

Improving social acceptance of small wind technologies

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Opportunities for small wind turbines in urban areas

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Introduction

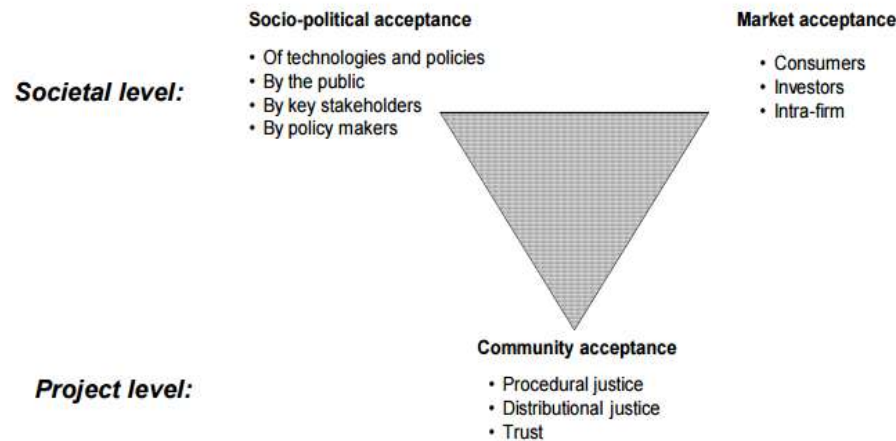
1. Requirements for Social Acceptance
2. SWIP Survey
3. Analysis
4. Key Messages
5. Recommendations

Requirements for Social Acceptance



Social Acceptance of Renewables

Acceptance of renewables \neq Acceptance of an installation



Wustenhagen, Wolsink & Burer (2007)

- Wustenhagen model – developed for LWTs:
 - Socio-political acceptance: Accepting technology can have positive impacts and need support
 - Market acceptance: Accepted as good investments by customers and businesses
 - Community acceptance: Support for individual installations and operation of technology



SWT Acceptance

Context

Understand social acceptance of SWTs and anticipate community acceptance issues

Questions to Answer

1. What is the current awareness level and public opinion of SWTs?
2. What influences current opinions of SWTs?
3. What are the key barriers to the uptake of SWTs and what can overcome them?

SWIP Survey



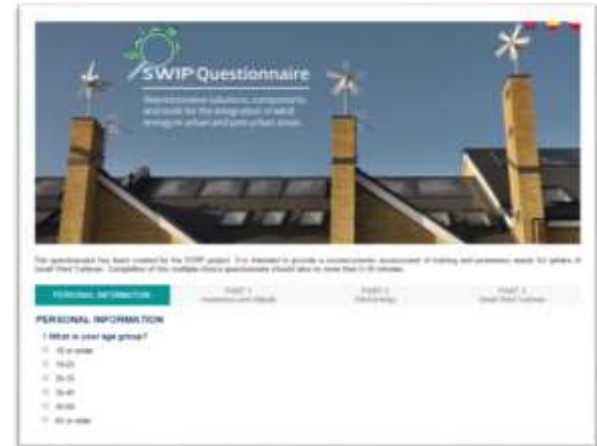
SWIP Survey

Questionnaire prepared with 22 questions

Available in English, Polish, Spanish, French and German

Responses collected online and in person at the Spanish and Polish demonstration sites

425 questionnaires collected



Background

1. Demographic Questions – Age, Occupation, Income, Education, etc.
2. Awareness of Renewables – Opinion, Knowledge Level
3. Attitudes to Wind Energy – Opinion, Familiarity, Reaction

Questions on SWTs

Opinion, Familiarity, Reaction, Barriers, Competition, Ownership options

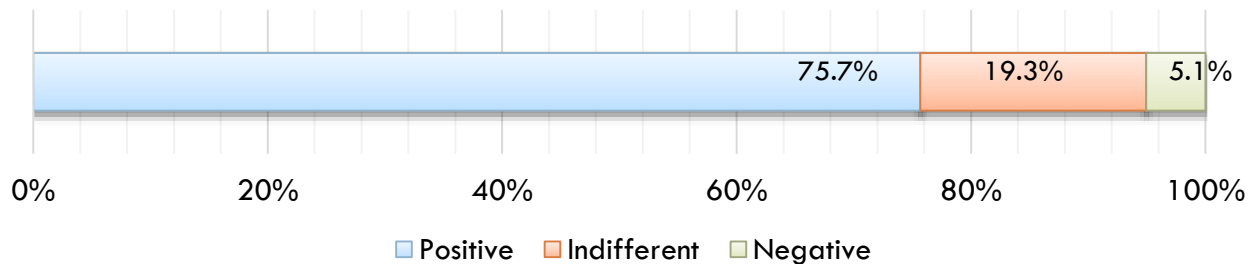
Analysis



Awareness level and public opinion of SWTs

- Despite being a small market, 52% of respondents had previously seen a SWT

What would your reaction be to a SWT in your environment?



