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Opposing out loud versus supporting in silence

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E-mail: g.perlaviciute@rug.nl**Keywords:** public participation, decision-making, emotions, energy projects, acceptability**Abstract**

Public participation in decision-making is widely expected to contribute to democratic society, better decisions, and higher public acceptability of energy projects. The realization of the desired functions of public participation depends, however, on who participates in decision-making. In opinion surveys about two planned wind parks in the Netherlands, we found that opponents were more willing to participate than supporters. Those who would not accept the project under any conditions were more motivated to participate than those who may accept the project if certain conditions were met. Furthermore, motivation to participate was associated with stronger negative emotions towards the project (e.g. angry, disappointed), and weaker positive emotions (e.g. happy, proud). Taken together, public preferences to participate in decision-making can affect the desired functions of public participation, as not everyone will equally participate. Our findings have important implications for energy policies primarily focusing on demographic representativeness in participation: it is also important to consider the representation of different perspectives in decision-making. Also, incorporating people's different emotions towards energy projects can be a valuable route to effective public participation, in addition to the dominating rationalistic approach.

1. Introduction

Public participation in decision-making refers here to processes organized by responsible parties (i.e. private or public bodies) to engage the public in the planning, design, and implementation of energy projects (Dietz and Stern 2008)³. The importance of public participation in decision-making is widely recognized in policy-making (e.g. the European Commission's Green Deal) and in law internationally (e.g. the Aarhus Convention) and nationally (e.g. the Dutch Climate Law).

Public participation is expected to serve three functions: (a) normative—improving democratic

decision-making by enabling people to influence decisions that affect them, (b) substantive—citizens can bring in multifaceted knowledge and expertise that experts may otherwise miss, and (c) instrumental—people are more likely to perceive the decision-making process as fair and accept energy projects if the public were involved in the decision-making (Fiorino 1990, Bidwell 2016, Bidwell and Schweizer 2020, Liu *et al* 2020a).

For the three functions of public participation, it seems imperative that diverse perspectives of different people are represented in decision-making. Otherwise participatory procedures may be dominated by homogeneous groups, such as well-educated people (Hall *et al* 2011, Entradas 2016, Squintani 2017, Squintani and Schoukens 2019), which hinders the development of a democratic society (i.e. the normative function of public participation). Next, if diverse perspectives are not represented, this hinders the possibility to incorporate different types of knowledge and expertise (i.e. the substantive function of public

³ The focus in this paper is on formal, invited participatory processes. People may participate in energy projects—including in the decision-making—in other ways too, such as by joining bottom-up and/or community-based energy projects (e.g. energy cooperatives) and engaging in daily energy practices (e.g. adopting smart meters), which are beyond the scope of this paper.

participation; Sunstein 2002). Furthermore, if some groups are excluded from decision-making, this can fuel public resistance towards the decision-making and its outcomes, impeding the instrumental function of public participation. Apart from the normative rationale for including diverse perspectives in public participation, legislation also sets minimum standards for project developers and public authorities to provide diverse citizens with ‘early and real voice’, such as the exemplary Aarhus Convention and the Escazu Agreement (United Nations 1998, Stec and Jendroška 2019).

We argue that in order to promote diversity in public participation procedures, it is critical to understand *who*, among the public, wants to participate in energy project decision-making. Normative theories and legislation regarding public participation neglect public preferences for participation (Perlaviciute 2021). Yet, people may not want to participate about everything and all the time—the turnout in participation events is sometimes low and people sometimes prefer information provision over participation (Webb 2013, Turcanu *et al* 2014, Ruostetsaari 2017). If (some) people choose to not participate, it can be challenging to include diverse perspectives in decision-making. Consequently, exclusion may still prevail in participatory procedures even if different societal groups *can* participate. To address this problem, we study who wants to participate in energy project decision-making.

