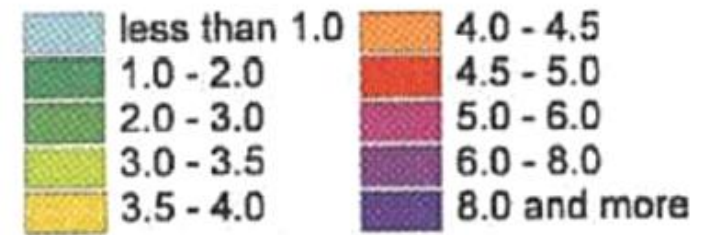
**Regular inspections of machinery and electrical equipment, elevators,
personal protection equipment**

**EPC contractors,
O&M providers**

Certification of competence for developers and service organization

Training

Wind speed [m/s]

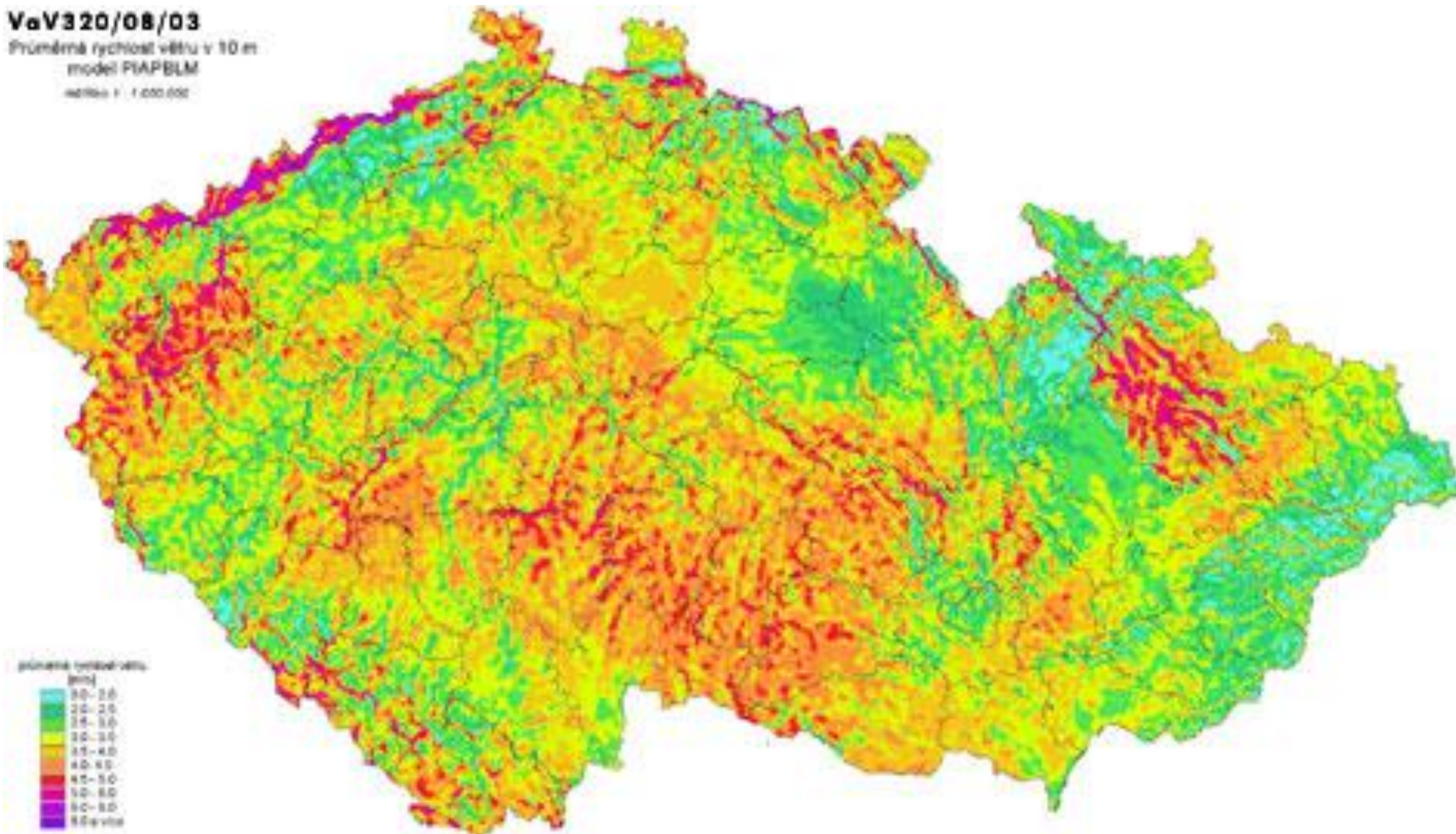


Czech Rep. – Potential Analysis II

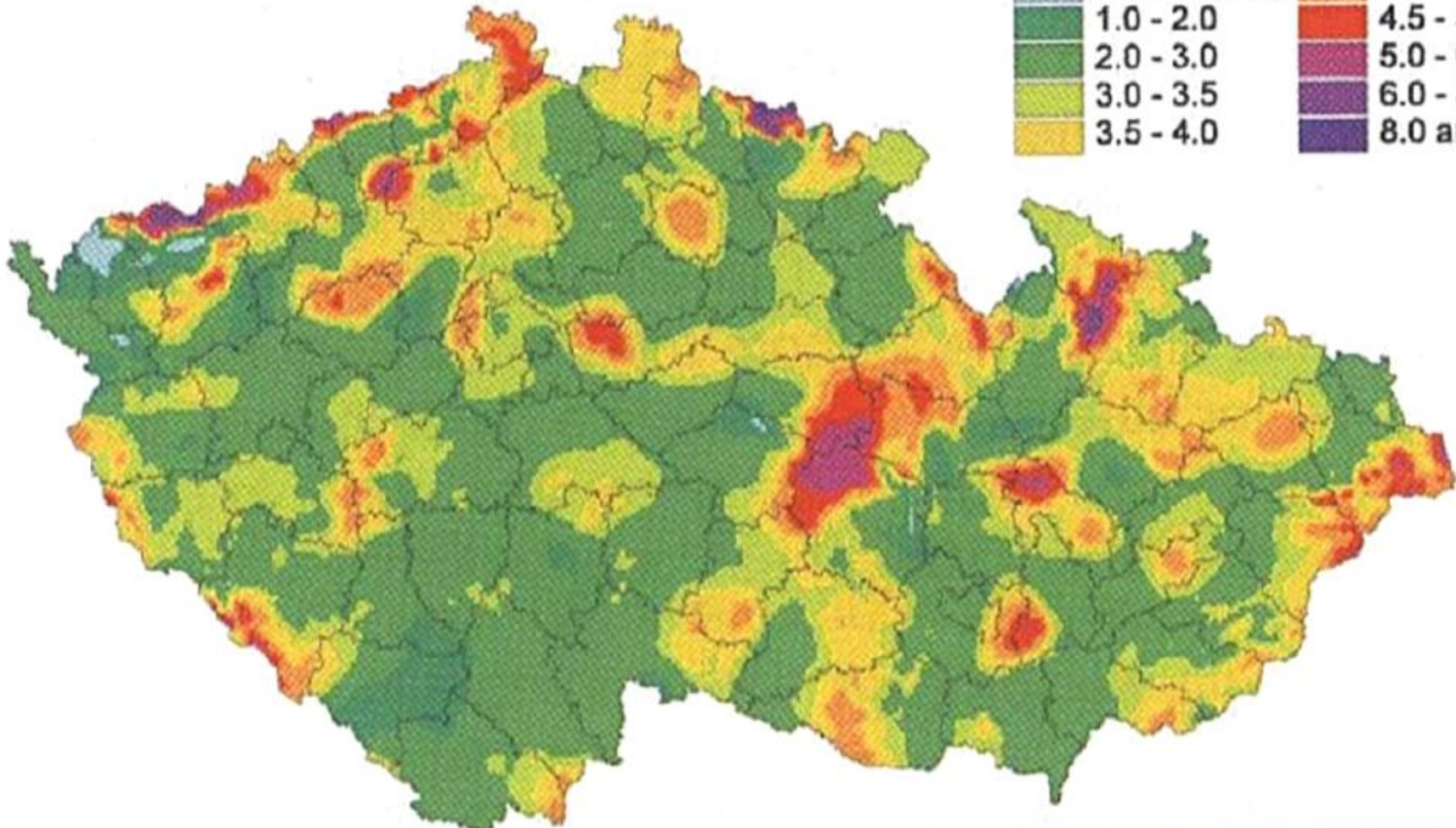
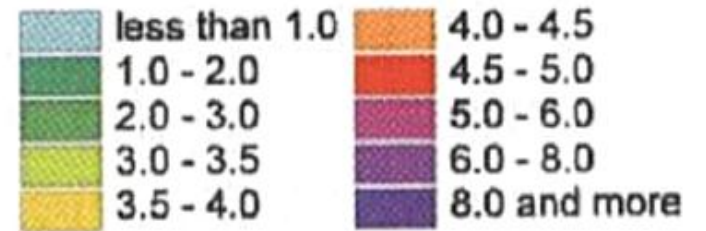