- 76% said that they would have a positive reaction to the installation of one in their environment

Reaction to SWT in neighbourhood by previous exposure

	Positive Reaction	Indifferent Reaction	Negative Reaction
All	75.7%	19.3%	5.1%
Yes – Have seen SWTs	75.2%	19.6%	5.1%
No – Have not seen SWTs	76.0%	19.0%	5.0%

- No correlation between having seen a SWT and expected reaction



Comparison with response to large wind turbine

Individuals more likely to respond positively to SWT than LWT in their environment

Distribution of all reactions to wind turbines and small wind turbines

		Large Wind Turbines			
			Positive	Indifferent	Negative
Small Wind	ALL	75.7%	64.7%	24.2%	11.1%
	Positive	19.3%	60.8%	10.9%	4.1%
	Indifferent	5.1%	3.1%	13.1%	2.9%
	Negative		0.7%	0.2%	4.1%



Comparison with response to large wind turbine

Individuals more likely to respond positively to SWT than LWT in their environment

General correspondence between opinions on large and small turbines

Distribution of all reactions to wind turbines and small wind turbines

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Small Wind		ALL	64.7%	24.2%	11.1%
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	Negative	5.1%	0.7%	0.2%	4.1%



Comparison with response to large wind turbine

Individuals more likely to respond positively to SWT than LWT in their environment

General correspondence between opinions on large and small turbines

But the picture is nuanced

- 11% of respondents would be indifferent to LWT but positive to SWT
- 4% of respondents negative to LWT but positive to SWT
- 1% negative to SWT but positive to LWT

Distribution of all reactions to wind turbines and small wind turbines

		Large Wind Turbines			
			Positive	Indifferent	Negative
Small Wind	ALL	75.7%	64.7%	24.2%	11.1%
	Positive	19.3%	60.8%	10.9%	4.1%
	Indifferent	5.1%	3.1%	13.1%	2.9%
	Negative	0.7%	0.2%	4.1%	

Breakdown by Demographic Group

For all demographic groups:

- More positive responses to SWT than LWT

Reaction to WTs and SWTs by demographic grouping

	Positive	Reaction to WT		Positive	Reaction to SWT	
		Indifferent	Negative		Indifferent	Negative
TOTAL	64.7%	24.2%	11.1%	75.7%	19.3%	5.1%
GENDER						
Male	67.0%	22.0%	11.0%	77.7%	17.8%	4.5%
Female	59.3%	29.3%	11.4%	70.7%	22.8%	6.5%
AGE						
19-25	65.1%	22.2%	12.7%	82.5%	12.7%	4.8%
26-35	69.2%	24.3%	6.5%	80.5%	15.4%	4.1%
36-45	63.5%	23.5%	12.9%	69.4%	27.1%	3.5%
45-60	56.8%	25.7%	17.6%	68.0%	22.7%	9.3%
60+	60.9%	26.1%	13.0%	69.6%	26.1%	4.3%
EDUCATION						
Secondary	52.5%	35.0%	12.5%	60.0%	32.5%	7.5%
Vocational	52.9%	47.1%	0.0%	77.8%	16.7%	5.6%
Bachelor	65.0%	26.0%	9.0%	78.0%	17.0%	5.0%
Master	68.0%	20.5%	11.5%	79.5%	17.0%	3.5%
Doctorate	66.1%	17.9%	16.1%	69.6%	21.4%	8.9%
PROFESSION						
Policy Maker	47.4%	21.1%	31.6%	44.4%	33.3%	22.2%
Business Owner	69.0%	17.2%	13.8%	75.9%	24.1%	0.0%
Energy	71.7%	19.2%	9.1%	82.8%	15.2%	2.0%
Other	52.1%	43.7%	4.2%	72.2%	26.4%	1.4%
INCOME						
Less than €20,000	62.2%	25.0%	12.8%	79.8%	15.0%	5.2%
€20,000-€40,000	63.3%	27.3%	9.3%	74.0%	23.3%	2.7%
€40,000-€60,000	73.5%	14.3%	12.2%	72.9%	16.7%	10.4%
€60,000+	78.1%	9.4%	12.5%	81.3%	9.4%	9.4%
ENVIRONMENT						
Urban	67.40%	21.63%	10.97%	77.67%	17.30%	5.03%
Rural	55.32%	32.98%	11.70%	68.75%	26.04%	5.21%
RES KNOWLEDGE						
Very Good	74.3%	16.9%	8.8%	80.9%	16.2%	2.9%
Good	67.4%	22.3%	10.3%	76.8%	17.8%	5.4%
Average	42.9%	41.6%	15.6%	66.7%	26.9%	6.4%
Poor	56.3%	25.0%	18.8%	62.5%	25.0%	12.5%