1.1. Public acceptability of energy projects and willingness to participate in decision-making

The loss aversion theory (LAT) postulates that people are more likely to act when they anticipate losses rather than gains (Kahneman and Tversky 1979). Specifically, people are particularly motivated to engage in activities that can protect them from threat and losing what they have (Skitka 2002). Drawing upon LAT, we expect that people are more likely to participate in decision-making when they find the energy project *less* rather than *more* acceptable. When responsible parties (e.g. companies, the state) introduce energy projects, project opponents may want to participate in decision-making in order to stop the project development, while supporters may think the project is likely to be implemented anyway and may therefore not participate. There is some initial evidence that opponents of energy projects are more willing to participate in decision-making than supporters (Turcanu *et al* 2014, Colvin *et al* 2016, Hoti *et al* 2021). For example, opponents of nuclear energy were more willing to take action to express their position than supporters of nuclear energy (De Groot and Steg 2010). This study, however, did not examine a real energy project in people’s backyard. In the current research, we test if lower project acceptability leads to higher people’s willingness to participate in decision-making

about a wind energy project planned in their region (Hypothesis 1).

We extend the literature by examining *when* opponents of energy projects are more likely to participate in decision-making than supporters. The fact that opponents are more likely to participate does not hinder the desired functions of public participation; capturing people’s objections is in fact the primary purpose of some participatory practices, such as environmental impact assessment. Ideally, however, public participation practices would also capture the conditions and criteria that people consider important for the development of energy projects. For example, if people are concerned about the risks that birds may get injured by wind turbines, they may find it critical that the safety of birds is addressed, such as by setting the wind turbines still when birds are flying around the turbines. These perspectives may be overlooked, however, if people participate only if they would never accept the project, and do *not participate* when they find the project acceptable provided that certain conditions are met. This might hinder the potential of public participation to weigh different arguments and deliberate different perspectives (Harinck and De Dreu 2004, Corner *et al* 2012, Schuster *et al* 2020).

Novel to the literature, we distinguish two types of project acceptability: when people find the project unacceptable under any conditions, versus when they may accept the project if certain conditions were met. We hypothesize that particularly when people would never accept an energy project, this leads to higher willingness to participate in project decision-making (Hypothesis 2). Arguably, the fact that some people will never find a certain project acceptable might signal that they perceive very high threats, which—deriving from LAT—could strongly motivate people to participate in decision-making. Next, we explore how people’s willingness to accept the project if certain conditions were met relates to their willingness to participate in decision-making. On the one hand, people may want to participate in decision-making if they would accept the project under certain conditions, because they want to make sure that those conditions are met. On the other hand, they may not perceive very high threats from the project, which might reduce their motivation to participate according to LAT. We explore which is the case.

1.2. Emotions towards energy projects and willingness to participate in decision-making

Energy projects can evoke emotions in people, including negative (e.g. anxious, angry, annoyed, disappointed, feeling terrible, and powerless) (Peters and Slovic 1996, Truelove 2012, Huijts *et al* 2014, Colvin *et al* 2016), as well as positive emotions (e.g. satisfied, calm, enthusiastic, happy, and proud) (Devine-Wright 2011, Contzen *et al* 2021). Currently, project developers often ignore people’s emotions

towards energy projects, as they consider emotions irrational, unjustified, and impossible to deal with (Perlaviciute *et al* 2018). Yet, we propose that emotions could play a critical role in explaining who wants to participate in energy project decision-making, and need to be considered when organizing participatory events.

We expect that the stronger negative emotions people feel about an energy project, the more likely that they are willing to participate in decision-making (Hypothesis 3). Arguably, negative emotions might signal that people perceive threats, which—deriving from LAT—could motivate people to participate in decision-making. Negative emotions are valuable in public participation because they help illuminate key public concerns. Similarly, positive emotions are valuable because they illuminate what people appreciate about the project. However, if people with strong negative emotions are *more* willing to participate, while people with positive emotions are *less* willing to participate, this would result in asymmetry in perspectives represented in public participation. Yet, people with strong positive emotions may as well want to participate in order to discuss their reasons for implementing the project. We therefore explore how people's positive emotions towards an energy project relate to their willingness to participate in decision-making.

2. Case study: public participation in decision-making on local wind energy projects

As a case in point, we studied people's willingness to participate in decision-making about two planned wind energy projects in the Municipality of Groningen, the Netherlands. The municipality of Groningen aims to be carbon neutral by 2035 and is transitioning from using fossil fuels to renewable energy sources. Accordingly, the municipality proposed two wind parks in the regions Westpoort and Roodehaan, respectively, based on their geographical location to substantially generate wind energy (figure 1).