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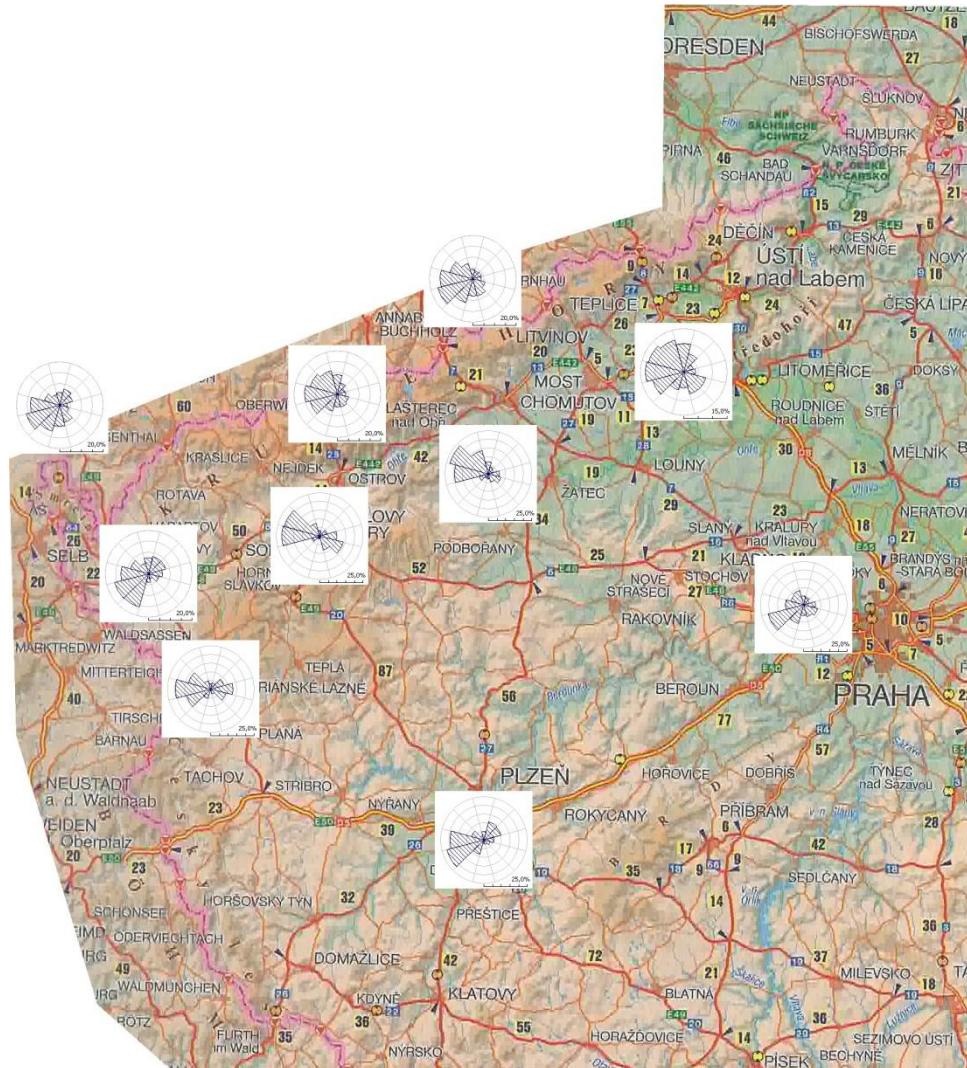
Průměrná rychlost větru v 10 m
model PIAPBLM
měřítko 1 : 1 000 000



Wind speed [m/s]



Czech. Rep. – Wind Roses (West)



Windpotentialanalyse Westtschechien