Breakdown by Demographic Group

Younger respondents
are most positive to
both SWTs and LVTs

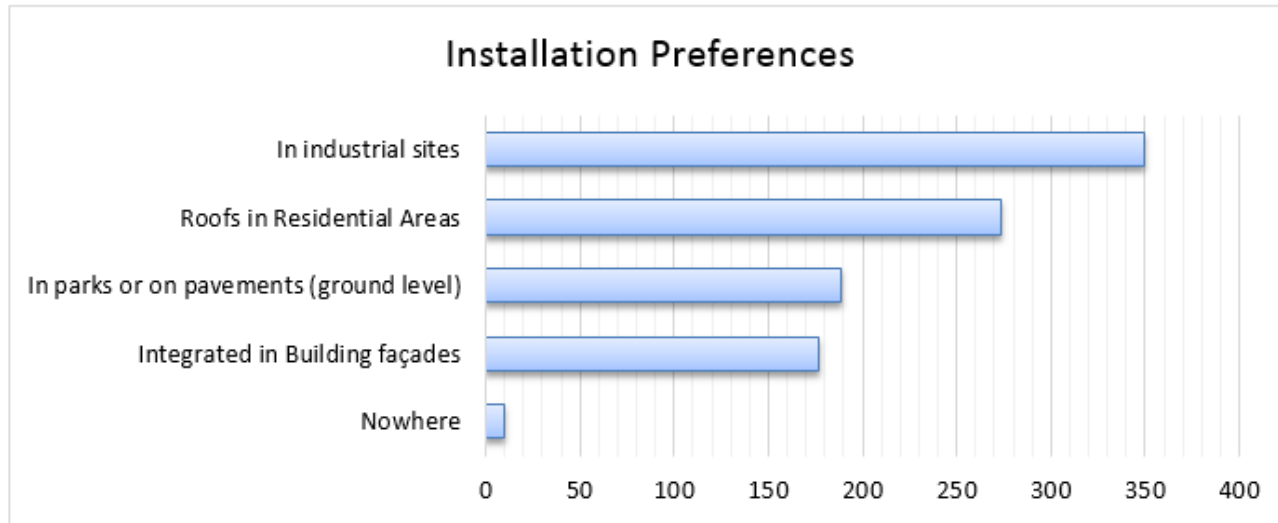
Higher education levels
partly correspond to
more positive reactions
for both

Urban populations
respond more
positively than rural
populations

Reaction to WTs and SWTs by demographic grouping

	Reaction to WT			Reaction to SWT		
	Positive	Indifferent	Negative	Positive	Indifferent	Negative
TOTAL	64.7%	24.2%	11.1%	75.7%	19.3%	5.1%
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€60,000+	78.1%	9.4%	12.5%	81.3%	9.4%	9.4%
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Good	67.4%	22.3%	10.3%	76.8%	17.8%	5.4%
Average	42.9%	41.6%	15.6%	66.7%	26.9%	6.4%
Poor	56.3%	25.0%	18.8%	62.5%	25.0%	12.5%

Installation Preferences



Industrial sites were regarded as the most acceptable places for installing SVTs, far ahead of the second place response of roofs in residential areas