Together with a local environmental organization and a local organization for energy cooperatives, the municipality of Groningen established in 2019 the so-called 'Windplatform' (Windplatform Groningen n.d.) that was tasked to collect information about the potential effects of the two wind parks on the local environment and the local communities, and to organize public participation and communication. The municipality of Groningen also co-funded our research in order to get insights into public acceptability of the planned wind parks. We did not work with the Windplatform directly, but they provided us with the information about the participatory procedure and the plans for the wind parks. Independent research was ensured at all times;

the research team determined the content of the questionnaire.

In October 2019, all local residents (both owners and renters) within a distance of 1500 meters from the planned parks were informed by a letter and two information meetings organized by the Windplatform about the plans for the wind parks. In the letters and the meetings, the residents were also invited to participate in our research⁴.

This research was carried out in three phases: at the start of the public participation process (October–December, 2019); about half-way of the public participation process (March–April, 2020), and at the end of the public participation process (November–December, 2020). All three phases took place before the Municipality Council takes the final decision on whether to develop the wind parks. Finding the predicted relationships in all three study phases would demonstrate the robustness of these relationships. The following hypotheses are tested:

H1: lower acceptability of the wind projects leads to higher people's willingness to participate in project decision-making;

H2: particularly when people would never accept the project under any conditions, they are more willing to participate in decision-making;

H3: stronger negative emotions towards the project lead to higher people's willingness to participate in decision-making.

Additionally, we explore how people's willingness to participate in decision-making relates with their willingness to accept the project if certain conditions were met and positive emotions towards the project.

3. Methods

3.1. Procedure and participants

In phase 1, all residential addresses in the affected area (about 6000 addresses, including both owners and renters) received a letter from the Windplatform, which also contained a web link to our survey. Because very few people were responding to the online survey, we additionally distributed 1000 flyers with QR codes linking to the survey in areas with the lowest response rate. Eventually, we shifted to door-to-door collection. We went to all neighborhoods composing the research area, and we went to as many streets as possible in each neighborhood, each time distributing a number of questionnaires approximately relative to the size of the street/neighborhood. Each time we started distributing at different parts of the streets and stopped after having reached the desired number of questionnaires from

⁴ The research findings were made publicly available on our research website. We were sometimes asked to present the research and the findings in public meetings organized by the Windplatform, which we did. This research was also mentioned on the website of the Windplatform and in their public reports.

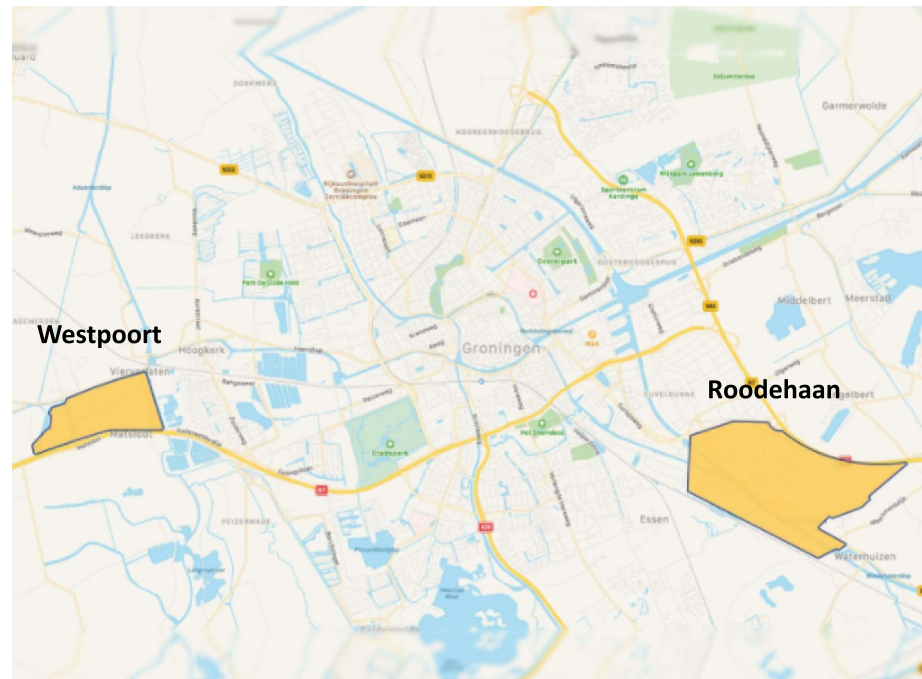


Figure 1. Locations for possible wind parks in Westpoort and Roodehaan in the municipality of Groningen. Reproduced with permission from the Windplatform. www.windplatformgroningen.nl/.

