

Wind power exploitation: local threat or development opportunity?

(Factors of regionally unequal
adoption of wind-tech innovation)

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The paper's subject and objectives

- the assessment of the initiation, localization and realization factors of the wind energy development (WED) in the Czech Republic
- the WED is regarded as a process of diffusion of a new phenomenon in space and time, or as an innovation diffusion (of idea and technology)
- the innovation diffusion which is in principle regionally differentiated and unequal due to various factors whose validity and significance is tested
- the analyzes of the relationship between the diffusion of the phenomenon and selected primary environmental and socio-economic indicators.
- the analysis of motivation factors and risk perceptions – which influence the potential adoption or rejection of innovation at the level of municipalities, i.e. on the part of local administration

Wind power development

- effective means of an officially declared plan to increase energy production from renewable resources
- object of entrepreneurial interest of investors and developers
- **potential source of development incentives for municipalities concerned (often from peripheral rural areas)**
- ambivalent phenomenon which has led to a division in opinions between experts, politicians and general public across the countries .

Question:

- Is the construction limited only by objective physical-geographical and technical properties of the area (the wind potential, the absence of limiting factors such as construction regulations and environmental protection, and the capacity of local electric transmission grid) ?

No !

- political-institutional factors and social acceptance of key stakeholders are crucial for the construction of such projects.

Factors of wind energy innovation diffusion

INITIATORY FACTORS

- Global environment protection
- Legislative support for renewables
- Technology development
- Business enterprise for investors
- Economic profit for marginal areas

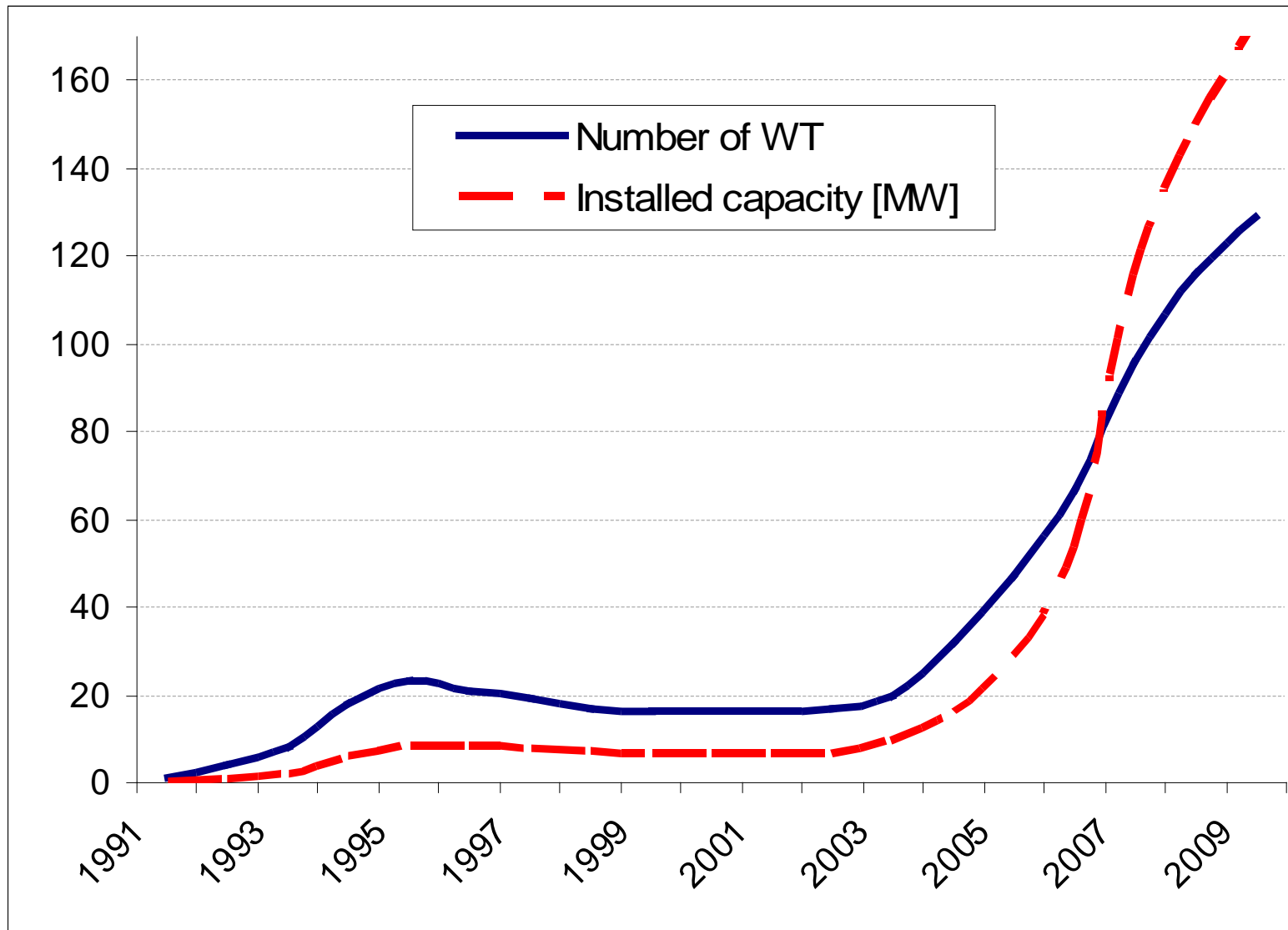
LOCALIZATION FACTORS

- Wind potential
- Absence of limiting factors (built-up areas, buffer zones of airports and military radars, landscape protection areas, etc.)
- Connectivity to transmission grid