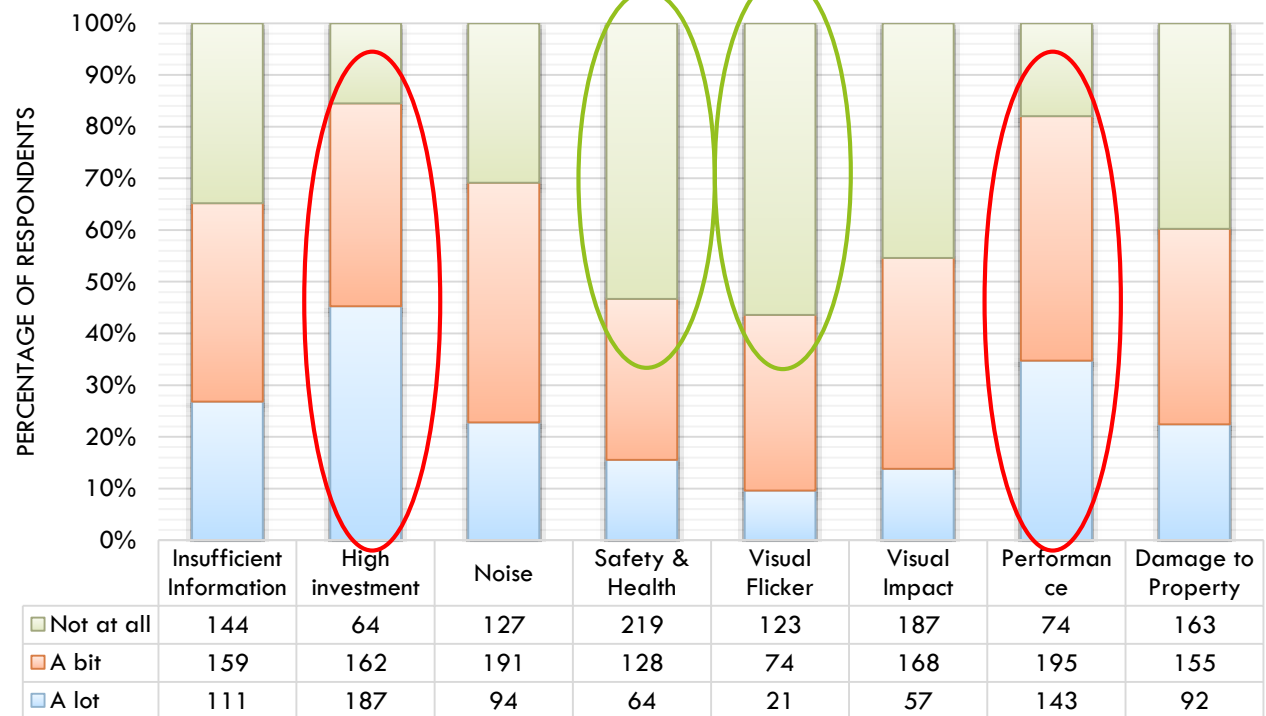
Multiple answers possible – 75 respondents (18%) selected all options

Agreement with statements on investment barriers

High investment and concern over performance were the main issues

Considerably less concern about safety or visual flicker

How much do you agree with the following statements for explaining what prevents you from investing in a Small Wind Turbine?



Agreement with statements on investment barriers

Analysis performed of barriers v. demographic factors – full data in the report

Few noticeable trends – Agreement with barriers is largely the same across demographic groups

Agreement with barriers to SWT investment by demographic groups

	a) Insufficient Information			b) High Investment			c) Noise			d) Safety & Health		
	A lot	A bit	Not at all	A lot	A bit	Not at all	A lot	A bit	Not at all	A lot	A bit	Not at all
TOTAL	26.8%	38.4%	34.8%	45.3%	39.2%	15.5%	22.8%	46.4%	30.1%	15.6%	31.1%	53.3%
GENDER												
Male	23.9%	39.0%	37.1%	32.7%	48.2%	20.1%	20.0%	47.6%	32.4%	14.6%	29.5%	55.9%
Female	29.8%	42.5%	30.8%	55.0%	52.8%							
AGE												
19-25	25.4%	39.7%	34.9%	25.0%	48.4%							
26-35	23.1%	37.9%	39.1%	33.1%	47.9%							
36-45	28.2%	41.2%	30.6%	43.5%	49.4%							
46-50	37.8%	33.8%	28.4%	40.5%	45.9%							
51-60	17.4%	43.5%	39.1%	26.1%	65.2%							
EDUCATION												
Secondary	25.0%	47.5%	27.5%	32.5%	57.5%							
Vocational	27.8%	33.3%	38.9%	36.7%	61.1%							
Bachelor	21.0%	38.0%	39.0%	34.0%	52.0%							
Master	26.1%	39.2%	34.7%	37.4%	45.5%							
Doctorate	37.5%	52.1%	30.4%	39.3%	46.4%							
PROFESSION												
Policy Maker	5.6%	44.4%	50.0%	27.8%	66.7%							
Business Owner	34.5%	37.5%	27.6%	55.2%	37.9%							
Energy	19.4%	35.7%	44.9%	34.0%	45.4%							
Other	27.8%	37.5%	34.7%	38.9%	50.0%							
INCOME												
Less than €20,000	18.5%	46.2%	35.3%	39.3%	46.8%							
€20,000-€40,000	30.9%	38.3%	30.9%	31.1%	54.7%							
€40,000-€60,000	39.6%	27.1%	33.3%	27.1%	54.2%							
€60,000+	37.5%	21.9%	40.6%	40.6%	34.4%							
RES KNOWLEDGE												
Very Good	19.5%	51.9%	48.9%	32.6%	45.9%							
Good	27.0%	41.6%	31.4%	37.0%	49.5%							
Average	33.3%	46.2%	20.5%	35.9%	55.1%							
Poor	36.3%	18.8%	25.0%	43.8%	37.5%							

