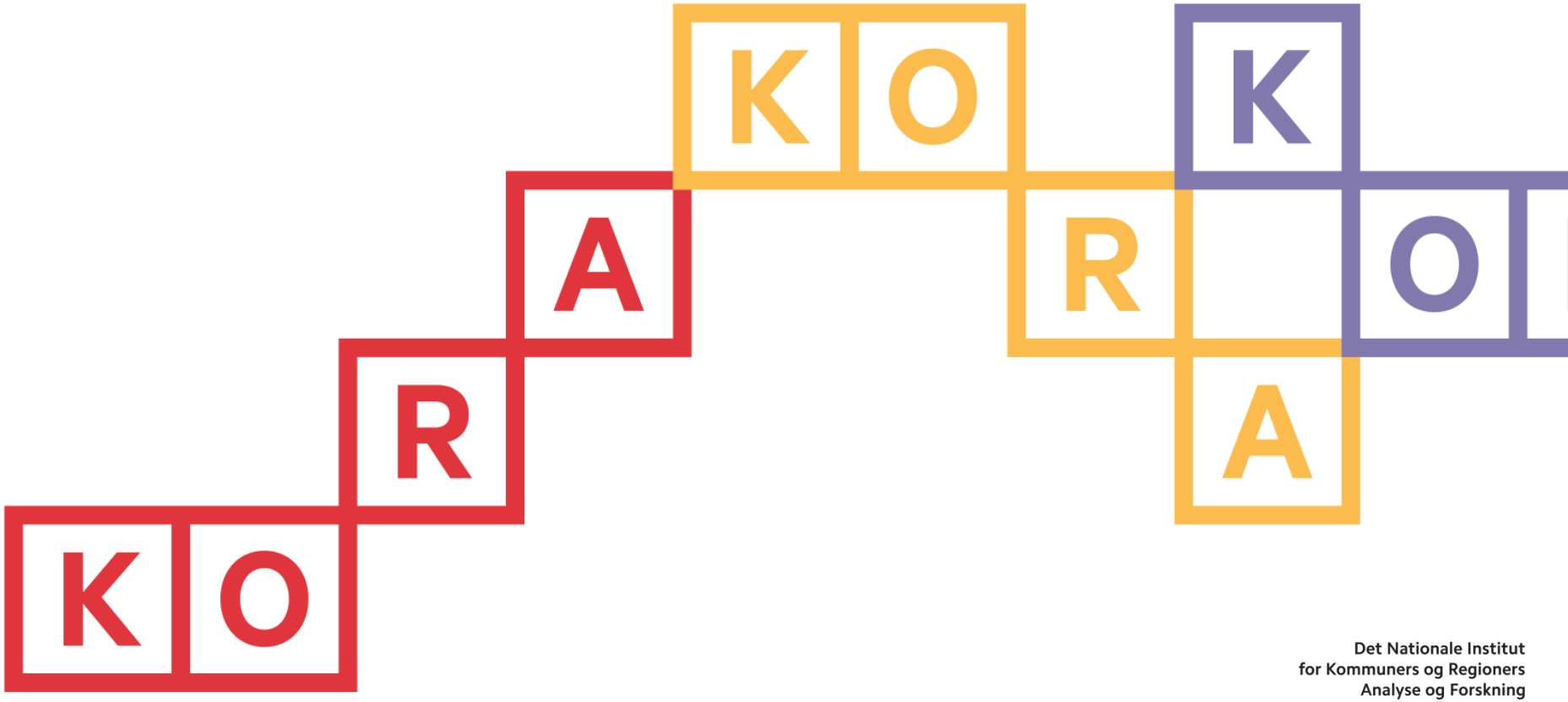
Jacob Ladenburg

The relationship between accept of wind turbines and distance: Latest results from WP

WIND2050



Det Nationale Institut
for Kommuners og Regioners
Analyse og Forskning

How does distance and other spatial variable influence acceptance and preferences for wind power location?

