

The interaction between formal and informal assessment of public values in strategically complex decision-making processes on renewable energy projects

'A case study on the 'community' wind farm Lage Weide'

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In partial fulfillment of the requirements for the degree of **Master of Science in Engineering and Policy Analysis**



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Master thesis submitted to Delft University of Technology
in partial fulfilment of the requirements for the degree of

MASTER OF SCIENCE

In Engineering and Policy Analysis

Faculty of Technology, Policy and Management

by

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To be defended in public on the 19th of July 2018

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Acknowledgements

The report in front of you is the outcome of a research project that has been conducted in the scope of the NWO funded RESPONSE project, and in partial fulfillment of the Master Engineering and Policy Analysis at Delft University of Technology. Different people have contributed to its successful completion. First, I would like to express my sincere gratitude to my first supervisor, Behnam Taebi. From the moment that I contacted you to express my interest in conducting a thesis project under your supervision, you were enthusiastic and brainstormed with me to define a suitable and interesting topic. Throughout the project you helped me to keep motivated and focused, had understanding for my personal situation, and expressed your trust that I could do a good job. Your valuable input during our meetings helped me to structure the thesis, take the normative perspective into account, adjust my 'bureaucratic' writing style, and bring the work to a higher level.

Second, I would like to thank my second supervisor, Eefje Cuppen. Although I have not approached you often outside the meetings with the committee, you have helped me considerably with the development of the conceptual framework and operationalizations, applying the framework on the empirical data, and structuring the thesis. You also had a lot of understanding for me during the project, and after we spoke with each other I always felt more comfortable and confident. Third, I would like to thank my third supervisor, Elisabeth van de Grift. I really value your support during the design and implementation of the interviews, your input during our meetings, the feedback you have provided on the different versions of my thesis, and the fact you always offered me to help in the case that I would need it. Fourth, I would like to thank the chair of the committee, Sabine Roeser. During the meetings with the committee you always challenged me to take a helicopter view of the project, and think about what can be learned from my case, the contribution of my research to existing literature, its implications for ethics, decision-making procedures, and responsible innovation, and recommendations for practitioners.

Besides the aforementioned members of the committee, I am indebted to several other persons. Special thanks to all the interviewees, since without their input I would miss an important part of the opinions, perspectives, and insights. Thanks to Amir, Sina, Farhad, and Mehrad for their company, support, FIFA, kabab, and sarcasm, without which I would take life too seriously. The same goes for my co-students Anil, Georgios, Juan, Maurizio, Siva, and Matthijs, and my friends of 'Cuhhism', Han, Sean, Erik, Omaid, and Djahed. Finally, I would like to thank the most important persons in my life: my parents and brother. You have supported me throughout all my hardships, serve as an inspiration to me, and have made it possible for me to follow my dreams and goals.

Executive summary

Introduction

The siting and implementation of specific renewable energy projects at the local level can face difficulties. Throughout the literature and news media, different cases have been reported in which the introduction of different renewable energy technologies has been confronted with public resistance and controversy. One of the most common explanations for these controversies is the ‘not-in-my-backyard’ (NIMBY) argument, which suggests that people support renewable energy developments in general, but oppose developments in their proximity due to self-interested reasons. This label is considered to be faulty and too simplistic, because it is generally used as a pejorative, it incorrectly describes most local opposition, and the actual causes of controversy are not explained.

Some academic studies have suggested that ‘community renewable energy projects’ result in lower levels of controversy and public resistance, in comparison to developments that are led by private parties, which typically follow a Decide-Announce-Defend strategy. Contrariwise, other studies have demonstrated that ‘community renewable energy projects’ can encounter significant controversy and public resistance. In this context, a community-based renewable energy project refers to one which is entirely driven and carried through by a group of local people (process dimension) and which brings collective benefits to the local community (outcome dimension).

This thesis takes an alternative approach to studying controversy and public resistance in relation to renewable energy projects, compared to the usual studies of ‘social acceptance’, ‘local acceptance’, and ‘public perceptions’. In doing so, it distinguishes two trajectories of assessment in the decision-making processes on renewable energy projects: a formal and an informal one. The ‘formal assessment trajectory’ includes procedures, guidelines, tools (e.g., Environmental Impact Assessment, Cost Benefit Analysis, Risk Assessment), and policy arrangements to evaluate the desirability of a renewable energy project, and to make a final decision about its implementation. This trajectory mainly focuses on formally established public values, such as safety, sustainability, and economy. Moreover, it consists of rule-sets that are part of dominant institutional practices, which function as frames, and shape the interaction between a heterogeneous set of stakeholders and the courses of action open to them.

Due to the exclusionary character of frames, specific societal concerns can emerge that are not covered in the formal assessment trajectory (i.e. overflowing), which gives rise to the ‘informal assessment trajectory’. In this trajectory, groups of stakeholders mobilize themselves to articulate the concerns and public values they consider to be underrepresented, and to challenge the dominant frame that is reproduced (in the formal assessment trajectory). It can materialise in the formation of new advocacy groups and media debates, but could also be represented by existing interest groups. The informal assessment may lead to changes in the formal assessment trajectory, which is referred to as ‘backflowing’.

The aforementioned framework of formal and informal assessment, and their interaction, has been introduced by the research team of the RESPONSE project. The aim of this thesis was to complement this framework with three new elements: (i) the types of overflowing, (ii) the types of backflowing, and (iii) a strategic behaviour perspective. Moreover, it was identified that more research has to be conducted on the factors that shape stakeholders’ perceptions of ‘community renewable energy projects’, and in particular regarding the process and outcome dimensions of these developments.

Based on this research problem and objectives, the following main research question was formulated:

Main research question

What are the types of overflowing and backflowing between the formal and informal assessment trajectories of the strategically complex decision-making processes on community renewable energy projects?

Case study

To achieve the research objectives and answer the main research question, a case study was conducted on the controversial 'community' wind farm at Lage Weide (Utrecht, the Netherlands). Based on a request for tenders (RFT) initiated by the municipality of Utrecht in December 2010, the energy association 'Energie-U' developed and submitted a plan to construct a wind farm at the industrial park Lage Weide. The project plan included two alternatives: (i) two rows of four turbines (with a separation of 400-500 meters between the turbines and the rows), and (ii) fourteen turbines in a free configuration (i.e. dispersed over the industrial park). The wind farm was supposed to have a minimum total capacity of 10 MW, and a maximum of 25 MW. From the beginning, the project was labelled as a bottom-up community initiative, as members of Energie-U were residents of Utrecht, and could participate financially. At one of the information meetings of Energie-U in November 2011, after the project plan was selected in the tender process, it became clear that a group of residents was against the plan. This group mobilized itself as the platform 'Buren van Lage Weide', and was a project opponent throughout the decision-making process. After an extensive and controversial spatial planning process, during which Energie-U's plan was assessed by amongst others an Environmental Impact Assessment, Social Cost Benefit Analysis, and input from public participation, it was finally rejected by the city council in 2014. The main reason that this project was selected as a case is that its implementation was cancelled by the city council in 2014, despite being labelled as a community initiative.

Methodology and results literature review

To be able to achieve the objectives and answer the main question, the research was divided in two parts. First, a literature review was conducted to develop a conceptual framework to guide the analysis on the case study. The literature review led to the identification of the types of overflowing and backflowing, and the perspective for analysing strategic behaviour. More specifically, overflowing was suggested to occur when (i) stakeholders endorse different values than safeguarded in the formal assessment trajectory (i.e. inter-value conflict), and/or (ii) stakeholders operationalise the same values differently (i.e. intra-value conflict). It was concluded that in order to be able to analyse overflowing, the public debate has to be identified in terms of the arguments put forward by opponents and proponents, and the values to which these arguments refer. The types of backflowing that were found in the literature include: project plan, policy, procedural, and compensation and benefit changes. Also, a distinction was made between first order and second order backflows, i.e. changes within the problem formulation and changes of the problem formulation. Direct and indirect strategies were identified as the ways in which stakeholders (and interest groups) try to target decision-makers, mobilize themselves, and influence the broader public opinion, in order to achieve their interests and preferences. Given the importance of stakeholder interaction, the rounds model was selected for the reconstruction of the decision-making process of the case under consideration. Lastly, it was argued that the formal and informal assessment trajectory and their interaction occurs in a specific context, and the relevant factors that were identified include: economic and business context, place and community, and policy context.

Second, a longitudinal analysis was conducted on the data that was collected (interviews, and policy, research and media documents) from the case. This led to the reconstruction of the decision-making process and the public debate, and the identification of the formal assessment trajectory, overflowing and informal assessment trajectory, strategic behaviour, backflowing, and contextual factors.

Understanding the decision-making process and public debate

The table below presents the five rounds were identified in the decision-making process.

Decision-making round	Period
1	July 2007 (CO ₂ neutrality ambition) – December 2010 (decision of the board to facilitate wind energy initiatives in Lage Weide and Rijnenburg)
2	January 2011 (municipal policy ‘Programme Utrecht Energy!’) – October 2011 (decision of the board to select Energie-U as initiator Lage Weide)
3	November 2011 (establishment of Buren van Lage Weide) – September 2012 (political debate organised by Buren van Lage Weide)
4	October 2012 (start spatial planning process) - September 2013 (decision of the board to incorporate the preferred alternative in the draft structural vision)
5	October 2013 (development contract municipality and WeideWind B.V.) – November 2014 (adoption of the second partial revision of the provincial structural vision)

Arguments of opponents and proponents were collected, and linked to the public value they refer. In total, 9 values were identified in the public debate on the Lage Weide ‘community’ wind farm: (i) health and safety, (ii) welfare, (iii) environmental friendliness, (iv) aesthetics, (v) resource durability, (vi) international stability, (vii) procedural justice, (viii) distributive justice, and (ix) accountability. The first six are substantive values, while the latter three are procedural values.

Formal assessment trajectory

The formal assessment trajectory predominantly focused on substantive values, until the end of the fourth decision-making round when the draft structural vision and associated studies were filed for public inspection. The goal-rational frame was an important mechanism through which the formal assessment trajectory operated. In the first two decision-making rounds, the municipality of Utrecht adopted a goal-rational frame of the project: it formulated the ambition to become CO₂ neutral by 2030 (end), and decided that the development of wind energy within its jurisdiction would be one of the solutions (means) for attaining this goal. The municipality emphasized that the cancellation of the project would negatively affect the attainment of national and local CO₂ targets. Based on several criteria, Energie-U was selected as the initiator during the tender procedure, and the objectives and interests of the association were aligned with the municipality.

At one of the information meetings of Energie-U in the third decision-making round, it became clear that a group of residents was against the plan. This group mobilized itself as the platform ‘Buren van Lage Weide’, and positioned itself as an opponent throughout the decision-making process. In the third decision-making round, the goal-rational frame was reinforced through the meeting of the committee ‘City and Space’, the second opinion of Bosch & van Rijn, and the municipality’s progress report, due to the dominant legal and technical discourse. These activities failed to repair the mismatch between the goal-rational frame and the opinion of Buren van Lage Weide, as they did not address the

moral concerns of the platform of concerned residents. In the fourth decision-making round, the goal-rational frame was reinforced through the UPP spatial planning process. This is mainly because the different stakeholders had to articulate their position and provide input according to the dominant problem formulation (i.e. wind farm development at Lage Weide). Different studies were conducted to assess and compare project alternatives (i.e. health study GGD, baseline measurement noise, SCBA, EIA). The studies brought together several public and private parties, and finally resulted in the selection of a preferred alternative and its formal assessment: namely that the project would be profitable, the societal benefits would be higher than the costs, and that no legal norms would be exceeded for noise pollution, low-frequency noise (Danish norm), shadow flicker, and safety. Negative effects on health, landscape (visual impact), prices of houses and commercial premises, and flora and fauna were claimed to be absent or minimal. These findings suggest that according to the logic of the formal assessment trajectory, public values are safeguarded through legal compliance. Various forms of public participation were implemented in the fourth round, which are mostly considered informal assessment, except the public consultation process on the draft structural vision and associated studies.

It was only at the end of the fourth decision-making round that procedural values were discussed on a wide-scale in the formal assessment trajectory. This was mostly in response to the viewpoints received from project opponents, and did not result to any significant changes. The adoption of the goal-rational frame by the board of Mayor and Aldermen and Energie-U, and the failure to account for procedural values, led to an intensification of antagonism and controversy. This reached its peak in the fifth round. The local parties of PvdA and D66 turned against the plan, and the adoption of the structural vision was rejected during the city council meeting. On a provincial level, the Provincial Council took a preparatory decision, and finally removed Lage Weide from the provincial structural vision and spatial regulations.

Informal assessment trajectory

The formal assessment trajectory 'flowed over' because of both inter- and intra-value conflict. The informal assessment emerged in the third decision-making round, when Buren van Lage Weide was founded. The platform assessed Energie-U's business case / feasibility study, Bosch & van Rijn's second opinion, and made objections to the plan by referring to negative project effects which are reflected by substantive values: noise pollution, shadow flicker, safety issues, health effects, reduction of house prices, ecological impact, horizon pollution, etc. Also, moral considerations related to procedural and distributional justice were immediately addressed. Buren van Lage Weide stated that it was unfair that the local community did not have influence on the choice for wind energy and the location. There was a strong feeling that the decision to provide permission for the development of the wind farm was already predetermined. The spatial distribution of costs and benefits was also seen as unfair, because the negative effects of the development would arise on the local level, while the benefits would have a national / global relevance and would go to foreign manufacturers and suppliers. Related to this, Buren van Lage Weide argued that the neighborhoods in proximity of Lage Weide already experience a lot of nuisance from industrial activities and traffic, and that the wind farm would only worsen the situation.

In the fourth decision-making round, informal assessment was predominantly conducted during the public consultation processes and the sounding board meetings. The discussions during the sounding board meetings were considered to be technical by the different stakeholders, and mainly focused on the identification of alternatives, zero noise measurement, and assessment of regulated project effects (i.e. noise, shadow flicker, safety, health, landscape, and house price reductions). The methods of EIA and SCBA became heavily debated, and there was critique on the associated

assumptions, calculations, measurements, visualizations etc. The participants of the sounding board had to formulate their concerns through an adoption of the technical and legal vocabulary of the goal-rational frame, to ensure that their arguments would be considered legitimate. They argued that if the studies would take into account those aspects that were perceived to be excluded, the results would indicate that the societal costs of the wind farm would be higher than the benefits and the legal norms (e.g., for nuisance, safety, ecological effects) would be exceeded.

While the sounding board did not offer room for the discussion of moral concerns, this was not the case for the two public consultation processes, and the various information stands, information evenings, flyer campaigns, and city conversation. During those moments, Buren van Lage Weide and other (anonymous / non-organized) project opponents referred to procedural justice, distributive justice, and accountability. Concerning procedural justice, there was critique on the representativeness of the sounding board (in terms of composition), the municipality's information provision, the perceived relationship between Energie-U's chairman and the responsible Alderman, and the financial support of Energie-U by the municipality. With regard to distributive justice, stakeholders addressed the inadequacy of compensation and benefits. Accountability concerns referred to the absence of noise pollution and shadow flicker norms for firms and commercial premises, the absence of a norm for low-frequency noise, distrust regarding the enforcement of stricter operational requirements, and uncertainty regarding who would be responsible for the operational decision.

Since all these issues related to procedural values did not lead to changes of the formal assessment trajectory, the antagonism and controversy intensified, and reached its peak in the fifth decision-making round. During the council information evening and the public consultation process on the second partial revision of the provincial structural vision, earlier arguments were repeated by Buren van Lage Weide and other interest groups. Eventually, the adoption of the structural vision was rejected, and Lage Weide was removed as a preferred location.

Strategic behaviour

The results of the analysis on strategic behaviour show that Energie-U and Buren van Lage Weide used both categories of strategies to achieve their interest and preference for the decision-making outcome. In other words, they mobilized, actively used media platforms, influenced public opinion, and targeted decision-makers directly. For the other interest groups and stakeholders, not a lot of empirical data was found as input to the analysis. The main purpose of the municipality was to inform stakeholders about the plan for the development of the wind farm, the formal decision that were taken, and opportunities for public participation (i.e. not to organize public support).

It can be concluded that actors tried to strategically use formal and informal assessment to pursue their own goals. The local party of the VVD and the provincial party of the PVV made an ideological alliance with Buren van Lage Weide, and aligned to the platform's discourse. The same alignment to Buren van Lage Weide's discourse was done by the local D66 and PvdA parties, when they announced that they would reject the adoption of the local structural vision, due to the absence of public support. The identified interest groups tried to influence formal assessment, by conducting an own feasibility study of the project plan, developing visualizations of the wind farm, publication of surveys, participation in the sounding board, submission of viewpoints during public consultation processes, etc. The board of Mayor and Alderman tried to influence informal forms of assessment by strategically deploying formal forms of assessment, and implementing certain changes the formal assessment trajectory. More specifically, the board tried to reduce the intensity of the controversy by announcing additional (science-based) research, and by doing so, to create legitimacy by emphasizing

its objectivity. Also, the project plan was adjusted, and stricter operational requirements would be applied, to achieve that goal.

Stakeholders used the different studies in an opportunistic and symbolic way. They emphasized a specific study when it supported their interest and preference for the decision-making outcome, while they criticized it on its impartiality, validity, and quality when the results were not in line with their position. An example is Buren van Lage Weide's critique on the business case of Energie-U, and the corresponding second opinion of Rijn & van Bosch. Moreover, the municipality used the studies to make the decision-makers look more objective and rational, and to suggest that stakeholders' concerns and problems are taken seriously. The strategic perspective also calls into question the legitimacy of the arguments that are put forward in the public debate. In other words, arguments could be used by stakeholders to advance one's position in the decision-making process, instead of addressing 'real' underrepresented concerns.

Backflowing

All types of backflowing identified from the literature review were observed in the case, except 'compensation and benefit changes'. The most important types of backflowing, or attempts to address the concerns of the different stakeholders, were: (i) additional research, (ii) project plan changes, and (iii) stricter operational requirements than legally required. These occurred in the fourth decision-making round, and can be referred to as 'first order backflows', or changes within the problem definition (i.e. development of wind farm at Lage Weide). Second order backflows, or changes of the problem definition, have not been observed in the Lage Weide case. Stricter operational requirements was not identified as a type of backflowing from the literature review, but was observed empirically. The policy change on the provincial level (in the fifth decision-making round) ensured that the Provincial Council would not be required to adopt an adaptation plan, and facilitate the development of the wind farm, after the city council rejected the plan.

It can be concluded that the formal assessment trajectory and the associated goal-rational frame largely determine the scope of backflowing. In other words, the strong focus on facts and figures, substantive values, and compliance with legal norms defines what changes in the formal assessment trajectory are considered to be legitimate. The observed types of backflowing fit within this scope, since they mostly address substantive values. In contrast, procedural, compensation and benefit changes reflect moral considerations (i.e. procedural and distributive justice), and therefore are unlikely to occur in decision-making processes on renewable energy projects. That is also the reason why these generally have not been observed in the case under consideration.

Contextual factors

The results show that the contextual factors identified in the literature review were relevant for the Lage Weide case. The local ambition of Utrecht to facilitate wind energy developments emerged from the broader institutional context on an international and national level. The decision-making process and corresponding procedures were amongst others shaped by the Dutch Spatial Planning Act, Activities Decree, Decision EIA, Wabo, the participation standard Utrecht, and the UPP spatial planning process.

The economic and business context was relevant, as issues regarding the zoning plan revision and the development of a vision for Lage Weide were one of the reasons that the industrial association left the sounding board. Both the findings on 'economic and business context' and 'place and

community' echoes research that emphasizes the role of the local historical context in shaping the perceptions and trust regarding wind energy developments and decision-makers. With regard to 'place and community', the findings and conclusions of the evaluation report of the University of Utrecht regarding the wind farm at Houten, and similar coverages in the media, ensured that opponents of the Lage Weide wind farm did not trust that the stricter operational requirements would be adequately enforced. Also, it can be concluded that through the creation and adoption of symbolic meanings (i.e. interpretation) stakeholders make sense of the place changes, judge changes to be positive or negative (i.e. evaluation), and behave in opposition or in support of the changes (i.e. acting).

Interaction between elements

The overflowing of the formal assessment trajectory, due to the dominant focus on substantive values, their different operationalization, and the adoption and reproduction of the goal-rational frame, led to the emergence of the informal assessment trajectory. The stakeholders that can be associated with this trajectory in general conducted direct strategies to participate in the formal procedures, and to push for change within the dominant problem formulation (i.e. the development of wind energy at Lage Weide). The observed first order backflows were mainly achieved through participation in the sounding board and public consultation processes, and by addressing substantive values. This does not mean that procedural values were not articulated through direct strategies and participation in formal procedures, but that it generally did not lead to desired backflows. Different stakeholder (e.g., Buren van Lage Weide, and other project opponents) tried to open up the dominant problem formulation by adopting and articulating the substantive values 'environmental friendliness and 'resource durability', and by doing so referring to other renewable energy technologies to mitigate the negative effects of the use of fossil fuels.

Buren van Lage Weide's awareness that participation would not most likely result in a change of the dominant problem definition (e.g., other renewable energy technology or location) led to a rejection to participate in the sounding board. Through indirect strategies, including mobilization and a media campaign, the platform of concerned residents addressed procedural values and aimed to force second order backflows. Also, substantive values were addressed through indirect strategies, with a different operationalization compared to the ones adopted in the formal assessment trajectory. This discussion does not imply that there is a clear-cut distinction between direct and indirect strategies in terms of the value categories that are addressed through them and the types of backflowing that follow as a result. However, it means that it is more likely that stakeholders will pursue indirect strategies if they feel that their values and desired changes cannot be safeguarded and achieved through participation in formal procedures.

Recommendations for further research

- More focus should be given to investigating what types of governance forms are suitable for the accommodation of divergent (emergent) perspectives in decision-making processes on community renewable energy projects. Since overflowing cannot be avoided, the question becomes how participatory methods should be designed to: (i) connect to the formal assessment trajectory, and (ii) account for the fact that groups of individuals are not necessarily clearly defined interest groups that express specific values from the beginning of the decision-making process.
- Additional case studies should be conducted on the implementation of different renewable energy technologies and institutional contexts than the one under consideration in this thesis, to see if the findings presented here still are valid under these changing conditions. This is

necessary, as the results and conclusions of the single case study in this thesis cannot be generalized.

- Further studies should point out whether overflowing is always triggered by perceptions of injustice of specific (emergent) interest groups, and/or new concerns can be expressed by existing stakeholder groups or not.
- Additional research should focus on the conceptualization of the informal assessment trajectory, and use methodological tools that allow for a better empirical identification of this trajectory. It is suggested to conduct in-depth interviews with a representative sample of stakeholders that could be associated with informal assessment. In addition to this, research could examine the perceptions of those who remain silent, and do not actively participate in decision-making processes.
- There is a need for policy arrangements that are adaptive to the strategic behavior of stakeholders in the decision-making processes, and further research should point out how to develop these.
- Further work is needed in understanding the contribution of institutions, issue-specific factors and interest group characteristics to influence on decision-making processes and outcomes of renewable energy projects.
- There is a need to further investigate how the legitimacy of arguments expressed in public debates on controversial renewable energy projects can be determined, given that stakeholders behave strategically in associated decision-making processes.

Recommendations for practitioners

- Agenda-setting decisions, such as the choice for specific renewable energy technologies and locations of development, and the specification of compensation and benefit arrangements should be opened up for democratic participation. This can be done in a similar way as in Utrecht (Rijnenburg), where city conversations and workshops are held with citizens about scenarios for a transition to a CO₂ neutral energy system, and the conditions under which developments would be acceptable. The discussions could lead to the selection of a preferred energy scenario, and a framework of conditions, which are endorsed by the participants. The local government can subsequently make formal decisions about the facilitation of specific projects in an early stage, and prevent that resources are wasted through project cancellation after long planning processes.
- There is a need for 'negotiated knowledge', as stakeholders have different interests in decision-making processes on renewable energy projects, and therefore are strongly inclined to question the validity, impartiality, and quality of information of other parties. In other words, stakeholders have to determine the 'right' information in interaction with each other. It is suggested that this can be achieved through a knowledge broker.
- Both proponents and opponents of renewable energy developments should receive similar amounts of financial resources from governmental bodies to organize their campaign, to create a level playing field, and ensure impartiality.
- A national registry should be established for renewable energy projects, which records and presents the specific types of compensation and community benefits that have been used per

project. It is suggested that both the initiators and residents can benefit from such a registry. It forces the first group to think more critically about the benefit scheme they introduce, and can serve as an important source of information for the latter group.

- Regulations should be developed which define the minimum required benefits that have to be provided to the community by the initiator. This is because of three reasons. First, it would provide clarity to the different stakeholders about what can be minimally expected. Second, it would give initiators the incentive to discuss community benefits in the early phase of the decision-making process, as it will be seen as a formal planning consideration. Third, residents and citizens would be less likely to see the benefits as bribes, because the benefits will be legally required and independent of the initiators' perceived intentions (e.g., obtain public support).
- The scope of recipients of the minimum required benefits should be broadened from 'community of locality', to 'community of interest', to do justice to the fact that not only the proximate local community is affected by renewable energy projects, but larger groups of stakeholders.
- It is suggested to organize awareness raising programs for policy-makers, decision-makers, and regulators in the field of renewable energy, to emphasize the importance of justice concepts (procedural and distributive) in the context of decision-making processes and outcomes, and make clear that justice should not be reduced to a means for obtaining public support.

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1. Introduction

At the Paris climate conference in December 2015, for the first time after the establishment of the Kyoto Protocol, 195 parties to the United Nations Framework Convention on Climate Change (UNFCCC) were brought into a common cause to undertake far-reaching measures to fight climate change, and adapt to its effects. More specifically, these countries agreed to prevent an increase of the global average temperature to 2°C above pre-industrial levels, and to limit the temperature increase even further to 1.5°C (UNFCCC, 2017). To achieve these aims, the Paris agreement requires all participating countries to establish, communicate, and comply to a nationally determined contribution (NDC). A NDC reflects the contribution of each country towards meeting the objectives of the Paris agreement, which in the case of the European Union (EU) is a binding target of an at least 40% domestic reduction in greenhouse gas (GHG) emissions by 2030 compared to 1990 (Latvian Presidency of the Council of the European Union, 2015). To reach this target, countries have to implement a range of domestic mitigation measures. One of these mitigation measures is the transition to an energy system based on renewable sources, given the fact that the world's energy system currently accounts for approximately three-fifths of all GHG emissions (IEA, 2016a).

The urgency to deploy renewable energy¹ technologies does not only emerge from environmental concerns, but also the awareness that (i) the combustion of fossil fuels is posing health risks, (ii) conventional energy sources are rapidly depleting², (iii) global energy demand is increasing³, (iv) many nations are dependent on foreign energy supply, and (v) the associated sector is a significant source of new employment in different markets over the world⁴ (Ellabban, Abu-Rub, & Blaabjerg, 2014; IRENA, 2014; IRENA, 2017a World Energy Council, 2016). According to nearly all of the indicators of reputable agencies, renewable energy is gaining ground and momentum. In 2015, renewable power generation capacity experienced the largest annual growth yet, with 154 gigawatts (GW), equalling an increase of 9.3% over 2014 (IRENA, 2017a). In the same period (2014-15), fossil-fuel consumption subsidies have dropped from \$500 billion to \$325 billion, reflecting major subsidy reforms (IEA, 2016)a. Moreover, a new record for global investments in renewable energy was established in 2015, which rose from \$273 billion in 2014, to \$285.9 billion (5% growth) (Frankfurt School-UNEP Centre/BNEF, 2016). With regard to future energy projections, IRENA's (2017a) outlook expects that the share of renewable energy in the total global final energy mix will rise only slightly over the next 15 years, from 18.3% in 2014, to 21% by 2030, mainly due to the effect of overall demand growth.

Despite the promising future prospects for large-scale renewable energy production, the siting and implementation of specific renewable energy projects at the local level can face difficulties. Throughout the literature and news media, different cases have been reported in which the introduction of different renewable energy technologies has been confronted with public resistance and controversy: e.g., wind energy (Bell, Gray, & Haggett, 2005; Bell, Gray, Haggett, & Swaffield, 2013; Devine-Wright, 2005a; Wolsink, 2007; Wüstenhagen, Wolsink, & Bürer, 2007), solar energy (Hoggard,

¹ IPCC's (2007) definition of renewable energy is used throughout this paper: "Energy obtained from the continuing or repetitive currents of energy occurring in the natural environment, including non-carbon technologies such as solar energy, hydropower, wind, tide and waves and geothermal heat, as well as carbon-neutral technologies such as biomass." (p.814).