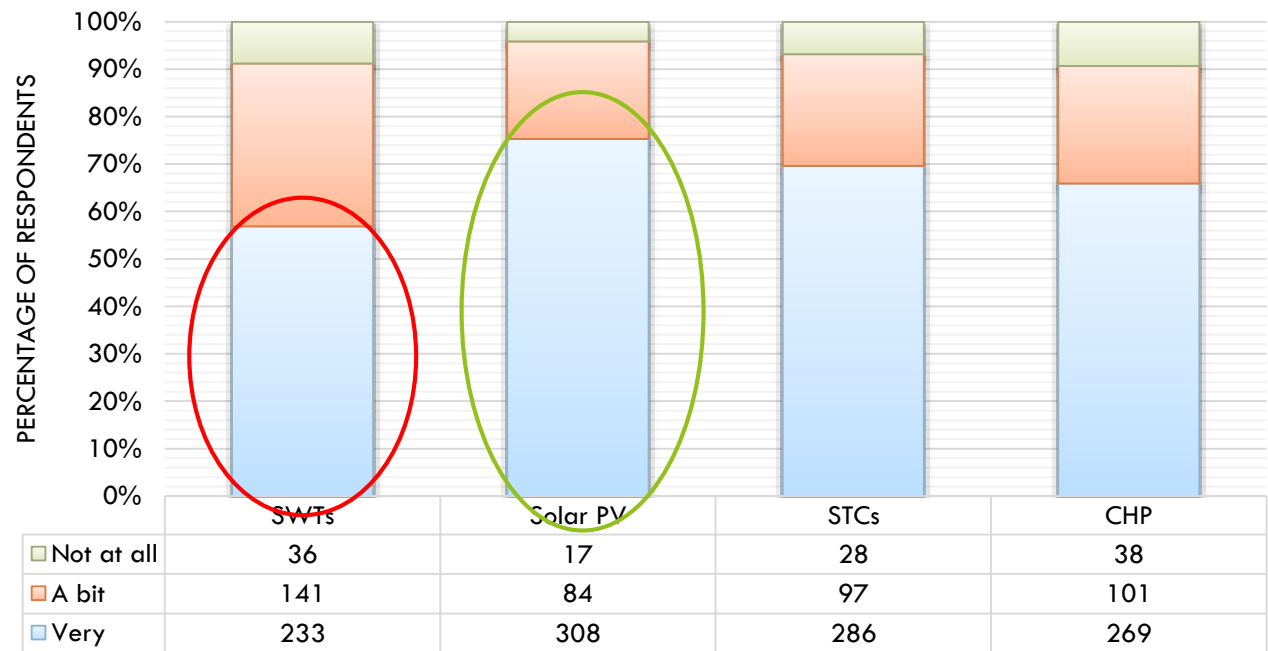
	e) Visual Flicker			f) Visual Impact			g) Performance			h) Vibration		
	A lot	A bit	Not at all	A lot	A bit	Not at all	A lot	A bit	Not at all	A lot	A bit	Not at all
TOTAL	9.7%	33.9%	56.4%	13.9%	40.8%	45.4%	34.7%	47.3%	18.0%	22.4%	37.8%	39.8%
GENDER												
Male	8.0%	35.2%	56.8%	14.1%	41.5%	44.3%	39.4%	43.5%	17.3%	20.6%	37.4%	42.0%
Female	14.5%	30.4%	55.4%	13.0%	39.0%	48.0%	25.6%	58.9%	19.5%	26.8%	39.0%	34.1%
AGE												
19-25	6.8%	43.2%	50.0%	9.7%	45.2%	45.2%	55.2%	29.0%	17.7%	22.6%	37.1%	40.3%
26-35	7.2%	27.7%	65.1%	13.6%	42.6%	43.8%	35.1%	44.0%	20.8%	25.4%	33.1%	41.4%
36-45	14.0%	32.6%	53.5%	16.5%	32.9%	50.5%	35.3%	50.6%	14.1%	23.5%	40.0%	36.5%
46-60	9.4%	50.0%	40.6%	14.9%	45.9%	39.2%	21.6%	63.5%	14.9%	13.9%	45.8%	40.3%
60+	18.8%	12.5%	68.8%	13.6%	27.3%	59.1%	21.7%	56.5%	21.7%	33.8%	42.9%	33.3%
EDUCATION												
Secondary	18.8%	31.3%	50.0%	10.0%	35.0%	55.0%	17.5%	67.5%	15.0%	15.4%	35.9%	48.7%
Vocational	0.0%	75.0%	25.0%	17.6%	58.8%	23.5%	27.8%	44.4%	27.8%	23.5%	29.4%	47.1%
Bachelor	8.7%	51.9%	59.4%	14.0%	47.0%	59.0%	36.4%	44.4%	19.2%	28.3%	38.4%	33.3%
Master	9.9%	54.2%	55.9%	14.1%	38.9%	47.0%	35.9%	46.0%	18.2%	22.2%	36.9%	40.9%
Doctorate	7.1%	21.4%	71.4%	14.3%	35.7%	50.0%	41.1%	44.6%	14.3%	18.2%	45.5%	36.4%
PROFESSION												
Policy Maker	11.1%	50.0%	38.9%	11.1%	66.7%	22.2%	16.7%	66.7%	16.7%	27.8%	55.6%	16.7%
Business Owner	20.7%	37.9%	41.4%	20.7%	41.4%	37.9%	41.4%	44.8%	13.8%	25.0%	35.7%	39.3%
Energy	7.3%	31.3%	61.5%	6.2%	39.2%	54.6%	39.6%	39.6%	20.8%	30.6%	33.0%	46.4%
Other	8.5%	31.0%	60.6%	15.3%	34.7%	50.0%	34.7%	51.4%	13.9%	28.2%	33.8%	38.0%
INCOME												
Less than €20,000	7.5%	33.0%	59.4%	12.3%	44.2%	43.6%	35.7%	47.3%	19.2%	23.8%	35.5%	40.7%
€20,000-€40,000	10.7%	39.8%	50.0%	16.2%	41.2%	42.6%	32.4%	51.4%	16.2%	23.4%	40.7%	35.9%
€40,000-€60,000	15.4%	34.6%	50.0%	12.5%	39.6%	47.9%	45.8%	45.8%	8.3%	29.2%	35.4%	35.4%
€60,000+	10.5%	21.1%	68.4%	15.6%	25.0%	59.4%	31.3%	37.5%	31.3%	3.1%	34.4%	62.5%
RES KNOWLEDGE												
Very Good	5.3%	19.7%	75.0%	11.9%	34.1%	54.1%	40.7%	38.5%	20.7%	21.6%	30.6%	47.8%
Good	12.9%	37.6%	49.5%	14.1%	44.0%	41.8%	31.0%	52.2%	16.8%	30.9%	38.5%	40.7%
Average	9.1%	50.0%	40.9%	13.0%	46.8%	40.3%	31.2%	51.9%	16.9%	26.0%	49.4%	24.7%
Poor	30.0%	40.0%	40.0%	31.3%	51.3%	37.5%	48.8%	48.8%	12.5%	31.3%	37.5%	31.3%

Interest in competing solutions

More people expressed interest in **PV** than any other solution

SWTs the least popular

How interested would you be in the following decentralised energy solutions for your home?



Interest by demographic background

Younger people expressed more interest in SWTs than older demographics

But interest in PV crosses age boundaries

Interest in decentralised energy solutions by demographic grouping

	TOTAL	Small Wind Turbine			Solar PV			Solar Thermal Collectors			Combined Heat and Power		
		Very	A bit	Not at all	Very	A bit	Not at all	Very	A bit	Not at all	Very	A bit	Not at all
GENDER													
Male		60.6%	31.7%	7.7%	77.3%	19.2%	3.5%	71.2%	22.6%	6.3%	67.4%	25.3%	7.4%
Female		48.0%	40.7%	11.4%	70.7%	23.6%	5.7%	65.9%	26.0%	8.1%	62.6%	23.6%	13.8%
AGE													
19-25		65.1%	30.2%	4.8%	72.6%	24.2%	3.2%	69.8%	25.4%	4.8%	77.4%	11.3%	11.3%
26-35		63.7%	29.8%	6.5%	79.8%	17.3%	3.0%	74.4%	21.4%	4.2%	73.8%	20.2%	6.0%
36-45		44.6%	47.0%	8.4%	75.0%	21.4%	3.6%	67.9%	23.8%	8.3%	53.0%	38.0%	8.4%
46-55		53.4%	30.1%	16.4%	68.1%	23.6%	8.3%	67.1%	21.9%	11.0%	58.9%	28.8%	12.3%
56+		39.1%	47.8%	13.0%	73.9%	21.7%	4.3%	47.8%	39.1%	13.0%	45.5%	31.8%	22.7%
EDUCATION													
Secondary		46.2%	38.5%	15.4%	59.0%	28.2%	12.8%	61.5%	25.6%	12.8%	59.0%	20.5%	20.5%
Vocational		66.7%	22.2%	11.1%	70.6%	23.5%	5.9%	72.2%	16.7%	11.1%	55.6%	33.3%	11.1%
Bachelor		60.6%	33.3%	6.1%	75.8%	19.2%	5.1%	67.7%	23.2%	9.1%	68.0%	24.0%	8.0%
Master		61.5%	31.0%	7.5%	77.9%	18.6%	3.5%	72.0%	22.0%	6.0%	67.7%	22.2%	10.1%
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Energy		60.2%	33.7%	6.1%	84.7%	14.3%	1.0%	76.8%	17.2%	6.1%	62.9%	30.9%	6.2%
Other		63.4%	32.4%	4.2%	78.9%	18.3%	2.8%	73.1%	22.5%	4.2%	67.6%	22.5%	9.9%
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Less than €20,000		57.1%	33.5%	9.4%	76.5%	17.1%	6.5%	63.2%	26.9%	9.9%	66.5%	23.5%	10.0%
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€60,000+		71.9%	21.9%	6.3%	78.1%	21.9%	0.0%	71.9%	21.9%	6.3%	71.9%	21.9%	6.3%
ENVIRONMENT													
Urban		59.2%	33.2%	7.6%	75.0%	21.8%	3.2%	70.7%	22.7%	6.6%	67.2%	24.2%	8.6%
Rural		49.5%	37.6%	12.9%	76.1%	16.3%	7.6%	66.7%	26.9%	6.5%	62.4%	25.8%	11.8%
RES KNOWLEDGE													
Very Good		65.2%	28.1%	6.7%	80.7%	17.8%	1.5%	79.4%	14.0%	6.6%	76.1%	17.9%	6.0%
Good		56.8%	34.4%	8.7%	74.7%	18.1%	7.1%	66.7%	26.8%	6.6%	62.4%	27.1%	10.5%
Average		44.7%	43.4%	11.8%	67.1%	30.3%	2.6%	61.8%	30.3%	7.9%	58.4%	31.2%	10.4%
Poor		43.8%	43.8%	12.5%	70.6%	23.5%	5.9%	56.3%	37.5%	6.3%	56.3%	25.0%	18.8%

Interest by demographic background

Those in an urban area more interested in **SWTs** than those in rural areas...

but not the case for **PV**

Interest in decentralised energy solutions by demographic grouping

	TOTAL	Small Wind Turbine			Solar PV			Solar Thermal Collectors			Combined Heat and Power		
		Very	A bit	Not at all	Very	A bit	Not at all	Very	A bit	Not at all	Very	A bit	Not at all
GENDER													
Male		60.6%	31.7%	7.7%	77.3%	19.2%	3.5%	71.2%	22.6%	6.3%	67.4%	25.3%	7.4%
Female		48.0%	40.7%	11.4%	70.7%	23.6%	5.7%	65.9%	26.0%	8.1%	62.6%	23.6%	13.8%
AGE													
19-25		65.1%	30.2%	4.8%	72.6%	24.2%	3.2%	69.8%	25.4%	4.8%	77.4%	11.3%	11.3%
26-35		63.7%	29.8%	6.5%	79.8%	17.3%	3.0%	74.4%	21.4%	4.2%	73.8%	20.2%	6.0%
36-45		44.6%	47.0%	8.4%	75.0%	21.4%	3.6%	67.9%	23.8%	8.3%	53.0%	38.6%	8.4%
45-60		53.4%	30.1%	16.4%	68.1%	23.6%	8.3%	67.1%	21.9%	11.0%	58.9%	28.8%	12.3%
60+		39.1%	47.8%	13.0%	73.9%	21.7%	4.3%	47.8%	39.1%	13.0%	45.5%	31.8%	22.7%
EDUCATION													
Secondary		46.2%	38.5%	15.4%	59.0%	28.2%	12.8%	61.5%	25.6%	12.8%	59.0%	20.5%	20.5%
Vocational		66.7%	22.2%	11.1%	70.6%	23.5%	5.9%	72.2%	16.7%	11.1%	55.6%	33.3%	11.1%
Bachelor		60.6%	33.3%	6.1%	75.8%	19.2%	5.1%	67.7%	23.2%	9.1%	68.0%	24.0%	8.0%
Master		61.5%	31.0%	7.5%	77.9%	18.6%	3.5%	72.0%	22.0%	6.0%	67.7%	22.2%	10.1%
Doctorate		37.0%	48.1%	14.8%	76.4%	23.6%	0.0%	69.1%	29.1%	1.8%	63.0%	33.3%	3.7%
PROFESSION													
Policy Maker		27.8%	50.0%	22.2%	68.4%	26.3%	5.3%	50.0%	44.4%	5.6%	77.8%	16.7%	5.6%
Business Owner		55.6%	37.0%	7.4%	77.8%	18.5%	3.7%	77.8%	14.8%	7.4%	73.1%	19.2%	7.7%
Energy		60.2%	33.7%	6.1%	84.7%	14.3%	1.0%	76.8%	17.2%	6.1%	62.9%	30.9%	6.2%
Other		63.4%	32.4%	4.2%	78.9%	18.3%	2.8%	73.1%	22.5%	4.2%	67.6%	22.5%	9.9%
INCOME													
Less than €20,000		57.1%	33.5%	9.4%	76.5%	17.1%	6.5%	63.2%	26.9%	9.9%	66.5%	23.5%	10.0%
€20,000-€40,000		59.1%	32.2%	8.7%	76.4%	19.6%	4.1%	76.5%	19.5%	4.0%	70.3%	22.3%	7.4%
€40,000-€60,000		46.8%	42.6%	10.6%	66.0%	34.0%	0.0%	70.2%	25.5%	4.3%	54.3%	30.4%	15.2%
€60,000+		71.9%	21.9%	6.3%	78.1%	21.9%	0.0%	71.9%	21.9%	6.3%	71.9%	21.9%	6.3%
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Poor		43.8%	43.8%	12.5%	70.6%	23.5%	5.9%	56.3%	37.5%	6.3%	56.3%	25.0%	18.8%