that street/neighborhood. In total, we reached out to 997 households, of whom 509 returned the questionnaire; together with the online questionnaires generating 519 valid responses (in all phases, we excluded responses that only contained demographics but no other questions). In phase 2, we could not carry out door-to-door data collection because of COVID-19; the data was collected fully online. The research team sent 3161 letters with the link to the online survey using the addresses received from the municipality of Groningen, including all households living closest to the planned wind parks and a random sample of households living somewhat farther away, but within 1500 meters from the planned wind parks (from each street we randomly selected a number of addresses relative to the total number of addresses in the street). In total, 358 valid responses were collected in phase 2. In phase 3, we again conducted door-to-door data collection. We went to all households living closest to the planned wind parks; if people were not at home, we left a flyer with the QR code linking to the online survey. In the regions somewhat farther away, but within 1500 meters from the planned wind parks, we approached people randomly across the different streets and neighborhoods, trying to collect the number of questionnaires approximately relative to the size of the street/neighborhood. Each time we started distributing at different parts of the streets. In addition, in some addresses that we did not approach personally, we left flyers with QR codes or left the paper questionnaire in the mailbox. In total, 953 households were invited to participate in these different ways, of whom 296 returned the questionnaire, generating 291 valid responses. Demographics of respondents in

each phase are provided in the [appendix](#). Compared to the data from the Central Office of Statistics, our sample slightly underrepresents young adults and, in some cases, old people, and slightly over-represents men and highly educated people (note, however, that the data available from the Central Office of Statistics is for entire cities/villages, rather than for the specific regions targeted in this research).

3.2. Measures⁵

Table 1 shows the descriptive statistics of the relevant measures.

3.2.1. Willingness to participate in project decision-making

We asked the participants to what extent they want to be involved in the decision-making about the wind parks in Westpoort/Roodehaan⁶, on a 7-point scale from 1 *not at all* to 7 *very much*.

3.2.2. Project acceptability

We asked the participants to what extent they think developing wind parks in Westpoort/Roodehaan is *very unacceptable* (1) to *very acceptable* (7) and *not at all necessary* (1) to *very necessary* (7). In addition, we asked to what extent they are against or in favor of developing wind parks in Westpoort/Roodehaan, on a 7-point scale from 1 *completely against* to 7 *completely in favor*. We aggregated the mean scores

⁵ The measures are translated from Dutch, which was used in the original questionnaire.

⁶ For all measures, it was 'Westpoort' for participants living in Westpoort and 'Roodehaan' for those living in Roodehaan.

Table 1. Number of responses, mean scores, standard deviations, and reliability of measures.

	Phase 1				Phase 2				Phase 3			
	N	M	SD	α	N	M	SD	α	N	M	SD	α
Willingness to participate in decision-making about the wind parks	409	5.41	1.61	n/a	330	4.65	2.02	n/a	278	4.56	2.13	n/a
Acceptability of the wind parks	420	3.64	2.03	.97	342	3.06	2.13	.96	276	2.93	1.99	.96
Not accepting the wind parks under any conditions	433	3.44	2.32	n/a	348	4.06	2.53	n/a	282	4.40	2.50	n/a
Willingness to accept the wind parks if certain conditions were met	420	4.92	1.69	.94	341	4.50	1.87	.94	262	4.46	1.90	.95
Negative emotions	411	2.92	1.95	.92	331	3.64	2.10	.92	275	3.61	1.99	.90
Positive emotions	413	2.95	1.64	.91	330	2.72	1.75	.94	274	2.42	1.48	.89

Note: For all scales, the means could vary from 1, indicating a lower position on the respective scale, to 7, indicating a higher position on the respective scale.

on the three items; higher scores reflect higher acceptability of the wind parks.