² According to the reserves-to-production ratio of BP's Statistical Review of World Energy (2017), approximately 51 years of oil and natural gas production are remaining, and 153 years of coal.

³ In the main scenario of IEA's (2016b) World Energy Outlook, demand is expected to grow with 30%, from 2015 to 2040.

⁴ IRENA (2017b) points out that the global renewable energy sector has employed 9.8 million people in 2016, which is a 1.1% increase over 2015.

2015; Pengelly, 2017; Sahagun, 2016), biomass energy (Henderson, 2017, Upham & Shackley, 2006), and carbon capture and storage (CCS) (Correljé et al., 2015; Cuppen, Brunsting, Pesch, & Feenstra, 2015a). One of the most common explanations for these controversies is the ‘not-in-my-backyard’ (NIMBY) argument, which suggests that people support renewable energy developments in general, but oppose developments in their proximity due to self-interested reasons (Bell et al., 2005; Bell et al., 2013; Devine-Wright, 2005a; Wolsink, 2006; Wolsink, 2007). In line with this argument, the opponents of these projects are often perceived as irrational, ignorant, and ill-informed (Cuppen et al., 2015a; Devine-Wright, 2011), and their resistance as a barrier for technological development and project success. In this context, a common response to these controversies is to counter the opposition and issues raised with experts’ conclusions and facts (Taebi et al., 2016).

The NIMBY argument is most often raised in discussions related to wind energy developments. Most of the researchers who conduct research on the motives for resistance to wind farms perceive the NIMBY argument as faulty and too simplistic (Bell et al., 2005; Bell et al., 2013; Devine-Wright, 2005a; Wolsink, 2006; Wolsink, 2007), because “it is generally used as a pejorative implying selfishness as an underlying cause ... it appears to incorrectly describe much local opposition to wind projects ... and the actual causes of opposition are obscured, not explained, by the label.” (Kempton et al., 2005, p.124). Besides the NIMBY argument, traditional studies on controversial wind energy developments have tried to explain resistance based on general public perceptions, physical characteristics of wind farms, and physical proximity to wind farms (Devine-Wright, 2005a). Over the course of time, an increasing amount of studies have looked into alternative concepts and explanations to controversy and public resistance (Batel, Devine-Wright, & Tangeland, 2013; Bell et al., 2005; Gross, 2007; Huijts, Molin, & Steg, 2012; Walker et al., 2010; Wolsink, 2006; Wüstenhagen et al., 2007), trying to account for ‘how’ renewable energy technologies are developed, as much as ‘what’ is developed.

The RESPONSE project, which this thesis is part of, takes an alternative approach to studying controversy and public resistance in relation to renewable energy projects, compared to the existing literature referred to. As a starting point, it is suggested that controversy and public resistance should not be viewed as a barrier to technological development, but as a valuable source of information about the divergent perspectives that stakeholders have in the decision-making process on a new energy project (Cuppen, Correljé, Pesch, & Taebi, 2015b; Cuppen, Pesch, Remmerswaal, & Taanman, 2016; Pesch, Correljé, Cuppen, & Taebi, 2017a; Pesch, Correljé, Cuppen, Taebi, & van de Grift, 2017b; Taebi et al., 2016). **Section 1.1** elaborates further on this alternative approach, which is the starting point of this thesis. **Section 1.2** explains the knowledge gaps that this thesis aims to cover. **Section 1.3** formulates the research objectives and questions. **Section 1.4** provides an overview of the thesis outline and a roadmap for the reader.

1.1 Alternative approach: the interaction between formal and informal assessment trajectories

The alternative approach that is presented in this thesis is based on the application of the notion of ‘responsible innovation’ to the planning and implementation of renewable energy projects. Von Schomberg (2011) defines responsible innovation as “a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society).” (p.9). These ethical, social, economic, and environmental issues in Von Schomberg’s (2011) definition are reflected in what are called ‘public values’ (Correljé et al., 2015; Dignum et al., 2016; Taebi et al., 2014; Taebi et al., 2016). Values refer to general beliefs or ideas about what constitutes

good and bad, and therefore what is desirable and undesirable. Accordingly, public values are the values that the members of a society want to promote and maintain, as they serve the public good (Taebi et al., 2016; Talbot, 2011). Taking the concept of public values as a basis, responsible innovation can be conceptualized as an endorsement of the relevant public values during the planning and implementation of renewable energy projects (Taebi et al., 2014). Hence, it can be stated that controversy and public resistance arise from a lack of acknowledgment or an inappropriate inclusion of public values in the decision-making processes on renewable energy projects (Cuppen et al., 2015b; Dignum et al., 2016; Pesch et al., 2017a; Pesch et al., 2017b; Taebi et al., 2016).

In addition to the connection with the concept of responsible innovation, the alternative approach builds upon the notion of ‘overflowing’, as introduced by Callon (1998). While Callon (1998) coined the term overflowing in the context of economic externalities, it generally refers to the situation where specific societal concerns emerge that are not sufficiently covered in the rule-sets that are part of dominant institutional practices. These rule-sets function as ‘frames’ (Cuppen et al., 2015a; Callon, 1998; Pesch et al., 2017a;), within which the interaction of a heterogeneous set of actors takes place, and which determine the courses of actions open to them. In other words, frames align and coordinate the behaviour of actors in particular contexts. It should be noted that the relation between frames and interactions is bi-directional, i.e. frames shape interactions, and interactions reproduce frames. Moreover, frames determine which arguments are considered legitimate, and which problem definitions and solutions are relevant, as those set the rules of interaction. By definition, frames have an exclusionary character and fail to take into account certain concerns. These concerns may be adopted by specific actors, due to perceived injustices. The adoption leads to a challenge of the dominant frame and those who reproduce it, and may cause opposition to the proposed project (Cuppen et al., 2015a; Pesch et al., 2017a).

Two trajectories of assessment can be distinguished in the decision-making processes on renewable energy projects: a formal and an informal one (Cuppen et al., 2015b; Pesch et al., 2017a; Pesch et al., 2017b; Taebi et al., 2016) (**figure 1.1**). The ‘formal assessment trajectory’ includes procedures, guidelines, tools (e.g., Environmental Impact Assessment, Cost Benefit Analysis, Risk Assessment), and policy arrangements to evaluate the desirability of a renewable energy project, and to make a final decision about its implementation. In other words, it can be regarded as the spatial planning process for the siting of a project. The formal assessment trajectory mainly focuses on formally established public values, such as safety, sustainability, and economy. It reproduces what is referred to as a ‘goal-rational frame’ (Cuppen et al., 2015a; Pesch et al., 2017a; Pesch et al., 2017b), in which a specific renewable energy technology is seen as a means to achieve an end with a general interest character, such as the national transition to a renewable energy system, or the mitigation of climate change. The goal-rational frame implies that the spatial planning process for the siting of a project is dominated by legal and technical discussions. In this context, a renewable energy project is considered to be acceptable if its negative effects do not exceed associated legal norms (e.g., for noise pollution, risks, ecology). Arguments that refer to concerns which are not legally regulated are generally perceived as illegitimate. As such, the formal assessment trajectory fails to take into account a broader range of public values that are jeopardized by the development of renewable energy projects (Cuppen et al., 2015a; Cuppen et al., 2015b; Pesch et al., 2017a; Pesch et al., 2017b; Taebi et al., 2016).

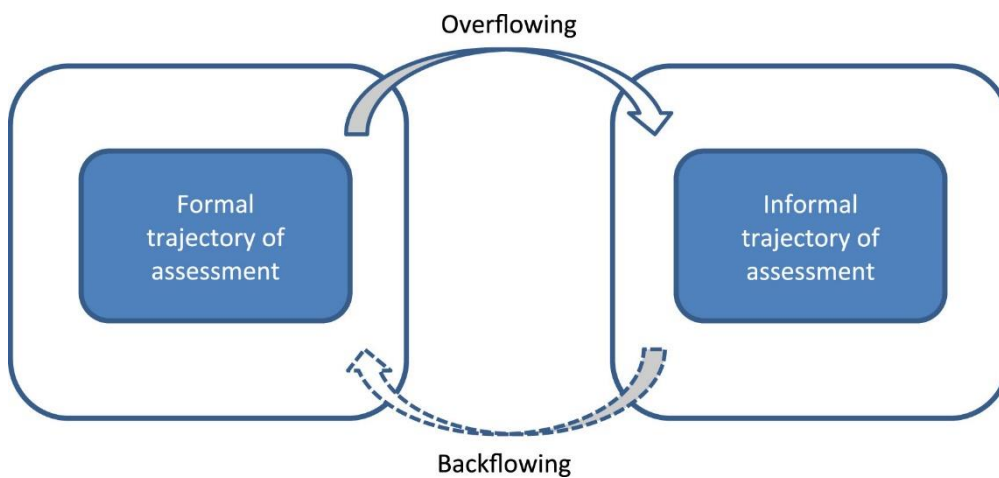
The overflowing of the formal assessment trajectory gives rise to the ‘informal assessment trajectory’ (Cuppen et al., 2015b; Pesch et al., 2017a; Pesch et al., 2017b; Taebi et al., 2016). In this trajectory, groups of stakeholders mobilize themselves to articulate the concerns and public values they consider to be underrepresented, and to challenge the dominant frame that is reproduced, in the formal assessment trajectory (Cuppen et al., 2015b; Pesch et al., 2017a; Pesch et al., 2017b; Taebi et al., 2016). According to Pesch et al. (2017a), the informal assessment trajectory “materialises in the formation of new advocacy groups and media debates, all articulating new, or changes in public discourses.” (p.3). It should be noted that also existing advocacy groups could address

underrepresented concerns and public values. Although it's challenging to conceptualise the informal assessment trajectory, the following working definition is provided for the purpose of this thesis:

"The adoption and articulation of underrepresented concerns and public values, by existing and/or emerging stakeholder groups, in response to the exclusionary character of the formal assessment trajectory of the decision-making processes on renewable energy projects."

The informal assessment may lead to changes in the formal assessment trajectory, which is referred to as 'backflowing'. An example of this is the situation in which the project developer of a wind farm reduces the amount of wind turbines, which was initially proposed to be constructed in a specific area, because of stakeholder concerns about nuisance. The interactions between the formal and informal assessment trajectories, i.e. overflowing and backflowing, form the focus of this study.

Figure 1.1: Overflowing and backflowing between the formal and informal assessment trajectories (Pesch et al., 2017a).



1.2 Complexity of decision-making and strategic behaviour of stakeholders in renewable energy developments

The perspective presented in the previous section argues that the lack of acknowledgment, or the inappropriate inclusion, of public values is the source of controversies on renewable energy projects. While it provides scope for a normative analysis on these projects, it neglects the influence of the complexity of decision-making and the strategic behaviour of the stakeholders involved. Societal problems, such as the transition to a renewable energy system, can be characterized as what Rittel and Webber (1973) refer to as 'wicked problems'. Decision-making on these problems faces three types of complexity: substantive, strategic, and institutional (Klijn and Koppenjan, 2014).

Substantive complexity refers to the content and nature of the problems and solutions that are being addressed. It is not only attributed to the lack of knowledge and information, but also to the fact that involved stakeholders have different perceptions about the nature of the problems, and which solutions should be implemented. Strategic complexity implies that stakeholders follow their own strategies, and anticipate on others, because they are autonomous and not bound by hierarchical control forms. As such, different and conflicting strategies can develop around an issue, and it becomes difficult to predict how these interactions influence the decision-making process. Institutional complexity is linked to the notion of institutions, which can be defined as "set of rules regulating behaviour." (Klijn & Koppenjan, 2014, p.5). Enduring relationships between stakeholders result in the emergence of rule-sets, which reduce complexity and improve cooperation. This is because these rule-

sets increase the predictability of stakeholder behaviour. If the amount of rules increase, become inconsistent, or poorly understood, they will lead to an increased complexity (Klijn and Koppenjan, 2014).

The strategic complexity of decision-making processes on societal problems, and the strategic behaviour of stakeholders, has been addressed by different scholars. Pesch et al. (2017a/b) refer to the fact that stakeholders strategically use the formal and informal assessment trajectories to pursue their own goals. NGOs for example connect to the informal assessment trajectory to obtain 'street credibility', and to make ideologically alliances with local residents and the wider public opinion. Moreover, these stakeholders try to influence the formal assessment trajectory, through participation in consultation processes, filing law suits, etc. On the other hand, stakeholders which are generally associated with the formal assessment trajectory (e.g., government authorities, expert organizations), try to influence the informal assessment trajectory through the strategic use of formal forms of assessment. An example is a minister who tries to reduce the intensity of a controversy by announcing additional research, and by doing so, aims to create legitimacy by emphasizing his objectivity. José Galeano Galván (2016) points out that strategies can be used to open up, or close, the public debate on specific concerns and values. As such, some of the values can get momentum in the public debate, while the expression of others is halted.

Mouter (2017) states that politicians make strategic use of a Cost-Benefit Analysis (CBA) in decision-making processes on transport projects. First, members of parliament use the CBA as political ammunition in political debates (i.e. opportunistic use). This means that they emphasize the CBA when the study supports their position, and they criticize the impartiality, validity, and quality of the CBA when the results are not in line with their position. Second, the members of parliament use the CBA in a symbolic way, to make their decisions look more rational, and indicate to affected stakeholders that their problems and concerns are taken seriously. While Cuppen et al. (2015a) did address it, the city council of Barendrecht partnered up with corporate communications and public affairs firm Dröge & van Drimmelen, to lobby against the development of the CCS project. The efforts of this lobby achieved the incorporation of the following passage in the coalition agreement: "CO₂ can be captured and stored underground, taking into account the strict safety norms and local support" (Dröge & van Drimmelen, 2017). This passage ensured that the Minister of Economic Affairs could legitimately use the argument of 'there is a lack of support', to cancel the project in November 2010.

1.3 Knowledge gaps and study relevance

1. Types of overflowing and backflowing

Based on aforementioned arguments, it can be concluded that formal assessment trajectories are generally imperfect in facilitating socially responsible decision-making on the planning and implementation of renewable energy projects. To solve this problem, the RESPONSE project formulated the objective to develop a methodology that integrates formal and informal assessment trajectories in such a way, that all relevant public values are appropriately accounted for during the planning and implementation of renewable energy projects (Cuppen et al., 2015b; Taebi et al., 2016). The first step in achieving this objective is to conduct ex-post analyses on controversial renewable energy projects, in order to understand how the formal and informal assessment trajectories in these cases have interacted with each other. More specifically, these case studies should lead to an improved understanding of the different types of overflowing and backflowing.

Currently, only two empirical cases studies have been conducted to gain insight in these interaction patterns, and to develop the alternative approach presented in the previous section: (i) a CCS project in Barendrecht, and (ii) the exploration of shale gas in the towns of Boxtel and Haaren (discussed in: Pesch et al., 2017a & Pesch et al., 2017b). While these studies have identified the types of overflowing and backflowing applicable to those cases, they have not led to the development of a typological framework. It is argued that such a framework will lead to a better understanding of the reasons that renewable energy projects become controversial, and in what way the adoption and articulation of underrepresented values leads to changes in the formal assessment trajectory. Besides this conceptual value, a systematic identification of the types of overflowing and backflowing also has a practical value, and can lead to different policy recommendations.

2. Strategic behaviour of stakeholders

The examples of stakeholders' strategic behaviour provided in **section 1.2** point out that analyses on controversial renewable energy projects should account for the strategic complexity of the decision-making processes. The focus on overflowing and backflowing provides insight in the value root of controversies, and avoids the 'technocratic pitfall' of excluding the emotions, concerns, and arguments of the local population (Pesch et al., 2017a; Pesch et al., 2017b; Roeser, 2011). However, it neglects an important dimension of decision-making processes, which is the strategic behaviour of the stakeholders involved. It is argued that the original RESPONSE project framework presented in **section 1.1** only explicitly acknowledges the existence of substantive and institutional complexity. To avoid the 'populist pitfall' of presupposing that all concerns articulated outside the institutionalised system are justified (Pesch et al., 2017a; Pesch et al., 2017b; Roeser, 2011), the framework has to be expanded with a strategic perspective, and claims have to be analysed accordingly.

3. Community renewable energy projects and controversy

Some academic studies have suggested that 'community renewable energy projects' result in lower levels of controversy and public resistance, in comparison to developments that are led by private parties, which typically follow a Decide-Announce-Defend strategy (Barry & Chapman, 2009; Devine-Wright, 2005b; Jegen & Audet, 2011; Musall & Kuik, 2011; Rogers, Simmons, Convery, & Weatherall, 2008; Warren & Mcfayden, 2010). Contrariwise, other studies have demonstrated that 'community renewable energy projects' can encounter significant controversy and public resistance (Simcock, 2014; Walker, 2008; Walker et al., 2010). Given this difference in empirical findings and claims, more research has to be conducted on the factors that shape stakeholders' perceptions of 'community renewable energy projects' (Simcock, 2016).

The term 'community' in relation to renewable energy developments is quite broad (Walker & Devine-Wright, 2008), since it encompasses a variety of initiative objectives, legal ownership types, participation forms, and benefit-sharing arrangements (Becker & Kunze, 2014; Radtke, 2014; Schreuer & Weismeier-Sammer, 2010; Seyfang, Park, & Smith, 2013; Simcock, 2016). To structure this matter, Walker and Devine-Wright (2008) identified two key dimensions based on which renewable energy developments can be categorized. First, the process dimension, which refers to who is involved in a project, and can influence its development. Second, the outcome dimension, which refers to how the outcomes of a project are distributed in spatial and social terms. Based on these dimensions, Walker

and Devine-Wright (2008) argue that an ‘ideal’ community-based energy project is “one which is entirely driven and carried through by a group of local people and which brings collective benefits to the local community (however that might be defined) – a project that is both by and for local people.” (p.498). Studies have rarely explored process and outcome as separate effects, and its suggested that there remains both practical and conceptual value in understanding these nuances in renewable energy developments (Walker & Baxter, 2017a).

1.4 Research objective and questions

The objective of this thesis is to contribute to the understanding of controversial community renewable energy projects, and more specifically:

1. The types of overflowing and backflowing between the formal and informal assessment trajectories of the decision-making processes;
2. The strategic behaviour of the stakeholders involved;
3. The process and outcome dimensions of these projects.

This objective will be achieved by means of a literature study, and a case study, in which the decision-making process and public debate on the controversial wind farm in Lage Weide (Utrecht) will be reconstructed. The main reason that this project is selected as a case is that its implementation was cancelled by the city council in 2014, despite being labelled as a community initiative. Moreover, there have not been studies focusing on the types of overflowing and backflowing in the context of wind energy developments. Given that the location of the Lage Weide project is in the Netherlands, this study can facilitate comparison with projects in other European countries, to see if similar phenomena can be observed in different national institutional contexts. Lastly, the project location enables the researcher to gain access to interview participants for primary data collection, and other data sources without the need for translation.

Based on the research objective, the following main research question and sub-questions could be formulated for this thesis:

Main research question	
<i>What are the types of overflowing and backflowing between the formal and informal assessment trajectories of the strategically complex decision-making processes on community renewable energy projects?</i>	

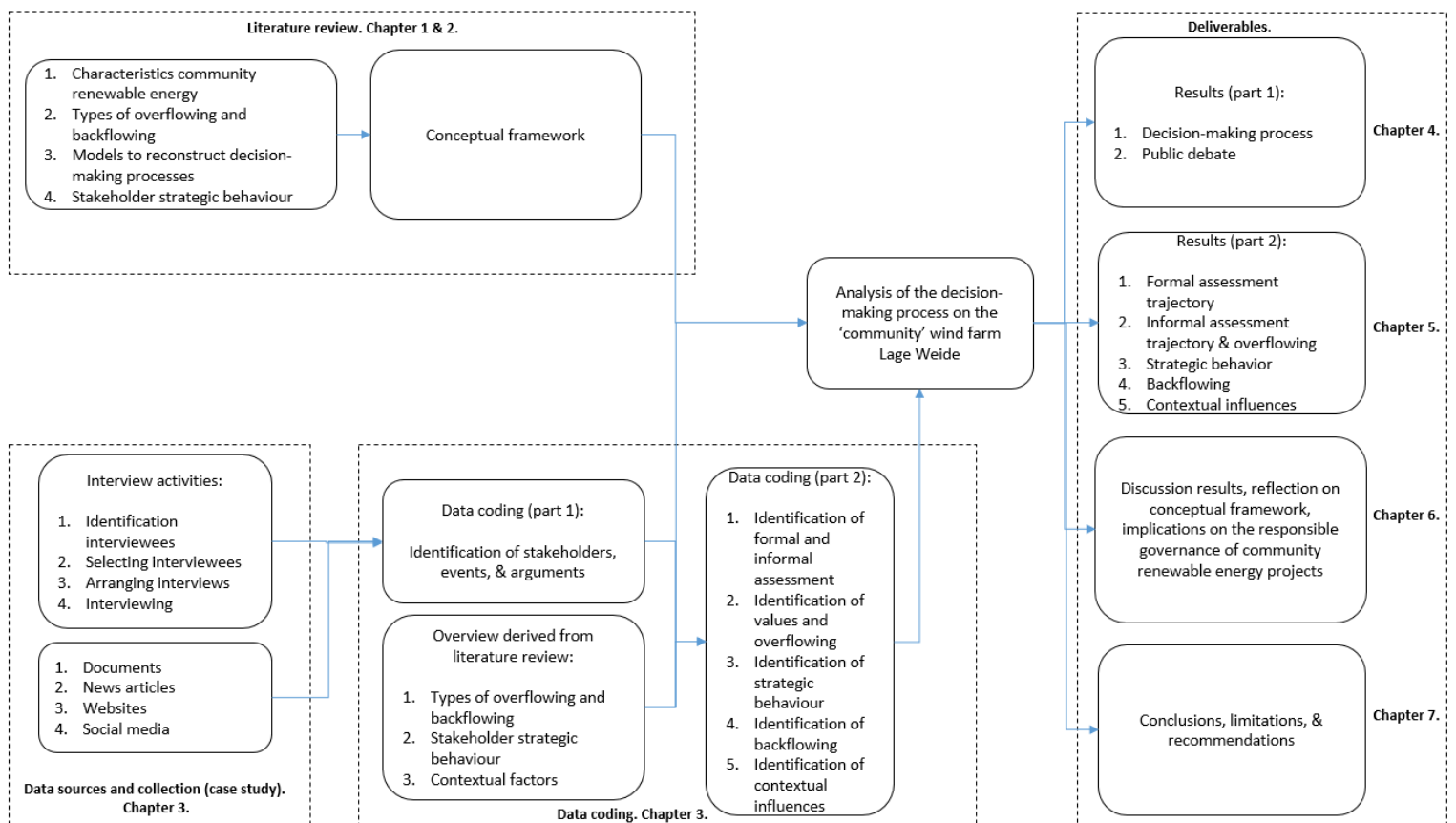
Sub-questions	
#1	<i>Which types of overflowing and backflowing can be identified in the academic literature?</i>
#2	<i>What are the characteristics of community renewable energy projects, and what is their current state in the Netherlands?</i>
#3	<i>What models can be used to reconstruct decision-making processes and the strategic behaviour of the stakeholders involved?</i>
#4	<i>Which types of overflowing and backflowing can be identified in the decision-making process on the ‘community wind’ farm Lage Weide, and how have stakeholders acted strategically?</i>
#5	<i>What are the implications of these insights for the responsible innovation of community renewable energy projects?</i>

1.5 Thesis outline and roadmap for reader

Chapter 2 elaborates on the academic literature regarding community renewable energy projects, the types of overflowing and backflowing, models to reconstruct decision-making processes, strategic behaviour of stakeholders, and will conclude with the conceptual framework that forms the basis of this thesis. **Chapter 3** addresses the research methodology, specifying how the literature study was conducted, and in what way data was collected and analysed for the specific case study. **Chapter 4** presents the first part of the results of the empirical study: (i) a reconstruction of the decision-making process on the Lage Weide ‘community’ wind farm, and (ii) the public debate. **Chapter 5** focuses on the second part of the results: (i) the formal assessment trajectory, (ii) the informal assessment trajectory, (iii) strategic behaviour, (iv) backflowing, and (v) contextual factors. **Chapter 6** discusses the results, reflects on the conceptual framework, and elaborates on the implications for the responsible governance of community renewable energy projects. **Chapter 7** concludes the thesis, explains the research limitations, and formulates recommendations for further research and practitioners.

Figure 1.2 presents the link between the research that was conducted and the chapters of this thesis. The literature review on key concepts led to the development of a conceptual framework. This framework was used to guide the analysis on the empirical data (i.e. interviews, documents, news articles, websites) that was collected from the decision-making process on the Lage Weide ‘community’ wind farm. The outcomes of this analysis are the deliverables of this thesis, and provide an answer on the main research question.

Figure 1.2: Research framework



2. Literature review

This chapter will provide an overview of the scientific literature that was considered relevant for this study, and subsequently will present the conceptual framework that was used for the analysis of the decision-making process on the Lage Weide community wind farm. **Section 2.1** will address the main characteristics of community renewable energy projects. **Section 2.2 and 2.3** will focus on public values, and the different types of overflowing and backflowing. **Section 2.4** will elaborate on the different models that can be used to reconstruct decision-making processes. **Section 2.5** will address the strategic behaviour of stakeholders in decision-making processes, by highlighting the importance of interest groups and their lobbying strategies and tactics. Lastly, **section 2.6** will present the conceptual framework.

2.1 Community renewable energy projects

In Europe, the member states' policy for the development of renewable energy has rapidly evolved over the past two decades. Traditionally, policies especially focused on a private-sector led model of project development, meaning that the energy infrastructure was organized in a centralized manner, and citizens did not have a major role in energy production. From 2000 onwards, an increasing number of policy-makers, academic scholars, citizens, and non-governmental organizations (NGOs) have advocated for a more decentralized configuration of the energy system. More specifically, the concept of 'community renewable energy development' has emerged as a new theme in policy discourse and the investment of public resources (Bauwens, Gotchev, & Holstenkamp, 2016; Oteman, Wiering, & Helderma, 2014; Walker et al., 2007). This discourse incorporates notions of community led, controlled, and owned renewable energy developments, "extending beyond the idea that private developers should consult closely with communities that are potentially affected by new proposed projects." (Walker et al., 2007, p.69).

Currently, thousands of community initiatives are active across Europe, with varying objectives, legal and financial models of ownership, benefit-sharing arrangements, and degrees of involvement in decision-making processes (Bauwens et al., 2016; Becker & Kunze, 2014; Nolden, 2013; Oteman et al., 2014; Radtke, 2014; Schreuer & Weismeier-Sammer, 2010; Seyfang et al., 2013; Simcock, 2016, Walker et al., 2007; Walker, 2008). This diversity makes the concept of 'community renewable energy development' relatively fuzzy and difficult to define. For the purpose of this thesis, and following Walker and Devine-Wright's (2008) lead, 'community renewable energy development' refers to those projects where the community has an active role in the planning, decision-making, and exploitation, and which bring collective benefits to the community. This section will address the main themes related the community renewable energy projects, and will specify it to the wind energy sector where possible. **Section 2.1.1** discusses about an important question that is raised in the debate, namely, who the community is that is supposed to (partially) own a project and receive collective benefits. **Section 2.1.2** presents the different legal and financial models of ownership that are associated with community renewable energy projects. **Section 2.1.3** elaborates on the provision of community benefits. **Appendix I** provides an overview of the current state of community renewable energy in the Netherlands.

2.1.1 Communities of interest vs. communities of locality

Walker (2008) distinguishes two types of communities that could (partially) own a project and receive collective benefits: communities of interest, and communities of locality. Communities of interest refer to groups of people that have a common interest, but are geographically dispersed. An

example of this could be investors in a cooperative project, living in different neighbourhoods of a large city. Communities of locality refer to groups of people who live in areas close to a renewable energy project, or in other words, are locally concentrated.

2.1.2 Legal and financial models of ownership

Renewable energy projects can achieve community ownership in different degrees and ways. They can be completely owned by the community, or can be developed with the private sector under a specific co-ownership arrangement. Moreover, locally owned production of renewable energy can be used for own consumption, can be fed into the grid, or a combination of both. In this context, Walker (2008) distinguishes four different types of legal and financial models of ownership for community renewable energy: (i) cooperatives, (ii) community charities, (iii) development trusts, and (iv) part-ownership by the community.