- Attitudes for onshore vs. offshore.
- Preferences for offshore location
- Preferences for onshore vs. offshore
- Preferences for onshore locations

Attitudes towards more onshore and offshore wind power development

2007 Survey

Respondents asked on a 5 point attitude scale

Attitudes towards:

- Increase onshore
- Repower onshore
- Increase offshore

Spatial variable

Number of turbines seen daily

0-5 turbines (reference)

6-10 turbines

11-20 turbines

>20 turbines

Results

Respondents seeing more than 5 turbines dislike a higher degree of onshore wind farms development relative to offshore wind farms.

Preferences for offshore location (Ladenburg and Knapp 2015)

2007 survey

Location of 3500 MW offshore at different geographical specified locations.

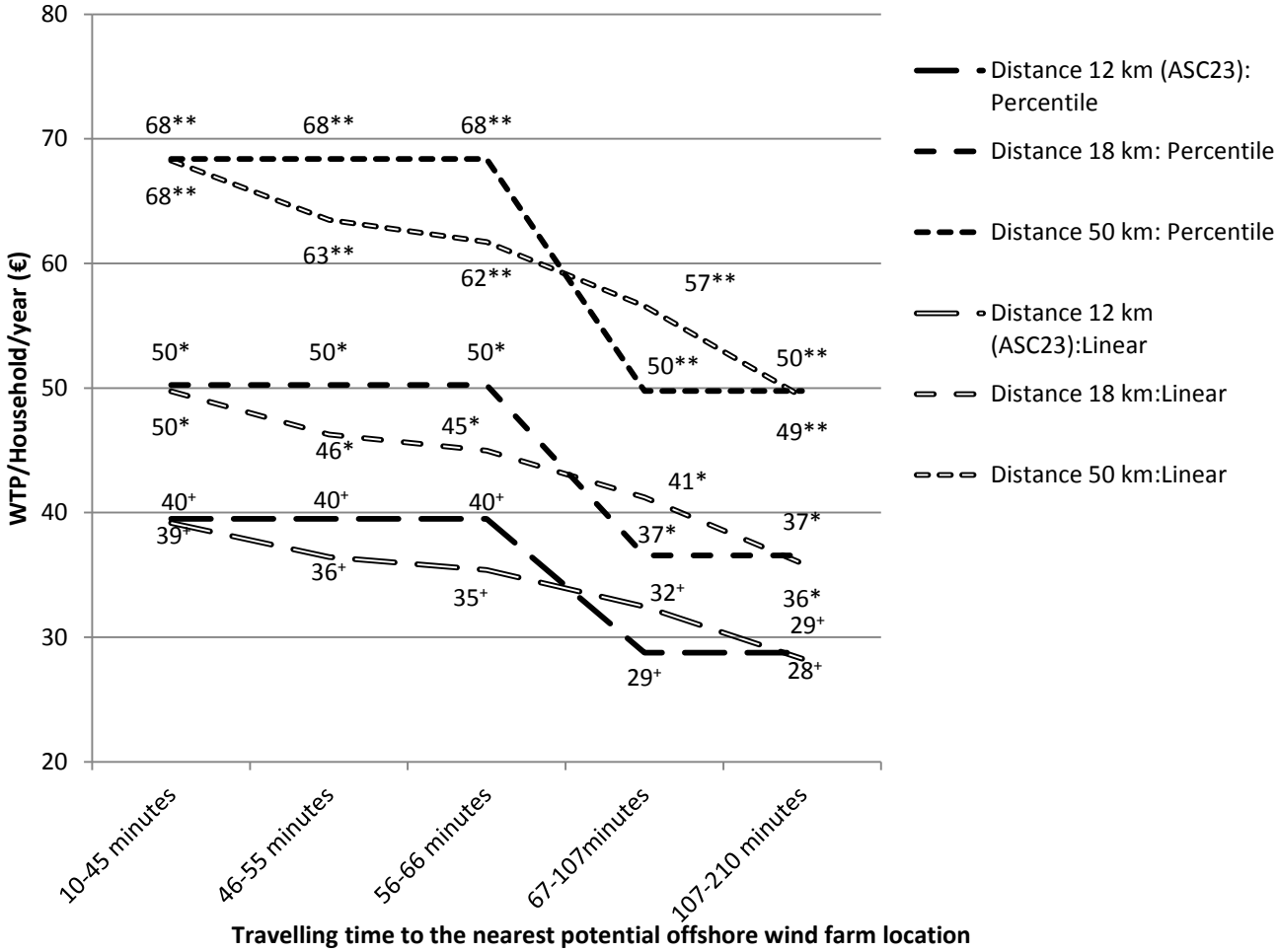
Respondents asked to make choices between different location and the distance from the shore the wind will be located at