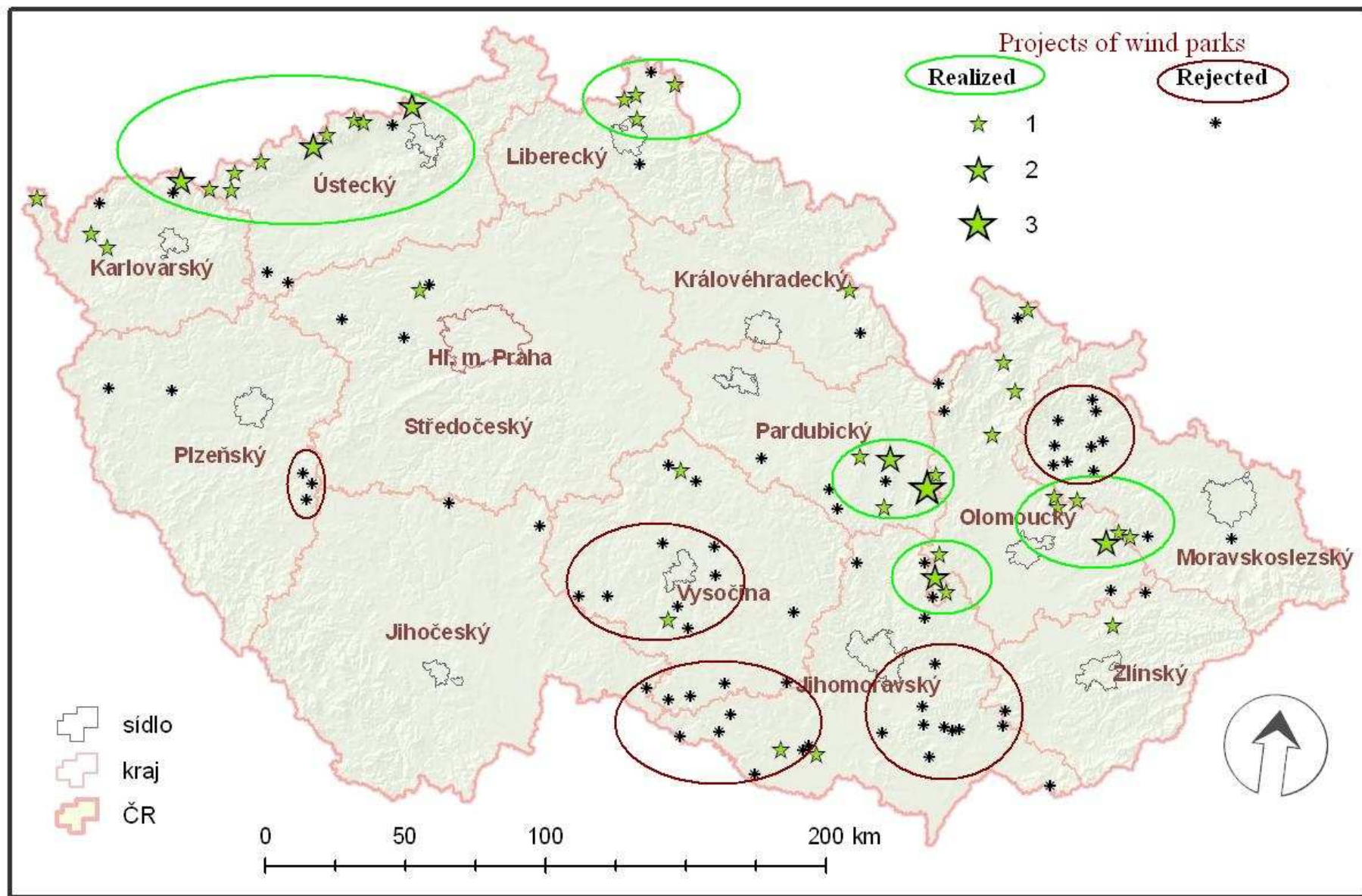
REALIZATION FACTORS

- Municipal council acceptance
- Community acceptance
- Environmental impact assessment (EIA)
- Social-political acceptance (of regional authorities)

Diffusion curve: wind energy development in the CR



Realized and rejected wind projects in the Czech Republic

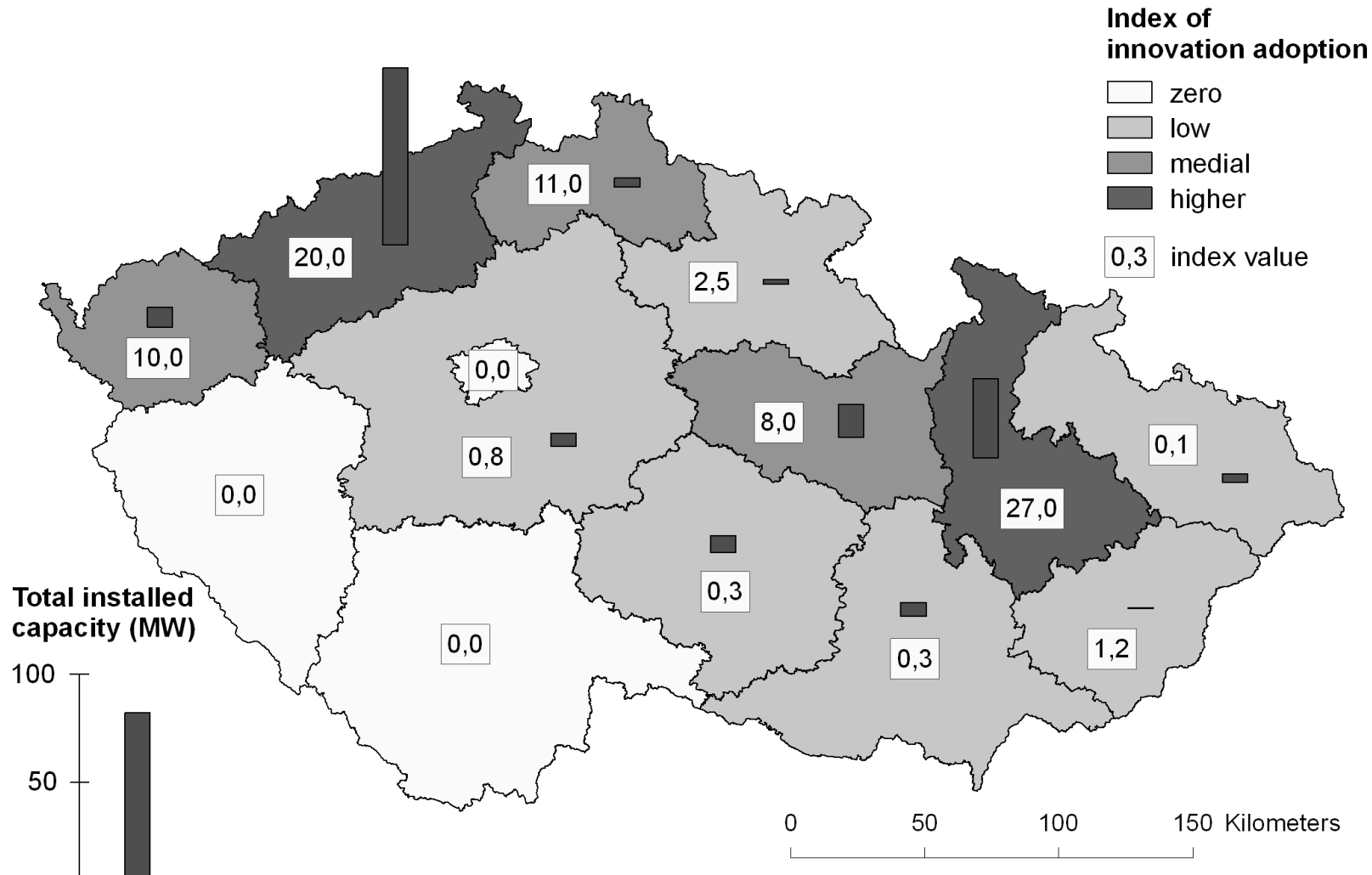


Index of innovation adoption (In_a):

$$In_a = (P_i / P_r) \times (N_i / (N_i + N_r)) \times 100,$$

P_i = actual installed potential, P_r = the realizable potential,

N_i = the number of implemented projects, N_r = the number of rejected projects

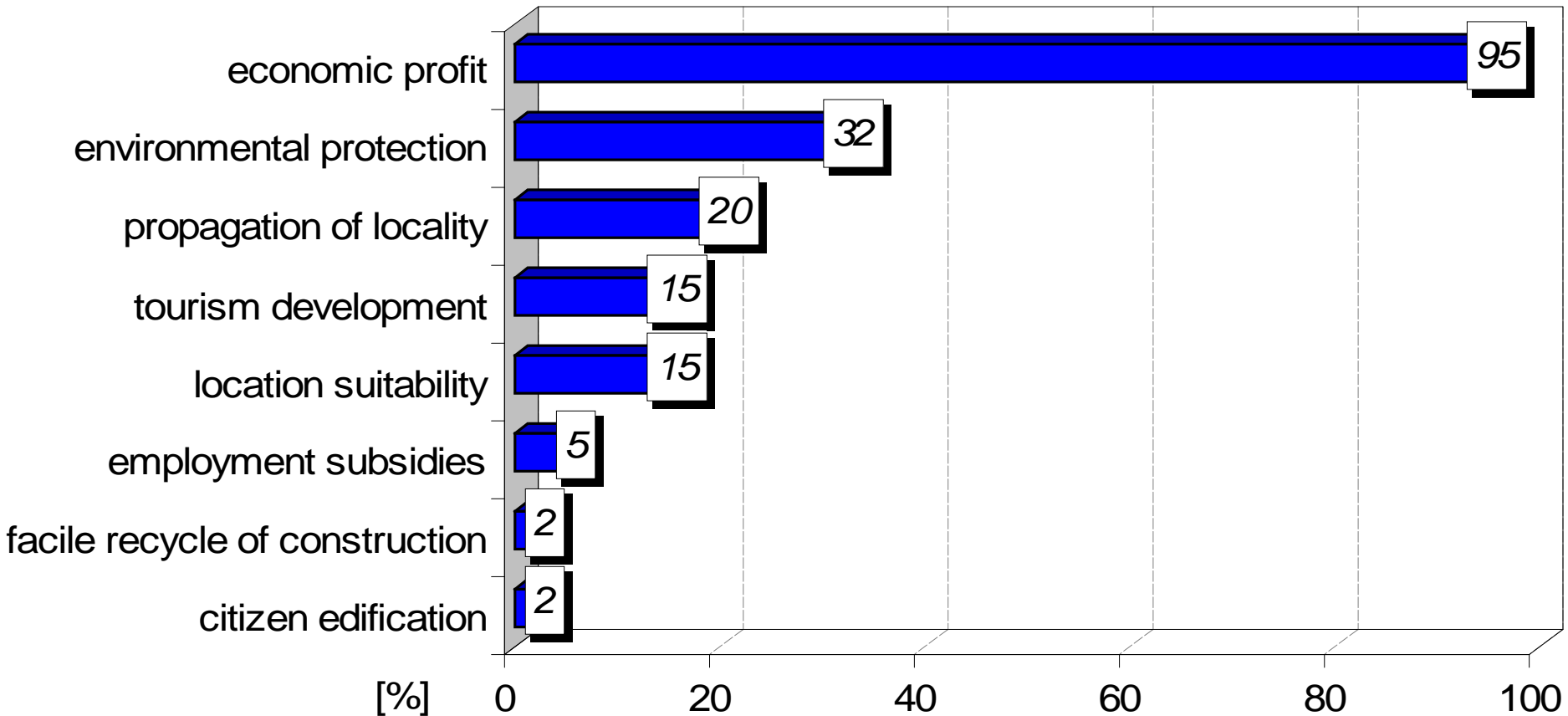


The relationship between project implementation and selected primary indicators

Predictors	Project implementation - Dependent			
	Directional Measure: Guttman's Lambda			Depiction
	Value	Asymp. Std. Error	Approx. Sig.	
Region's classification	,409	,126	,010	negative EIA (VYS, MSK, JMK, PLZ) Bruntál, Rýmařov, Krnov, Jihlava, Znojmo
MEP's classification (municipality of extended power)	,682	,091	,000	
	Directional Measures: Somer's D			
	Value	Asymp. Std. Error	Approx. Sig.	
Population	-,247	,098	,012	The less the better
Municipality's budget	-,110	,072	,129	The poorer the better
Regional centre proximity	,104	,103	,317	The closer the better
Landscape protected area proximity	,092	,101	,361	The closer the better
Area's natural attractiveness	,179	,091	,052	More attractive...
Tourism potential	,246	,092	,008	More tourist the better

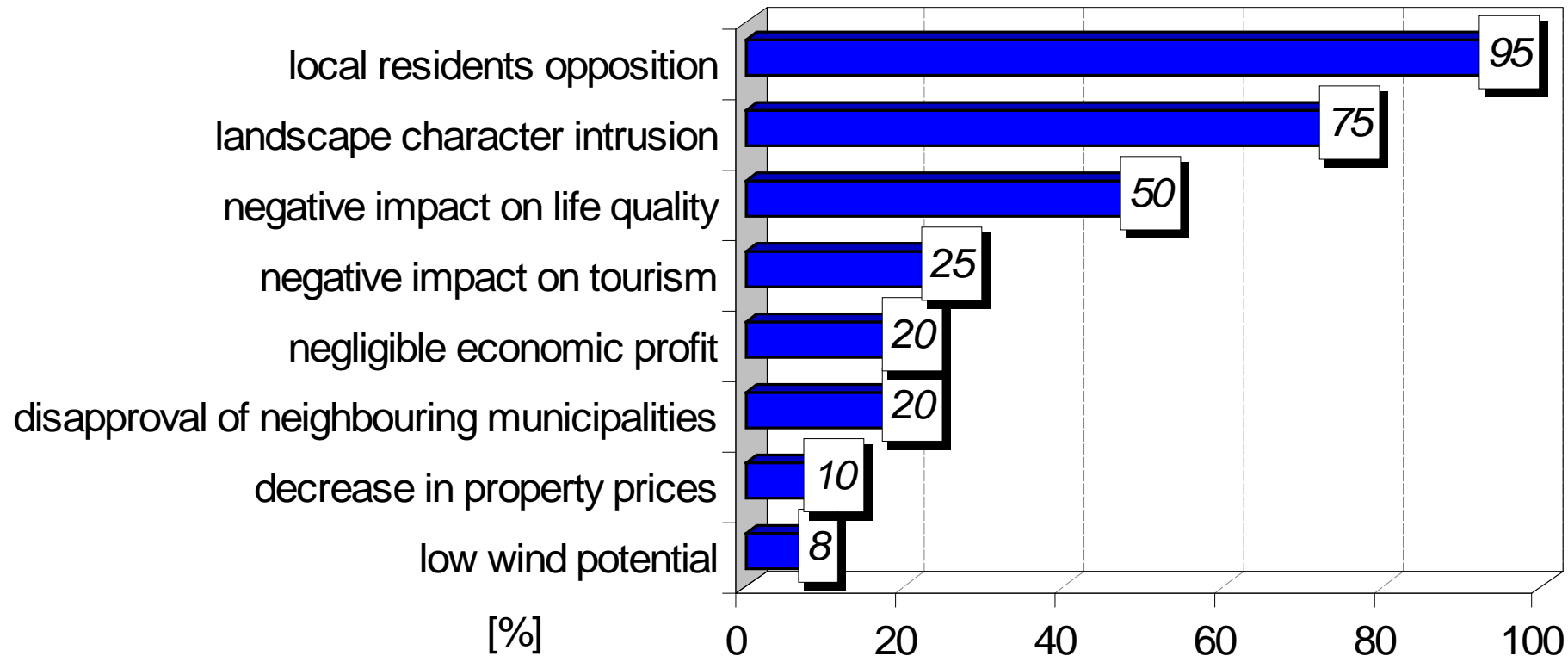
Factors of innovation adoption or rejection: local government perspective

Motivation factors

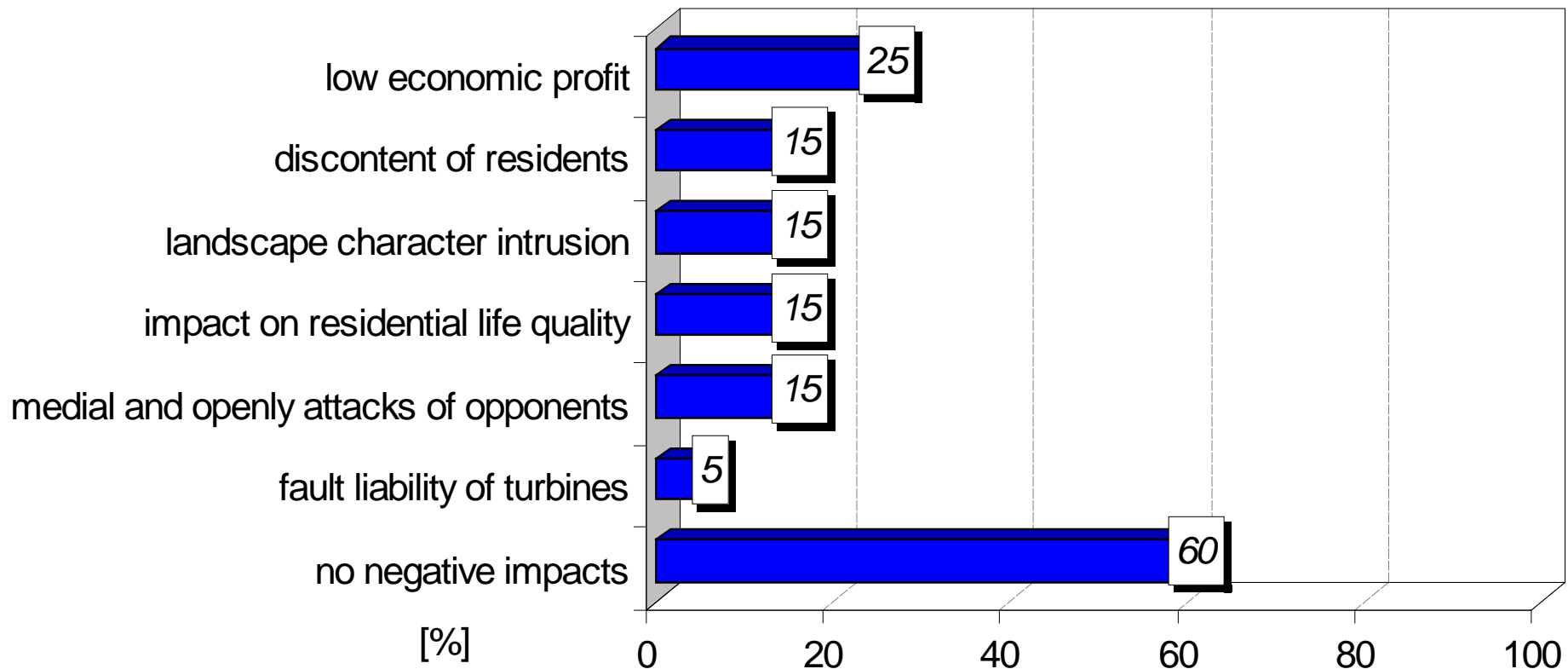


Factors of innovation adoption or rejection: local government perspective

Risk perceptions



Direct, indirect and unexpected consequences of innovation adoption





Fulfilled expectations and alternative development

Municipalities with wind parks

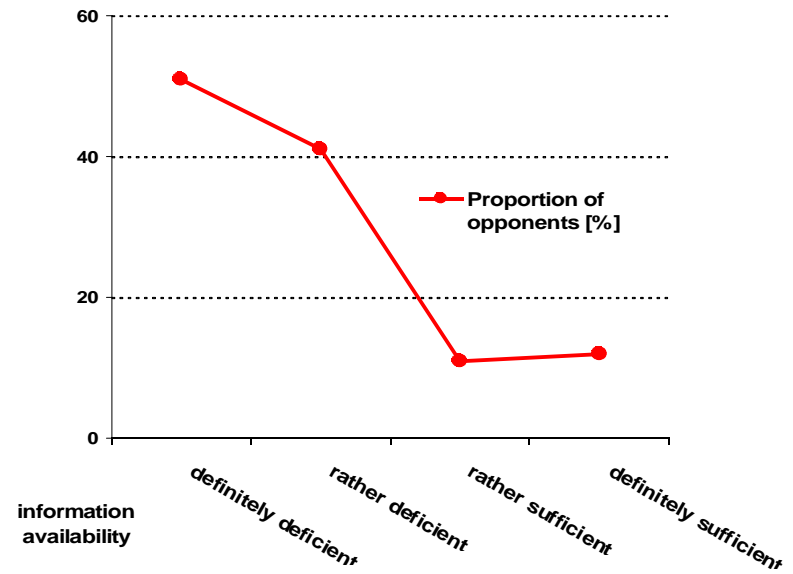
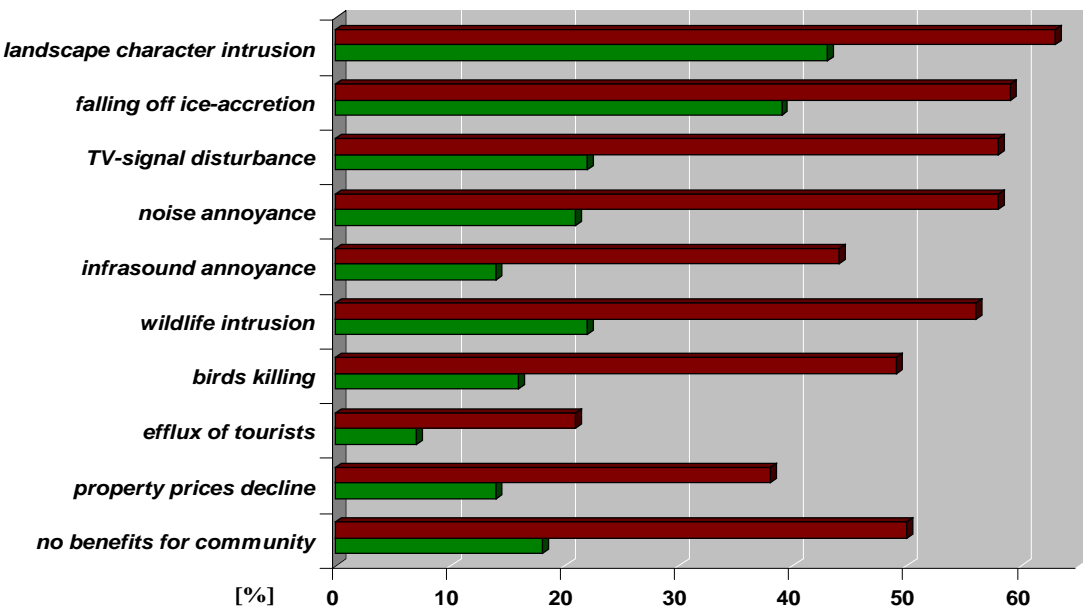
- Fulfilled expectations and satisfaction - 84%
- Assent to wind park construction (retrospectively) - 76%
- Assent to other wind turbines in the locality - 65%
- Assent to further development of wind energy in the CR – 98%

Municipalities with rejected projects

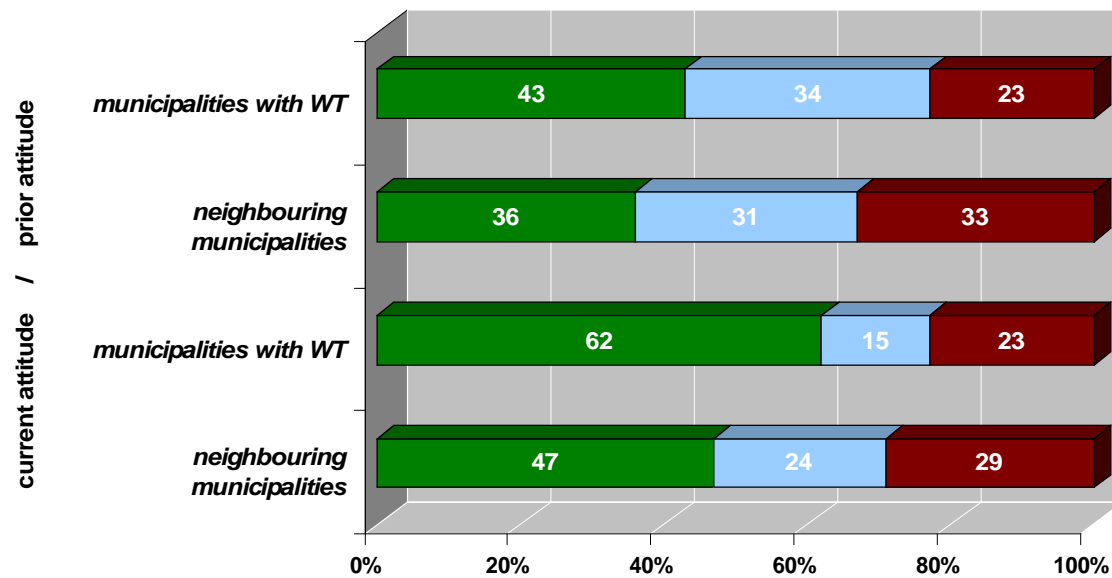
- Opposition is mostly locally fixed (NIMBY syndrome)
- Assent to construction in other locality - 69% (in suitable localities no conflict with landscape and local development)
- Strict opposition – (NIABY attitude) - 31%

Perception and attitudes of residents

■ actual perception ■ prior expectation



■ Supporter ■ Neutral ■ Opponent



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Thank you for attention!