Cooperatives are a type of association that are established to provide services to its members on a non-profit basis. In the context of wind power developments, people of the community become members of the cooperative and buy shares to finance the specific project. Each member's investment is based on the amount of electricity he or she expects to consume. The turbines' electricity output can be either sold to a local utility company, or directly to the members of the cooperative (Bolinger, 2001; Walker, 2008).

In the first case, the cooperative 'sells' the turbines' output to the local utility at the agreed upon feed-in tariff. Throughout the year, each member of the cooperative has to pay its energy bill to the local utility. At the end of the year, the real output of the cooperative wind turbines is known. Based on this, the cooperative is able to calculate the amount of energy each member has 'purchased' from the cooperative, and to distribute dividends across its members. These dividends consist of the feed-in tariff, and an environmental bonus. The return on investment is equal for all cooperative members, as long as each individual's consumption is equal or larger than his level of investment. If consumption is larger than the level of investment, the excess consumption is considered to have been purchased from the local utility. If consumption is lower than the level of investment, the specific member is inhibited to receive a share of the profit, and the cooperative has to decide what to do with the excess energy (Bolinger, 2001; Walker, 2008).

The turbines' output has been traditionally sold to the local utility instead of directly to the cooperative's members, in order to avoid load balancing responsibilities. However, as the residential market was opened up to competition, feed-in tariffs significantly reduced, and there was a larger incentive for cooperatives to bypass the local utility. Hence, in the second case, the cooperative and a distribution utility join together in a partnership, in which the distribution utility takes the load balancing responsibility, and the cooperative is able to sell wind power directly to its members. Households that are interested to participate have to become customers of the distribution utility, and invest a specific amount of money per unit of wind power capacity per year. Subsequently, the cooperative uses these investments to develop wind farms at different sites, and is able to sell wind power to its members at the production rate, rather than refunding at the end of the year. Cooperative members benefit in two ways: reduced VAT liability, and not having to pay the utility's margin (Bolinger, 2001; Walker, 2008).

Community charities refer to a type of association with charitable status that provide or run facilities for the community (e.g., village hall heated by renewable energy), or provide local services (e.g., the management of renewable energy projects). Development trusts particularly exist in the Scottish context, and traditionally represented the interests of specific communities in profit-oriented

firms. Nowadays, they are often companies limited by guarantee with charitable status, which have to use their profits for the further benefit of the community. Part-ownership refers to the situation in which a private developer provides shares in a commercial renewable energy project to a community organization. In the case that this project entails the development of a wind farm, these shares are typically one or more turbines (Bolinger, 2001; Walker, 2008).

In addition to these four different types of legal and financial models of ownership, **table 2.1** presents HIER Opgewekt's (2017a) alternatives for the organization of ownership in the context of community wind energy in the Netherlands.

Table 2.1: Alternatives for the organization of ownership for Dutch community wind energy projects (HIER Opgewekt, 2017).

Ownership model	Description
Cooperative	Ownership by a cooperative. A wind farm is incorporated in a private limited company (BV.), of which the cooperative is a shareholder and co-owner. For large wind farms, there are often also other shareholders / owners.
Certificates of shares (supported by a cooperative)	In other cases, certificates are issued, with which citizens and firms can participate in the wind farm directly. They become shareholder and co-owner of the wind farm. A cooperative can facilitate the issue, without being a shareholder itself. In other words, ownership is in the hands of the citizens, the cooperative has an active role, but there is no cooperative ownership.
Certificates of shares	Citizens and firms can also obtain certificates of shares of a wind farm, without the involvement a cooperative.
Financial participation	Financial participation without ownership. For most of the wind farms developed by private parties, citizens and firms can participate financially. They can buy a specific financial product, which contributes to the financing of the wind farm, and generates a return.

2.1.3 Community benefits

The concept of community benefits in the context of wind energy developments has been studied by various scholars, who either focus on different arrangements and best practices (Cowell, Bristow, & Munday, 2011; Rudolph, Hagggett, & Aitken, 2014), or look into meanings and motivations (Aitken, 2010; Cass, Walker, & Devine-Wright, 2010; Munday, Bristow, & Cowell, 2011; Walker, Wiersma, & Bailey, 2014; Warren & McFayden, 2010). Policy-makers and project developers have generally perceived the provision of community benefits as a strategy to increase the local acceptability of wind farms. However, as Rudolph et al. (2014) point out, benefits may be understood in four different ways. First, they could be interpreted as 'spreading the positive', meaning that the economic benefits of harnessing a country's natural resources are shared, without directly serving a planning purpose. Second, they could be perceived as 'recognizing hosts', meaning that private developers provide benefits to communities because they recognize them as hosting a development. Third, they could be depicted as 'accounting for impact', meaning that benefits are provided to acknowledge the disjuncture between the global advantages of renewable energy developments, and the negative impacts arising on a local level. Last, they could be seen as 'compensation', meaning that benefits are confused with legally enforced compensatory agreements.

Section 2.1.1 introduced the distinction between communities of interest and communities of locality, but as Bristow et al. (2012) show, the discussion on the notion of 'community' in community

benefit provisions is far more complex. Their argument is that “whilst a malleable notion of ‘community’ creates a flexible ‘space’ within which different interests and groups can be accommodated, the consequences for both the mediation and disbursement of community benefits are likely to be highly contingent upon precisely who makes the claims over this space, how claims are asserted and whose claim prevail.” (p.1109). This ambiguous nature of community has not really been recognized by key stakeholders in the wind power sector. Most frequently, community in relation to benefits from wind farms is defined as communities of locality. However, this doesn’t make clear which individuals exactly form this community, or in other words, which spatial or jurisdictional criteria should be applied for demarcation. The same holds for the criterion ‘impact’: should only those people whose residences are physically affected be provided with benefits, or also those who believe that their views are impaired? An important factor to consider in this discussion is the power to define which communities may benefit (Kerr, Johnson, & Weir, 2017; Rudolph, 2014). In most cases, this power is reserved for the private developers (e.g., UK and the Netherlands), or the government (e.g., Germany and Denmark).

In addition to the (part)-ownership and electricity discounts referred to in **section 2.1.2, table 2.2** presents the community benefit models (in the context of wind energy developments) identified by and Munday et al. (2011) and Rudolph et al. (2014).

Table 2.2: Community benefit models (Munday et al., 2011; Rudolph et al., 2014).

Community benefit models	Description
Community funds	Financial payments, by private developers, into a fund for the use of the community. The payments can be either lump-sum and/or annually. Moreover, they can be used for specific purposes, or for more general objectives.
Equal distribution of revenues	Provision of equal access to benefit funds to larger areas of communities (within a specific administrative boundary). This distribution is often regulated by local or regional authorities.
Direct investment and project funding	One-off investments by private developers in local projects and organizations, such as the improvement of facilities, or the support of charities. Moreover, these investments could be used to enhance the landscape and ecology affected by the development of the wind farm.
Apprenticeships, studentships and educational programs	Apprenticeships refer to the provision of training programs to members of the community, often focused on practical elements at one of the private developer’s projects. Studentships consist of financial contributions to training and education, related to wind farms and renewable energy developments. Educational programs encompass the more general involvement of local schools to raise awareness about issues related to climate change, sustainable development, and renewable energy.
Community benefit agreements.	Legal agreements between a private developer and a specific community, which define what and how benefits are provided.
Conventional economic benefits	A diverse set of benefits occurring due to wind energy developments, such as the use of locally manufactured content, land rental incomes, local business rates, regeneration of communities, and increased tourism.

2.2 Public values and overflowing

The approach to study overflowing in this thesis is based on the concept of value sensitive design (VSD), which contests the ‘value neutrality’ of technologies (and associated institutions) **(2.2.1)**. In general, public debates on renewable energy projects revolve around two categories of values: substantive (i.e. related to the technology and project effects), and procedural (i.e. related to the decision-making process and outcome) **(2.2.2)**. Based on the aforementioned concepts, two types of overflowing are presented **(2.2.3)**.

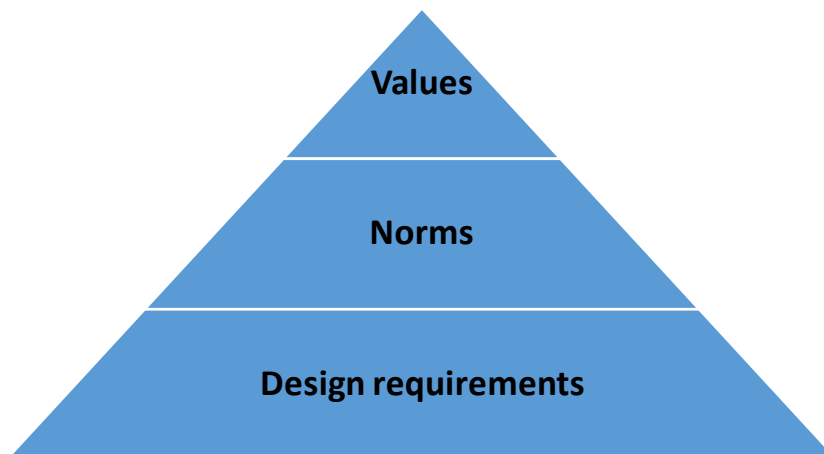
2.2.1 Value sensitive design

According to Friedman, Kahn JR., and Borning (2008), VSD is “a theoretically grounded approach to the design of technology that accounts for human values in a principled and comprehensive manner throughout the design process.” (p.69). The ambition to account for values in technological artefacts and systems emerged from the understanding that technologies are not neutral, but can negatively affect values that are considered important by a substantial part of society (Friedman et al., 2008; Roeser, 2011; Dignum et al., 2016). In other words, technologies may fail to include important public values, and may produce and reproduce undesirable values. This can lead to a situation in which a technology is publicly contested, and is not socially accepted. To overcome this problem, VSD aims to embed relevant values in the technological design. To be able to do so, two steps have to be taken: (i) identifying the values at stake, and (ii) determining the value-conflicts. According to Friedman et al. (2008), value conflicts “should usually not be conceived as a “either/or” situations, but as constraints on the design space.” (p.89). This means that in the design process, conflicting values have to be balanced, and it has to be addressed which of the values are more important than others (and why) (Dignum et al., 2016). Some typical value conflicts include: sustainability versus economic development, privacy versus security, and hierarchical control versus democratization (Friedman et al., 2008). Whereas VSD traditionally focused on the design of technological artefacts, Correljé et al. (2015) and Dignum et al. (2016) emphasize that the institutions in which these artefacts are to be embedded should also be considered. This is because values are not only at stake in the design of technologies, but also in the implementation of specific projects.

Following this view on VSD, an important methodological question that arises is how to identify the relevant set of values and their conflicts. Dignum et al. (2016) argue that an important source for finding relevant public values is a ‘rich public debate’, and present a method for systematic identification in their paper according to a shale gas exploration and exploitation debate in the Netherlands. Their analysis was based on a dichotomy of project proponents and opponents, and the arguments that those groups put forward in the public debate. These arguments can be derived from documents of governmental bodies, NGOs, expert firms, and other stakeholders, within a specific time period. After these arguments are collected, they can be analysed, according to van de Poel’s (2014) concept of a “values hierarchy” **(figure 2.1)**. Van de Poel (2014) defines a values hierarchy as a:

“coherence structure that is held together by two relations. Specification is the relation by which higher level elements are translated into lower level elements in the hierarchy. Pursuit for the sake of is the relation by which we can connect lower level elements, like design requirements with higher level elements, such as more general norms and values.” (p.254).

Figure 2.1: Values hierarchy (van de Poel, 2014).



The values hierarchy consists of three levels: values, norms, and design requirements. As has been mentioned before, values refer to general beliefs or ideas about what constitutes good and bad, and therefore what is desirable and undesirable. Norms are prescriptions for, and restrictions on, action. These can include: objectives (i.e. strivings without a specific target), goals (that specify a target), and constraints (that set boundaries or minimum conditions). Design requirements specify the properties, attributes, or capabilities that an artefact or process should have (Dignum et al., 2016; van de Poel, 2014).

The original idea behind the values hierarchy was to make: (i) the translation of values into design requirements more systematic, (ii) the value judgments involved explicit, debatable, and transparent, (iii) the disagreement about the specification of values in design more clear, and (iv) specification choices more transparent to others (van de Poel, 2014). However, Dignum et al. (2016) used it to analyse the public debate, and found that the debate mainly addressed mid-level norms. According to them: “Norms can be made explicit and expressed in the form of arguments, which are put forward in the public debate. Such arguments comprise normative statements about how the world should be.” (p.1175). Given that arguments reflect norms, it can be identified to which values these arguments refer.

2.2.2 Substantive and procedural values

As has been mentioned in the introduction of this section, two different types of values hierarchies can be distinguished in public debates on renewable energy projects: substantive values and procedural values. The substantive values relate to the renewable energy technology, and the effects of a specific project, and refer directly to the objectives of energy policy: (i) security of supply, (ii) sustainability, and (iii) affordability. For these three values, Dignum et al. (2016) identified a set of lower-hierarchy values, which are presented in **Appendix II**. For wind energy developments, these substantive values among others refer to the turbine effects that are generally mentioned in the academic literature on the ‘social acceptance of wind energy’ (Devine-Wright, 2005a; Enevelodsen & Sovacool, 2016; Stigka, Paravantis, & Mihalakakou, 2014; Wüstenhagen et al., 2007): noise pollution, shadow flicker, visual intrusion, impact on flora and fauna, property values, local benefits, etc. The procedural values relate to different aspects of the procedure surrounding the planning and implementation of renewable energy projects. **Appendix II** presents the procedural values that were identified by Dignum et al. (2016).

The values procedural and distributive justice require more discussion in the context of community wind energy projects. As has been mentioned in the introduction in this thesis, many studies have been conducted to understand the factors that shape local responses, and motives for resistance, to wind energy developments. In this context, most of the research refutes the characterization of ‘selfish NIMBY attitudes’ of locals, and points to factors like a lack of procedural and/or distributional justice as the root cause(s) of opposition (e.g., Gross, 2007; Hall, Ashworth, & Devine-Wright, 2013; Knudsen et al., 2015; Ottinger, Hargrave, & Hopson, 2014; Simcock, 2016; Walker & Baxter, 2017a; Walker & Baxter, 2017b; Wolsink, 2007; Wüstenhagen et al., 2007).

It has been suggested that community-based wind development can serve as a model for addressing both procedural and distributive justice, for instrumental purposes (i.e. increase acceptability) and ‘for their own sake’. However, Walker & Baxter (2017a) point out that “the ‘romanticized’ narrative of community energy may be hiding some practical or ‘on the ground’ shortcomings including the degree to which communities will benefit in terms of processes and/or outcomes.” (p.160). To be able to understand more thoroughly which factors contribute to stakeholders’ perceptions and interpretations of procedural and distributive (in)justice, it should be recognized that both values consists of multiple ‘dimensions’ or ‘elements’. Various typologies of precise dimensions exists in the academic literature, and **table 2.3 and 2.4** present an aggregation of these for the purpose of this thesis.

Table 2.3: Dimensions of procedural justice.

Dimensions	Definition	Sources
procedural justice		
Information	The provision of appropriate, sufficient, accurate, timely, and impartial information to all stakeholders of a decision-making process.	Aitken, Hagget, & Rudolph (2016); Gross (2007); Hall et al. (2013); Jami & Walsh (2017); Janhunen, Hujala, & Pätäri, 2018; Knudsen et al. (2015); Simcock (2016); Smith & McDonough, 2001; Walker & Baxter (2017a).
Recognition	Acknowledgment of the legitimacy of community members’ participation, and their input as an important and relevant contribution to decision-making.	Aitken et al. (2016); Gross (2007); Janhunen et al. (2018); Knudsen et al. (2015); Ottinger et al. (2014); Simcock (2016); Smith & McDonough (2001); Walker & Baxter (2017a).
Inclusion	The inclusion of all relevant stakeholders in decision-making.	Aitken et al. (2016); Gross (2007); Hall et al. (2015); Jami & Walsh (2017); Janhunen et al. (2018); Knudsen et al. (2015); Ottinger et al. (2014); Simcock (2016); Smith & McDonough (2001); Walker & Baxter (2017a).
Consideration	The way in which the decision-maker(s) react to the input from stakeholders, in terms of answers, level of detail, and whether its valued or not.	Gross (2007); Knudsen et al. (2015); Smith & McDonough (2001).

Influence	The extent to which participants' opinions, suggestions and concerns are able to shape the process and outcome of decision-making. Different degrees of influence can be distinguished, which also refer to the levels of public participation. While many different lists of categories exist, this thesis adopts that of Simcock (2016): 'listen as a spectator', 'consultative influence', and 'direct authority'. Listen as a spectator refers to the situation in which participants only receive information, and do not have influence on the process and outcome. Participants with consultative influence can provide input, but do not have the authority to take final decisions. Direct authority means that a stakeholder is able to formally shape the decision outcome, through unilateral decision-making or sharing power.	Aitken et al. (2016); Jami & Walsh (2017); Janhunen et al. (2018); Knudsen et al. (2015); Ottinger et al. (2014); Simcock (2016); Smith & McDonough (2001); Walker & Baxter (2017a).
Impartiality of decision-maker(s)	The decision-maker(s) should not be biased towards a specific outcome.	Gross (2007); Smith & McDonough (2001).

Table 2.4: Dimensions of distributive justice.

Dimensions distributive justice	Definition	Sources
Spatial	The fair distribution of costs and benefits in a physical spatial sense. Often, the benefits of renewable energy development occur on a national or global level, while the negative effects are local. As such, negative effects should be compensated, and adequate benefits (in terms of form, amount, and localization) should be introduced.	Aitken (2010); Bristow et al. (2012); Cowell et al. (2011); Dignum et al. (2016); Gross, 2007; Pols & Spahn (2014); Munday et al. (2011); Walker et al. (2014); Walker & Baxter (2017a); Walker & Baxter (2017b).
Temporal	The fair distribution of costs and benefits over generations across time (also referred to as intergenerational justice).	Dignum et al. (2016); Pols & Spahn (2014).

2.2.3 Types of overflowing

The analysis of Dignum et al. (2016) revealed that proponents and opponents in the Dutch shale gas debate endorsed both substantive and procedural values. There were conflicts about how different stakeholders operationalized a shared value. Based on these findings, they concluded that "rather than an inter-value conflict that necessitates a value trade-off, there seems to be an intra-value conflict which pertains to different understanding of how a particular value could best be served." (p.1181). By linking this conclusion to the study of this thesis, it can be stated that there are two types of overflowing of the formal assessment trajectory of decision-making processes on community wind farms:

- (1) Stakeholders endorse different values than safeguarded in the formal assessment trajectory (i.e. inter-value conflict);
- (2) Stakeholders operationalise the same values differently (i.e. intra-value conflict).

A pre-condition for the existence of overflowing is that a discussion takes place between stakeholders that challenges the formal assessment by: (i) focusing on issues that relate to values that are not included in the formal assessment trajectory (inter-value conflict), (ii) focusing on issues that relate to values that are included in the formal assessment trajectory (intra-value conflict).

2.3 Types of backflowing

As has been mentioned in the introduction of this thesis, backflowing is regarded as the achievement of specific changes in the formal assessment trajectory of the decision-making processes on renewable energy projects. The concept of backflowing can be linked to a wider debate in the literature on procedural justice, namely, “that those looking to assess participation should also look to outcomes (i.e. how things changed because of participation) rather than only analysing power structures prior to these processes.” (Walker & Baxter, 2017a, p.161). In this context, it can also be associated with the ‘influence’ dimension of procedural justice presented in **table 2.3**. The concept allows for understanding to what extent the formal assessment trajectory adequately deals with stakeholders’ concerns, in terms of adjusting the process and outcome of decision-making. Up to the author’s knowledge, only one study has explicitly derived different types of backflowing from empirical case studies related to Dutch energy projects (that is Pesch et al., 2017a/b). Others have implicitly addressed backflowing, through empirical work on procedural and distributive justice in the context of community renewable energy projects (wind in particular). Different types of backflowing were identified from these latter studies, by looking at the different decisions that could potentially be influenced by existing and emergent stakeholder (or interest) groups in the decision-making processes on these projects. **Table 2.5** presents the types of backflowing.

Table 2.5: Types of backflowing.

Types of backflowing	Specification	Sources
Project plan changes	<ul style="list-style-type: none"> - Changes in the type of renewable energy technology to be utilized; - Changes in the type of wind turbines (e.g., capacity, height, colour, shape); - Changes in the amount of wind turbines; - Changes in the location and configuration of wind turbines; 	Simcock (2016)
Policy changes	<ul style="list-style-type: none"> - Changes in national, regional, or local policy 	Pesch et al. (2017a); Pesch et al. (2017b)
Procedural changes	<ul style="list-style-type: none"> - Changes in who is included in the decision-making process; - Changes in the form/method of participation; - Changes in the level of participation; - Announcement of additional studies - Changes in the decision to (not) provide planning permission 	Aitken et al. (2016); Gross (2007); Hall et al. (2015); Jami & Walsh (2017); Janhunen et al. (2018); Knudsen et al. (2015); Ottinger et al. (2014); Pesch et al. (2017a); Pesch et al. (2017b); Simcock (2016); Smith & McDonough (2001); Walker & Baxter (2017a).

Compensation and benefit changes	<ul style="list-style-type: none"> - Changes in who is entitled to receive compensation and benefits (i.e. how ‘community’ is defined); - Changes in the form of compensation and benefits; - Changes in the amount of compensation and benefits. 	Aitken (2010); Bristow et al. (2012); Cowell et al. (2011); Gross, 2007; Munday et al. (2011); Walker et al. (2014); Walker & Baxter (2017a); Walker & Baxter (2017b).
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2.4 Models to reconstruct decision-making processes

In order to analyse a decision-making process under consideration, it has to be reconstructed. This reconstruction is selective in nature, as it is based on assumptions about the characteristics and nature of decision-making. In other words, the application of different decision-making models will lead to different understandings about the course of decision-making (Teisman, 2000). Up to the author’s knowledge, there are four models that can be used to reconstruct decision-making processes: the phase model, the streams model, the garbage can model, and the rounds model. The first three models are presented in **Appendix III**, while the latter will be described in this section due to its suitability and relevance for the study under consideration (as will be further explained in **section 2.6**).

The rounds model assumes that decision-making consists of different decision-making rounds. In each round, different actors interact with each other to define problems and solutions, and to look for opportunities to reach a joint decision. Each of these actors have their own perception of relevant problems, possible solutions, and political judgments. Moreover, they utilize different resources and strategies to achieve their objectives. Since these objectives are often conflicting, and collective action may be risky, impasses occur in these rounds. These impasses may revolve around the lack of interaction between important actors, disagreement on what are defined as problems or solutions, or the lack of supportive and facilitating institutions (Enserink et al., 2010; Teisman, 2000; van Bueren, Klijn, & Koppenjan, 2003).

The end of an impasse and decision-making round is achieved with the occurrence of what is called a ‘crucial decision’, which “offers an answer to the problem that caused the impasse, and, to a large extent, determines the conditions for the next round.” (van Bueren et al., 2003, p.195). It should be noted that the demarcation of a decision-making round is an analytic decision made by the researcher, as Teisman (2000) states:

“The researcher demarcates decision-making rounds by determining the most crucial decisions of decision-making in retrospect. This concerns particularly the choice of decisions that in a later period of decision making serve as an important point of reference for the behaviour of the actors that are present at the time.” (p.944).

Each round can change the direction of the decision-making process, because new players can appear, and the rules of the games can change. The rounds occur in different arenas, which are physical “places where specific groups of actors interact on an issue and make choices on specific aspects of the issue.” (van Bueren et al., 2003, p.195).

The rounds model is an alternative to hierarchical models, which have an insufficient explanatory power for the course of decision-making processes (de Bruijn & ten Heuvelhoff, 2008; Koppenjan & Klijn, 2004). These hierarchical models fail to account for the complexity of decision-making processes (described in **section 1.2**), as they are based on the idea that there is a leading actor, who has sufficient information and power to steer its subordinates, and to make effective decisions. In reality, these assumptions are violated, because decision-making on complex societal problems

(including renewable energy projects) is a result of interactions between a large number of interdependent actors, who often have different goals, interests, resources, and strategies (de Bruijn & ten Heuvelhoff, 2008; Kenis & Schneider, 1991; Klijn & Koppenjan, 2000). This view on decision-making constitutes the network⁵ model, and forms the logic of the rounds model. It acknowledges that (i) the actors that together form the network differ, (ii) actors are mutually dependent, (iii) there is closedness towards an intervening actor, and (iv) the position of actors within a network change over time.

2.5 Strategic behaviour: interest group influence

The strategic behaviour of stakeholders in decision-making processes can be analysed from different perspectives. The network perspective on decision-making distinguishes three types of strategies (de Bruijn & ten Heuvelhoff, 2008; Koppenjan & Klijn, 2004): (i) unilateral, (ii) reciprocal, and (iii) facilitating. Stakeholders that implement unilateral strategies try to impose their perceptions and position on others, through the use of resources such as funds and authority, thereby ignoring existing interdependencies. Reciprocal strategies refer to efforts to broaden problem definitions and solutions, in order to provide every stakeholder the opportunity to realize its own goal, and make the decision-making process more attractive. Facilitating strategies are aimed towards the improvement of cooperation and collaboration between stakeholders, through process management and network constitution.

The network perspective on decision-making offers a useful framework for the analysis of strategic behaviour. However, the strategic perspective that is used for the purpose of this thesis is one that explicitly acknowledges the importance of existing and emergent stakeholder groups, or interest groups, in decision and policy-making processes. Interest groups are an important channel through which citizens can express their opinions and participate in policy-making. On the one hand, this participation may improve decision-making processes, since policy outcomes could be better aligned with citizen preferences. On the other hand, the legitimacy of democratic decision-making may be undermined, if some interest groups constantly 'win' (Dür & de Bièvre, 2007). Following the behavioral approach, which has a long history in the literature, interest groups can be defined as:

"any group 'acting, or tending toward action' (Bentley, 1908, p. 211); that 'makes certain claims upon other groups in society' (Truman, 1951, p. 37); 'actively trying to influence the distribution of political goods' (Berry, 1977, p. 10); that 'seek[s] to influence policy' (Lindblom, 1977, p. 85), or more generally 'the formulation and implementation of public policy' (Grant, 1989, p. 9)." (Baroni et al., 2014, p.144).

In general, interest groups have two objectives: (i) to defend and promote the interests of their constituents, and (ii) to survive as a political organization. They achieve these objectives by applying certain strategies and tactics to influence public policies, and to obtain adequate human and financial resources (Binderkrantz & Krøyer, 2012; De Bruycker, 2014). In this context, influence is understood as "an actor's ability to shape a decision in line with her preferences." (Dür, 2008a, p.561). Most of the literature that is available regarding interest group influence originated in the USA and the EU. This section addresses two key themes that are widely discussed in these studies. **Section 2.5.1** discusses the problems and methods of measuring influence; and **Section 2.5.2** presents the repertoire of strategies and tactics that interest groups utilize to achieve their objectives. **Appendix IV** elaborates on the determinants of interest group influence over policy outcomes.

⁵ A network can be defined as "(1) a number of actors with (2) different goals and interests and (3) different resources, (4) who depend on each other for the realization of their goals." (de Bruijn & ten Heuvelhoff, 2008, p.1).

2.5.1 Problems and methods of measuring influence

According to Dür (2008a), there are three problems that hamper the measurement of influence: (i) the existence of different channels, (ii) counteractive lobbying, and (iii) the fact that influence can be practiced at different stages of the policy process. First, measuring influence can be difficult, because interest groups can exercise it through different channels. Policy outcomes can be shaped through the direct lobbying of policy-makers, or through outside lobbying (i.e. influencing public opinion). Moreover, interest groups can influence the appointment of decision-makers, by for example participating in election campaigns. Finally, interest groups can influence decision-makers through the impact that their investment decisions have on public policy (i.e. structural power) (Bernhagen & Bräuninger, 2005; Dür, 2008a; Fordham & McKeown, 2003; Kollman, 1998; Lindblom, 1977). Second, measuring influence can be tricky, because of the occurrence of counteractive lobbying. The fact that a policy outcome does not fully represent the preferences of a specific interest group does not mean that this interest group lacked influence. It may be the case that it had to counter the efforts of (an)other group(s), and prevented an even worse outcome (Austen-Smith & Wright, 1994; Dür, 2008a). Third, measuring influence can be problematic, because influence can be practiced at different stages of the policy process: formulation, adoption, implementation, and evaluation. Interest groups may shape the contents of a legislative proposal at the formulation phase, which thereafter is passed through the legislative process without any significant lobbying activities. In this case, researchers who only focus on the adaption and implementation phase would conclude that the interest groups were ineffective, thereby overlooking the influencing activities that took place during the formulation phase (Dür, 2008a).