Co-ownership

Co-ownership was popular – **86%** said they would be interested

26-35 group most receptive

Those **very interested in SWTs** were very receptive to co-ownership

Almost half those with **no interest in SWTs** showed some interest when co-ownership was offered

		Interest in co-ownership	
		Yes	No
All		86.2%	13.8%
Age			
	19-25	88.9%	11.1%
	26-35	91.6%	8.4%
	36-45	76.1%	23.9%
	45-60	85.3%	14.7%
	60+	81.3%	18.8%
Income			
	Less than €20,000	83.3%	16.7%
	€20,000-€40,000	89.7%	10.3%
	€40,000-€60,000	85.2%	14.8%
	More than €60,000+	90.5%	9.5%
Environment			
	Urban	87.1%	12.9%
	Rural	82.7%	17.3%
Interested in SWT			
	Very	94.4%	5.6%
	A bit	80.8%	19.2%
	Not at all	43.8%	56.2%

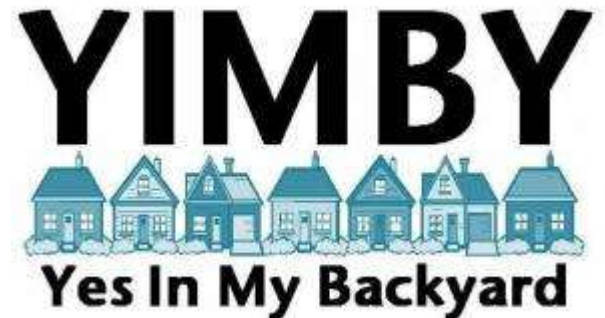
Key Messages





What is the current awareness level and public opinion of SWTs?

- Just over 50% of respondents had previously seen a SWT
- 76% said they would have a positive reaction to the installation of a SWT in their environment
- All demographic groups would respond more positively to a SWT than to a large wind turbine
- Industrial sites were regarded as the most acceptable places for installing SWTs – then roofs



What influences current opinions of SWTs?

- No link between having seen SWTs and expected reaction to one in their neighbourhood
- Some correlation between acceptance of renewable energies (and wind turbines in particular) with small wind turbines, but picture is nuanced
- Younger people more interest in SWTs than older demographics, and more likely to respond positively to a SWT
- Those in urban areas more likely to respond positively than those in rural communities



What are the key barriers to uptake of SWTs and what can overcome them?

- Main barriers are technological and economical, rather than social: investment and performance
- SWTs face significant competition from other decentralised energy solutions, particularly PV – need to find USP and key markets
- Co-ownership may represent a major opportunity for SWTs



Recommendations



For Policy Makers

- Small Wind Turbines need to be considered differently to other renewable energy technologies
 - Broad acceptance of renewables cannot be assumed to transfer automatically to SWTs. Must have dedicated support policies and communications campaigns.
- Information campaigns must focus on resource availability, and make recommendations of suitable technologies and installers
 - Wind mapping at a neighbourhood or district level could be a solution – show citizens where wind is available



For Policy Makers

- Urban planners should question use and placement of SWT if there is not clear evidence that the turbine will actually function – anything else is bad advertising and wasted investment
- Higher acceptance – Regions could consider supporting smaller wind installations where resistance to larger wind turbines had been high in the past
- Installations for multi-tenancy housing could be an option, especially if mixed with a co-ownership option. However, communicate clearly to avoid community rejection.



For Businesses

- There is a market for SWTs, if current barriers can be overcome
- Stress competitive advantages of SWTs – visibility compared to other solutions – but avoid greenwashing
- Industry will need to focus on correct installation and maintenance, if it is not to suffer in the long-term
 - Advertising should focus on cost-competitiveness and potential return-on-investment
 - Be truthful about potential yield and target consumers only in areas where wind resources are available



For Businesses

- Co-ownership has significant potential for key markets:
 - Young people in urban areas – more accepting of the technology, but also co-ownership and sharing economy
 - Peri-urban/industrial areas – higher acceptance, and mid-sized turbines can be used for multiple ownership.
- New business models – service based contracts, where individual firms are responsible for siting, installing and maintaining SWTs
 - Could help to overcome both cost issues, and also concerns about performance – build trust



THANK YOU VERY MUCH FOR YOUR ATTENTION

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