Spatial variables

Travel time to the nearest potential offshore wind farm location

Number of turbines seen daily (no effect)

Results


80
70
60
50
40
30
20
WTP/Household/year (€)
68**
68**
68**
68**
63**
62**
57**
50*
50*
50*
50**
50**
50*
46*
45*
49**
41*
40+
40+
40+
39+
37*
37*
36+
35+
32+
36*
29+
29+
28+
10-45 minutes
46-55 minutes
56-66 minutes
67-107minutes
107-210 minutes
Travelling time to the nearest potential offshore wind farm location
Distance 12 km (ASC23): Percentile
Distance 18 km: Percentile
Distance 50 km: Percentile
Distance 12 km (ASC23):Linear
Distance 18 km:Linear
Distance 50 km:Linear

Preferences for Onshore vs. Offshore (Abay 2014)

2012 survey

- Location of app. 450 MW onshore (in different municipalities) or in one offshore wind farm.

Attributes in choices

Onshore:

- Distance to settlement: 500 and 1000 m
- Number of people in the settlement: 0-10, 11-100 and more than 100 people
- Size of turbines: 1x3MW, 2x1.5MW and 4x750 kW.
- Costs

Offshore:

- Location at: Bornholm, Møn, Anholt, Jammerbugt and Vesterhavet
- 8, 12, 18 or 50 km from the coast
- Costs

Map given to the respondents

Choice set example (much better pictures in the survey)

Alternativ A	Alternativ B
	
Placering: Øst for Møn Afstand: 8 km fra kysten Betaling: 300 kr./år	Mølle: 4*750 kW Afstand: 500 m Beboere: >100 Betaling: 300 kr./år

Spatial variables

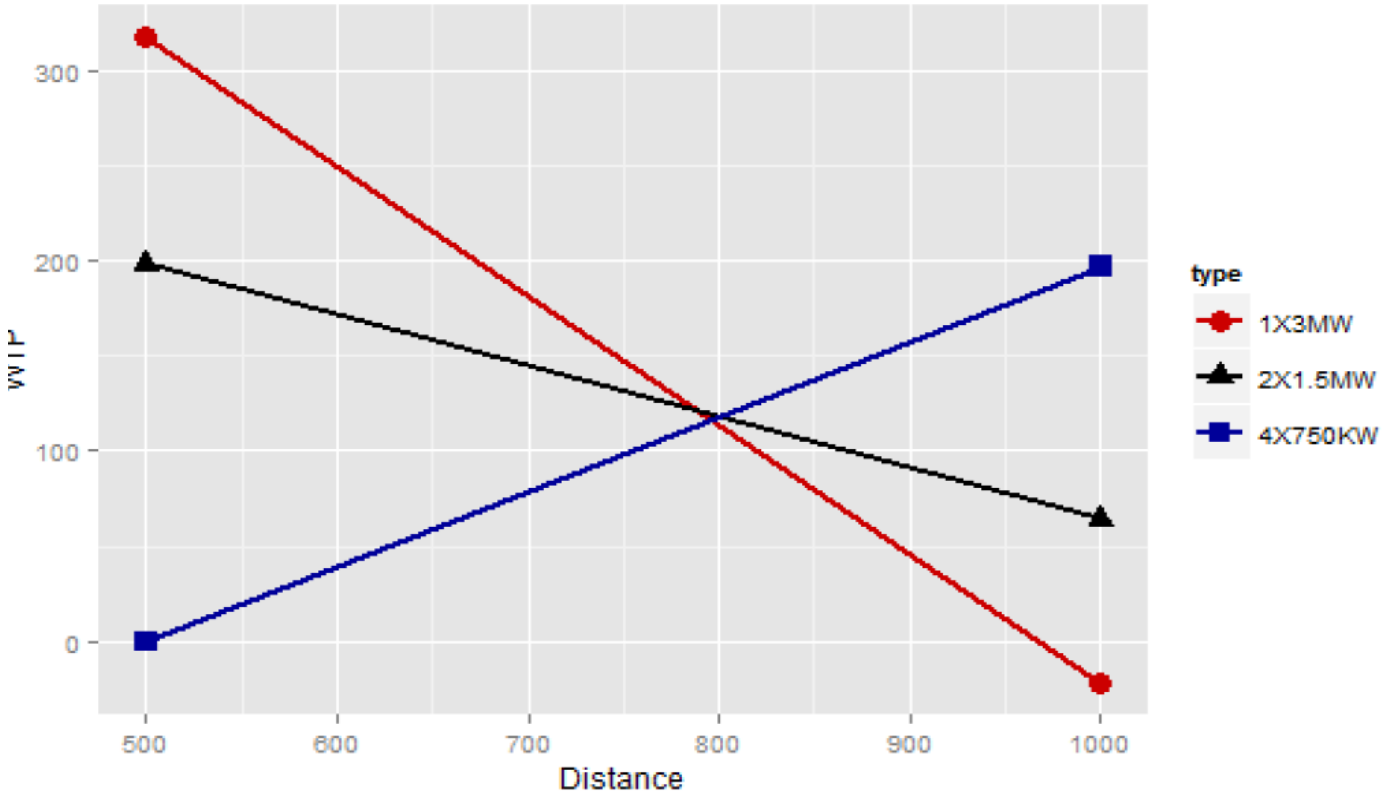
Distance to the settlement

Distance to the shore (offshore)

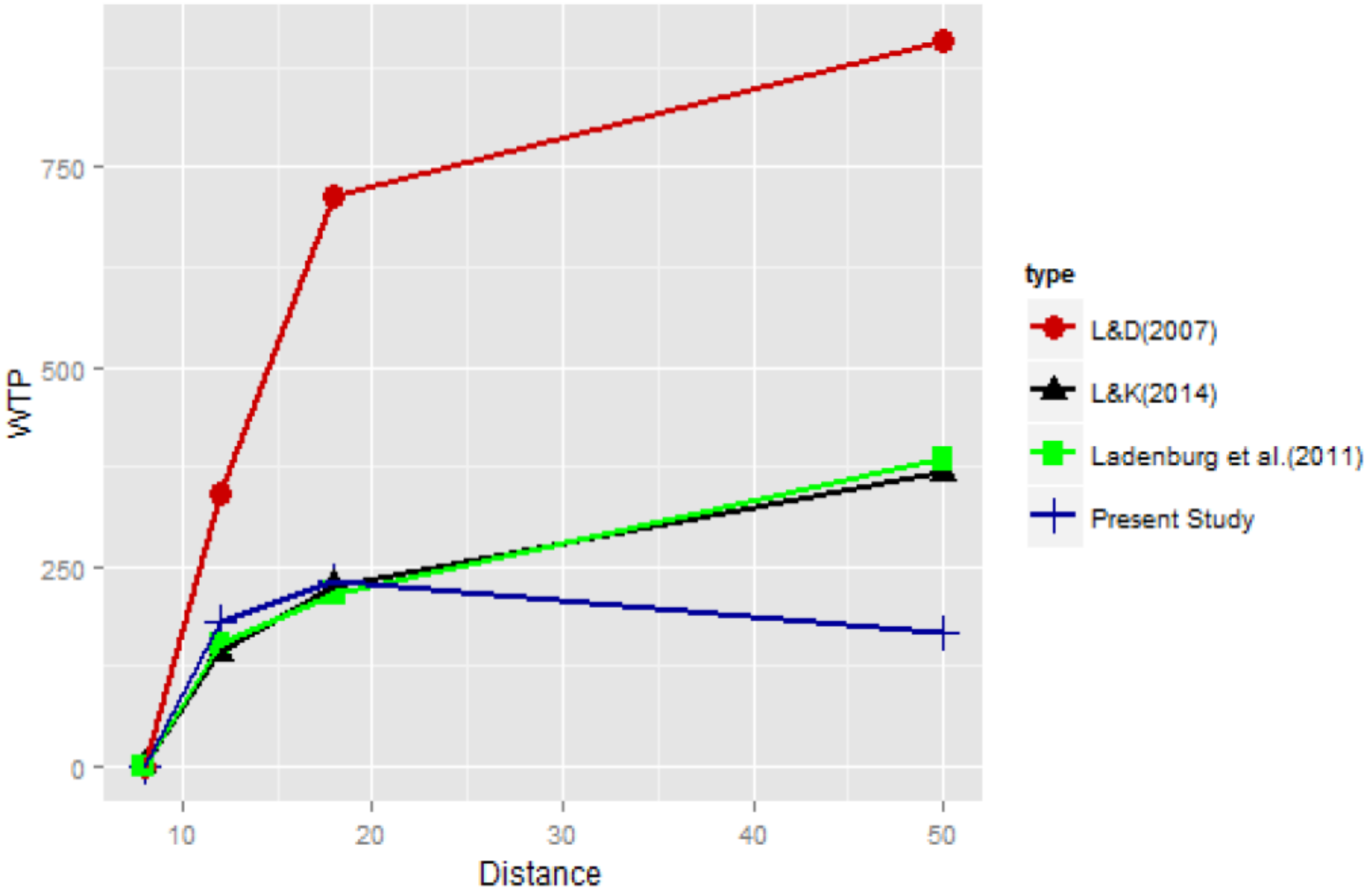
Number of turbines seen daily:

0, 1-5, 6-10, 11-20 and more than 20 turbines.

Results: Distance to the settlement (tentative)



Distance to the shore (tentative)



Cumulative effects (tentative)

The more turbines people see on a daily basis, the stronger preferences do people have for offshore development relative to onshore developement.

Onshore vs. Onshore (Ackermann 2015)

Survey from 2012

- Location of app. 450 MW onshore (in different municipalities)

Attributes in choices

Onshore:

- Distance to settlement: 500 and 1000 m
- Number of people in the settlement: 0-10, 11-100 and more than 100 people
- Size of turbines: 1x3MW, 2x1.5MW and 4x750 kW.
- Costs

Spatial variables

Distance to the settlement

Number of turbines seen daily.

Distance to urban infrastructure

Distance to recreational areas (lakes, forests and national parks)

Results (tentative)

- Same distance to settlements preferences as in Abay.
- The more turbines people see daily, the stronger preferences (WTP) do they have for changes in the composition of onshore turbines.
- Close to a national park: Dislike many small turbines (4x750kW)
- Close to an industrial area: Dislike few larger turbines (2x1.5MW)

Moving forward

Attitude study: close to being submitted

Offshore study: close to being submitted

Onshore vs. Offshore: In process

Onshore vs. onshore: In process

Thank you for your attention