In general, there are three broad methodological approaches for measuring influence: (i) 'process-tracing', (ii) 'attributed influence', and (iii) 'preference attainment' (Dür, 2008a; Klüver, 2009). In the process-tracing method, scholars identify the preferences of interest groups, their influence attempts, their access to decision-makers, the response of decision makers to influence attempts, the extent to which the preferences of interest groups are in line with the policy outcome, and the extent to which the interest groups are satisfied with the policy outcome. Following this method, scholars try to uncover the steps by which causes affect outcomes (i.e. causal chain and mechanisms). In the attributed influence method, surveys are used to ask interest groups to provide a self-assessment of their influence. Moreover, this can involve a peer assessment of the influence of other interest groups. In the preference attainment method, the ideal points of interest groups are compared with the policy outcomes. The general assumption is that the influence of an interest group is reflected in the distance between its ideal point and the policy outcome. More extensive applications of the method control for other factors that are assumed to determine this distance. **Appendix V** summarizes the main strengths, difficulties, and drawbacks of the three methods.

2.5.2 Strategies and tactics

Interest groups utilize two categories of strategies to achieve their objectives. These two categories have been labelled as: inside and outside lobbying (Kriesi, Tresch, & Jochum, 2007), direct and indirect strategies (Binderkrantz, 2008), and access and voice (Beyers, 2004). Irrespective of the specific labelling, the first category refers to activities that target and influence decision-makers directly, while the latter category addresses activities that are aimed at mobilizing and/or changing public opinion (and therefore put pressure on decision-makers) (Dür & Mateo, 2013; Weiler & Brändli, 2015). Empirically, strategies can be observed as a pool or combinations of specific activities, which are referred to as tactics (Dellmuth & Tallberg, 2017). **Table 2.6** presents the strategy categories and types of Binderkrantz (2008), and examples of associated tactics. It should be noted that the legislative

strategy was originally labelled by Binderkrantz (2008) as ‘parliamentary’, but was changed by the author of this thesis to account for the fact that lobbying can happen at different levels of government.

Table 2.6: Two categories of strategies, four different types, and examples of tactics (Binderkrantz, 2008).

Categories:	Direct		Indirect	
Types:	Administrative	Legislative	Mobilizing	Media
Examples of tactics:	Contacting members of the administrative branch of national, regional, and/or local government	Contacting individual members (or parties) of the legislative branch of the national, regional, and/or local government	Strikes, civil disobedience and illegal direct action	Issuing press releases and organizing press conferences
	Contacting national, regional, and/or local public servants	Contacting and/or participating in committees of the legislative branch of the national, regional, and/or local government	Public demonstrations, happenings, and legal direct action.	Using social media platforms (e.g., Facebook, Twitter)
	Responding to requests for comments		Actively ask people to become member of the interest group	Developing own website
	Actively participating in public committees and other bodies		Encouraging members and others to contact decision-makers	Publishing analyses and reports
			Organizing debates, meetings, conferences, etc.	Contacting news reporters
			Starting petitions	

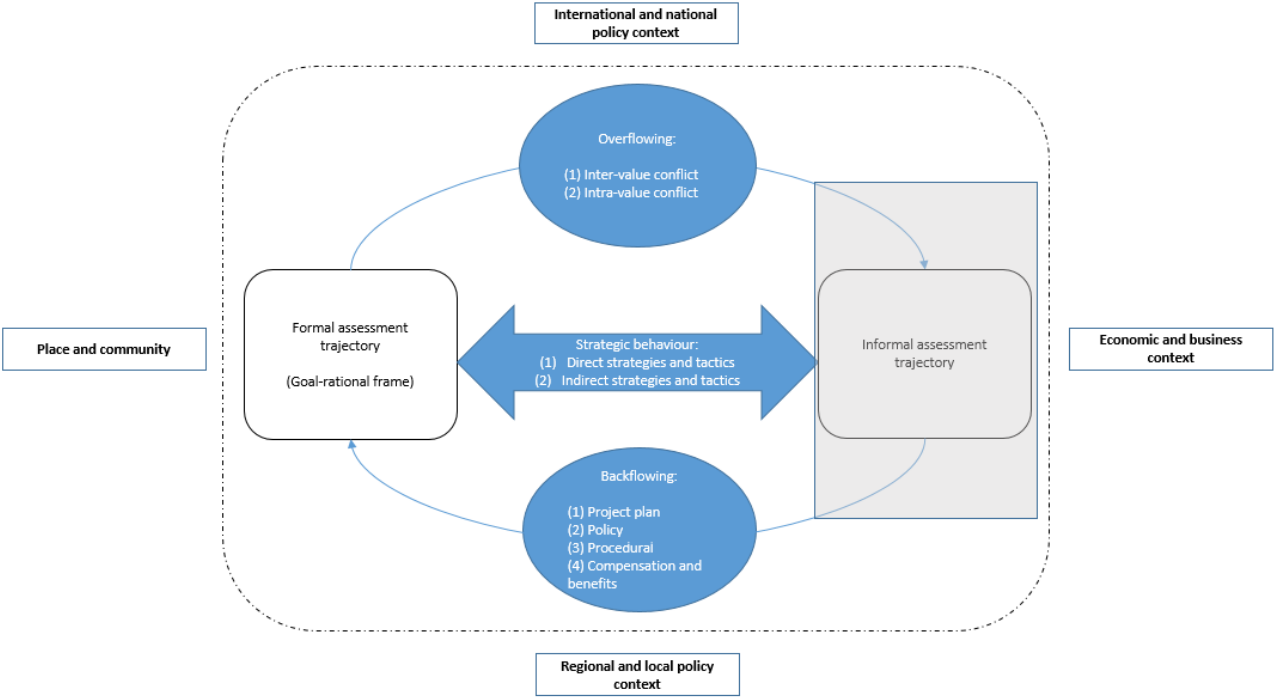
2.6 Conceptual framework

The previous sections elaborated on the main conceptual elements that are used in this thesis to analyse the decision-making process on the Lage Weide ‘community’ wind farm. Together, they form the conceptual framework as presented in **figure 2.2**. The conceptual framework requires some further explanation. As will be explained in **section 7.2** (study limitations), the research methodology that was followed did not allow for a systematic analysis of the informal assessment trajectory. This is indicated in **figure 2.2**, by the grey box on the trajectory. While the results of the research will be partially discussed by referring to the informal assessment trajectory, it should be noted that this trajectory entails more than is discussed in this thesis.

The interaction between the formal and informal assessment trajectories (i.e. overflowing and backflowing), and the strategic behaviour of stakeholders, occurs in a specific context. According to Walker et al. (2010), important contextual factors include: (i) place and community, (ii) international and national policy context, (iii) regional and local policy context, and (iv) economic and business context. Place and community refers to the sense of place, attachments to place, and specific attachments to landscapes that residents in a community have. Often, it’s the case that the opponents of a renewable energy project perceive the development as a threat to the specific meaning that they have of the place. The policy context (both international / national, and regional / local) shapes the boundaries of decision-making on the desirability of a renewable energy project, and determines the conditions of funding support. Lastly, the economic and business context shapes the attitude of

commercial actors (e.g., industrial associations, renewable energy developers) towards the project (Walker et al., 2010).

Figure 2.2: Conceptual framework



As mentioned in the introduction of this thesis, the decision-making process on the ‘community’ wind farm Lage Weide had to be reconstructed in order to gain an understanding of the interaction between the formal and informal assessment trajectories, and the strategic behaviour of the relevant stakeholders. From the models presented in **Appendix III and section 2.4**, the rounds model was considered to be the most suitable for this task. This is because the model puts stakeholders, the interaction between them, and strategic behaviour central to the analysis. The other decision-making models were considered to be inappropriate for two reasons. The phase model assumes that there is only one central actor responsible for the definition of the problem, and the development of its solution(s). However, in renewable energy projects (including the Lage Weide case), there are a plethora of stakeholders, who interact with each other to achieve their objectives. Moreover, the streams and garbage can model mostly focus on the interaction between streams, rather than between stakeholders.

3. Research methodology

This chapter offers a description of the research methods that were used to provide an answer on the research questions under consideration in this thesis. **Section 3.1** elaborates on the research strategy, i.e. the single case study. **Section 3.2** provides an introduction to the case of the ‘community’ wind farm Lage Weide. **Section 3.3** addresses how literature was collected and reviewed for the development of the conceptual understanding, as presented in the previous chapter. **Section 3.4 and 3.5** explain in which way empirical data was collected and analysed.

3.1 Strategy – single case study

As has been shortly addressed in the introduction of this thesis, the research strategy that was followed is a single case study. Through a case study, a researcher can gain a comprehensive insight into one or several objects or processes that are confined in time and space. In general, case studies are characterized by a small number of research units, a focus on depth rather than breadth, a strategic sample, a holistic approach, and a study of the object in its natural context. The most important consequence of the small number of research units, or cases, is that quantitative analysis of the data is not possible, and therefore qualitative research methods have to be used. To realize depth, the researcher generally relies on several sources, and various methods for generating data, also known as the triangulation of sources and methods. To avoid the risk of ending up with an atypical sample that has negative consequences for the validity of the results, the researcher selects his or her research units based on the conceptual design, and the information he or she intends to extract from the units. The holistic approach manifests itself in the use of a qualitative, semi-structured, and open way of data collection (Yin, 1984; Verschuren & Doorewaard, 2010).

The single case study was considered appropriate for the research questions under consideration, as a deep understanding was needed of the case in terms of the formal assessment trajectory, the types of overflowing and backflowing, and the strategic behaviour of stakeholders. Because of the time constraint of the master thesis, it was determined that the study of a single case is sufficient to contribute to the objectives of the RESPONSE project. The single case study is descriptive, explanatory, and normative. Descriptive, because the intention was to describe the natural phenomena which occur within the data in question: (i) the formal assessment trajectory (i.e. decision-making process on the wind farm at Lage Weide), (ii) types of overflowing, (iii) strategic behavior of stakeholders, and (iv) types of backflowing. Explanatory, because it was tried to explain the phenomena in the data: i.e. the reason that (i) the formal assessment trajectory ‘flowed over’, (ii) stakeholders used specific strategies and tactics, and (iii) specific types of backflowing were found to be more dominant than others. Normative, because the goal was to evaluate the Lage Weide project in terms of process and outcome dimensions, and derive implications for the responsible innovation of community renewable energy projects.

3.2 Case introduction: the initial project plan of ‘community’ wind farm Lage Weide

Based on a request for tenders (RFT) initiated by the municipality of Utrecht in December 2010, the energy cooperative ‘Energie-U’ developed a plan to construct a wind farm on the industrial park Lage Weide (Gemeente Utrecht, 2012; Gemeente Utrecht, 2013). Lage Weide is the biggest industrial park in Utrecht, is located in the northwest of the city, and is on all sides surrounded by infrastructure (**figure 3.1**). On the north by the N230, on the west by the A2, on the east by the Amsterdam-Rijnkanaal

and the railway to Amsterdam, and on the south by the railway Utrecht – the Hague. Moreover, four residential areas are located around the industrial park: Maarssen, Leidsche Rijn, Zuilen, and the Schepenbuurt. Since the development of the Leidsche Rijn neighbourhood, Lage Weide has obtained a relative central position within Utrecht. It has a surface area of 216 hectares, at which the industrial, logistical, trade, and service sectors are strongly represented. As Lage Weide is the only industrial park in Utrecht on which heavier polluting companies are allowed to conduct their activities, it is amongst others home to compound feed, water-bound distribution, asphalt, and demolition waste companies. The chimney of the combined heat and power station of Nuon is, due to its height of 150 meters, the landmark of Lage Weide for the west of the city. With regard to ecological values, Lage Weide has a lake which is used for recreation and fishery, and serves as a connecting route between Noorderpark and the green area of Leidsche Rijn (Gemeente Utrecht, 2013; Royal HaskoningDHV, 2013).

Figure 3.1: Aerial map of Lage Weide and its surroundings (Royal HaskoningDHV, 2013).

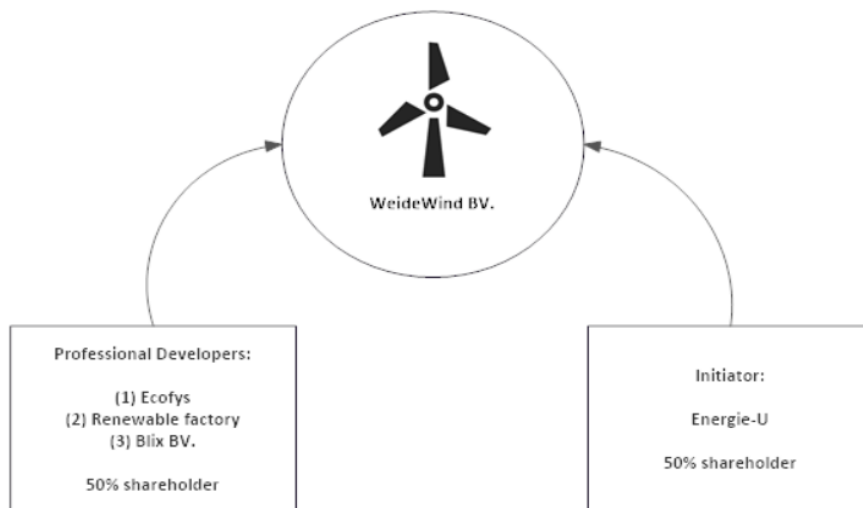


Taking into account that the development of a wind farm requires specific expertise and experience, Energie-U decided in March 2011 to establish a partnership with three professional developers: Ecofys, Renewable factory, and Blix. More specifically, Ecofys would be responsible for the substantive development, Renewable Factory for the financial development, and Blix for the coordination of construction work (Energie-U, 2011a; Energie-U, 2012a). In June 2011, Energie-U submitted the Lage Weide wind farm project plan to the municipality of Utrecht. Most of the financial and technical underpinnings of this plan were conducted by Ecofys. In the project plan, Energie-U worked out two alternatives: (i) two rows of four turbines (with a separation of 400-500 meters between the turbines and the rows), and (ii) fourteen turbines in a free configuration (i.e. dispersed over the industrial park). The shaft of the turbines would have a height of 100 meters, whereas their blades would have a length between the 40 and 50 meters. This means that the total height of the turbines could reach up to 150 meters. Moreover, the capacity of the turbines would be between the 1,5 and 3 MW. The wind farm was supposed to have a minimum total capacity of 10 MW, and a maximum of 25 MW. Accordingly, the total investment costs were estimated to be between the €30 and €40 million, depending on the selected alternative and turbine type (Energienieuws, 2011; Energie-U, 2011b; Buren van Lage Weide, 2011a; Buren van Lage Weide, 2017a).

To be able to finance the development of the wind farm, to ensure that risks are minimized, and to enable the financial participation of the community, Energie-U suggested in the plan to put the

project up in a ‘development BV’ (named WeideWind BV.) (figure 3.2). In this BV, the three professional developers would bring in knowledge and financial resources, and would own 50% of the shares. The rest of the 50% would belong to Energie-U. In the case that the wind farm would be actually realized, 49% of the shares (belonging to the BV) would be sold to participating companies and land owners. The other 1% would be handed over to Energie-U, so it could keep control over the wind farm as a main shareholder.

Figure 3.2: WeideWind BV. in the development phase of the wind farm.



Members of Energie-U could invest in bonds to finance the development of the wind farm, and obtain a return on investment from the annual rent in the exploitation phase. Moreover, it was suggested to set up a sustainable fund, from a share of the profits that would be earned during exploitation, to finance local sustainable energy initiatives. Also, companies and individuals could purchase green energy from Energie-U. In order to cope with setbacks (e.g., technical failures or below average wind years) during the exploitation of the wind farm, the BV would build up a capital buffer for the first operational years. Approximately 80% of that capital would be obtained from bank loans, and 20% from land owners and members of the cooperative (Energienieuws, 2011; Energie-U, 2011b; Energie-U, 2012a; Buren van Lage Weide, 2011a).

3.3 Literature review and development of conceptual framework

To develop the conceptual framework, and answer **sub-questions 1–3**, a literature review had to be conducted. **Chapter 1 and 2** have focused on the outcomes of the literature review. Therefore, this section will elaborate on the literature identification and selection process, and how the articles were analysed to expand the original RESPONSE project framework presented in **section 1.1**.

Scientific literature was mainly collected through the TU Delft online library, Google Scholar, and Scopus databases. **Appendix VI** presents the search terms that were used in this process, for the concepts under consideration. The search terms were used separately, and in combination (mainly using Boolean operators ‘AND’ & ‘OR’), to adjust the scope of the search, and ensure that relevant literature was not overlooked. The main literature inclusion criteria were: (i) peer-reviewed scientific articles, (ii) relevance to the sub-questions and concepts of interest, (iii) time horizon of 2005-2017, and (iv) English publication language. To identify additional relevant papers, the reference list and citations of initially identified publications were used (i.e. snowballing approach). The specific time

horizon for the literature search was chosen to ensure that state-of-the-art publications and insights were taken into consideration. If an article was considered to be a seminal work (i.e. many authors referring to it), which was published before 2005, it was included in the literature review.

Once the literature was identified and selected, it had to be analysed. According to **section 1.3 and 1.4** one of the purposes of this thesis was to expand the original RESPONSE project framework by identifying the different types of overflowing and backflowing, and including a strategic perspective. The concepts of overflowing and backflowing were already introduced by Pesch et al. (2017a/b), but had to be further operationalised. According to Verschuren and Doorewaard (2010), operationalising is “the process of choosing and accurately describing the indicators for complex and/or abstract concepts.” (p.139).

The literature that was collected did not explicitly propose an operationalisation of overflowing and backflowing. Hence, the literature had to be interpreted by the researcher and connected to the two concepts. For overflowing, the paper of Dignum et al. (2016) was considered to be most important, because it provides propositions for the emergence of contestation from a value perspective (i.e. inter- and intra-value conflict). Given the central role of public values in the concepts of formal and informal assessment trajectory, and therefore overflowing, these two propositions were considered to be equal to the types of overflowing. Essential to the operationalization of backflowing was the understanding that the implementation process of community renewable energy projects involves multiple decisions, and occurs in an institutional context. From the literature, a list of relevant decisions was collected, and grouped into classes according to their similarity. These classes were referred to as ‘types of backflowing’. The logic is that these decisions (once made) can be changed, based on input from different stakeholders. To account for the institutional context, Pesch et al.’s (2017a/b) finding of ‘changes in policy’ was included as a type of backflowing.

The concept of strategic behaviour was operationalized according to the literature on interest group influence, given the importance of these groups in decision-making processes on renewable energy projects. More specifically, the strategy categorization of Binderkrantz (2008) (with a minor adjustment as stated in **section 2.5.2**) was considered to be useful for the purpose of this thesis. An important addition to the conceptual framework was the recognition that the interaction between the formal and informal assessment trajectories (i.e. overflowing and backflowing), and the strategic behaviour of stakeholders, occurs in a specific context. Literature on the social acceptance of renewable energy projects refers to contextual factors, but most of these are endogenous to the framework presented in this thesis. Hence, Walker et al.’s (2010) typology was selected for the operationalization of context.

3.4 Data collection for the case study

To be able to conduct the case study, data had to be obtained: this was primarily done through semi-structured interviews (**3.4.1**), and the collection of policy, research, and media documents (**3.4.2**). After the data was processed, it could be analyzed, by linking it to the conceptual framework (**3.4.3**).

3.4.1 Semi-structured interviews

Semi-structured interviews were considered appropriate for this research, because it provided the researcher and the interviewee the flexibility to discuss issues, probe for details, and follow topical trajectories in the conversation that (slightly) deviated from the interview guide. In this way, the independent thoughts of each individual could be captured, while keeping the conversation fairly

open, and two-way. Interview questions were prepared in advance, but the researcher could change their order, leave some out, or come up with new ones, depending on the context of the conversation. To conduct the interviews, and make the data ready for analysis, different steps had to be followed:

1. Identifying interviewees, selecting them, and arranging interviews **(3.4.1a)**;
2. Developing the interview guide **(3.4.1b)**;
3. Interviewing and processing **(3.4.1c)**;

3.4.1a Identifying interviewees, selecting them, and arranging interviews

Based on an initial exploration of the case study, through the scanning of news articles and the websites of Energie-U and Buren van Lage Weide⁶, a list of potential interviewees was developed. Thereafter, 19 of them were approached through email and LinkedIn (in the case that the email was not publicly available) to arrange interviews. These 19 potential interviewees were selected based on the diversity of perspectives they could represent. In the first point of contact, potential interviewees were told about the background of the research, the goal of the interview, and the expected length of the interview. Moreover, they were asked if they would like to participate. To ensure that the interview setting was confidential, comfortable, and easily accessible for the respondent, it was emphasized that the researcher could come to their office. In total, 10 out of 19 potential interviewees agreed to participate in the interview. **Table 3.1** presents from which organizations they came, on which date they were interviewed, and how long the interviews took. The 9 potential interviewees who rejected or did not reply came from the following organizations: city council Utrecht (D66), municipality Utrecht, Energie-U, Buren van Lage Weide, Renewable Energy Factory, and Ecofys.

Table 3.1: List of interviewees.

Organisation	Date	Length
City council Utrecht: (1) VVD (2) GroenLinks	(1) VVD: 18-05-2017 (2) GroenLinks: 06-05-2017	(1) VVD: 50 min (2) GroenLinks: 35 min
Provincial Council Utrecht	24-07-2017	65 min
Municipality Utrecht	17-05-2017	45 min
Energie-U	04-07-2017	50 min
Sounding board	19-06-2017	65 min
Royal Haskoning DHV	26-07-2017	45 min
Environmental group Zuilen	08-05-2017	65 min
Blix consultancy BV	19-09-2017	20 min
Energy collective Lage Weide	24-05-2017	50 min

To ensure that the ethical protections of the respondents were maintained, and the proposed study posed less than minimal risk, an application was done to the Human Research Ethics Committee (HREC) of Delft University of Technology. In this application, it was considered whether (i) the subjects are subjected to greater than acceptable risk given the potential benefits, (ii) subjects have been adequately informed and given free consent, (iii) subjects can withdraw without any implications, (iv) vulnerable populations are targeted and special precautions have been taken to protect them, (v) the study properly expressed scientifically and clearly states its potential harms and benefits, (vi) the

⁶ The emergent interest group which was against the development of the wind farm.

equipment is safe, and (vii) personal data will be protected. Accordingly, the committee approved the application, without the request for further changes to the study.

3.4.1b Developing the interview guide

An interview guide (**Appendix VII**) was prepared prior to the interviews, in which the topics and questions were grouped, making it able to tailor the questions to the interview context and the various participants' functions. A prioritization of the questions was done in advance, in order to anticipate on the time allotted for each interview. The questions were primarily based on the decision-making process, overflowing, and backflowing. The strategic behaviour was not included in the interview guide, because this was added to the conceptual framework in a later stage. The same holds for the procedural and compensation types of backflowing. The interview guide was presented to the research supervisors to obtain feedback, and revisions were made to it accordingly.

3.4.1c Interviewing and processing

To start the interviews and break the ice, the researcher introduced himself, and reminded the interviewee of the goals of the research and the topics to be discussed. Moreover, the respondent was asked for his / her verbal consent for the recording of the interview. It was emphasized that the statements would be kept confidential, and that they would be incorporated in the research report in such a way that it cannot be traced back to the specific individual. The first question of the interviews was a general, open-ended, one to understand the specific role of the respondent in the decision-making process. Throughout the interviews, the 5 W questions (who, what, where, when, why) were frequently asked to gain depth in the answers received. Moreover, references were made to statements made in other interviews (anonymously), or to findings of other sources, to encourage the interviewees to express themselves. Overall, it was tried to keep the interview focused on the topics defined (to be able to cover them completely), but sufficiently room was left to the respondents to come up with other issues. The interviews were concluded through asking the respondents if they have anything to add. Thereafter, the interviewees were thanked for their participation, were told how the rest of the research will proceed, and were promised that the thesis will be sent to them once completed. After the interviews were conducted, the recordings were transcribed, to make the interview data ready for analysis.

3.4.2 Policy, research, and media documents

In addition to the interviews, other important data that was collected for the empirical study included policy and research documents (**table 3.2**). These were mainly obtained from the website of the municipality of Utrecht, the website of the Provincial Council, interviewees, and consultancy firms. An important set of documents was provided by a spokesperson of a deputy of the Province Zuid-Holland, who did a multiple case study (as part of his master thesis) regarding the facilitation of self-organization in the context of wind energy, and also partially analysed the Lage Weide case. Moreover, the websites, and social media accounts of the different stakeholders were investigated to understand their position regarding the wind farm, and to obtain other types of information that could be relevant. Lastly, news articles were found through the Google search engine to obtain a general idea about the course of events that have taken place in the decision-making process on the Lage Weide wind farm.

Table 3.2: Most important policy and research documents used for the case study.

Policy documents	Research documents
City council motions	Feasibility study report Bosch & van Rijn
Board of Mayor and Aldermen decision documents	Preliminary memorandum Social Cost Benefit Analysis (SCBA)
Start document for the development of a participatory wind farm plan Lage Weide	Preliminary memorandum Environmental Impact Assessment (EIA)
Draft structural vision (wind farm Lage Weide)	SCBA report
Public consultation document for the draft structural vision	EIA report
City council committee 'City and Space' meeting documents	Sounding board advisory report
City council information evening documents	
National structural vision	
Provincial structural vision (and revisions)	
Energy agreement	

3.5 Data analysis

This section presents how the collected data was analysed, according to the elements of the conceptual framework presented in **section 2.6**. The method that was followed is qualitative content analysis, which is defined by Hsieh and Shannon (2005) as “a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns.” (p.1278). The content analysis was directed, meaning that the coding categories assigned to the text data were based on the conceptual framework. Furthermore, the study was longitudinal, which allowed for the analysis of data over time.

To facilitate the longitudinal analysis, events were identified, according to the logic of ‘Event Sequence Analysis’ (ESA). ESA is a methodology that is used to reconstruct sequences of events and their dynamical patterns (Boons, Spekkink, & Jiao, 2014). For the purpose of this thesis, an event is defined as a theoretically significant change of the decision-making process on the ‘community’ wind farm Lage Weide. To develop the initial system of coding for the empirical data, two types of events were distinguished: stakeholder activities and backflowing. Stakeholder activities refer to actions that were conducted in the decision-making process, and include: (i) governmental decisions, (ii) publication of studies, (iii) publication of policy documents (iv) meetings, (v) establishment of interest groups, (vi) formal public participation and (vii) strategies. Backflowing, as mentioned in **section 2.3**, refers to changes in the formal assessment trajectory and includes: (i) project plan changes, (ii) policy changes, (iii) procedural changes, and (iv) compensation and benefit changes. These types of stakeholder activities and backflowing served as codes. The collected documents and interview transcripts were read, and the text that captured one or more of these types of stakeholder activities and backflowing were coded manually. Along with the coding of the specific events, the researcher kept track of the context (i.e. time of the events and the stakeholders involved).

After the identification of the events and their context, the decision-making process on the ‘community’ wind farm Lage Weide was reconstructed according to the rounds model presented in **section 2.4**. First, the events were arranged in chronological order. Thereafter, the decision-making rounds were demarcated by determining the most ‘crucial’ decisions. As mentioned in the introduction of this thesis, decision-making processes on renewable energy projects are guided by formal procedures to evaluate the desirability of the specific project. Amongst others, these procedures

define what decisions have to be taken by specific governmental bodies, and in which order. For the purpose of this thesis, crucial decisions were assumed to be determined by these formal procedures. For the case of Lage Weide, crucial decisions were in general defined as the governmental decisions (previously identified as events) that took the decision-making process in a next phase of appraisal and the 'Utrechts Planproces' (UPP). As will be seen in **section 4.1.3**, this was not the case for round 3. The start and end of this round were defined according to the emergence and activities of the interest group 'Buren van Lage Weide, which positioned itself as a project opponent. It should be noted that during the interviews, respondents were asked what they considered to be 'important moments' in the decision-making process. Mostly, these moments referred to governmental decisions and other activities determined by formal procedures. The demarcation of the rounds allowed for the categorization of the events, according to the round they took place.

After the events were arranged in chronological order, and categorized according to the rounds, it was determined whether they belong to the formal or informal assessment trajectory. The two forms of assessment were used as codes. In the Lage Weide case, the formal assessment trajectory includes: (i) studies conducted and/or commissioned by the initiator and competent authority, (ii) policy documents, (iii) meetings between members of the city council, board of Mayor and Aldermen, Provincial Executive, and/or Provincial Council, (iv) public consultation processes with input from project proponents and a response from the relevant governmental agency, and (v) governmental decisions. In other words, the formal assessment trajectory includes all activities as part of formal procedures, with dominant input from stakeholders belonging to formal institutions. The informal assessment trajectory includes: (i) the different forms of public participation, (ii) studies conducted and/or commissioned by interest groups, and (iii) other activities of interest groups that challenge the formal assessment trajectory. In other words, the informal trajectory includes all activities that are not part of formal procedures, or that are part of formal procedures with dominant input from stakeholders that do not belong to formal institutions (e.g., interest groups). Following the identification of the formal and informal assessment trajectory, it was determined what values were assessed during each event (based on the value definitions of **Appendix II**), by looking at the topics that were addressed and the project effects that were analysed.

In order to analyse why the formal assessment trajectory 'flowed over', three steps were taken. First, the public debate on the 'community' wind farm was mapped according to the methodology of Dignum et al. (2016) referred to in **section 2.2**. Arguments were identified of both opponents and proponents of the wind farm. The main source for the collection of arguments was the 'inspraaknota structuurvisie windmolens', which is a document that contains 1112 views received in the public consultation process on the draft structural vision Lage Weide and the associated responses of the municipality. It can be generally stated that the presentation of arguments in such formal documents is somewhat influenced by the governmental body that drafts these documents. However, the public consultation document in this case presented the arguments very close to the way they were originally expressed by stakeholders. No major topics were pre-filtered, and in most cases the arguments were cited directly.

To obtain a sufficiently rich overview of arguments, the public consultation document was mainly supplemented with data from the interviews, websites and social media accounts of interest groups, and media documents. During the interviews, respondents were asked what their arguments were to be in favour or against the project, and why they thought it was controversial. The process of identification was stopped when the repetition of arguments showed that the set was sufficiently complete. For the case under consideration, an argument refers to a statement that is expressed by a stakeholder for the justification or explanation of his/her position towards the development of the 'community' wind farm Lage Weide. The collected documents and interview transcripts were read, and the text that captured an argument was coded manually. Initially, two coding categories were used: position (opponent or proponent), and theme (subject of the argument). Thereafter, it was

determined to which value a specific argument refers, based on the value definitions of **Appendix II**. This list of values was considered to be adequate for the case under consideration, and no others were identified from the public debate.

Second, after the public debate was mapped, inter-value conflict was assessed by comparing the previously identified formal and informal assessment trajectories, and the values they assessed during the different decision-making rounds. In this way, it could be determined whether the two assessment trajectories predominantly focused on different values or not. Third, intra-value conflict was assessed by comparing the different arguments related to the same values, of project proponents and opponents.

For backflowing, respondents were asked during the interviews if they could recall that specific changes have occurred to the initial project plan, and (national/regional/local) policies. Documents that were analysed in most cases explicitly stated that specific adjustments have been made based on the input of specific stakeholders.

A large part of the analysis of strategic behaviour focused on Energie-U and Buren van Lage Weide, because of their importance in the decision-making process and data availability. While no questions were specifically asked to the interviewees regarding this element of the conceptual framework, some addressed strategic behaviour themselves. The coding category 'strategies' had two codes: direct and indirect. Strategies were mainly identified from the websites and social media accounts of the interest groups, and media documents. This was done based on the interpretation of the researcher, of whether the intention of a specific activity was to defend and promote the interests of constituents, and/or survive as a political organization. Following this rationale, it could be claimed that all stakeholder activities (and human behaviours in general) have a strategic dimension. To narrow the scope, the examples of **table 2.6** were used as a guideline for identification. In the case that data was available, other stakeholders than interest groups were taken into consideration (e.g., municipality, political parties). For the analysis of context, Walker et al.'s (2010) factors (addressed in **section 2.6**) were used as codes during the review of the data sources.

4. Understanding the decision-making process and public debate on the ‘community’ wind farm Lage Weide

This chapter presents the first part of the results of this thesis; **section 4.1** elaborates on the decision-making process of the Lage Weide wind farm; **section 4.2** addresses the public debate on the Lage Weide wind farm, and the values that were identified accordingly; **Appendix VIII** presents the institutional context of wind energy developments in the Netherlands.

4.1 Decision-making process ‘community’ wind farm Lage Weide

The decision-making process on the ‘community’ wind farm Lage Weide can be divided into five different rounds (**table 4.1.**) **Appendix IX** presents the analysis of the stakeholders that were identified in the decision-making process.

Table 4.1: Decision-making rounds in the Lage Weide case.

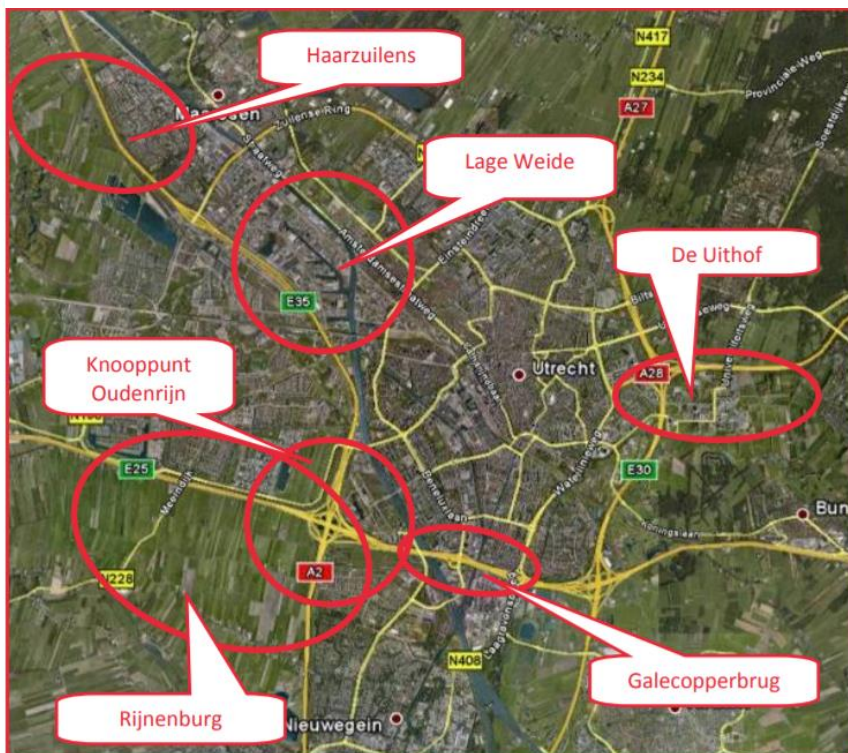
Decision-making round	Period	Section
1	July 2007 (CO ₂ neutrality ambition) – December 2010 (decision of the board to facilitate wind energy initiatives in Lage Weide and Rijnenburg)	4.1.1
2	January 2011 (municipal policy ‘Programme Utrecht Energy!’) – October 2011 (decision of the board to select Energie-U as initiator Lage Weide)	4.1.2
3	November 2011 (establishment of Buren van Lage Weide) – September 2012 (political debate organised by Buren van Lage Weide)	4.1.3
4	October 2012 (start spatial planning process) - September 2013 (decision of the board to incorporate the preferred alternative in the draft structural vision)	4.1.4
5	October 2013 (development contract municipality and WeideWind B.V.) – November 2014 (adoption of the second partial revision of the provincial structural vision)	4.1.5

4.1.1 Round 1: Setting local wind energy developments on the agenda

The first moment that the municipality of Utrecht formulated its ambition to address climate change in a local setting is in July 2007, with the note ‘Utrecht Creates New Energy’ (Gemeente Utrecht, 2008). More specifically, the municipality set the goal to reduce 75.000 tonnes of CO₂ by 2012, to be CO₂ neutral as an organisation in 2012, and to be CO₂ neutral as a city in 2030. To live up to this ambition, the municipality developed a work programme, which defines different activities related to six themes: (i) living, (ii) work, (iii) mobility, (iv) municipal organisation, (v) profiling, and (vi) future activities. Together, these activities should ensure that the city can mitigate climate change, and adapt to its effects. The initial ideas to facilitate and realize wind energy developments within the city of Utrecht emerged in November 2007, through the motion ‘renewable (wind)energy’ that was adopted

by a majority of the city council⁷. This motion requested the board of Mayor and Aldermen to investigate the possibilities and feasibility of the development of renewable energy (in particular wind) in Utrecht, and to submit a specific proposal to the city council by the end of 2008. Based on this motion, a quick-scan was conducted to identify possible locations for wind energy developments in Utrecht.⁸ These locations had to comply to three criteria. First, developments should be possible from a technical perspective, within the existing legal framework. Second, the locations should allow for a sufficient distance from houses and infrastructure, i.e. 400 meters for turbines with a shaft height of 100 meter. Third, the locations should allow for the development of wind turbines with a shaft height of 75 to 100 meters. The quick-scan led to the identification of six possible locations (**figure 4.1**) (Bosch & van Rijn, 2010; Gemeente Utrecht, 2011a; Gemeente Utrecht, 2013a; Royal HaskoningDHV, 2013).

Figure 4.1: Possible locations for wind energy developments in Utrecht



During the course of 2009, Alderman Janssen created a roadmap for the development of wind turbines in Utrecht, and communicated it to the members of the city council committee ‘City and Space’ in July of that year. Taking into account that the quick-scan revealed that there are possibilities to construct a substantial amount of wind turbines in Utrecht, the roadmap distinguished two follow-on phases. The first phase, consists of three parallel activities. First, the development of a local policy framework that indicates within which boundaries wind turbines are possible, and how to cope with the relevant spatial planning procedures. Second, the preparation of a communication strategy, to create support (in the later phase) amongst citizens and firms. Third, the identification of the most feasible locations for wind energy developments in Utrecht, from the locations indicated by the quick-scan. This phase should have eventually led to a decision of the board of Mayor and Aldermen, regarding at which locations to facilitate the development of a wind farm. Thereafter, the further

⁷ i.e. Christenunie and GroenLinks tabled the motion. The rest of the city council consisted of D66, CDA, PvdA, VVD, and de Groep Mossel. Only VVD did not adopt the motion.

⁸ The quick-scan led to the publication of the report ‘Location study wind energy in Utrecht’ in September 2008.

elaboration, planning, process organization, and construction of the wind turbines could take place in the second phase (Gemeente Utrecht, 2011a).

Based on the pre-mentioned roadmap, Bosch & van Rijn was commissioned by the municipality of Utrecht to conduct a feasibility study. The corresponding report was published in February 2010. The goal of this feasibility study was to create an insight in:

- (1) The opportunities for wind energy developments in the six locations of the quick-scan;
- (2) Future developments, location towards nature protection areas, municipal landownership, opportunities and threats for wind turbines, financial feasibility, proximity of houses and firms, possible wind turbine configurations, noise pollution, shadow flicker, and safety;
- (3) The specific role the municipality can take in the development of the wind turbines;
- (4) Spatial planning procedures and permit applications.

The conclusion of the feasibility study was that wind energy is the most promising at Lage Weide and Rijnenburg. At these two locations, there are the best chances to install a large capacity of wind energy, with which a substantial amount of CO₂ emissions and the ambition to become climate neutral as a city in 2030 can be achieved. The impact on the landscape and nature would be minimal, and the financial feasibility the highest. Lastly, wind turbines can be constructed within the legal boundaries of noise pollution and shadow flicker (Bosch & van Rijn, 2010).

In April 2010, the board of Mayor and Aldermen decided to take account of the feasibility study of Bosch & van Rijn, but to leave the further elaboration of plans to the next board (Gemeente Utrecht, 2011a). In the same month, following the municipal elections of March, the new board (consisting of GroenLinks, PvdA, and D66) presented its coalition agreement. While this plan does not mention Lage Weide and Rijnenburg specifically, it emphasizes the municipality's ambition to become climate neutral, and the willingness to facilitate initiatives for the development of renewable energy (GroenLinks Utrecht, 2010).

As part of the Climate Street Party, the municipality of Utrecht organised an energy cafe in May 2010. The goal of the evening was to stimulate discussions between the residents of Utrecht West regarding energy savings, and means of renewable energy production. During the meeting, a couple of participants suggested to develop a wind farm in Utrecht (Gemeente Utrecht, 2010b). As the feasibility study of Bosch & van Rijn mentioned Lage Weide as a promising location, the enthusiastic participants decided to meet each other during the summer, and to work on the development of a specific plan. This resulted in the establishment of the energy association Energie-U in October 2010, with an initial amount of 60 members. On the short-term, Energie-U planned to organise actions, such as the joint purchasing of double glazing or solar panels, provide members a discount on green electricity, and advice people on energy savings. Energie-U's long-term plan was to construct a wind farm at Lage Weide (Energie-U, 2010a).

From September to December 2010, Energie-U conducted several activities to grow as an organization, and build momentum for the realization of wind energy in Utrecht (**table 4.2**).

Table 4.2: Main activities of Energie-U from September to December 2010. Round 1.

Activity	Month	Source
The chairman of Energie-U had an interview with the AD about the wind farm plan.	September	Energie-U (2010c)
Energie-U sent newsletter to interested parties, which contained information about the organization, and the existing / intended actions.	October	Energie-U (2010d)

Working group 'WijdeWind' met for the first time. During this evening, a general introduction was provided on the (dis)advantages of wind energy, and what Energie-U has to do to achieve the development of the wind farm at Lage Weide.	November	Energie-U (2010e)
Energie-U organized an excursion for its members to the wind farm in Oosterhout, to experience what a wind farm with large turbines means for the environment and stakeholders in proximity of it.	November	Energie-U (2010f)
Energie-U made flyers available on its website.	November	Energie-U (2010g)
Energie-U participated and was nominated in the elections of the 'top project' Utrecht 2040	December	Energie-U (2010h)
The chairman of Energie-U was present at the TOP lunch (with chairmen of the universities of Utrecht, two deputies, and one Alderman), to discuss what measures are necessary to develop Utrecht as a sustainable and attractive region.	December	Energie-U (2010i)

To keep up the momentum, the board of Mayor and Aldermen decided in December 2010 to officially choose wind energy as one of the alternatives for making the energy supply of the city more sustainable. As such, it determined to facilitate third party initiatives in five of the locations investigated in the feasibility study, starting with Lage Weide and Rijnenburg. To finance the follow-up phase, including process guidance, the participation process, and formation of the spatial planning process, the board of Mayor and Aldermen reserved €70.000 from the municipal sustainability fund (Gemeente Utrecht, 2011a). Simultaneously with the decision, the municipality published a press release with a call for wind farm development initiatives in Lage Weide and Rijnenburg. Where, and under which conditions, the wind farms would be constructed was not clear in this stage, and was supposed to be worked out with residents and firms (Energie-U, 2010b). However, the board identified three limitations or threats to the facilitation of initiatives. First, planning approval would depend on the level of public support. Second, wind energy could conflict with other municipal objectives. Third, the policy of the Ministry of Defence regarding the military radar of Soesterberg⁹ could create bottlenecks for the development of wind farms (Gemeente Utrecht, 2011a).

4.1.2 Round 2: Project proposals and selection of the initiator for Lage Weide

As a follow-up to the work programme 'Utrecht Creates New Energy' of 2008-2011, the municipality developed the policy 'Programme Utrecht Energy' in January 2011. In the corresponding report, it is mentioned that the municipality will facilitate wind energy developments at the locations investigated in the feasibility study, and Energie-U is addressed as one of the first examples of such initiatives (Gemeente Utrecht, 2011b). In the same period, the municipality created a full-time position for a project leader, who became responsible for the development of wind energy at Lage Weide, and had to act as a bridge between different stakeholders, such as the initiators, municipal departments, the program manager, the responsible Alderman, and external ones. In February 2011, the board of Energie-U had an introductory meeting with Alderman Miriam de Rijk, about the different activities of Energie-U, the size and growth of the association, and the way in which residents are involved in the activities. Moreover, the Alderman was interested in how Energie-U would be able to finance a large project such as a wind farm (Energie-U, 2011c). In the same month, the committee 'City and Space' had a meeting (that was also visited by Energie-U), during which there was a broad support for wind

⁹ The Ministry of Defence notified its rejection for planned wind farms at locations with a maximum distance of 28 km around radar stations, because of potential disturbances. They expected to have a solution for this problem in the end of 2010 (Gemeente Utrecht, 2011).

energy in Utrecht, and Energie-U was mentioned as a serious candidate for the development of a wind farm at Lage Weide (Energie-U, 2011d).

In March 2011, the municipal project leader sent a letter to the members of the committee 'City and Space' to inform them about the state of affairs regarding the development of a wind farm at Lage Weide, and how the municipality wants to proceed. Rijnenburg was specifically excluded from this because it still had planned housing construction. The letter addressed three issues: (i) the spatial planning process, (ii) the municipality's role, and (iii) the criteria for the selection of an initiator (Gemeente Utrecht, 2011a).

With regard to the spatial planning process, the letter emphasized that the zoning plan of Lage Weide had to be changed to support the development of a wind farm. It was not possible to include the development of the wind farm in the ongoing update of the zoning plan of Lage Weide, because the plans for the wind farm were too ambiguous in this stage. Therefore, a separate project zoning plan had to be established, once an initiator was selected. In this way, the update of the zoning plan, and the facilitation of the development of the wind farm would not be delayed. The preparation for changing the zoning plan had to be structured according to the 'Utrecht Planning Process' (UPP). According to the UPP, a structural vision has to be developed prior to the change of the zoning plan, and the city council has to decide on it. The development of the structural vision runs in parallel with the further elaboration of the plan, and the studies that have to be conducted by the initiator. In support of the structural vision, among others an EIA has to be conducted, which takes into account noise pollution, external safety, visual, shadow flicker, and flora and fauna effects (Gemeente Utrecht, 2011a).

The role the municipality wanted to take was one of facilitating, and lending assistance in the spatial planning procedures. Accordingly, the initiative for the development of the wind farm was left to the market. However, a governing role was assigned to the municipality in three areas. First, achieving the climate ambition of the city, and the specific ambitions for wind energy at Lage Weide. Second, being a competent authority in the spatial planning procedures and the EIA. Third, taking responsibility for the development of the participation process in accordance with the note 'participation' (Gemeente Utrecht, 2011a).

The board of Mayor and Aldermen notified its preference for one initiator, with a wind farm development plan of 8-13 turbines. Two clear advantages of having one initiator are that the procedure for changing the zoning plan only needs to be followed once, and that there is only one point of contact during the process. Until March 2011, three initiators communicated their interest to the municipality: (i) Winvast B.V., (ii) Eneco, and (iii) Energie-U. They were asked to work out their ideas in a project plan, so the board could take a final decision by the summer of 2011 on the initiator they wanted to proceed with. Three criteria were deemed to be important for the selection of an initiator. First, the extent to which the initiative contributed to the intended result of 8-13 turbines with a capacity of 2,5 – 3 MW. Second, the level of financial and organisational risks, and the way these would be mitigated. Third, the way in which the initiator wanted to include residents and firms in the development of the plan, and contribute to the creation of public support (Gemeente Utrecht, 2011a).

For Energie-U, March 2011 was important in terms of media publicity, since the chairman wrote a reaction on the article of Professor Eveline Tonkens in *Trouw*, regarding the relation between active citizens and politics. The article uses Energie-U as an example, and claims that the government wants other parties to take responsibility, but at the same time, cannot outsource responsibility. The consequence of this is that the government exercises indirect control, which is accompanied with bureaucracy, increasing the probability that citizen initiatives such as Energie-U fail, and cynicism and

distrust towards the government grows. The chairman of Energie-U spread a more positive view of the relation between the government and citizen initiatives, and emphasized that she has confidence that the relation with the municipality of Utrecht will remain 'positively interesting', and will not change to cynicism and distrust (Energie-U, 2011e). In the same month, Energie-U provided a presentation at centrum EMMA, on the available alternatives to become climate neutral as a city (Energie-U, 2011f).

Before the summer of 2011 (i.e. April, May and June), civil servants of the municipality held conversations with different stakeholders to explain their choice for Lage Weide and Rijnenburg as the most promising locations, and to provide insight in the ongoing proceeding regarding the selection of an initiator. Moreover, they elaborated on the spatial planning process, and the way in which residents and firms would be able to participate. The stakeholders included: (i) the chairmen of the neighbourhood councils North-West and Leidsche Rijn, (ii) the Lage Weide associations of undertaking (i.e. 'Industrieverenging Lage Weide', 'Vereniging van Eigenaren'), (iii) the environmental group Zuilen, and (iv) the civil service representatives of the municipality Stichtse Vecht (Gemeente Utrecht, 2011a). In the same period, Energie-U was present at different local festivities and activities, and organized a sessions itself. More specifically, Energie-U stood on the Korte Lauwersstraat and Breedstraat with an information stand, to actively recruit members, and to raise awareness about the organization. Interested people could make their own mini wind turbine, and ask questions about renewable energy (Energie-U, 2011g). Energie-U had the same setup at an energy market in Lombok (Energie-U, 2011h). Moreover, the association was present at the information meeting of the environmental federation of Utrecht (on wind energy). During this meeting, among others, the results of an online survey were presented regarding perceptions on wind energy in Utrecht (Energie-U, 2011i). Energie-U placed two self-made wind turbines on the Domplein in Utrecht, during the cultural Sunday 'Green', to make people acquainted with the association, and the development of the wind farm at Lage Weide (Energie-U, 2011j). Lastly, it organized a drop in session for residents in proximity of Lage Weide, to talk with them about the wind farm and the consequences for the different neighborhoods (Energie-U, 2011k).

After the summer (i.e. September 2011) Energie-U organized an energy cafe for residents in proximity of Lage Weide to answer their questions about the plan. Moreover, members of Energie-U were encouraged to explain their neighbours what the plan is, and why it is beneficial for the city (Energie-U, 2011l). In October 2011, the board of Mayor and Aldermen decided to select and facilitate Energie-U as the initiator of the development of a wind farm at Lage Weide. The plan that Energie-U submitted was perceived to be in accordance with all the criteria of the municipality. More specifically, the plan had a good fit with the municipal ambitions and targets for renewable energy and participation. Moreover, it was expected that the plan would lead to a financially viable project, and that the financial risks would be sufficiently mitigated. The development of the consortium, with the three professional developers, reassured the municipality of Energie-U's ability to manage organisational risks. However, the board had several reservations with regard to its choice for Energie-U, and the development of a wind farm at Lage Weide. First, the two presented alternatives (i.e. 8-14 turbines, 1,5-3 MW) had to be further investigated in the planning phase. Second, a letter of intent was not obtained for all ground positions. Third, the construction of the wind farm remained dependent on the SDE+ subsidy of the national government. Fourth, there was no clarity about the financing of the municipal planning costs. Fifth, there was still a small probability that the development would be cancelled as a result of the military radar issue (Gemeente Utrecht, 2011a).

4.1.3 Round 3: Emergence of local opposition

Following the decision of the board of Mayor and Aldermen, Energie-U organized four 'Energie-U cafe's' for residents of the neighborhoods West, Zuilen, Leidsche Rijn and Maarssenbroek, to inform them about the objectives of the association, have discussions about the plan, and explain how financial participation will be organized (Energie-U, 2011m). During these evenings in October and November 2011, representatives of the municipality were also present to provide information about the spatial planning process, and the ways in which the residents would be involved in the decision-making process. At the Energie-U cafe in Zuilen, it became obvious for the first time that some of the residents of Elinkwijk, Op Buuren, Maarssenbroek, Lage Weide and Terwijde were opposed to the plan. These concerned residents held a separate meeting in the beginning of November 2011 to discuss their reaction on the plan, and accordingly developed the platform 'Buren van Lage Weide'. After the establishment of the platform, Buren van Lage Weide distributed around 2500 flyers to residents in proximity of Lage Weide (as a first 'promotion round'), to call for a critical assessment of the plan, and the consequences it may pose on their living environment. In this initial stage, Buren van Lage Weide claimed that it endorsed the research and development of renewable energy technologies, and the climate ambitions of the municipality. However, it did not believe that the development of a wind farm at Lage Weide would be the best way forward. More specifically, Buren van Lage Weide doubted that the wind farm would be economically viable and contribute to the reduction of conventional energy consumption. At the same time, the platform of concerned residents was sure that the development would lead to substantial negative effects, such as noise pollution, shadow flicker, health issues, reduction of house prices, etc. (Gemeente Utrecht, 2011a; Buren van Lage Weide, 2011b).

At the end of November 2011, a city councillor of the VVD requested a council information evening¹⁰ to amongst others gain an understanding of the reasons that the other initiators were not considered appropriate. The main reason that was provided during this evening is that Winvast BV. and Eneco eventually did not submit a project plan. More specifically, Winvast BV. decided not to submit one, because it was not able to obtain sufficient support from the firms on Lage Weide for the purchase of land. On the other hand, Eneco decided to cancel the development of a project plan when it learned that Energie-U was in an advanced stage of discussion with the firms on Lage Weide about the potential ground positions for wind turbines. Besides Winvast BV. and Eneco, after March 2011, another initiator¹¹ had notified its interest to the municipality. This initiator planned to construct one wind turbine, and was rejected because the plan did not conform to the intended size of development (Gemeente Utrecht, 2011a).

Besides a discussion about the selection of an initiator, the council information evening was the first formal platform in which stakeholders could discuss the wind farm plan, the consequences of the project, and their position towards the development. In this context, the municipal project leader addressed the CO₂ neutrality ambition, and referred to the Lage Weide wind farm as one of the solutions to achieve this goal. The chairman of Energie-U presented the initiative of the association, the ideal image of a cleaner climate, and how to achieve this collectively. A representative of the municipal health service (GGD Amsterdam) elaborated on the influence of noise pollution and shadow flicker on stress and sleep disturbances of residents in proximity of wind farms. The chairman of Buren van Lage Weide made clear what it wants to achieve with the municipality of Utrecht: (i) to stop the plan of constructing 8-14 wind turbines of 140-150 meters at Lage Weide, (ii) to maintain the

¹⁰ Before a city council takes a decision about a plan, it asks citizens, firms, and other stakeholders about their opinion. One of the consultation methods to achieve this is a council information evening.

¹¹ It was a firm on Lage Weide, but not clear which one specifically. The organization wanted to remain anonymous.

sustainability, livability, and financial value of the residential areas around Lage Weide, (iii) to enforce its recognition and participation as a legitimate stakeholder by the municipality, and (iv) to ensure that alternatives for renewable energy production are properly investigated (Buren van Lage Weide, 2011c; Energie-U, 2011n).

In December 2011, Buren van Lage Weide organized a community meeting to provide background information about the intended development to residents in proximity of Lage Weide. City councilors (from VVD, PvdA, and D66) were asked how the decision-making process was initiated, a representative from the National Critical Platform of Wind Energy (NKPW) discussed the negative effects of wind turbines, and the transcript of an interview with the chairman of Energie-U was read aloud. For the first time, Buren van Lage Weide openly criticized the fairness of the decision-making process. More specifically, it claimed that the decision to start the spatial planning process (and construct the wind farm) was already taken, stakeholders were not included in the choice for the renewable energy technology and the location of development, and residents would be only allowed to give their opinion about minor details (Buren van Lage Weide, 2011b). In the same period, Energie-U responded on an article of the Stadsblad (on its website), which contained an edited photo of two wind turbines that raised high above the buildings of a street in Utrecht. The response emphasized that the visualization is a misrepresentation of the intended plan of Energie-U (Energie-U, 2011o).

The first month of 2012, Buren van Lage Weide gave a presentation to the city council about the preliminary feasibility study that it conducted on the development of the wind farm, as it believed that the municipality and Energie-U provided too positive information. As part of the feasibility study, Buren van Lage Weide analysed the locations, financial (i.e. business case), and societal feasibility. According to the platform of concerned residents, the preliminary feasibility study and associated presentation were a substantiation of the document 'arguments against the development of wind turbines at Lage Weide (**Appendix X**)' that was also submitted to the city council. With regard to the locations, the conclusion of the preliminary feasibility study was that if all guidelines of risk zoning and the 600 meters contour around houses are taken into account, only one wind turbine could be placed at Lage Weide. The business case (of 8 wind turbines) indicated that the project is financially unfeasible, and that it is unlikely that borrowed funds could be attracted. The 'societal assessment' showed a negative Net Present Value (NPV), due to the high capital investment, the relative low productivity, reduction of house prices, and limited savings on energy consumption and CO₂ emissions. Based on these results, Buren van Lage Weide recommended the city council to stop the project, but if they would like to continue with the plan to: (i) objectively and independently investigate the societal and economic effects, (ii) include other renewable energy technologies and zero alternative (i.e. no turbines) in the assessment, and (iii) ensure the participation of residents in the spatial planning process (Buren van Lage Weide, 2012a). Energie-U organized an excursion for members to the wind farm Weststad III in Oosterhout (Energie-U, 2012b).

Besides the presentation of Buren van Lage Weide to the city council, the committee 'City and Space' also met in January 2011. Based on the preliminary feasibility study of Buren van Lage Weide, the chairs of the local political parties decided to obtain a second opinion for the feasibility study of Energie-U from an external research firm. Also, the responsible Alderman was requested to develop a start document for the development of the wind farm, including requirements for the structural vision, Environmental Impact Assessment (EIA), Social Cost Benefit Analysis (SCBA), and stakeholder participation (Buren van Lage Weide, 2012c).

In February 2012 the duo 'Son and Sjakie' developed a song and videoclip 'When I stand on top of the Dom' on behalf of Buren van Lage Weide, and posted it on Youtube and the website of the platform of concerned residents. The lyrics generally convey a negative view about the development

of wind turbines in Utrecht (Buren van Lage Weide, 2012d). In reaction to the flyers and posters of Buren van Lage Weide, some residents who were positive about the plan created a supporting poster. This poster was made available on the website of Energie-U, and people were encouraged to show that they want to do everything in their power to make Utrecht a 'cleaner' city (Energie-U, 2012c)

Following the decision to obtain a second opinion for the feasibility study of Energie-U, a council information evening was organized in March 2011 for the presentation and discussion of the results. Between January and March, Bosch & van Rijn was commissioned to conduct this second opinion. The research firm concluded that Energie-U made conservative assumptions about the costs and benefits, that the association took into account different uncertainties, and that the project seems financially realistic and feasible. During the evening, Energie-U also provided a presentation to the city council regarding the feasibility of the wind farm at Lage Weide. Finally, Buren van Lage Weide addressed its view on the results and conclusions of the second opinion of Bosch & van Rijn. It claimed that Bosch & van Rijn cannot be considered as a neutral third party, because the firm is specialized in spatial planning and project management of renewable energy projects in the market of local authorities (and therefore has a stake in a positive outcome). Moreover, Buren van Lage Weide stated that Energie-U and Bosch & van Rijn assumed too optimistic full-load hours and capacity factors, and that the second opinion excluded Energie-U's insurance against operational disturbances and claims of residents for the reduction of house prices. As such, Buren van Lage Weide concluded that the second opinion of Bosch & van Rijn was incomplete, partially carried out incorrectly, and that the conclusion that the project is 'financially realistic and feasible' is not valid (Energie-U, 2012d; Buren van Lage Weide, 2012e).

In April 2012, Buren van Lage Weide had its first information stand at an activity afternoon of a pet shop, and distributed promotion material among attendees (Buren van Lage Weide, 2012f). On Queen's day, Energie-U had an information stand at the market, with a 'compliment turbine'. This machine provided tips and compliments to attendees about their energy consumption (Energie-U, 2012f).

The municipality of Utrecht published its progress report on the implementation of the policy 'Programme Utrecht Energy!' in May 2012. The report stated that the emergence of local opposition in the Lage Weide project shows that despite the presence of public support for renewable energy in general, the pre-conditions of specific developments for residents and others stakeholders are important for project success. Moreover, the report emphasized that a start document is in preparation to kick-off the spatial planning process, and the intention is to establish a sounding board that can provide input to the formulation of research questions in the planning phase (Gemeente Utrecht, 2012a). In the same month, a city councilor of the VVD sent written questions to the board of Mayor and Aldermen regarding the wind farm plan at Lage Weide, based on the meeting of the committee 'City and Space' and the subsequent city council meeting. In this letter, he asked whether the board is prepared to: (i) conduct an alternatives' study as input to the spatial planning process, taking into account the manual risk zoning and a distance of 400-600 meters from existing buildings, (ii) investigate the societal effects of the different alternatives in a SCBA, (iii) include the board and citizens of the neighboring municipality Stichtse Vecht in the decision-making process, and (iv) investigate the effect of the wind farm on radar installations of the Dutch defense system. In general, the board of Mayor and Aldermen answered positively on these questions, and was prepared to include them in the spatial planning process (Gemeente Utrecht, 2012b).

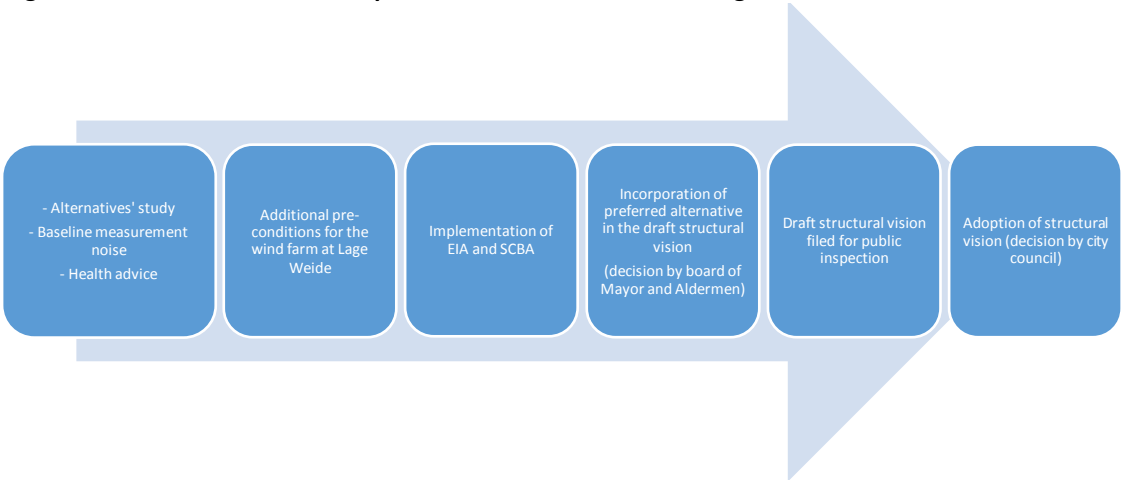
Two final important activities of Buren van Lage Weide before the start of the spatial planning include the presence at the folk festival of Zuilen in June 2011, and the organization of a political debate in September 2011. At the folk festival, Buren van Lage Weide had an information stand, and

distributed promotion material among attendees. Moreover, the duo Son and Sjakie performed the protest song ‘When I stand on top of the Dom’ (Buren van Lage Weide, 2012g). During the political debate, city councilors of VVD, D66, PvdA, CDA, and GroenLinks discussed a couple of propositions for which residents in proximity of Lage Weide wanted clarity on. Energie-U was also present, and while it was not invited to provide a presentation regarding its plan, the association got the opportunity at the end of the evening to shortly answer the questions of residents and other stakeholders (Buren van Lage Weide, 2012h; Energie-U, 2012f).

4.1.4 Round 4: Spatial planning process – studies and draft structural vision

In October 2012, the board of Mayor and Aldermen decided to start the spatial planning process, through the adoption of the ‘start document for the development of a participatory wind farm plan Lage Weide’. This document describes the structure of the process, the role of the different stakeholders, participation methods, schedule, and financial aspects. As has been mentioned before, the wind farm at Lage Weide could only have been constructed after a change of the zoning plan. To prepare this change, the UPP spatial planning process prescribed the development of a structural vision for Lage Weide. **Figure 4.2** presents the process for the development of the structural vision, as stated in the start document (Gemeente Utrecht, 2012c). Before zooming in on the details, a brief overview is provided on how the process took place.

Figure 4.2: Process for the development of the structural vision Lage Weide.



The first step was to identify which alternatives should be considered in the EIA and the SCBA. In the context of the development of a wind farm, alternatives could amongst others differ in terms of configuration / location, amount, capacity, and height of the turbines. Furthermore, a baseline measurement was conducted, to determine the level of background noise¹² at, and in the surroundings of, Lage Weide. This served as input for the EIA, and was used to develop mitigation measures for noise pollution (during evenings and nights) resulting from the operation of the wind farm. Also, health advice was obtained from the municipal health service (GGD). Based on the alternatives’ study, baseline measurement, and health advice, additional pre-conditions were formulated for the different alternatives. Thereafter, the EIA and SCBA were implemented for a thorough and comprehensive assessment of the (dis)advantages of the alternatives of the plan.¹³ Taking into account the different results and perspectives, the board of Mayor and Aldermen decided which alternative was preferred to be incorporated in the draft structural vision. Accordingly, the draft structural vision, including the

¹² Background noise level (L95) is the noise level that is exceeded 95% of the time (and is considered as background noise) (Gemeente Utrecht, 2012c).

¹³ It should be noted that the first three steps did not occur in a perfect linear fashion as presented here, but rather in an iterative way.

EIA and SCBA reports, were filed for public inspection. After the processing of the public responses, the city council made a decision regarding the adoption of the structural vision, i.e. providing planning permission for the construction or not (CE Delft, 2012; Gemeente Utrecht, 2012c; Gemeente Utrecht, 2012d).

As part of the start document, the preliminary memorandum of the scope and level of detail of the EIA, and the preliminary memorandum of the SCBA, were also published and filed for public inspection. The preliminary memorandum of the EIA described the intended activity, associated alternatives, objective(s), reference situation, aspects to be investigated, planning, and procedure. The intended activity that was stated in the preliminary memorandum of the scope and level of detail of the EIA was the development of wind turbines with three rotor blades, a capacity between the 1.5 and 3 MW, a rotor diameter between 80 and 100 metres, and a shaft height of approximately 100 meters. The locations of the alternatives to be considered in the EIA were determined by the parcels of land of the firms with which Energie-U was able to reach an agreement (**Appendix XI**). As has been mentioned in **Appendix VIII**, the EIA assesses and weighs the environmental effects of different alternatives. The alternatives, in terms of the amount, location, capacity, and height of the wind turbines were not pre-determined in the preliminary memorandum, but were established in consultation with a sounding board in a later stage (described further in this section). In order to optimize the use of the location and the environmental benefits to be achieved, a lower limit of 10 MW total capacity was set for the alternatives to be considered in the EIA (Gemeente Utrecht, 2012d).

The environmental effects of the alternatives were assessed in the EIA compared to the reference situation, or reference alternative. With this is meant the current situation with autonomous development, and without the construction of a wind farm. Hence, the preliminary memorandum for the scope and level of detail of the EIA stated that (i) the functions within and around the plan area, (ii) the current environmental situation (i.e. noise, external safety, flora and fauna, landscape), and (iii) autonomous developments had to be mapped in the EIA to gain a full understanding of the reference alternative. **Appendix XII** presents the effects that were proposed to be assessed in the EIA, and against which the alternatives had to be compared. Besides wind energy, it was stated to include alternatives in which a similar amount of electricity is generated by solar panels on private roofs or a solar field (Gemeente Utrecht, 2012d). Following a tender, Royal HaskoningDHV, an international engineering, design, and project management consultancy, submitted a bid to the municipality to conduct the EIA, and won it accordingly. The EIA was implemented between January 2013 and April 2013.

The preliminary memorandum of the SCBA described the scope, methodology, principles, and the expected effects. As has been mentioned in **Appendix VIII**, the goal of a SCBA is to facilitate and inform decision-making on policies, projects, or programmes, by identifying their societal costs and benefits. In combination with the EIA, the SCBA formed the basis for the evaluation and weighing of the alternatives, and the determination of the pre-conditions for development. Both studies had to reveal the effects of the wind farm plan on the environment, which measures could be implemented to improve these effects, and whether it was possible to shape an alternative in such a way that it sufficiently accommodated the interests of the different stakeholders. The preliminary memorandum stated that the SCBA should be conducted later than the EIA, in order to include input from the EIA regarding the alternatives to be considered, and their physical effects. This would increase the efficiency, and reduce the risk of inconsistencies (as changes could occur in the EIA during the process). The SCBA was conducted according to the OEI and CPB / PBL guidelines, as described in **Appendix VIII** (CE Delft, 2012).

The societal effects of the alternatives are assessed and described in the SCBA in comparison to the reference situation, or reference alternative. The reference alternative was described as the

likely development of Lage Weide in the case that the wind farm is not developed. Moreover, a comparison was made with the situation that a similar amount of electricity is generated by solar panels on private roofs or a solar field. For these two situations, the preliminary memorandum stated that different scenarios would be developed. **Appendix XIII** presents the effects that were proposed to be assessed in the SCBA, and against which the alternatives had to be compared. Following a similar tender procedure as that of the EIA, CE Delft, and independent research and consultancy firm, submitted a bid to the municipality to conduct the SCBA and won it accordingly. The SCBA was conducted i (CE Delft, 2012).

To include stakeholders in the spatial planning process, the municipality established a sounding board¹⁴. The sounding board advised the board of Mayor and Aldermen and the city council regarding all aspects of the wind farm at Lage Weide. The level of participation was 3, according to the participation standard of Utrecht (**Appendix VIII**). This means that the board of Mayor and Aldermen could only deviate from the advice of the sounding board, if sufficient substantiation was provided. The sounding board was asked to specifically provide advice on the following issues: (i) the plan for the zero measurement of noise, (ii) the research questions and results of the EIA, and the alternatives being investigated, (iii) the research questions and results of the SCBA, (iv) the conformance of the studies with the relevant requirements, and (v) the preferred alternative, with associated requirements and pre-conditions. Moreover, the sounding board could provide unsolicited advice. The sounding board had an independent chairman, who was facilitated by representatives of the municipality. The specific chairman was chosen, because of his extensive experience as a process counsellor and communications strategist in different projects in Utrecht. In total, the sounding board consisted of 12 participants: residents from Leidsche Rijn, Lage Weide, Schepenbuurt, Noordwest, and Oud-Zuilen, and members of the environmental group Zuilen, environmental center Utrecht, Vogelwacht, association of owners Lage Weide, industrial association Lage Weide, and business association Stichtse Vecht. These participants were selected by the municipality based on a force field analysis, in accordance with the participation standard (Gemeente Utrecht, 2012c).

Buren van Lage Weide was also invited by the municipality to participate in the sounding board, but rejected the offer. The reason for non-participation was that it had the opinion that the Alderman involved in the development of the plan (i.e. Miriam de Rijk), and Energie-U, were good friends of each other. Hence, Buren van Lage Weide felt that the decision to provide planning permission was already predetermined, and the participation processes were only used to claim the justness of the decision-making process. In line with this argument, Buren van Lage Weide was afraid that if it would participate, and the advice of the sounding board would be to proceed with the development of the wind farm (taking certain conditions into account), it would have implicitly approved the development. To prevent this from happening, Buren van Lage Weide proposed to join the meetings of the sounding board with the status of 'listener', but this was not allowed by the municipality (Buren van Lage Weide, 2012c; Buren van Lage Weide, 2012i). The industrial association and association of owners Lage Weide both stepped out the sounding board after several meetings, because of amongst others the negative effects of the wind farm development on the firms.

From its founding assembly in July 2012, to the publication of its advisory report in May 2013, the sounding board had seven meetings. **Appendix XIV** presents for each meeting which topics were specifically discussed. In the work sessions of the sounding board, different experts were present from the municipality, and the organizations that conducted the EIA, SCBA, and health study. (Gemeente Utrecht, 2012c). One recurring theme regarding the sounding board in the interviews was that the discussions were of a very technical nature, and that studies followed one another in rapid succession. More specifically, one interviewee stated:

¹⁴ The board of Mayor and Aldermen has the formal authority to establish a sounding board (Gemeente Utrecht, 2013c).

“It is unbelievable, the amount of researches that one can come up with. These range from economic studies (e.g., house price reduction), capacity calculations (e.g., height and span length of turbines), environmental impact assessments, health investigations, to risk analyses, and so on. That means that you can keep a large consultancy firm busy for several years, with carrying out studies. The results can then be discussed again with each other, and will lead to new questions, new studies, etc. The participants of the sounding board committed themselves to sifting through the reports. When an expert, often the author of such a report, came to present his or her findings, some of the participants contested these by referring to contradictory literature. There was a translation of concerns to scientific arguments. As an example, there were emotional discussions about standard deviations, as if you can politicize those. Maybe you can, but the essence was about something else; I do not want the project.”

With regard to the final advisory report, the issue was raised whether the sounding board should be forced to take one position or not. The chairman was considered to be responsible for this decision. Some argued that the position that would receive a majority vote should be adopted in the final report. This would mean that the arguments of the minority group would be excluded, which could be unjustified. Hence, the chairman decided to present the opinions of all the sounding board participants in the report, i.e. to show the diversity in viewpoints. Moreover, he determined to formulate one position / advice regarding the development: (i) ‘yes’, (ii) ‘no’, (iii) ‘yes, provided that’, and (iv) ‘no, unless’. Overall, all sounding board participants agreed with this arrangement.

The same month as that the spatial planning process was initiated (October 2012), Energie-U posted the link of the VPRO Tegenlicht documentary ‘Power to the people’ on its website and social media channels. The documentary shows two bottom-up initiatives, which are a big inspiration for Energie-U: Grunninger Power and Texel Energie (Energie-U, 2012g). During the course of November 2012, Buren van Lage Weide argued that Energie-U is intentionally misleading residents in proximity of Lage Weide, by creating visualizations of the wind farm (i.e. pictures and Youtube video) that do not correspond with the real size and impact of the turbines. Hence, Buren van Lage Weide created its own visualization, with the ‘real and accurate’ view, taking into account the search locations of Energie-U, the distance of the photographer to the planned turbines, and the height of the turbine (Buren van Lage Weide, 2012j). Energie-U organized drop-in sessions in Zuilen, Leidsche Rijn, and Maarssebroek to answer questions of concerned residents, and to provide information on the plan (Energie-U, 2012h). Furthermore, the association reacted on the wind farm visualizations developed by Buren van Lage Weide (on its website and social media channels). More specifically, it addressed that the more people get inspired by the wind farm plan, and contribute to the discussions, the better it is (Energie-U, 2012i). The next month, in December 2012, Energie-U and Buren van Lage Weide submitted their view on the preliminary memoranda of the EIA and SCBA, in the formal public consultation process (Buren van Lage Weide, 2012k). Also, the local VVD party developed a game with a professional game developer, called ‘the wind game’. The game contained a skyline of Utrecht, with wind turbines. The goal was to obtain points, by providing right answers on questions about wind energy. The more points an individual earned, the more credits he or she had to shoot wind turbines.

In January 2013, the EIA committee provided its advice on the EIA, based on a request of the municipality of Utrecht (Royal HaskoningDHV, 2013) (**Appendix XV**). In the same month, Energie-U dedicated an article on its website on how it wants to organize the financial participation for those who are interested (Energie-U, 2013a). In February 2013, approximately one year after the start of the active campaign of Buren van Lage Weide against the development of the wind farm, Energie-U launched the campaign ‘wijwillenwind.nu’. As part of this, proponents of wind energy were asked to support the development of the wind farm at Lage Weide, by bringing out their vote on the site.

Through the campaign, Energie-U wanted to show the political decision-makers that there is public support for the development (Energie-U, 2013b).

In February 2013, the Provincial Council of Utrecht published the structural vision for 2013-2028. In this structural vision, the province formulated what it wants to achieve with its partners in the area of spatial development. With regard to wind energy, the province stated that it wants to facilitate the development of 65,5 MW in 2020, by opening up a limited amount of locations for large scale wind turbines (i.e. with a shaft height of 60 meters and higher). Moreover, the province emphasized that no barriers may arise for development at these locations. The following locations were listed: (i) along the Amsterdam-Rijnkanaal, in the South of Houten, and in proximity of the Goyerbrug, (ii) along the A12 in the area of Rijnenburg, (iii) industrial park Lage Weide in Utrecht, and (iv) industrial park Het Klooster in Nieuwegein (Provincie Utrecht, 2014a).

In April 2013, Buren van Lage Weide organized two information evenings, was present at a theme evening organized by PvdA Utrecht and Stichtse Vecht, and conducted a flyer campaign. The first information evening was in Terwijde, during which presentations were given about the wind farm plan, and the consequences for the neighborhood (Buren van Lage Weide, 2013a). At the theme evening on renewable energy sources, the chairman of Buren van Lage Weide read aloud a column written by him (Buren van Lage Weide, 2013b). The second information evening was in Leidsche Rijn, during which the role of the sounding board was discussed, its probable advice to the board of Mayor and Aldermen, and what residents can do to stop the plan. The only city councilor of Utrecht that was present was one of VVD (Buren van Lage Weide, 2013c). The flyer campaign was conducted in op Buuren. The flyers show a visualization of the wind turbines from the perspective of the neighbourhood, mentions the position of Buren van Lage Weide, the negative consequences of the turbines, and a link to the website (Buren van Lage Weide, 2013d). From April onwards, Energie-U organize weekly 'WeideWind-cafes' to exchange ideas and thoughts with interest parties, doubters, and skeptics about the development of the wind farm (Energie-U, 2013c).

As a result of the finalization of the research period, the EIA and SCBA reports were published in April 2013. As has been mentioned before, Energie-U had identified possible locations (i.e. total of 11) for the development of the wind turbines within the industrial park, by looking at undeveloped areas and discussing with firms and land owners. The alternatives considered differed from each other in terms of the amount, capacity, and height of the wind turbines, and the locations to be used. At the start of the EIA, the municipality of Utrecht selected (in consultation with experts and the sounding board) five alternatives, based on a 'worst-case / best-case' logic: with the largest environmental effects (worst-case), and the highest energy output (best-case). The goal was to study the spectrum of promising alternatives. The alternatives were initially investigated on the most decisive and distinctive aspects: noise, shadow flicker, landscape, and energy output, and where possible on the legal framework. The conclusion of these studies was that all the five alternatives can comply to the legal framework, whether by means of mitigation measures or not. Eventually, six alternatives were selected to be further investigated in the EIA¹⁵ (**Appendix XVI**). This was including a 'minimum' alternative, as advised by the EIA committee (Royal HaskoningDHV, 2013).

After the environmental effects of the alternatives were assessed, it was investigated (on the request of the municipality and the sounding board) if some of these alternatives could be optimized. Additional research was conducted for these optimized alternatives on the aspects of landscape, noise, health, and energy output (Royal HaskoningDHV, 2013). **Appendix XVI** presents these optimized

¹⁵ Turbines of 3 MW have a shaft height of 98 meters and a rotor diameter of 101 meters. Turbines of 4 MW have a shaft height of 90 – 120 meters and a rotor diameter of 120 meters (Royal HaskoningDHV, 2013).

alternatives. The alternatives considered in the SCBA are presented in the same appendix. The results of the EIA and SCBA are presented in **(Appendix XVII)**

In May 2013, the sounding board published its advisory report on the possibility and feasibility of the development of the wind farm at Lage Weide. In this report, it took the preferred alternative of the municipality (stated in the EIA and SCBA) as the point of departure. The main conclusion of the sounding board was 'no, unless', meaning that Energie-U and the municipality shouldn't proceed with the development of the preferred alternative, unless they would provide an answer on outstanding questions, and would conform to additional conditions. **Appendix XVIII** provides a main overview of the sounding board requests. Given the 'no, unless' conclusion, the sounding board formulated its preference for alternative 4B+. For this alternative, the sounding board made clear that a larger rotor blade length (10 meters extra) would not be rejected on visual grounds (Königs, 2013).

In June 2013¹⁶, the Board of Mayor and Aldermen decided on the preferred alternative, and published the draft structural vision. The preferred alternative that was incorporated in the draft was the same as the one that was proposed in the EIA and SCBA reports (i.e. alternative 4A+, 2.5 MW). As has been mentioned before, alternative 4B+ was not selected, because Energie-U thought that the lower amount of wind turbines would lead to an unviable business case (Gemeente Utrecht, 2013a). In parallel to the publication, the Board of Mayor and Aldermen announced in the government gazette that the draft structural vision, and the corresponding EIA and SCBA reports are available for public inspection until September 2013. During this period, everybody could provide their view digitally (through the website of the municipality of Utrecht), in writing (to the address of the city council of Utrecht), or orally (during public consultation meetings in Zuilen and Leidsche Rijn in June and July) (Staatscourant, 2013).

The health advice of the GGD was included in the draft structural vision in the form of three additional pre-conditions. First, the noise pollution of the wind turbines should not be allowed to exceed the background noise level at surrounding neighborhoods, during daytime, evening, and night. Second, if possible, the wind farm should be constructed in two phases. In the first phase, the first four wind turbines most centrally located at Lage Weide should be developed, to learn how they can be adjusted to minimize nuisance. Thereafter, the other two wind turbines (closer to houses) may be constructed. Third, complaints should be monitored, and residents should be included in the selection of mitigation measures. This is because it could not be excluded that residents will experience nuisance. In addition to the advice of the GGD, the municipality established three pre-conditions for wind farm operations. First, outside the industrial park, at noise-sensitive objects, the Danish norm for low-frequency noise should be applied¹⁷. Second, during specific atmospheric circumstances in the summer, the rotational speed of the turbines should be reduced to minimize nuisance. Third, the wind turbines should be shut-off if houses outside the industrial park will experience shadow flicker. (Gemeente Utrecht, 2013a).

¹⁶ In the same month, the EIA committee published its advice on the EIA report. The committee concluded that the EIA report contains the essential information to be able to take a decision on the structural vision and the zoning plan. Furthermore, it recommended the board of Mayor and Aldermen (after a final decision is taken) to provide a complete overview of the arguments that led to their preferred alternative above the other ones (Commissie MER, 2013).

¹⁷ In the Netherlands, legal norms regarding low-frequency noise do not exist. Hence, the 'strict' norm of Denmark was taken into consideration (Gemeente Utrecht, 2013a). The Danish norm refers to the following: "The total low-frequency noise from wind turbines may not exceed 20 dB at a wind speed of 8 and 6 m/s indoors in dwellings in open countryside or indoors in areas with noise sensitive land use respectively." (Danish Environmental Protection Agency, 2011, p.2).

Besides the decision of the board of Mayor and Aldermen on the preferred alternative, Energie-U and Buren van Lage Weide also conducted several activities in June 2013. Energie-U organized an excursion for its members to an existing wind farm in Houten (Energie-U, 2013d). Buren van Lage Weide conducted a flyer campaign in Oud-Zuilen and Boomstede, similar to the one in op Buuren of April 2013. The flyers show a visualization of the wind turbines from the perspective of the specific neighbourhood, mentions the position of Buren van Lage Weide, the negative consequences of the turbines, and a link to the website (Buren van Lage Weide, 2013e; Buren van Lage Weide, 2013f).

In July 2013, the municipality of Utrecht organized a city conversation, which was a debate between the chairmen of Energie-U, Buren van Lage Weide, the sounding board, research firms and attendees. Opponents and proponents exchanged opinions about the desirability of the wind farm, the different studies, the advice of the sounding board, and alternatives for renewable energy, and the procedure. Energie-U emphasized that it wants to conform to the stricter operational requirements (i.e. additional pre-conditions) to minimize nuisance as much as possible. Buren van Lage Weide focused more on disadvantages of the plan: (i) not financial feasible, (ii) health risks due to noise pollution and shadow flicker, (iii) reduction of house prices, (iv) lack of transparency and democracy in the spatial planning process (Buren van Lage Weide, 2013g; Energie-U, 2013e).

Following the city conversation, Buren van Lage Weide distributed an information folder in August 2013 among residents in proximity of Lage Weide. The folder mentions that the Board of Mayor and Aldermen has decided to incorporate alternative 4 as the preferred alternative in the draft structural vision, and calls residents to provide their view in the public consultation process. Moreover, the folder reminds residents what the arguments are against the development of the wind farm, and refers to the site of Buren van Lage Weide for further information (Buren van Lage Weide, 2017b).

After the summer, in September 2013, Buren van Lage Weide organized a last information evening for residents in proximity of Lage Weide before the public consultation process on the draft structural vision and associated reports ended. Residents around existing wind farms were invited to talk about the nuisance they experience, and experts elaborated on house price reduction, noise pollution, shadow flicker, and health risks (Buren van Lage Weide, 2017b). Moreover, both Energie-U and Buren van Lage Weide submitted their view in the public consultation process on the draft structural vision, and called proponents and opponents of the wind farm (through their website and social media accounts) to do the same (Energie-U, 2013f; Energie-U, 2013g). The neighborhood council Leidsche Rijn held a survey among residents in proximity of Lage Weide, to understand their perceptions regarding the development. The participants were asked where they live, if they are in favour of or against the wind farm (or 'don't know'), and what their arguments are. Out of 324 people, 41 (12%) supported the development, 277 (85%) were against, and 6 (1%) did not know.

4.1.5 Round 5: End of spatial planning process: Energie-U's initiative is cancelled

In October 2013, the municipality signed a development agreement with WeideWind BV., in which it recorded the settlement of the spatial planning costs, payment of construction fees, and the provision of ground positions. The agreement specifically mentioned that WeideWind BV. only needs to pay the construction fees upon the adoption of the structural vision by the city council, and the issuance of the environmental permit (Energie-U, 2013a). In the same month, Energie-U organized the political conversation 'Utrecht Energy, how to continue?', in which members of the local political parties and Energie-U discussed about how the municipality and active citizens can strengthen each other (Energie-U, 2013h). Furthermore, the board of Mayor and Aldermen decided to propose the city council to adopt the structural vision, including the revisions that had been made to the draft based on the 1112 views received during the public consultation process (**Appendix XIX**). It also asked the

city council to apply the municipal coordination mechanism, in accordance with the Spatial Planning Act, to enable coordinated decision-making on the zoning plan and the environmental permit. The board's decision was made with a narrow majority. Although aldermen Spigt (PvdA), Everhardt (D66), and Kreijkamp (D66) were in general proponents of renewable energy (including wind), they were against the proposal due to the perceived lack of public support (Gemeente Utrecht, 2013b; Gemeente Utrecht, 2013c).

A couple of hours after the decision of the Board of Mayor and Aldermen, the local parties of PvdA and D66 announced on their twitter account that they will be against the development of the wind farm. This indicated that the proposal to adopt the structural vision would not receive a majority vote in the city council (DUIC, 2013). While these two parties supported the motion of 'renewable (wind)energy' in 2007, and were not clearly opposed to the plan throughout the decision-making process, they turned against the development in this final phase. While their own argument for the change of position was that there was a lack of public support, other parties (and most of the interviewees) also referred to short-term political motives.

On a local and provincial level, November 2013 was a crucial month for the wind farm project. First, there was a council information evening, where the municipality discussed the draft structural vision with stakeholders that submitted their view during the public consultation process. Both proponents and opponents of the plan presented their arguments once again to support their position. Different representatives of Energie-U focused on describing their efforts of the previous years to realize the wind farm as a bottom-up initiative, and put emphasis on the stricter operational requirements the association was committed to comply with in order to do justice to the concerns of stakeholders. The representatives of Buren van Lage Weide explained the city council why the plan should be cancelled, by referring to the arguments they also used in the previous decision-making rounds (Gemeente Utrecht, 2013e; Buren van Lage Weide, 2013h).

Second, the Provincial Council took a preparatory decision. Based on the coalition agreement of 2011-2015, Lage Weide was incorporated in the provincial structural vision and spatial regulation as a preferred location, under the condition that there was an explicit administrative base of support at the municipality. With regard to this support criterion, one of the interviewees stated the following:

"Wind energy has always been a controversial item in provincial politics; the parties all have very different opinions ... Therefore, we made a political agreement, which was also incorporated in our coalition agreement in 2011 ... Only if there is public support we will facilitate the development of wind energy ... We consider public support to be support from the city council."

At the time of the development of the provincial structural vision and spatial regulation (during 2012 and 2013), the municipality had indicated that this support exists. However, from the recent discussions, the Provincial Council thought that it seemed that there is a lack of support for the development of wind energy at Lage Weide. In the case that the province would wait for municipal decision-making, and this would turn out to be negative, the province would be obliged to facilitate the development of the wind farm, through an adaptation plan (if Energie-U would request this). In other words, the province would be required to act against its own criterion of the explicit presence of an administrative base of support. To address this criterion, the Provincial Council took a preparatory decision¹⁸, through which the location Lage Weide was frozen, and no irreversible decisions could be taken on it. On the basis of this preparatory decision, potential requests from Energie-U to adopt an

¹⁸ A statement that a new zoning plan is being formulated for the area under consideration.

adaption plan for the development of wind energy at Lage Weide could be rejected. However, if the city council would vote in favor of the proposal of the board of Mayor and Aldermen to adopt the structural vision, the preparatory decision could be revoked (Provincie Utrecht, 2013).

Third, one day after the Provincial Council took the preparatory decision, the committee 'City and Space' met to discuss the proposal of the board of Mayor and Aldermen. During this meeting, D66 and PvdA elaborated on their changed position. More specifically, D66 emphasized that it is pro-wind, it shares the climate neutral ambition of the municipality, and it thinks that Utrecht has the responsibility to achieve this ambition within its boundaries. Moreover, D66 stated that it had struggled with the question of what price would be acceptable for this ambition. It concluded that there was too much resistance from residents and firms at, and in proximity of, Lage Weide to continue the plan in the current form. The party thought that the resistance partially emerged as a response on the way in which participation was organized. On the other hand, PvdA addressed that it was positive about the development, since it otherwise would not have consented with the implementation of the different studies. Furthermore, it thought that the initiator and Alderman should be given the opportunity to take away the concerns of the different stakeholders. The party had the opinion that the views submitted in the public consultation process (on the draft structural vision) showed that a majority of the stakeholders still had large concerns about the aspects of noise pollution, house prices, and health effects. Hence, it concluded that the plan lacks a sufficient level of public support (Gemeente Utrecht, 2013d).

The opponent parties provided criticism on the fact that the municipality accounted for a large portion of the planning and research costs, the process took too long, the communication was messy, and the preferred alternative of the sounding board was rejected. Moreover, questions were raised regarding the reliability of the different studies, the financial feasibility of the plan, and the ambition to realize the development of renewable energy within the municipal boundaries. In contrast, the proponent parties argued that the effects of the plan had been properly researched, the participation process was well organized, and the plan had been adjusted on multiple aspects to do justice to the concerns of stakeholders. In the context of projects with a spatial impact, they also stressed that participation will never lead to acceptance by all stakeholders. Alderman Miriam de Rijk provided her view on what had happened on the provincial level, and stated that the preparatory decision showed that the Provincial Council wanted to get rid of its responsibility (Gemeente Utrecht, 2013d).

While it was clear from earlier statements and the discussion in the committee 'City and Space' that a majority of the city council would be against the development of a wind farm at Lage Weide, Alderman Miriam de Rijk did not decide to revoke the structural vision. Hence, the adoption of the structural vision was put up for discussion in the city council in January 2014¹⁹. The D66 opened the city council meeting by handing over a report that provides insight in the possibilities for large-scale solar energy in Utrecht. As such, it tried to have a debate about alternative renewable energy technologies. However, very quickly after that, the debate made a turn to how opposing parties think they could organize public support for these kind of projects in the future. No real answer was provided on this question, and instead, opposing parties continued to claim that the absence of public support proofed that the decision-making process was not organized adequately. Stadspartij Leefbaar Utrecht (SLU) was the only party that reflected on the role of the city council, by arguing that the city council had formulated energy targets that were non-binding / too voluntarily. In that context, SLU stated that

¹⁹ After it was postponed two times, due to a full agenda of the city council, and illness of Alderman Miriam de Rijk (Buren van Lage Weide, 2014a).

the city council sent the board of Mayor and Aldermen off with a vague assignment, and it would wait and see how it ended (Gemeente Utrecht, 2014a).

Various parties accused GroenLinks of framing concerned stakeholders as 'NIMBY's', but GroenLinks defended itself against this. Moreover, there was criticism on the role of the board of Mayor and Aldermen, in the sense that it did not only take the role of reviewer, but also of project participant. Proponents addressed the fact that the project plan and the process had been changed multiple times, to include the concerns of the different stakeholders. While one party was an advocate of solar energy, the other plead for the reduction of energy consumption, and another talked about energy storage. In general, the accusations went back and forth, and became stronger during the course of the evening. Alderman Miriam de Rijk indicated that one of the largest puzzles of the process was the question of who should organize participation if there are initiators in the city. She said that the municipality took a neutral role, with the belief that it would appear the best when the initiator would enthuse people about the plan. Lastly, she claimed that it would have been better to hold a referendum about the development of the wind farm, since that would be the only real way of measuring the presence or absence of public support. The city council meeting was concluded when the proposal for the adoption of the structural vision was rejected by a show of hands. The chairman observed that the only city councilors who voted in favor of the proposal were those of GroenLinks and ChristenUnie (Gemeente Utrecht, 2014a).

In March 2014, Alderman Miriam de Rijk sent a letter to the committee 'City and Space' regarding the costs of the spatial planning process for the structural vision of Lage Weide, in response to a question of a CDA city councillor during the council meeting of January. In this letter, she stated that two types of costs were budgeted: planning costs and research costs. The planning costs consisted of project management, the facilitation of studies, the organization of participation (e.g., sounding board, consultation meetings), the development of the structural vision, and the processing of associated viewpoints. The research costs consisted of the fees paid to the research firms for the implementation of among others the EIA and SCBA. The total expenses until December 2013 were €688000, of which €408000 can be assigned to planning, and €280000 to research. At the start of the spatial planning process, the municipality had estimated that both the planning and research costs would be around €200000 (total of €400000). Moreover, the planning costs would only be pre-financed: once the project would be realised, Energie-U would pay it back. Since the project failed, additional research was conducted, and more participation was organized than expected, the planned budget was exceeded with €488000 (Gemeente Utrecht, 2014b).

In the same month, the Dutch local elections took place, which had a turnout of 54,2% in Utrecht. The results of the election showed that D66 was the big winner: it went from 9 to 13 seats. GroenLinks, which profiled itself as a pro-wind party during the whole process, lost 1 seat, and obtained a total of 9 seats. The big loser was PvdA, which lost 4 seats, and therefore had a total of 5 seats. A coalition was eventually formed between D66, GroenLinks, VVD, and SP (Gemeente Utrecht, 2014c). Energie-U published the results of the Kieskompas (on its website and social media accounts), which was used in the run-up to the local elections. 23000 out of the 35000 people (67%) who filled in the survey had the opinion that the wind farm at Lage Weide should be developed. Energie-U concluded that a public consultation process is not a measurement instrument for public support, and that it can provide an unbalanced reflection of what is happening in the society (Energie-U, 2014b).

In July 2014, the Provincial Executive of Utrecht published the draft second partial revision of the provincial structural vision and spatial regulation, and made it available for public inspection. The revision entailed the proposal to remove Lage Weide as a preferred wind energy location. Both Buren van Lage Weide and WeideWind BV. provided their view in this public consultation process, and invited

residents in proximity of Lage Weide to do the same (through their website and social media accounts) (Buren van Lage Weide, 2014b; Provincie Utrecht, 2014c).

After the summer, in September 2014, Buren van Lage Weide organized an information evening with residents from different municipalities of Utrecht. During this evening, residents could have discussions with members of the Provincial Council, and deputies, about wind energy locations and renewable energy alternatives in Utrecht. The goal was to convince the Provincial government that wind turbines do not fit in an urban area. As such, Buren van Lage Weide and residents handed over a petition to the King's commissioner. The petition called the province to organise a transparent process, to develop a plan to achieve the 65,5 MW in the province through other renewable energy technologies (e.g. solar energy), and to not develop wind turbines within a distance of 2000 meters from residential areas (Buren van Lage Weide, 2014c; Buren van Lage Weide, 2014d).

In order to try to save the Lage Weide project, WeideWind BV. submitted a formal request to the Provincial Council in October 2014 to adopt a provincial adaptation plan. In this request, it mentioned that the outcome of the planning phase showed that the wind farm at Lage Weide can be easily achieved within the existing legal framework. Since the city council decided to not support the development, and Lage Weide was included in the provincial structural vision and spatial regulation as a preferred location, WeideWind BV. emphasized the Provincial Council's legal obligation to facilitate the development as the competent authority (Provincie Utrecht, 2014b). However, WeideWind BV.'s effort was to no avail. With a majority vote, the Provincial Council adopted the second partial revision of the structural vision and spatial regulation in November 2014. This meant that Lage Weide was removed from the provincial structural vision and spatial regulation as a preferred location, and the Provincial Council could reject WeideWind BV.'s request. In other words, the development of the wind farm at Lage Weide was not considered a provincial interest anymore (Provincie Utrecht, 2014a). Regarding this revision, one interviewee said:

"There was a majority support [for the revision], also from opposition parties. But also support from parties that found it very complicated, such as GroenLinks. They found it extraordinarily painful and unpleasant that we did that, but they said that we were right, because they had agreed with the public support criterion during the coalition negotiations. The local GroenLinks party said 'continue the development', and they have always stuck to their position. However, the provincial GroenLinks party said that they have signed the public support agreement, and should honour it accordingly."

Seven years after the adoption of the motion 'renewable (wind)energy', and following an extensive spatial planning process, it became definitive and clear for all the stakeholders that wind energy would not be developed at Lage Weide in the foreseeable future.

4.2 Public debate on the 'community' wind farm Lage Weide

This section presents on which aspects the decision-making process on the Lage Weide wind farm was controversial. In doing so, it follows Dignum et al. (2016) , and makes a distinction between substantive (4.2.1) and procedural values (4.2.2). For each value within these two categories, a number of themes are addressed for which the opponents and proponents of the wind farm differed in opinion.

4.2.1 Substantive values

Table 4.3 presents the substantive values and the corresponding themes that were identified in the debate on the Lage Weide wind farm.

Table 4.3: Substantive values identified, and the corresponding themes.

Substantive values	Themes
Health and safety (4.2.1a)	Noise pollution; low-frequency noise; noise accumulation; shadow flicker; failure of the turbines; health effects nuisance.
Welfare (4.2.1b)	SCBA and business case; local economy; house prices.
Environmental friendliness (4.2.1c)	Ecological impact / flora and fauna; undesirability of fossil fuels.
Aesthetics (4.2.1d)	Visual impact; landscape impact visualizations.
Resource durability (4.2.1e)	Fossil fuel dependency; alternative renewable energy technologies.
International stability (4.2.1f)	Security of supply; geopolitical stability; import dependency.

4.2.1a Health and safety

Noise pollution

Opponents of the wind farm believed that the neighborhoods surrounding Lage Weide would experience significant noise pollution. They thought that this would not only disturb the sleep of residents, but also negatively impact animals in proximity of the wind farm. It was mentioned that noise pollution had been insufficiently investigated, is difficult to estimate, and cannot be ruled out. A reference was made to four conditions that would worsen the noise pollution: (i) the reflection of buildings around Lage Weide, (ii) after sunset, as the wind at higher altitudes increases, (iii) during evening and nights, as traffic and industrial activities decrease, and (iv) when two or more turbines do not rotate synchronously. There was criticism on the fact that the average noise levels, which must be complied with, could be compensated with days during which the turbines are shut-off. Furthermore, the municipality was requested to reduce the maximum permitted noise level with 8-13 dB below the background noise level. It was considered strange that there is no legal noise norm for firms. In this context, it was also claimed that the municipality had not prioritized the investigation of noise effects on firms, and therefore these effects remain uncertain.

Proponents of the wind farm stated that the municipality had established sufficient pre-conditions to minimize or prevent noise pollution, and that in most cases the noise from the turbines would fade away against the background noise. Furthermore, they emphasized that the noise studies showed that the preferred alternative would not lead to an exceedance of the legal norms of the Activities Decree. Some claimed that it is not fair that Energie-U had to meet stricter norms in comparison to what is legally required, and other industrial activities at Lage Weide. The municipality acknowledged that there are conditions during which more nuisance could be experienced, and that days on which wind turbines would be shut-off may be compensated with days on which wind turbines would produce more noise. This was considered to be the main reason that additional pre-conditions for operation were established. The reduction of the maximum permitted noise level with 8-13 dB below the background noise level was seen as too restrictive, and impairing the financial feasibility of the plan. It was confirmed that there is no legal noise norm for firms. However, the municipality indicated that the noise contour maps showed that the noise level during daytime would not exceed the existing noise level of industry and traffic, and that customized requirements would be developed for each commercial premise.

Noise accumulation

Opponents of the wind farm had objections to the project, because it would lead to a significant increase of noise pollution on top of the already existing noise nuisance (i.e. noise pollution

amplification). A reference was made to the motocross field, commercial premises, rail traffic, driving container cranes, highways, bypasses, high-voltage lines, biomass power station, McDonalds, Rondweg/Planetenbaan, traffic on the Amsterdamsestraatweg, the driveway Amsterdamseslag, festivities at Harrijnseplas, and shipping, as examples of exiting nuisance.

Proponents of the wind farm argued that the project would not lead to a significant increase of noise pollution on top of the already existing noise nuisance. More specifically, the municipality pointed out that it is a misunderstanding that the wind turbines would be allowed to produce the same level of noise as the environment does. It emphasized that the wind turbines would have to remain within the value of the background noise level, which is the noise level that is measured in the most silent 5% of the time. As such, only a 'limited' amount of houses would be subject to an increase of noise pollution of 1 dB or more, i.e. 549 out of 4379.

Low-frequency noise

Opponents of the wind farm were concerned about low-frequency noise, because its consequences are unclear, and the Netherlands does not have a legal norm for it. Furthermore, a reference was made to different studies that show the potential negative impacts of low-frequency noise. There was also criticism on the municipality's application of the Danish norm, in the sense that it was unclear how the norm was interpreted. According to the Danish Convention of Aarhus, the minimum distance between wind turbines and houses should be 2000 meters. It was claimed that the municipality of Utrecht did not follow this norm. Lastly, there was uncertainty concerning whether the municipality had only analyzed low-frequency noise from the wind turbines, or had actually measured it.

Proponents of the wind farm acknowledged that people can experience low-frequency noise as extremely annoying, and that there is no legal norm in the Netherlands that is specified for wind turbines. However, they believed that the results of different studies proofed that there is no reason to expect that low-frequency noise would lead to negative health effects. The municipality stated that in the EIA, all alternatives had been assessed against the Danish norm, and that the preferred alternative complied to this. In this context, the Danish norm referred to the norm for low-frequency noise, and not to a norm for distance between turbines and houses. The municipality emphasized that the background noise level measurements showed that the Danish norm is already often exceeded in the existing situation (without wind turbines). Moreover, it claimed that the calculations regarding the wind farm indicated that the low-frequency noise level of the turbines would lie well below the Danish norm. In this context, it confirmed that low-frequency noise from the wind turbines could only be calculated, and not actually measured.

Shadow flicker

Opponents of the wind farm expected that significant nuisance would be experienced, due to the shadow flicker of the turbines. Furthermore, they believed that the proposed mitigation measures, such as shutting-off the wind turbines, would not be adequately enforced. A reference was made to a report of the Luna Wind committee, which stated that the stop mechanism of wind farms does not function well, and that residents still experience nuisance from shadow flicker (after enforcement) because their house is larger than the average (which is said to be assumed in the norm and calculations). The absence of a shadow flicker norm for firms was considered to be unacceptable, and the proposed measures to mitigate this effect (e.g., sunscreens, planting) as ineffective.

Proponents of the wind farm argued that the nuisance from shadow flicker would be almost negligible, due to three reasons. First, because the municipality applied stricter requirements than the

shadow flicker norm stated in the Activities Decree. This means that the wind turbines would be shut-off in all cases that shadow flicker would occur at houses outside the industrial park. Second, because the shadow flicker calculations did not assume an average size of houses, but the size of the actually present housing blocks. Third, because the shadow flicker calculations for offices and corporate houses did not include trees and other obstacles, meaning that the impact of shadow flicker would be lower in practice. For the worst case scenario, the duration of shadow flicker at offices and corporate houses was estimated to be 14 minutes per day, and the most suitable mitigation measures would be discussed with the owners.

Failure of the turbines

Opponents of the wind farm argued that the wind turbines pose a significant risk to residents, firms, passers-by, and objects in proximity of Lage Weide. They believed that the municipality did not sufficiently take these risks into consideration in the decision-making process. More specifically, it was mentioned that the rotor blades could break off, or the mast could fall over, hitting people, buildings, and vehicles. Moreover, the turbines could catch fire, or ice could form on the rotor blades during freezing conditions, leading to dangerous situations. Lastly, the turbines could distract road users, increasing the probability of accidents. In addition to these risk arguments, it was unclear whether the risk analysis was conducted according to the manual 'risk zoning wind turbines', and why the St. Antonius hospital was excluded from the analysis.

Proponents of the wind farm stated that the wind turbines comply to the safety norms of article 3.14 and 3.15a of the Activities Decree, and therefore do not pose a significant risk to residents, firms, passers-by, and objects in proximity of Lage Weide. Hence, they believed that the municipality sufficiently took the risks into consideration in the decision-making process. Furthermore, it was emphasized that the method and assumptions of the risk calculations were based on the most recent version of the manual 'risk zoning wind turbines' (of May 2013). The St. Antonius hospital was said to be excluded from the risk analysis, because its distance exceeded the maximum throw distance of the wind turbines. With regard to the risk of ice formation, it was mentioned that the coupling between an ice detection system and the turbine control system would ensure that the turbine would be shut-off during icing conditions.

Health effects of nuisance

Opponents of the wind farm believed that the nuisance from noise pollution and shadow flicker would lead to a significant deterioration of the health and well-being of people in proximity of Lage Weide. In this context, a reference was made to the 'Wind Turbine Syndrome', including health effects such as, chronic illness due to continuous vibrations, disturbance of the biological clock, visual blurring, arrhythmias, balancing problems, anxiety attacks, tinnitus, hypertension, and increased heart rate. It was claimed that experts have confirmed the existence of the Wind Turbine Syndrome. Moreover, there was criticism on the research commissioned by the municipality. The health research was considered to be an opinion piece of a public proponent, and the medical experts were perceived to be biased (i.e. working for the municipality). As such, it was requested to hire a team of independent experts to investigate the risks and effects on the health of residents. The proof that high-frequency noise does not lead to negative health effects was said to be insufficient. Lastly, it was mentioned that no study had been conducted on the health effects on employees at Lage Weide.

Proponents of the wind farm argued that the wind turbines would not have significant negative health effects, and would even be beneficial for health through the reduction of air pollution, and the mitigation of climate change. The municipality referred to the results of the EIA, which show that during daytime and evenings, the background level of noise is not exceeded at most of the

measurement locations, and that during nights, the sleep disturbance noise level of 40 dB is never reached. Moreover, it was emphasized that nuisance and sleep distortion do not only depend on the noise level, but also on contextual and personal factors. In this context, it was expected that the nuisance would be the largest for those who have stress and concerns regarding the project plan. Based on the noise levels and scientific research, the municipality said that no other effects were to be expected than nuisance and sleep disturbance (for some residents in proximity of Lage Weide). It was claimed that there is no scientific proof for the existence of the Wind Turbine Syndrome, and that the study which describes this syndrome is scientifically poorly underpinned. The same was stated about the role of high-frequency noise in the nuisance from noise pollution. It was acknowledged that the GGD is a municipal service. However, the fact that the organization worked with different experts, and the author of the advice is recognized as one of the authorities in the field of the health effects of wind turbines, was said to safeguard the impartiality of the research.

4.2.1b Welfare

SCBA and business case

Opponents of the wind farm believed that the conclusions of the SCBA and business case were invalid, because different aspects were not taken into consideration, and/or wrong assumptions were made. Accordingly, they argued that the societal costs of wind energy at Lage Weide would be higher than the benefits, and that the project would be unprofitable. **Appendix XX** provides an overview of the aspects that were said to be lacking in the SCBA and business case. Profitable exploitation was considered to be impossible, because of the low energy prices, the necessary subsidies, the existence of an energy surplus, no production at overcapacity, high maintenance costs, and the research of the CPB that indicated that currently wind energy provides low returns. Moreover, there was uncertainty regarding under what conditions the municipality wants to make land available for the wind farm plan.

Besides the aforementioned aspects which were not taken into consideration, there was criticism on the assumptions that were made in the SCBA and business case. First, the SCBA and business case assumed 2600 full-load hours for the wind turbines at Lage Weide (with the most optimal configuration), while Bosch & van Rijn assumed this to be 2520 (i.e. 3.2% lower). It was unclear why the assumption of Bosch & van Rijn was not adopted. Second, Energie-U assumed capacity factors (i.e. average power generated divided by the rated peak power) between 26% and 30%, while it was claimed that experts had shown that the capacity factors at Lage Weide would lie between 20% to 22%. In general, the wind turbines would not be economically profitable from a capacity factor of 25% or lower. Third, the benefit 'non adopted measures' of €8.7 million, included in the SCBA and business case, was perceived to be debatable. Fourth, the variables in the SCBA and business case were said to be based on averages: e.g., an average noise level, an average wind speed, an average energy output, an average amount of health problems, an average reduction of house prices. As such, there was a concern that the SCBA and business case would lead to negative outcomes in practice. Fifth, the municipality assumed CO₂ emission prices of €25 to €40 per tonnes, while the actual CO₂ emission price fluctuated around €3 to €4 per tonnes. Given that the SDE+ subsidy is only available at a CO₂ emission price of €25 and higher, it was stated that the conclusion of the SCBA should have been negative. Sixth, the indirect effect 'prevented costs of alternative measures', and the externality 'security of supply', were included as benefits in the SCBA. It was expressed that there is no empirical evidence for these benefits to arise.

Proponents of the wind farm claimed that wind turbines are the most cost-effective technology to develop on-shore renewable energy, that the societal benefits of wind energy at Lage Weide would be higher than the costs, and that the project would be profitable.

With regard to the aspects which were said to be excluded from the SCBA and business case, the municipality emphasized that some effects could not be monetized, such as the nuisance for firms, landscape, ecology, and external safety. It stated that these effects were qualitatively assessed, and were taken into consideration in the decision-making. Planning damage compensations were seen as compensation for the negative effects 'nuisance for residents and firms', and therefore were not addressed separately. It was mentioned that the research costs were excluded from the SCBA, because they were not distinctive for the reference and project alternatives. The results of the CPB study were claimed to show that the NPV of wind energy will increase in the coming years, and that investments are not discouraged. The benefit 'non adopted measures' was stated to be explained by the national and local ambitions: without the wind farm, the municipality of Utrecht would have to implement another alternative to achieve its CO₂ reduction target. The fact that the SCBA was based on averages was considered to be a result of the early phase of planning, in which the exact specifications of the plan were still unknown. However, a reference was made to the uncertainty analysis, which showed that the NPV would remain positive in the case that the most important parameters would change within a specific range. The 2600 full-load hours assumption was said to be in line with the calculations of Ecofys, and an average of the range estimate of ECN. In the context of CO₂ prices, it was emphasized that the risk of a low price does not lie with the exploiter of the wind turbines.

Local Economy

Opponents of the wind farm stated that the construction of the turbines will have a negative effect on the local economy. More specifically, they believed that the wind farm would limit the development opportunities of the firms at Lage Weide, since they are only allowed to expand under very strict conditions. It was claimed that the SCBA did not indicate that the turbines would have a considerable positive effect on the regional labor market. Also, Ecorys was said to underestimate the societal costs of the wind farm. The suggestion that the benefits of Energie-U's sustainability fund would be higher than the negative effects of the wind farm were considered to be speculative, and not based on facts. It was expected that specific stakeholders would move out the region, as a result of the development. First, residents with a higher income would move out of Terwijde, which would run down the neighborhood into a poor condition. Second, firms would move out of Lage Weide, because of the increased costs of extra protection that employees would have to receive in the context of the Working Conditions Act. This would reduce the employment opportunities.

Proponents of the wind farm claimed that the development will have a positive effect on the local economy. They thought that the wind turbines would provide a boost to the industrial activities at Lage Weide, because electricity would be produced and consumed in a local setting. Moreover, it was argued that the development of the wind farm is beneficial for Utrecht, because it implies that people invest in the region. In line with this argument, the sustainability fund for renewable energy projects was considered to be a positive arrangement. It was suggested that a climate neutral city can be an important touristic attraction. The construction of the turbines was said to generate more initiatives, because of the accumulation of knowledge, courage, and creativity. In this context, Lage Weide would be able to show itself as an industrial area with an urban focus. The municipality emphasized that it commissioned additional research regarding the effect on development opportunities of the firms at Lage Weide. This study (conducted by Partners RO) was claimed to demonstrate that the construction of the turbines would hardly limit the development opportunities of existing companies, in terms of the available space.

House prices

Opponents of the wind farm believed that the development of the turbines would lead to a 5% to 30% reduction of house prices, and perceived this as unacceptable. The limitation of application possibilities and heights of commercial premises was said to reduce their value, and wrongly assumed to be negligible. A reference was made to conversations with local brokers, and judgments of courts, to support the argument. In addition to that, it was argued that the marketability of rented houses and other real estate would also reduce. The research on house prices, which was commissioned by the municipality, was called into question. More specifically, it was claimed that the sample size of brokers was too small, the effect on the prices of commercial premises had not been taken into account, and the results were therefore invalid. Furthermore, it was stated that Lage Weide cannot be compared to other wind farms in Netherlands, while that had been done during the impact assessment of house prices.

Proponents of the wind farm stated that the effect on house prices would be negligible, and also referred to different studies to support their argument. One even claimed that the studies that point out a considerable effect are exaggerated, and that a future decrease of house prices should be attributed to the 'negative campaign of Buren van Lage Weide'. The value reduction of commercial premises was argued to be limited, because of their business function. In this context, a reference was made to the study of GGD which claimed that employees would not experience additional noise pollution, and that shadow flicker effects could be easily mitigated. Opposed to a limited negative effect, there could also be a positive effect on the value of commercial premises, due to the improvement of the 'sustainability image' of Lage Weide. The municipality had a more nuanced view, by emphasizing that no firm statement can be made about a potential positive or absent effect of wind turbines on house and commercial premise prices. However, it also expressed that the claim that potential house price reductions would be much higher than assumed in the SCBA is not supported by scientific literature and practical studies. The municipality acknowledged the limitations of the selected research methodology, but argued that there was no other reliable source for the relation between house prices and wind farms. The house price reduction included in the SCBA was said to be much higher than the outcomes of alternative calculation methods.

4.2.1c Environmental friendliness

Ecological impact / flora and fauna

Opponents of the wind farm believed that the wind turbines should not be developed, because of the effect on the flora and fauna, and the limited research regarding these issues. With regard to the first point, it was claimed that research abroad had pointed out that around 70 bats, and between 300 and 900 birds, would die annually per wind turbine. The latter point was mainly criticism on the municipality's limited investigation of ecological effects. More specifically, it was stated that the municipality took into account outdated count data, and based its findings on an ecologist's one-day visit to Lage Weide. Furthermore, the ecological analysis was said to only focus on 7 bird groups and 1 bat type, leading to an unrealistic picture of the effects. The sole focus on Lage Weide was seen as inadequate, and it was proposed to take into account the combined effects of the plans at Rijnenburg and the area around Galecopperburg, and the wind farms of Houten, Nieuwegein and Flevoland.

Proponents of the wind farm mentioned that the ecological study showed that the wind turbines at Lage Weide would not have any considerable impact. The municipality emphasized that the ecological study was only a quick-scan, to estimate the probability of the presence of the most protected species. For such a quick-scan, existing count data is used, and a field visit is made to obtain an impression of the possible occurrence of such species. Based on the quick-scan that was conducted,

the municipality concluded that no significant effects were to be expected on migratory and breeding birds, but that there was a probability that protected species (e.g., orchids, bats, common tern) would be affected. It acknowledged that research was too limited, and additional research would have to be conducted after the city council's decision.

Undesirability of fossil fuels

Both opponents and proponents of the wind farm agreed that the use of fossil fuels is undesirable, due to the greenhouse gas emissions, air pollution, and the contribution to climate change. However, they differed in terms of whether wind energy is the way to move forward or not.

Opponents of the wind farm believed that the CO₂ reduction argument for wind energy was unjustified, because an equal amount of CO₂ is emitted during the manufacturing of the turbines, as what is claimed to be saved during the operation of the wind farm. Furthermore, they argued that implementation of wind energy does not reduce total greenhouse gas emissions, because conventional power stations have to compensate the fluctuations in the grid resulting from the intermittent character of the renewable energy source. Also, it was mentioned that only 1% of Utrecht's energy consumption would be supplied by the wind turbines, and therefore the contribution to the climate ambition of Utrecht would be low. It was pointed out that one of the raw materials used in the manufacturing process of wind turbines is neodymium, and that the extraction of that metal is hazardous to the environment.

Proponents of the wind farm stated that wind energy contributes to the mitigation of climate change through the reduction of CO₂ emissions, and improves air quality. More specifically, they argued that the wind farm would contribute for 25% to the objectives of the city: 30% less CO₂ emissions in 2020, and climate neutrality in 2030. In this context, the wind farm would supply electricity to 10.000 households. It was mentioned that during the life time of a wind turbine, 40-80 times as much energy is produced than that is necessary for construction, installation, and maintenance. Moreover, a reference was made to studies and responses on parliamentary questions, to show that wind energy does reduce total greenhouse gas emissions. However, it was acknowledged that measures should be taken to improve the future match of supply and demand, as required by the intermittent nature of wind energy. With regard to the use of neodymium, it was confirmed that the extraction of the metal is a burden for the environment. However, other energy sources were said to also make use of conflict minerals or rare earth metals.

4.2.1d Aesthetics

Visual impact

Opponents of the wind farm expressed that the development of wind turbines at Lage Weide is unacceptable, because of the negative effect on the view of surrounding neighborhoods. In this context, they referred to wind turbines as large, ugly, and 'horizon pollution'. Furthermore, it was believed that the visual impact of the turbines would deteriorate the characteristic and historical appearance of the city. More specifically, a reference was made to the historical status of Zuilen, Elinkwijk, and Lessepsbuurt, the chimney of the Nuon power station, the open landscape of the Green Heart, and the Dom tower. Lastly, it was argued that the cluster configuration of the preferred alternative would disrupt the skyline of Utrecht, and a linear configuration would be a better option.

Proponents of the wind farm stated that wind turbines are a symbol of sustainability, and that they upgrade the appearance of the city to a greener and cleaner one. According to their logic, the aesthetic objections of the opponents would be temporarily, given that nowadays nobody complains

anymore about the electricity pylons in meadows. The municipality addressed that in comparison to the alternatives with more wind turbines, or turbines that would not be clustered, the preferred alternative does not result in a significant deterioration or improvement of the cityscape and skyline. In other words, the visual impact was considered to be limited, and the compact cluster was selected to maximize the distance from the houses in surrounding neighborhoods. Furthermore, buildings and trees in the urban area were said to minimize the view on the wind farm. However, it was acknowledged that the way in which the wind turbines are visually perceived is an individual matter, and that it is possible that people experience the turbines as distorting.

Landscape impact visualizations

Opponents of the wind farm stated that the municipality excluded higher buildings and apartments in its viewsheds, leading to a more positive image of the landscape impact of the wind turbines. They argued that in order to create a realistic representation, the viewsheds should be developed for a range of 2.5 to 20 meters (i.e. municipality's viewsheds were based on a height of 1.6 meters). Moreover, the municipality used the turbine shaft height (100 meters) as the viewpoint, while it was claimed that it would be more honest to use the height of the rotor blades (150 meters). Lastly, the amount of positions to determine the effects on the landscape was considered to be limited, and accordingly, several other positions were recommended to improve the representativeness of the presentation.

Proponents of the wind farm mentioned that the viewsheds do provide a realistic picture of the visibility of the wind turbines, and that it is not possible to take into consideration all conceivable and specific situations. Furthermore, it was emphasized that the municipality had made every effort to select the most representative positions, from all angles, landscapes, and for the different users. These positions were considered to be the locations with the best view of Lage Weide and the plan area. As such, it was believed that the positions based on which the viewsheds were made formed a representative selection.

4.2.1e Resource durability

Both opponents and proponents of the wind farm agreed that the dependency on fossil fuels should be reduced, due to their finite nature. However, the two groups differed in opinion about how this should be achieved.

Opponents of the wind farm referred to a range of different alternatives: insulation, energy neutral construction, road pricing, electrical vehicles, small wind turbines, wind turbines without rotor blades, off-shore wind energy, solar energy, tidal energy, nuclear energy, hydro energy, geothermal energy, biomass energy, district heating, energy tax, and heat and cold storage. It should be noted that for most of the alternatives mentioned, it was not addressed why these were preferred over the wind farm at Lage Weide. For those that were substantiated, the argument is stated under the associated value. Proponents of the wind farm also believed that the aforementioned alternatives should be implemented, but that it would not justify the rejection of wind energy at Lage Weide.

4.2.1f International stability

Opponents of the wind farm argued that on-shore wind energy would not result in an improvement of the security of supply, because of the integration with the German and other energy markets, and the supply of relatively cheap natural gas and coals. Proponents of the wind farm mentioned that wind energy can improve geopolitical stability, and reduce dependency of fossil fuel imports from Russia and the Middle-East.

4.2.2 Procedural values

Table 4.4 presents the procedural values and associated themes that were identified in the debate on the Lage Weide wind farm.

Table 4.4: Procedural values identified, and the corresponding themes.

Procedural values	Themes
Procedural justice (4.2.2a)	Choice for wind energy and location; information provision; public participation and influence; ‘community’ status Energie-U and relation with the board of Mayor and Aldermen; municipality support to Energie-U and Buren van Lage Weide; public support
Distributive justice (4.2.2b)	Temporal aspect; spatial aspect; compensation
Accountability (4.2.2c)	Presence / absence of legal norms and practical arrangements for nuisance and safety; (dis)trust that these would be adequately enforced during the operation of the wind farm; allocation of responsibility in case of failure.

4.2.2a Procedural justice

Choice for wind energy and location

Opponents of the wind farm argued that the public, and other stakeholders, did not have influence on the choice for wind energy technology, and the location Lage Weide. In other words, they were not involved in the decision-making process which shaped the conditions for Energie-U’s initiative. This was considered to be undemocratic and unfair. The participation process for the Lage Weide project was believed to be designed to create the impression that the decision-making process was inclusive and fair, while there was no room to discuss about alternative technologies and locations.

Proponents of the wind farm referred to the fact that the city council had adopted the motion ‘renewable (wind)energy’ in 2007, and that the decision for wind energy technology therefore had a democratic base. Moreover, they mentioned that the choice for Lage Weide was based on an extensive location study, which took into account a range of relevant criteria. Hence, the process for selecting wind energy and the location was considered to be democratic and fair.

Information provision

Opponents of the wind farm expressed that the municipality’s disclosure of the wind energy development plan was opaque and too late, and that many had learned about the plan through Buren van Lage Weide. Moreover, it was perceived that the municipality did not provide information frequent enough throughout the decision-making process.

Proponents pointed out that the municipality informed the residents of the surrounding neighborhoods of Lage Weide about important decisions throughout the process. That means, from the moment that the board of Mayor and Aldermen selected Energie-U as the initiator, to the publication of the draft structural vision and the associated EIA and SCBA reports (see **Appendix XXI** for an overview of communication types and moments). As such, they considered the information provision to be adequate, on time, and frequent enough.

Public participation and influence

Opponents of the wind farm believed that there was no room for an ‘objective and critical’ noise, relevant stakeholders (i.e. Buren van Lage Weide) were excluded, participation was not well organized, and input was not taken into consideration. They argued that the municipality established the sounding board to be able to legitimize its choice for the project, as it could claim that the concerns of all the stakeholders had been taken into consideration. In other words, the choice for wind energy and the location were already pre-determined, and the decision-makers could use the sounding board to show the public that the process was fair. Moreover, there was criticism on the fact that the sounding board was established without the involvement and consent of the city council. As such, the democratic value of the participation process was considered to be low. Before the official chairman was chosen, there was an interim chairman who facilitated the first meeting of the sounding board. The impartiality of this interim chairman was called into question, since he was a former deputy of the province (with environment in his portfolio), and it was believed that he had an interest in a specific decision. The composition of the sounding board was not perceived as representative for all stakeholders’ interests, since Buren van Lage Weide did not participate, and industrial association Lage Weide and the association of owners left the board after several meetings. It was indicated that the municipality did not deliver on its promise to hand over all the necessary documents to the sounding board members, two weeks before each meeting. Accordingly, some members felt that they did not have sufficient time to provide comments, and the advices of the sounding board could not be adequately taken into account in the process. Lastly, it was considered inappropriate that the board of Mayor and Aldermen had not followed up on some of the recommendations of the sounding board, and had not adopted its preferred alternative (i.e. 4B+).

Proponents of the wind farm stated that there was sufficient room for an ‘objective and critical noise’, relevant stakeholders were included, participation was well organized, and input was taken into consideration. They claimed that the municipality established the sounding board to obtain advice on the possibilities and pre-conditions for the development of wind turbines at Lage Weide. In other words, the municipality wanted to investigate what the concerns are regarding the plan, and what aspects of it should be adjusted to do justice to these (i.e. the plan was not fixed). With regard to the democratic value of the sounding board, it was emphasized that the board of Mayor and Aldermen has the formal authority to establish a sounding board (without the involvement and consent of the city council). Moreover, it was stated that an external chairman was selected for the facilitation of the sounding board meetings, to guarantee that the municipality would not be able to intervene in the process and the final advice. The composition of the sounding board was considered to be representative for all stakeholders’ interests. The fact that Buren van Lage Weide did not participate, and the industrial association Lage Weide and association of owners left the board after several meetings, was seen as their own choice that should be respected, and as something that did not jeopardize the representativeness. The municipality expressed that it had made every attempt to provide all the relevant information to the sounding board, and reserve sufficient time for the board to read and comment on the documents. It acknowledged that some of the documents were large, and the sounding board sometimes had a short period of time to read. However, the municipality addressed that a contributory factor to the delay was that additional questions of the sounding board had to be investigated. Lastly, the board of Mayor and Aldermen pointed out that it can deviate from the preferred alternative proposed by the sounding board, in accordance with the participation standard of Utrecht (if sufficient substantiation is provided). Most of the recommendations had been followed-up, and the rest would be taken into consideration after the city council decision.

‘Community’ status Energie-U and relation with the board of Mayor and Aldermen

Opponents of the wind farm believed that Energie-U’s chairman Saskia Kluit and Alderman Miriam de Rijk had a personal relationship. This was often referred to as ‘the Alderman and her

friends', where 'friends' refers to Saskia Kluit and other members of the cooperative. In this context, it was also mentioned that members of Energie-U sat frequently around the table with the municipality. Energie-U was not considered to be a community initiative, because there was the impression that a majority of its members came from neighborhoods other than those surrounding Lage Weide. The personal relationship between the two parties was said to jeopardize the impartiality of the municipality. In other words, (i) the selection of the initiator was not fair, (ii) the municipality gave more weight to Energie-U's interests in the decision-making process, (iii) the cooperative had more influence than other stakeholders, and (iv) Saskia Kluit and Miriam de Rijk cooperated with each other to realize the project.

Municipality support to Energie-U and Buren van Lage Weide

Opponents of the wind farm had the opinion that the municipality spent a lot of subsidy on Energie-U to conduct the studies, design the participation process, and support the cooperative, while Buren van Lage Weide almost did not receive any financial resources to organize its opposition. Therefore, it was concluded that there was no level playing field. Proponents argued that Energie-U did not receive any subsidy or financial compensation from the municipality, and that the cooperative had to pay back the planning costs once the plan would get approval from the city council. As such, it was believed that there was a level playing field.

Public support

Both opponents and proponents believed that the city council decision should be based on the level of public support for the wind farm plan. However, they differed in opinion about how to measure public support. The opponents claimed that the negative viewpoints received in the public consultation process on the draft structural vision, and some polls, were a good reflection of the absence of public support. Hence, they considered the process for measuring public support, and the city council's decision to reject the proposal, to be adequate and fair. In contrast, the proponents thought that the negative viewpoints received in the public consultation process were not a good reflection of the level of public support. They referred to other polls to make their case, and suggested to conduct a referendum to measure public support. In other words, the process for measuring public support, and the city council's decision to reject the proposal, was considered to be inadequate and unfair.

4.2.2b Distributive justice

Opponents of the wind farm did not formulate any arguments that can be linked to the temporal aspect of distributive justice. Proponents of the wind farm stated that they do not want to impose the problem of increasing energy demand, and climate change, on future generations.

Spatial aspect of costs and benefits

Opponents of the wind farm argued that the project is undesirable, because the negative effects of the development (e.g., nuisance, health, reduction of house prices) would arise on the local level, while the positive benefit of CO₂ reduction has a national / global relevance. Moreover, it was claimed that the neighborhoods in proximity of Lage Weide already experience a lot of nuisance from industrial activities and traffic, and that the wind farm would only worsen the situation. In this context, a reference was made to recent infrastructure expansions, such as railways, bridges, and road widenings, and existing forms of nuisance, coming from road and rail traffic, the biomass power station, shipping, and odors. It was stated that only Energie-U would benefit financially from the project, and that the financial revenue of investors would come out of the wallet of the house owners in proximity of Lage Weide. Moreover, the most important economic benefits of the construction of the wind farm (i.e. employment opportunities and revenues) were said to go to foreign manufacturers

and suppliers. Given that wind energy was seen as an expensive and inefficient method of energy generation, there was a concern that the extra costs (i.e. higher energy bills) would come to families of lower socio-economic classes that already are struggling to make the ends meet.

Proponents of the wind farm believed that the local negative effects of the development would be minimal. They pointed to the different studies that were conducted, and emphasized that stricter norms would be applied than legally required, to support their argument. Moreover, it was stated that there would be adequate compensation for the local negative effects that would arise (see next theme). As such, there was a perception that there would be a fair spatial distribution of costs and benefits. Some argued that in the context of the transition to renewable energy, and achieving the Paris climate agreement, it is acceptable that national interest prevails above local nuisance. It was acknowledged that the benefit of employment opportunities would be low from a regional perspective, as the manufacturers and maintainers of the wind turbines are located outside Utrecht.

Compensation for negative effects and benefits

Opponents of the wind farm believed that the compensation and benefits were inadequate. They stated that residents would only benefit from the wind turbines at Lage Weide, if they would buy shares. Moreover, it was emphasized that the municipality would not provide other benefits from the project, and would not offer compensation for planning damage. It was claimed that those who suffer from the nuisance should be able to move at the expense of the community, or should get free electricity. The fact that residents in proximity of the wind farm would have to pay the same amount of taxes as resident from for example the eastern part of Utrecht, was seen as unfair. The general feeling was that the plans did not indicate clearly if, and under what conditions, nuisance would be compensated. Residents were said to be unaware of (or indifferent to) benefits, because Energie-U had not communicated its financial participation plan in the right way. It was expressed that 'real' opponents of the wind farm would not be persuaded by benefits, and could even consider it as a form of bribery.

Proponents of the wind farm mentioned that residents would be sufficiently compensated, if they were entitled to it according to the relevant legislation. It was emphasized that the municipality only offers compensation if the General Administrative Law act obliges it to do so. A reference was made to the Dutch Spatial Planning act, which prescribes that planning damage has to be compensated if there is a change in the zoning plan, and a reduction of revenue or house prices (exceeding the 2% of normal societal risk). Indirect nuisance, such as the obstruction of views, is excluded from this arrangement. The Dutch Spatial Planning act did not provide scope for the compensation of planning damage to residents in proximity of Lage Weide, because the zoning plan of these neighborhoods would not change as a result of the construction of the wind farm. Moreover, it was stated that firms would not be entitled to compensation, because planning damage from noise pollution was said to be absent, and shadow flicker could be mitigated. Besides the legal forms of compensation, proponents of the wind farm claimed that Energie-U's benefit plan was adequate and well communicated. In this context, they referred to the different financial participation options: sustainability fund, purchase of 'green' energy, and investment in bonds.

4.2.2c Accountability

The arguments related to the value 'accountability' were formulated in the context of the presence / absence of legal norms and practical arrangements for nuisance and safety, (dis)trust that these would be adequately enforced during the operation of the wind farm, and allocation of responsibility in case of failure.

Opponents of the wind farm did not express arguments regarding the acceptability of existing legal norms for nuisance and safety. The absence of noise pollution and shadow flicker norms for commercial premises was regarded as unacceptable. Moreover, there were concerns about the absence of a norm for low-frequency noise. It was stated that there was distrust regarding the enforcement of the stricter operational requirements for the wind farm, due to negative experiences with similar wind farms in the past (will be discussed in more detail in **section 5.5.2**). Moreover, it was stated that it was not clear who would be responsible for the associated operational decisions. It was demanded to develop a complaint hotline or a similar system, to ensure that complaints would not be downplayed in a later stage, and adequate actions would be taken.

Proponents of the wind farm stated that in general, the national norms for nuisance and safety are adequate, except in the case of low-frequency noise (for which there is no Dutch legal norm). They emphasized that the municipality established stricter requirements than legally required (for noise pollution, low-frequency noise, and shadow flicker), and that there is trust that these would be enforced during the operation of the wind farm. The absence of norms for commercial premises in the context of noise pollution and shadow flicker was not considered to be problematic. To support this argument, a reference was made to studies that indicate that the existing noise level of industry and traffic would not be exceeded, and that shadow flicker could be mitigated. The suggestion of opponents to establish a hotline for complaints was accepted, and the municipality emphasized that in case of non-compliance with the operational requirements it would call on the initiator and ensure that additional measures would be taken.

5. Understanding the interaction between formal and informal assessment and the strategic complexity of the decision-making process on the ‘community’ wind farm Lage Weide

This chapter presents the second part of the results of this thesis. **Section 5.1** addresses the formal assessment trajectory. **Section 5.2** identifies the informal assessment trajectory, and explains why the formal assessment trajectory has ‘flowed over’. **Section 5.3** presents the strategic behaviour of the stakeholders involved. **Section 5.4** elaborates on the types of backflowing that were identified. **Section 5.5** examines the contextual factors that have played a role.

5.1 Formal assessment trajectory

Taking into account the decision-making process on the ‘community’ wind farm Lage Weide described in **section 4.1**, **table 5.1** presents the formal assessment trajectory. More specifically, it addresses which stakeholder activities were identified as formal assessment, in which decision-making rounds these occurred, and what specific value(s) were assessed.

Table 5.1: Formal assessment trajectory Lage Weide case.

Stakeholder activity	Decision-making round	Main value(s) assessed	Description
Publication of note ‘Utrecht Creates New Energy’	1	Environmental friendliness & resource durability	Both the note and the motion acknowledge that the use of fossil fuels is undesirable, because of their contribution to air pollution and climate change, and their finite nature. In this context, the note forms the starting point of explicitly addressing climate change on a local level, and the motion frames renewable (wind) energy as one of the solutions.
Adoption of the motion ‘renewable (wind)energy’	1	Environmental friendliness & resource durability	
Quick-scan	1	Health & safety	The quick-scan mainly focused on the identification of potential locations for wind energy, based on technical specification, and legal norms for noise, shadow flicker, and external safety.
Feasibility study Bosch & van Rijn	1	Aesthetics; Environmental friendliness; Health & safety; Welfare	Besides the criteria of the quick-scan, the feasibility study of Bosch & van Rijn analysed landscape, future developments, financial feasibility, spatial policy, and visual impact.
Decision Board of Mayor and Aldermen	1	Environmental friendliness & resource durability	Official selection of wind energy as one of the alternatives for making the energy supply of the city more sustainable.
Tender procedure for initiator – project plan Energie-U selected	2	Distributive justice; Procedural justice; Welfare	The project plan of Energie-U addressed how the association wants to contribute to the intended result of 8-13 turbines with a capacity of 2,5 – 3 MW, what the financial feasibility (business case) of the project is, how the financial and organizational risks will be managed, and how stakeholders will be able to

			participate financially and in the decision-making process.
Committee 'City and Space' meeting	3	X	During this meeting, it was decided that the Energie-U's business case / feasibility study required a second opinion, and that the requirements for the structural vision, EIA, SCBA, and stakeholder participation should be developed.
Second opinion project plan / feasibility study of Energie-U by Bosch & van Rijn	3	Welfare	The second opinion of Bosch & van Rijn reassessed the business case / financial feasibility study of Energie-U. It concluded that the project is financially realistic and feasible.
Publication of the progress report on the implementation of the policy 'Programme Utrecht Energy!'	3	Procedural justice	The progress report addressed that a sounding board will be established to include interest groups in the decision-making process.
Publication of the start document	4	X	The publication of the start document was a confirmation that the project plan of Energie-U was the best proposal, and that it should be further investigated in the spatial planning process.
Environmental Impact Assessment	4	Aesthetics; Environmental friendliness; Health and safety	The EIA investigated the following main effects of the alternatives (Appendix XII): noise pollution, shadow flicker, health, flora and fauna, landscape, safety, water balance, and energy output.
Social Cost Benefit Analysis	4	Aesthetics; Environmental friendliness; Welfare; International stability	The SCBA investigated the following main effects of the alternatives (Appendix XIII): operational costs, electricity income, SDE+ subsidy, land lease income, guarantee of origin, property taxes, effects on the local economy, improvement of the image of companies, and the impact on the CO ₂ performance ladder, employment, CO ₂ emission reduction, NO _x emission reduction, security of supply, reduction of house prices, landscape, ecological effects.
Baseline measurement noise	4	Health and safety	The baseline measurement was conducted to determine the level of background noise at Lage Weide and its surroundings, and served as input for the EIA.
Health study GGD	4	Health and safety	The health study of GGD addressed the health effects of nuisance from wind turbines.
Publication of the provincial structural vision	4	X	The provincial structural vision acknowledged Lage Weide as a preferred location for wind energy within the province of Utrecht; meaning that the location was considered as a provincial interest.
EIA committee assessment advice	4	Aesthetics, Environmental friendliness, Health and safety	The EIA committee assessment advice confirmed that the EIA report contains the essential information to be able to take a decision on the structural vision and the zoning plan.

Decision of the board of Mayor and Aldermen and publication of the draft structural vision	4	X	The publication of the draft structural vision was a confirmation that the formal assessment of the project alternatives was valid (from the perspective of the board of Mayor and Aldermen), and that it is desirable to implement the preferred alternative.
Public consultation process on the draft structural vision and associated studies	4	Accountability; Aesthetics; Distributive justice; Environmental friendliness; Health & safety; International stability; Procedural justice; Resource durability; Welfare	Project opponents and proponents provided their view. See section 4.2 .
Committee ‘city and space’ meeting	5	Accountability; Aesthetics; Distributive justice; Environmental friendliness; Health & safety; International stability; Resource durability; Procedural justice; Welfare	Both opponent and proponent political parties presented their arguments regarding the development of the wind farm at Lage Weide.
City council meeting	5	Accountability ; Aesthetics; Distributive justice; Environmental friendliness; Health & safety; International stability; Resource durability; Procedural justice; Welfare	Repetition of the arguments presented in the meeting of the committee ‘city and space’, and cancellation of the project.
Adoption of the second partial revision of the provincial structural vision and regulation	5	X	The second partial revision removed Lage Weide as a preferred location for wind energy within the province of Utrecht; meaning that the location was not considered as a provincial interest anymore.

5.2 Informal assessment and overflowing

Taking into account the decision-making process on the ‘community’ wind farm Lage Weide described in **section 4.1**, **table 5.2** presents the informal assessment trajectory. More specifically, it addresses which stakeholder activities were identified as informal assessment, in which decision-making rounds these occurred, and what specific value(s) were assessed.

Table 5.2: Informal assessment trajectory Lage Weide case.

Stakeholder activity	Decision-making round	Main value(s) assessed	Description
City council information evening (first)	3	Aesthetics; Distributive justice; Environmental friendliness Health and safety; Resource durability; Welfare	Buren van Lage Weide addressed its concerns regarding the plan, and elaborated on the objectives of the platform.
Community meeting with city councillors	3	Aesthetics; Distributive justice; Environmental friendliness Health and safety; Resource durability; Procedural justice; Welfare	Besides a repetition of the arguments in the council information evening, Buren van Lage Weide openly criticized the fairness of the decision-making process (of the first and second round).
Feasibility study of Buren van Lage Weide	3	Health and safety; Procedural justice; Welfare	Buren van Lage Weide reassessed (i) the number of possible wind turbines at Lage Weide, based on safety contours and (ii) the business case of Energie-U (conclusion: project is financially unfeasible. Furthermore, the platform recommended the development of a participation plan.
City council information evening (second)	3	Procedural justice; Welfare	Buren van Lage Weide assessed the second opinion of Bosch & van Rijn. The platform questioned the impartiality of the firm, and criticized the assumptions of the second opinion (conclusion: the project is not financially realistic and feasible).
Information stands	3	Environmental friendliness; Distributive justice; Health and safety; Welfare	Buren van Lage Weide distributed information folders from its stands at different events, that included arguments (against the wind farm) related to financial infeasibility, nuisance, health effects, safety, flora and fauna, house prices, and existing nuisance.
Public consultation process on the preliminary memoranda of EIA and SCBA	4	Accountability; Aesthetics; Distributive justice; