

GORWIND

Advisory Board Meeting

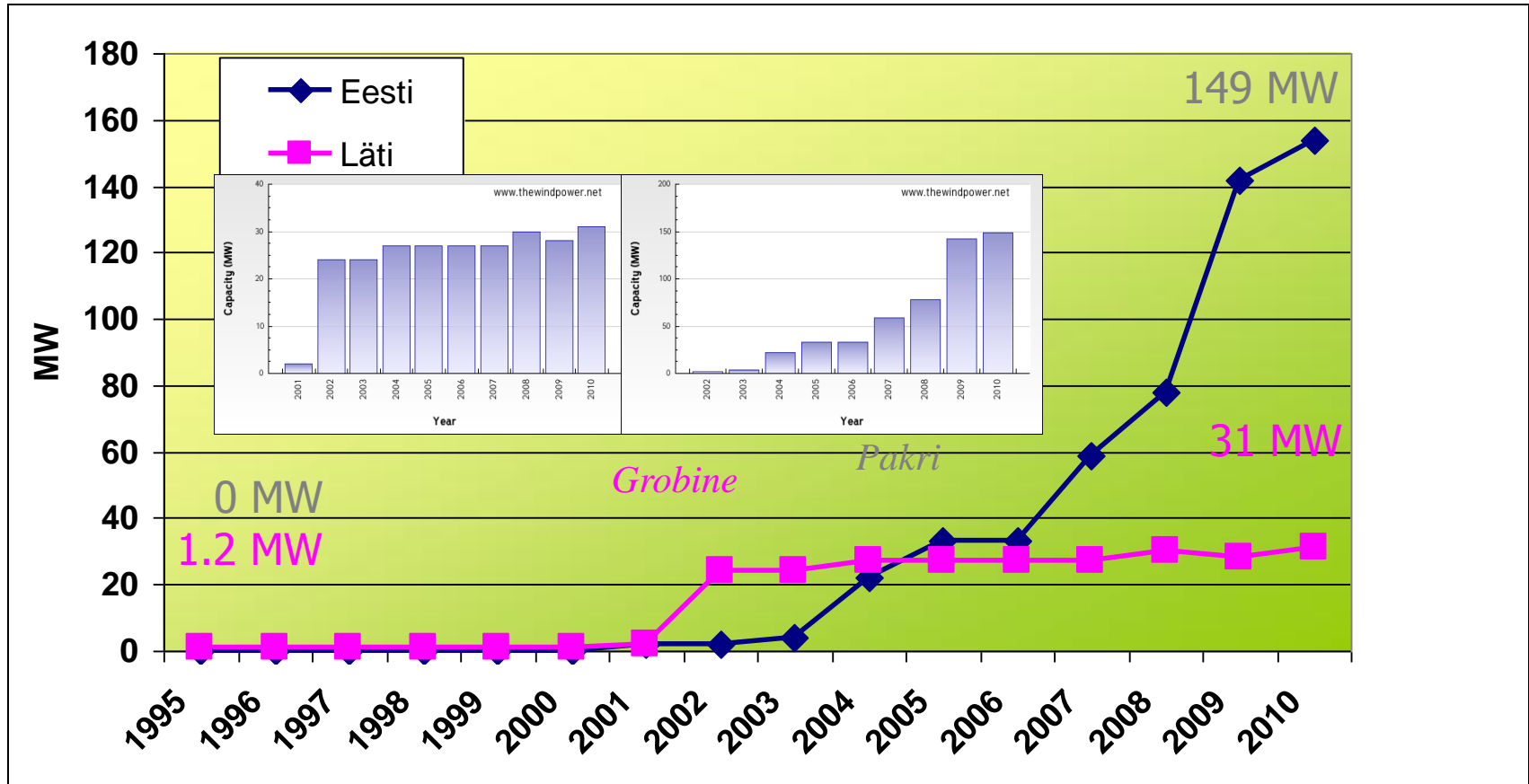
**WP4: State of the spatial planning study:
methodology, questionnaires**

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Wind energy development in Estonia and Latvia



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Eesti	0	0	0	0	0	0	1.8	2	4	22	33	33	59	78	142	149
Läti	1.2	1.2	1.2	1.2	1.2	1.2	2	24	24	27	27	27	27	30	28	31

Baltic power grid

Current situation



Prospektiv











How do we assess suitability?

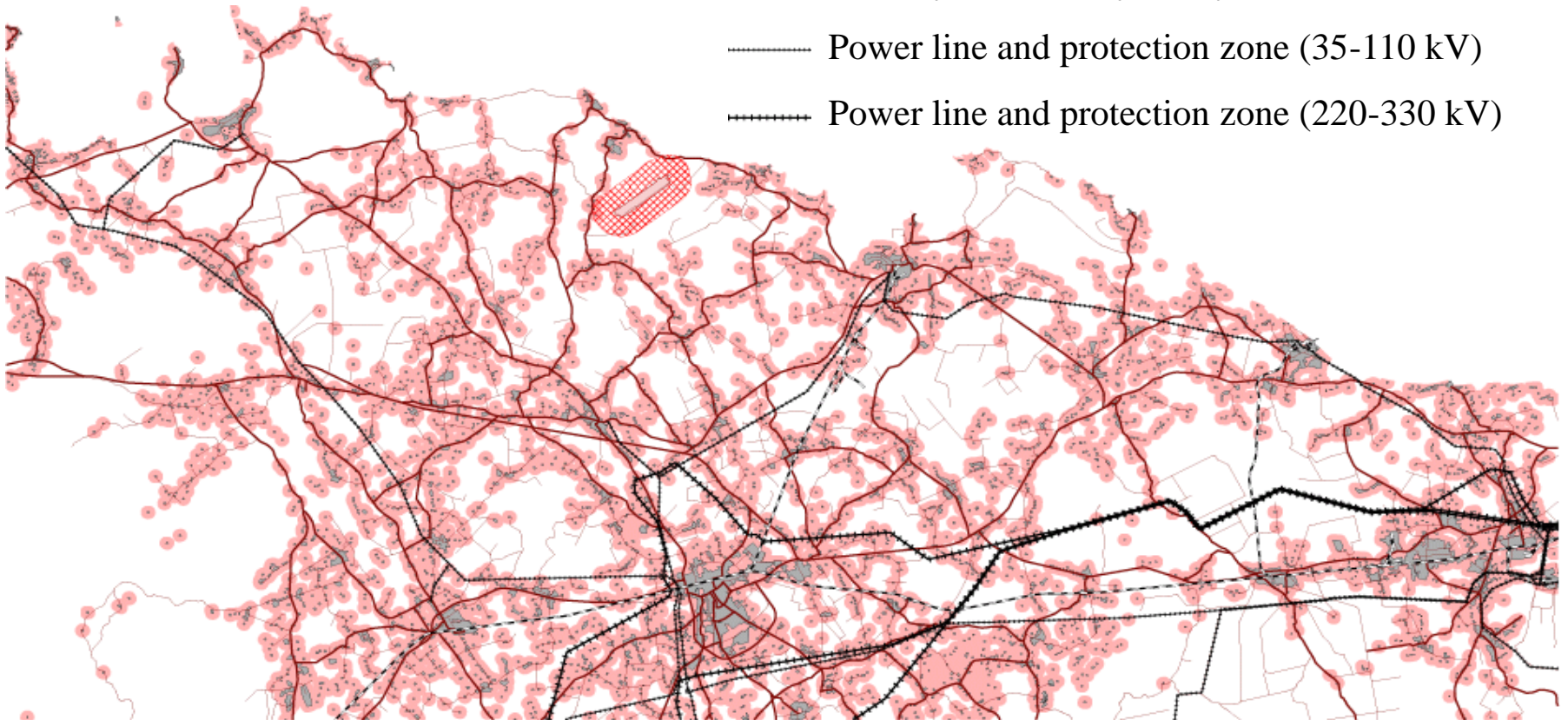
1. Defining legally restricted and excluded areas by use of GIS and extracting all areas without legal limitations for wind energy development
2. Sociological study to define social acceptance and sensitivity of different target groups by character of wind energy related disturbances (noise, flickering and shadows, landscape etc), potential usage conflict areas
3. Wind resources and natural limitations (water depth, ice conditions etc)

Step I

- Defining legally restricted and excluded areas by use of GIS and extracting all areas without legal limitations for wind energy development

Exclusion areas

-  Settlement
-  Settlement noise prevention and safety zone
-  Airfield
-  Airfield safety zone
-  Road and road safety zone
-  Railway and railway safety zone
-  Power line and protection zone (35-110 kV)
-  Power line and protection zone (220-330 kV)



Exclusion and strictly restricted areas



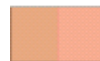
Nature reserves



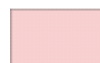
Important bird areas



Settlement



Settlement noise prevention and safety zone



Airfield



Airfield safety zone



Road and road safety zone



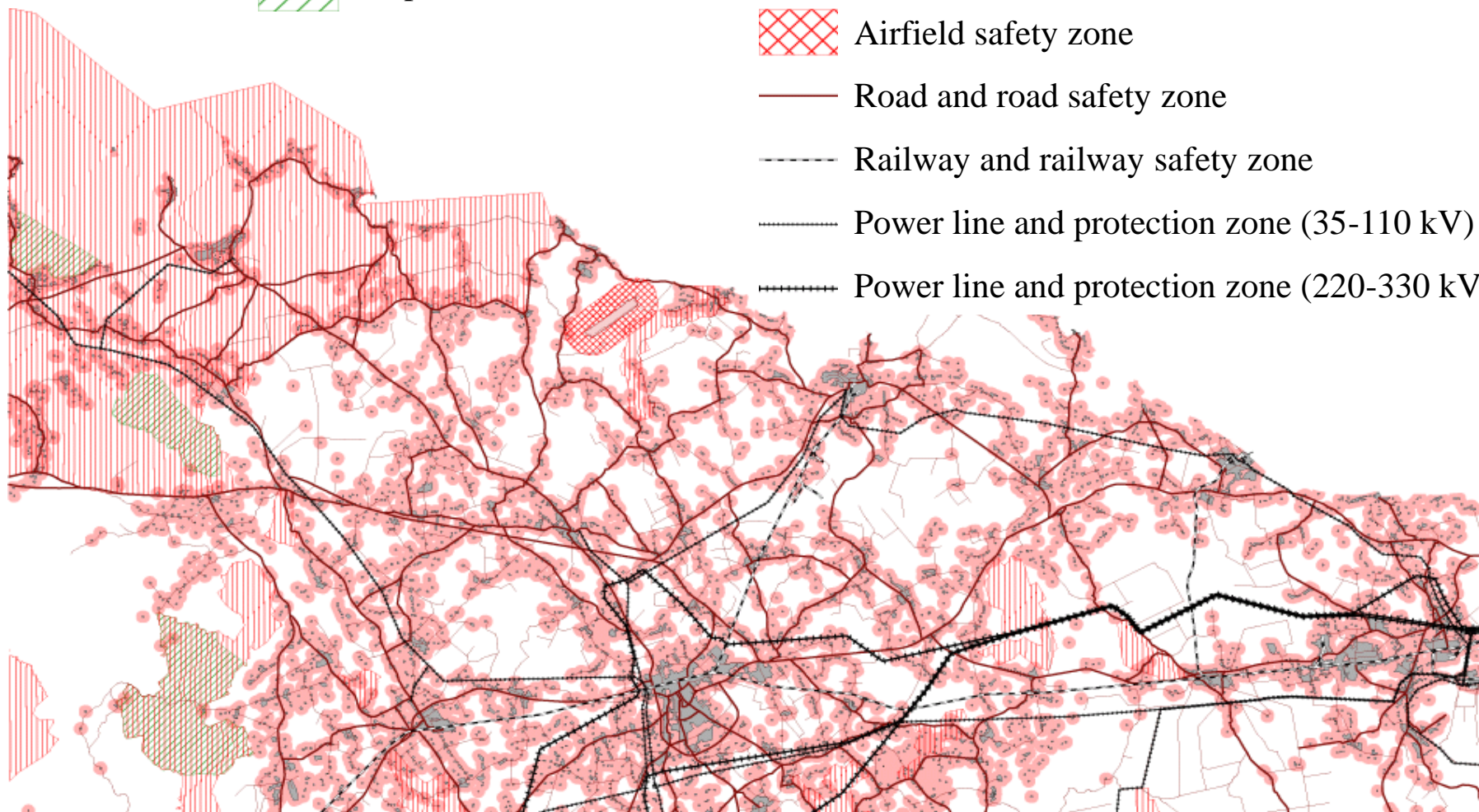
Railway and railway safety zone



Power line and protection zone (35-110 kV)



Power line and protection zone (220-330 kV)

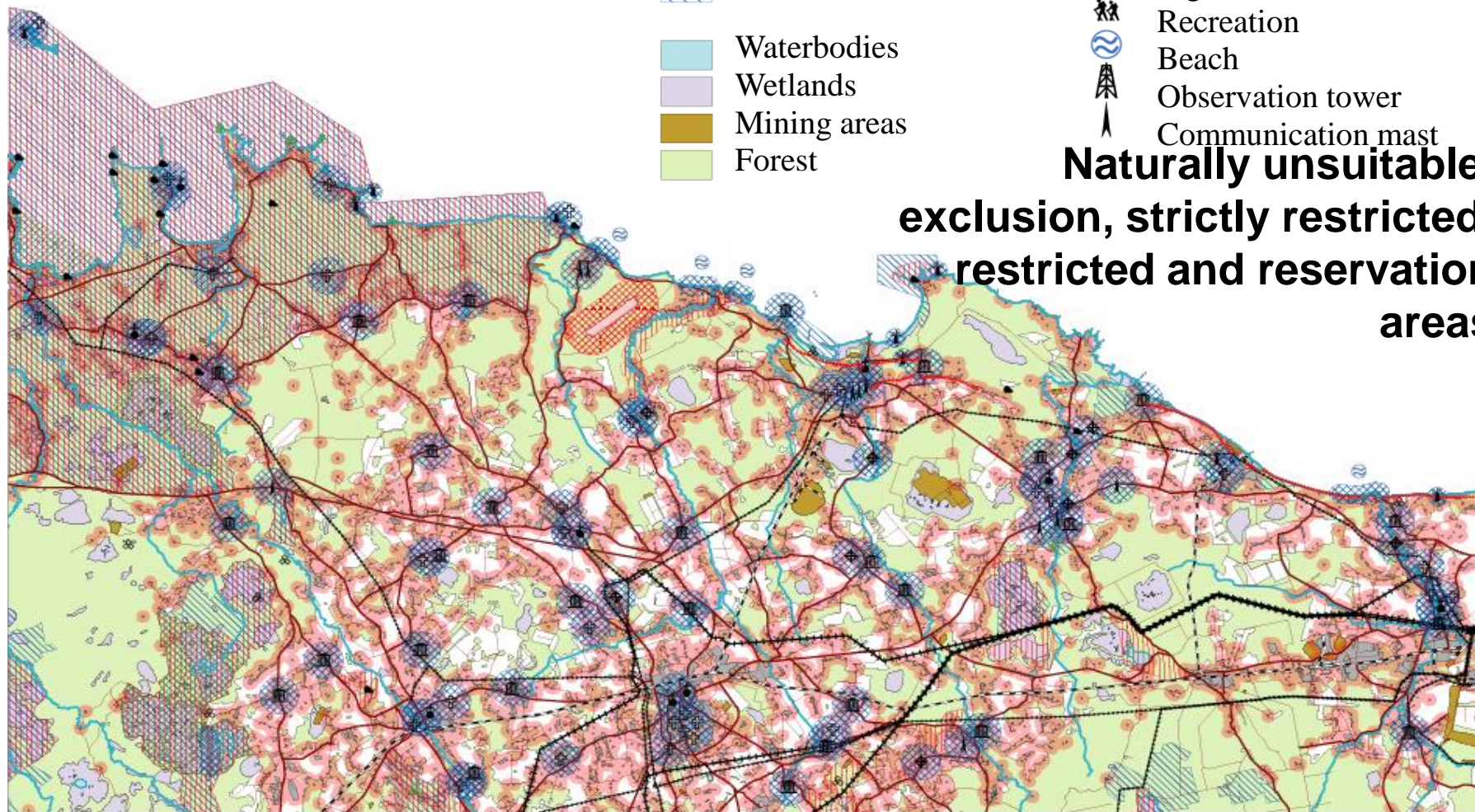


- Settlement
- Settlement noise prevention and safety zone
- Airfield
- ▨ Airfield safety zone
- Road and road safety zone
- Railway and railway safety zone
- Power line and protection zone (35-110 kV)
- Power line and protection zone (220-330 kV)

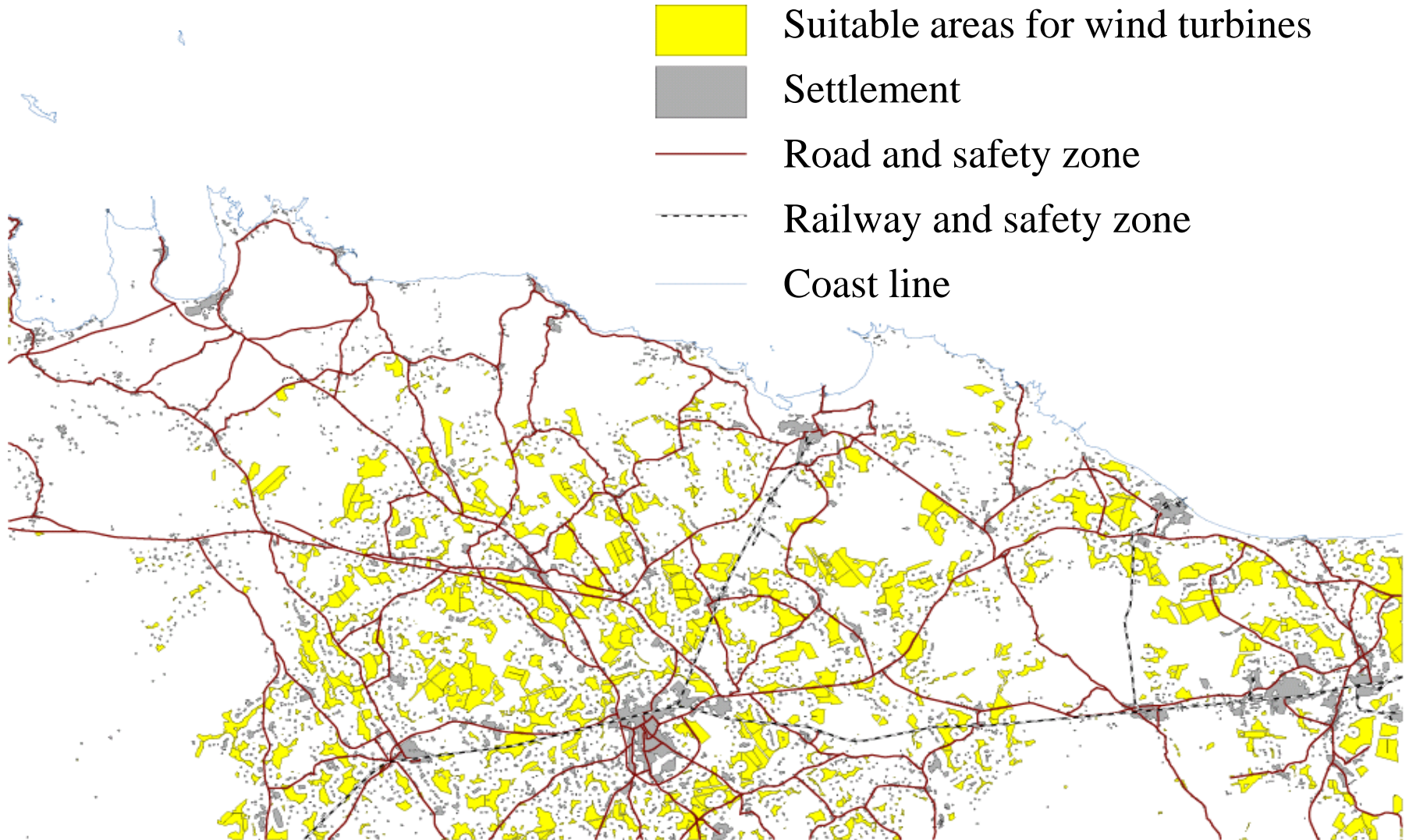
- ▨ Nature reserv
- ▨ Important bird area
- Coast and coastal protection zone
- Cliff
- ▨ Recreation, protection zones
- ▨ Natura 2000 areas
- Waterbodies
- Wetlands
- Mining areas
- Forest

- ✚ Cemetery
- ⊙ Church
- ⊕ Archeology
- ⌚ Architecture
- ⬛ Sacred place
- ⊗ Geology
- 🌳 Botany
- 🌳 Park
- 🔦 Lighthouse
- 🚶 Recreation
- 🌊 Beach
- 📡 Observation tower
- 📡 Communication mast

**Naturally unsuitable,
exclusion, strictly restricted,
restricted and reservation
areas**



Areas without legal restrictions for building wind farms and turbines



Step II

Sociological study to define social acceptance and sensitivity of different target groups by character of wind energy related disturbances (noise, flickering and shadows, landscape etc), potential usage conflict areas

Cost/benefit analysis

Visualization

Questionnaire

Literature review

- Benefits/costs (problems) for:
 - local inhabitants
 - local communities
 - state
- Applied support / mitigation schemes
 - taxation
 - resource taxes, royalties
 - tolerance payment, physical improvement of (living) environment/space
- BAT, innovative technologies

Visualization

a) Local (coastal and marine) landscape types defined in Latvia and Estonia;

b) Visualization of wind farms in specific landscapes;

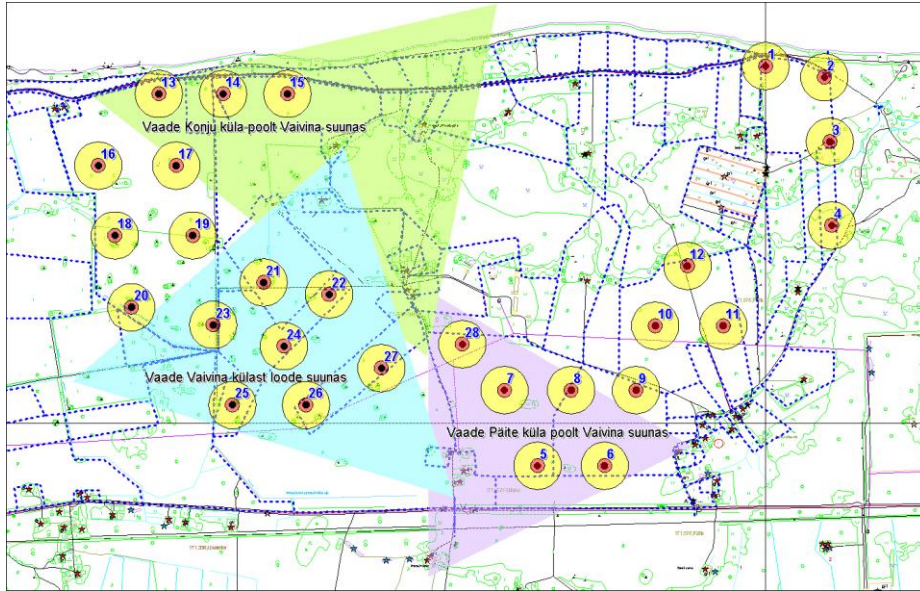
Distance from wind farm;

Size of wind farm;

Landscape of wind farm area



Visualization



Visualization



Sociological study

- Questionnaire
 - paper based
 - internet based
 - direct questionnaires for authority representatives
- Expected scientific output:
 - comparative study paper about attitude toward wind energy and offshore wind farms in EST and LAT

On-line questionnaires

- In Estonian:

<http://kwiksurveys.com?u=arvamusuuring>

- In Latvian:

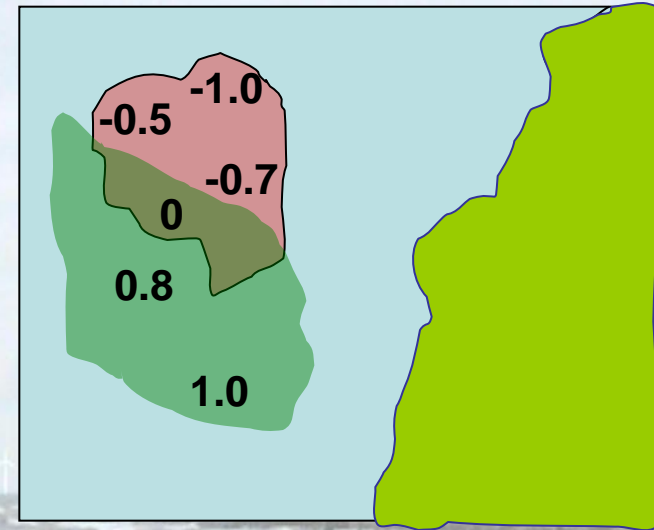
- http://www.kwiksurveys.com?s=OKKNML_6c433347

- In English:

<http://kwiksurveys.com?u=TTinEnglish>

Probability (acceptability) mapping

- Questionnaire:
 - how far is acceptable?
 - how many is acceptable?
 - where is acceptable?
- Stakeholder:
 - administrative level (planners, authorities)
 - local inhabitants
 - land owners /vacation
 - tourism
 - marine associates (fishermen, navigation etc)



Respondent plan

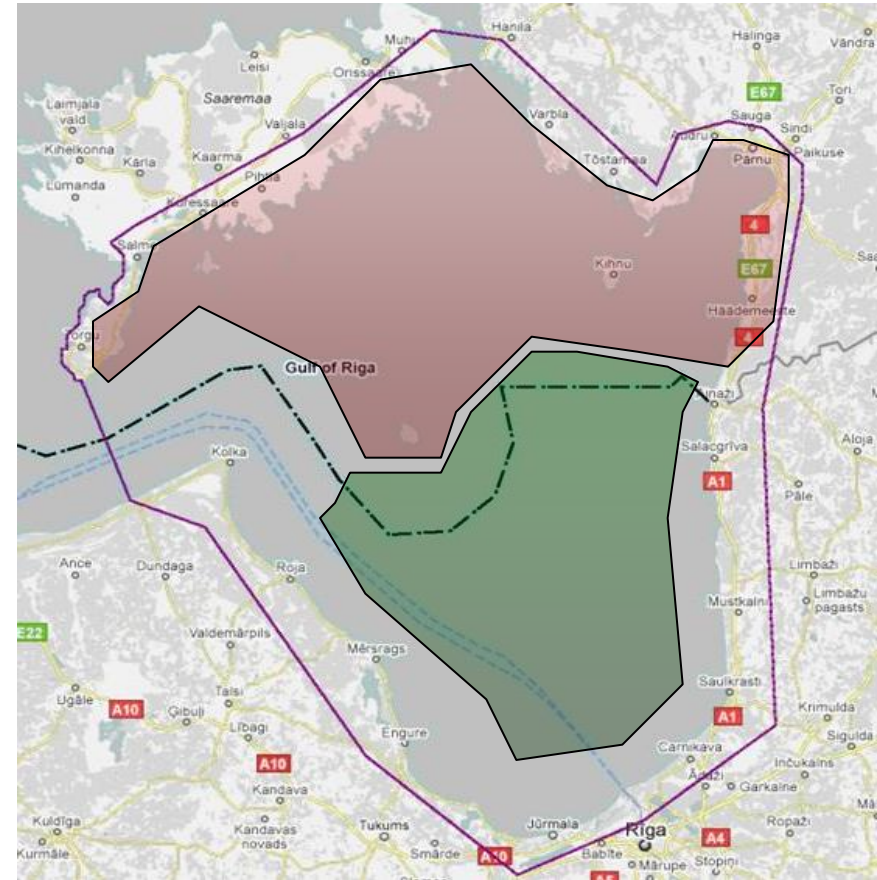
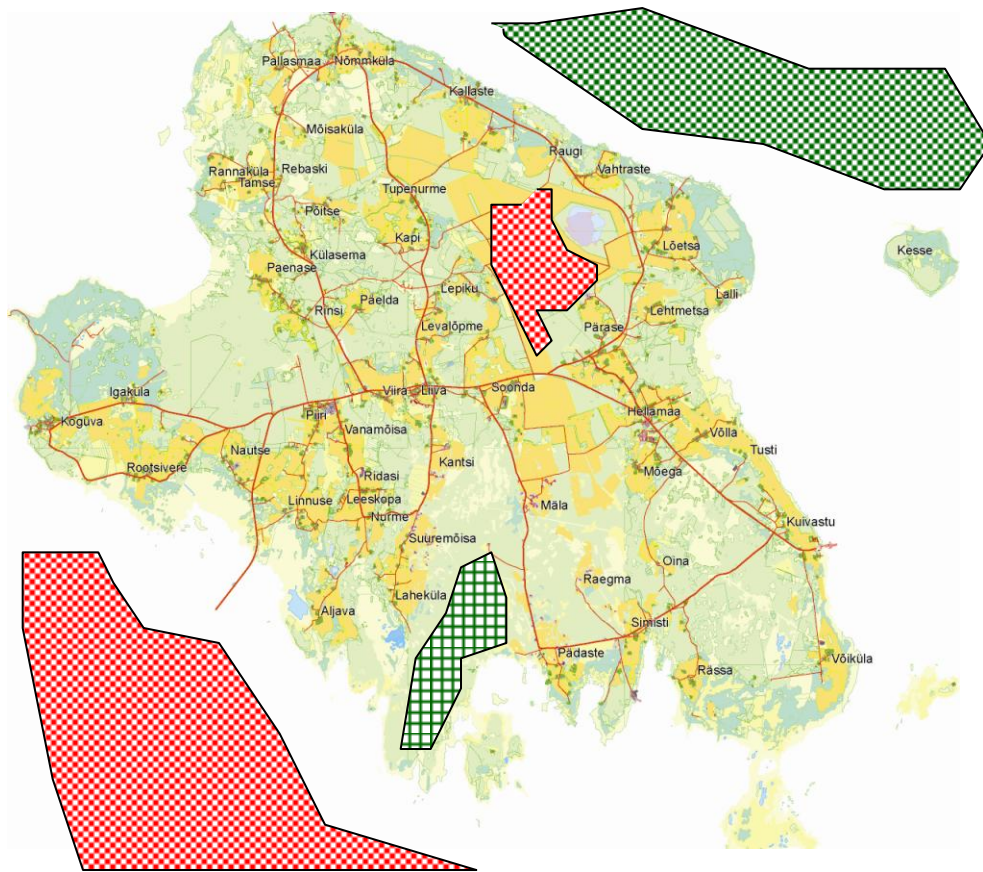
Katseplaan – küsitletavad kohalikud. (Kui igasse lahtrisse saab ristikese, siis saab küsitletuid kokku 384). Sellele lisanduvad kohaliku omavalitsuse esindajad, kalurid ja turistid.¶

□	Asula□						Hajaasustus□					
□	Mees□			Naine□			Mees□			Naine□		
□	18-35□	36-60□	61-...□	18-35□	36-60□	61-...□	18-35□	36-60□	61-...□	18-35□	36-60□	61-...□
Pärnumaa□	□											
Häädemeeste□	□	□	□	□	□	□	□	□	□	□	□	□
	□	□	□	□	□	□	□	□	□	□	□	□
Tahkuranna□	□	□	□	□	□	□	□	□	□	□	□	□
	□	□	□	□	□	□	□	□	□	□	□	□
Audru□	□	□	□	□	□	□	□	□	□	□	□	□
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Tõstamaa□	□	□	□	□	□	□	□	□	□	□	□	□
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Varbla□	□	□	□	□	□	□	□	□	□	□	□	□
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Kihnu□	□	□	□	□	□	□	□	□	□	□	□	□
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Läänemaa□	□											
Hanila□	□	□	□	□	□	□	□	□	□	□	□	□
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Saaremaa□	□											
Muhumaa□	□	□	□	□	□	□	□	□	□	□	□	□
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Põide□	□	□	□	□	□	□	□	□	□	□	□	□
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Laimjala□	□	□	□	□	□	□	□	□	□	□	□	□
	□	□	□	□	□	□	□	□	□	□	□	□

LOCALS

- + target groups (village movements, developers, authorities)
- + background (all national internet questionnaire)

Drawing exercise



Please delineate areas what You do consider as:

unsuitable for offshore wind farm development (**red colour**)

most favoured areas for offshore wind farm development (**green colour**)

If appropriate, please describe shortly why delineated areas are favoured or considered as unsuitable

Wind resource ...

+ Legal restrictions

+ Natural limitations

+ Nature protection

+ Social limitations

= Suitability rate