3.2.3. Not accepting the project under any conditions

We asked the participants to what extent they think the development of wind parks in Westpoort/Roodehaan is never acceptable, on a 7-point scale from 1 *completely disagree* to 7 *completely agree*. Higher scores reflect higher likelihood that they would never accept the wind parks.

3.2.4. Willingness to accept the project if certain conditions were met

We asked the participants to what extent they think the following conditions would be sufficient for them to accept the development of wind parks in Westpoort/Roodehaan: (a) wind parks help reduce climate change; (b) wind parks have positive consequences for society; (c) local residents are involved in the decision-making concerning the wind parks; (d) local residents benefit from the production of wind energy; (e) local residents can use clean energy; (f) the costs and benefits are shared fairly between rich and less rich people; (g) wind parks are good for future generations, on a 7-point scale from 1 *completely disagree* to 7 *completely agree*. We aggregated the mean scores on these seven items; higher scores mean higher willingness to accept the wind parks if certain conditions were met.

3.2.5. Negative emotions

Participants indicated to what extent they feel *anxious, angry, annoyed, disappointed, and powerless* when thinking about developing wind parks in Westpoort/Roodehaan, on a 7-point scale from 1 *not at all* to 7 *very much*. We aggregated the mean scores on the five items; higher scores mean stronger negative emotions towards the wind parks.

3.2.6. Positive emotions

Participants indicated to what extent they feel *satisfied, calm, enthusiastic, happy, and proud*, when

thinking about developing wind parks in Westpoort/Roodehaan, on a 7-point scale from 1 *not at all* to 7 *very much*. We aggregated the mean scores on the five items; higher scores reflect stronger positive emotions towards the wind parks.

4. Results

4.1. Relationship between project acceptability and willingness to participate in project decision-making

We tested H1 by inspecting the relationship between public acceptability of the wind parks and people's willingness to participate in project decision-making. As expected, across all research phases, project acceptability was negatively and significantly associated with people's willingness to participate in decision-making (table 2). The less people found the wind parks acceptable, the more willing they were to participate in project decision-making (or: the more they found the project acceptable, the less they were willing to participate in decision-making).

4.2. Relationships between types of project acceptability and willingness to participate in project decision-making

We tested H2 by inspecting the relationships between not accepting the wind parks under any conditions, willingness to accept the wind parks if certain conditions were met, and people's willingness to participate in project decision-making. As expected, across all research phases, the more people thought the wind parks were never acceptable, the more willing they were to participate in decision-making. Interestingly, in all research phases, the more people found the wind parks acceptable if certain conditions were met, the less they wanted to participate in decision-making (table 2). That is, particularly those who would never accept the wind parks were most motivated to participate in decision-making.

Table 2. Pearson's *r* between types of acceptability and willingness to participate in decision-making.

	Willingness to participate in project decision-making		
	Phase 1	Phase 2	Phase 3
Acceptability of the wind parks	-.25** ($p < .001$; $n = 395$)	-.26** ($p < .001$; $n = 322$)	-.23** ($p < .001$; $n = 268$)
Not accepting the wind parks under any conditions	.23** ($p < .001$; $n = 396$)	.17* ($p = .003$; $n = 329$)	.25** ($p < .001$; $n = 274$)
Willingness to accept the wind parks if certain conditions were met	-.23** ($p < .001$; $n = 404$)	-.23** ($p < .001$; $n = 322$)	-.16** ($p = .010$; $n = 255$)

Note: ** $p < .001$, * $p < .05$, p -values and number of responses are presented in brackets.

Table 3. Pearson's *r* between people's emotions towards the wind parks and their willingness to participate in project decision-making.

	Willingness to participate in project decision-making		
	Phase 1	Phase 2	Phase 3
Negative emotions	.30** ($p < .001$; $n = 396$)	.27** ($p < .001$; $n = 317$)	.27** ($p < .001$; $n = 267$)
Positive emotions	-.16** ($p < .001$; $n = 395$)	-.22** ($p = .003$; $n = 317$)	-.21** ($p < .001$; $n = 267$)

Note: ** $p < .001$, p -values and number of responses are presented in brackets.

4.3. Relationships between emotions towards the project and willingness to participate in project decision-making

We tested H3 by examining the relationship between people's negative and positive emotions towards the wind parks and their willingness to participate in project decision-making. As expected, across all research phases, people's negative emotions towards the wind parks were positively and significantly associated with their willingness to participate in decision-making. In contrast, across all research phases, people's positive emotions towards the project were negatively and significantly associated with their willingness to participate in decision-making (table 3).

To conclude, we observed statistically significant relationships (all p 's $< .05$) between, on the one hand, public acceptability of and emotions towards the possible wind parks, and, on the other hand, people's willingness to participate in project decision-making. Correlation coefficients varied between $-.27$ to $.30$, indicating that the relationship is weak, but stable. In other words, the findings show a consistent trend that people opposing and experiencing negative emotions towards the energy projects had a stronger—whereas people supporting and experiencing positive emotions towards the energy projects had a weaker—willingness to participate in project decision-making. These relationships occurred in all three study phases, despite various contextual factors that may have influenced people's willingness to participate in the decision-making.

5. Discussion

Public participation in decision-making is expected to contribute to more democratic, better-quality, and legitimate decisions about energy projects, serving its

normative, substantive, and instrumental functions, respectively (Fiorino 1990, Bidwell and Schweizer, 2020, Liu *et al* 2020a). Given that the merits of public participation rely on the representation of different people with different perspectives, we studied if and how people's willingness to participate in decision-making depends on their acceptability judgements and emotions towards local wind energy projects.

We extend the literature in three ways. First, extending previous evidence from qualitative studies and studies on hypothetical energy projects (De Groot and Steg 2010, Turcanu *et al* 2014, Colvin *et al* 2016, Hoti *et al* 2021), we provided empirical evidence from real-life local wind energy projects that the less (more) acceptable people find the project, the more (less) they are willing to participate in decision-making. Second, we distinguished for the first time two types of acceptability—not accepting the project under any conditions versus willingness to accept the project if certain conditions were met. The more people said they would never accept the wind parks, the more they wanted to participate in decision-making. Whereas the more people thought the projects were acceptable if certain conditions were met, the less they wanted to participate. Based on LAT, one might expect that accepting a project under certain conditions motivates people to participate in decision-making—so that they can ensure that those conditions are met. Instead, our findings suggest that the combination of anticipated losses and unwillingness to make trade-offs motivates people most to participate in decision-making. Third, we demonstrated that the stronger negative emotions people felt towards the wind park projects, the more willing they were to participate in decision-making, whereas stronger positive emotions were associated with lower willingness to participate. These

findings extend LAT by suggesting that besides the anticipated gains and losses, the accompanying positive and negative emotions influence people's willingness to participate in decision-making. Dominant rationalistic approaches emphasizing information exchange and arguments sharing between decision-makers and the public (e.g. Smith and McDonough 2001) could therefore be enriched by incorporating emotions in participatory practices. The findings were robust over time, namely in the beginning, half-way, and at the end of the participatory process.

6. Challenges for the three functions of public participation

If the aim of public participation is to seek diversity and representativeness—in line with its normative function—then ideally both the opposing and supporting voices would have room in participatory practices. Such normative function of public participation might be challenged, however, if one side is more willing to participate than the other, like unveiled in our study. Next, advocates of deliberative democracy argue that it is essential that members of participatory practices actively process balanced information, weigh and reflect on different perspectives, and justify their own preferences (e.g. Dryzek and Niemeyer 2019). However, if participants are mostly people who would never accept the project, they may engage in a more deontological reasoning, focused on whether the energy project meets or violates their core (moral) values (Holyoak and Powell 2016, Scherhauer *et al* 2017), and may want to only say yes or (more likely) no to the project. This might pose challenges to the substantive function of public participation, namely bringing different perspectives to the table. Furthermore, if different groups and opinions get unequally represented, people may see the decision-making process as unfair and the final decisions as of low quality, which might strengthen public resistance towards the project and the decision-making process (Liu *et al* 2020a), thereby posing challenges to the instrumental function of public participation.

The above does not suggest that opponents need to participate less in decision-making. On the contrary, it is necessary that people's concerns and objections are captured in participatory practices. Yet, our findings suggest that people's preferences for participation may lead to a situation where some perspectives are more represented than others, which could create challenges for the normative, substantive, and instrumental functions of public participation. Being aware of these challenges is critical for organizing effective public participation procedures and socially responsible decision-making on energy projects.

7. Implications for energy policy

Currently, public participation practices focus especially on including marginalised groups in society (e.g. lower-income, education). Such practices are laudable, as they can increase the demographic representativeness. Yet, they are also limited as they do not consider the representation of people's different perspectives, and neglect the fact that not everyone may be equally motivated to participate. It is important for policymakers to be aware of this possibility and, if considered necessary, take measures. For example, involving independent moderators could help ensure that different arguments are brought into the discussion. Next, policymakers could assess acceptability of the proposed energy project among the target population, for example with surveys, including also people's key concerns and the conditions that are critical to meet for responsible decision-making about the projects. Such surveys will not replace public participation, as they do not allow for dynamic discussions between participants and exploring in-depth various arguments, but would allow gaining a better understanding of the opinions of the wider community and assess whether the opinions are well-represented in public participation.

Importantly, there may be good reasons for people to say 'no' to a local energy project, and public participation procedures need to enable people to voice this position and to cancel the projects if the critical concerns cannot be addressed. This raises a question whether and how public participation procedures could facilitate a transition from fossil fuels to more sustainable energy sources, which is needed for keeping the global warming under 1.5 °C. One possibility is to engage people earlier in decision-making, namely when defining international and national climate policies that will later shape local energy projects. For example, people could evaluate different energy scenarios that requires to make trade-offs between the different pros and cons (e.g. Demski *et al* 2017). However, initial evidence suggests that it might be challenging to engage people at such an early stage, (Perlaviciute *et al* 2020) as people are more motivated to participate in decision-making about local projects that have direct consequences to them (Perlaviciute and Squintani 2021). Future research could investigate what motivates people to participate at different levels of energy decision-making.

Existing public participation practices tend to be dominated by rationalistic theories (e.g. Smith and McDonough 2001), meaning that developers of energy projects often focus on providing information to the public and trying to exchange rational arguments about the possible pros and cons. Project developers tend to ignore people's emotions towards energy projects, as they often consider emotions to be irrational, unjustified, and hard to deal with

(Perlaviciute *et al* 2018). Yet, our findings show that emotions could play an important role in influencing who wants to participate in decision-making, suggesting that there is a need for incorporating emotions in public participation procedures. Thereby, we propose that in addition to the popular rational approach to public participation, there needs to be room for an emotions-based approach, encouraging people to express their emotions and taking emotions seriously in decision-making. For example, legislation could set basic terms for the inclusion of emotions in public participation. At the moment, regulatory frameworks on public participation do not refer to emotions at all, although there was an attempt to read emotions into the concept of 'opinion' used under the Aarhus Convention (Squintani *et al* 2019). This does not mean that law is completely insensitive to emotions. In criminal law, emotions do play a role and are commonly considered during decision-making processes by the judiciary (Persak 2019). Administrative law, in which public participation is usually contained, could look at criminal law approaches to learn how to incorporate emotions into energy project decision-making. Policymakers could explicitly ask in participatory processes what emotions people experience towards the project (Roeser and Pesch 2016), and moderators could initiate discussions about both positive and negative emotions.

8. Limitations of current research and recommendations for future research

Our research is based on correlational studies, which does not allow us to demonstrate the cause and the effect in the tested relationships. For example, there may be a third factor that relates to both public acceptability of the project and people's willingness to participate in decision-making, such as people's trust in the agent responsible for the development of the project (Liu *et al* 2019, 2020b). Future research could apply other designs, such as (field) experimental studies, to establish the causal direction of the relationships.

We focused on people's opinions about wind park projects in their local environment, and we found that in particular those who respond more negatively to the project want to participate in decision-making, while those who respond more positively to the project are less willing to participate. It might not always be the case, however, that project opponents in particular are most willing to participate in decision-making. Based on LAT, people are motivated more by losses than gains. In the present study, the project was supported by the municipality and hence had high chances of being implemented, creating possible losses for project opponents. If powerful parties (e.g. companies, the state) were against energy projects, project supporters in particular may anticipate losses because projects may

not be implemented, and may be more willing to participate in decision-making. It might also change throughout the course of the project whether supporters or opponents anticipate losses. For example, before the operation of a hydrogen fuel station, local acceptability was largely influenced by perceived risks, whereas once the hydrogen fuel station was running, local acceptability increased and was more strongly influenced by perceived benefits (Huijts *et al* 2019). This could mean that opponents anticipate losses before the project is implemented, whereas supporters may anticipate losses if the project is already running but might be stopped. Consequently, opponents may want to participate earlier, and supporters may want to participate later, in the decision-making process; future longitudinal studies could test this possibility.

Next, we focused on formal participatory procedures organized by responsible parties, which are only one possible form of public participation in energy project decision-making. Other means include indirect democracy (e.g. voting for green parties), social movements (e.g. protests, activist groups), people themselves joining energy projects, setting up energy initiatives, and engaging in everyday energy practices (e.g. adopting smart meters), among others (Pallett *et al* 2019, Chilvers *et al* 2021, Perlaviciute *et al* 2021). In addition, various forms of formal, invited public participation exist, such as deliberative workshops, public opinion surveys, consultation (Pallett *et al* 2019, Chilvers *et al* 2021). Future research could test which similar or different factors influence people's willingness to participate in these different participatory formats.

Furthermore, future research could examine which other factors, besides public acceptability of energy projects, influence people's willingness to participate in energy project decision-making. For example, people who feel more, versus less, identified and connected to the local environment (i.e. high place attachment; Devine-Wright 2009) may be more willing to participate in decision-making. Considering the current findings, high place attachment *and* being opposed to energy projects may most strongly motivate people to participate in decision-making, in order to protect their place. Future research could examine such possible interaction effects of public acceptability and place attachment, as well as other factors, on people's willingness to participate in decision-making.

9. Conclusion

Public participation in decision-making is heralded as *the* way to reach more democratic, qualitatively better, and more socially acceptable decisions about energy projects. The current research provides pioneering empirical evidence—from three study phases—that the praised functions of public participation may

be challenged by who is willing to take part in participatory processes. First, we showed that opponents are more willing to participate than supporters, which might pose challenges to equal representation in participatory processes. Second, we found that people who do not wish to accept the projects under any conditions are most willing to participate, which might pose challenges to the deliberative potential of participatory practices. Third, we showed that negative emotions motivate—whereas positive emotions demotivate—people to participate, suggesting that the current rationalistic approaches to public participation may be insufficient. Our results suggest that it is important for energy policymakers to consider interventions for engaging people with different perspectives and emotions in participatory decision-making, in addition to the efforts

for engaging people with different demographic backgrounds.

Data availability statement

The data generated and/or analysed during the current study are not publicly available for legal/ethical reasons but are available from the corresponding author on reasonable request.

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Appendix. Socio-demographic characteristics of the respondents per research phase

		Phase 1	Phase 2	Phase 3
Gender	Female	36.75%	26.54%	43.99%
	Male	55.68%	64.25%	50.86%
	Missing values	7.57%	9.22%	5.16%
Age (in years)	M (SD)	52 (14)	56 (14)	56 (14)
	Minimum	19	21	19
	Maximum	85	93	89
	Missing values	9.58%	10.89%	8.59%
	Highest completed education	Secondary	8.70%	6.71%
	Highschool (vocational) education	61.69%	52.50%	54.63%
	Scientific education (university)	18.48%	25.15%	19.94%
	Other	4.23%	6.70%	6.53%
	Missing values	6.90%	8.94%	6.53%
Income per year per household	< €10 000	0.89%	1.40%	1.72%
	€10 000–€20 000	6.46%	5.03%	5.15%
	€20 000–€30 000	14.70%	13.97%	15.46%
	€30 000–€40 000	21.16%	16.20%	16.49%
	€40 000–€50 000	14.92%	15.08%	15.12%
	>€50 000	21.38%	28.49%	24.40%
	Missing values	20.49%	19.83%	21.65%

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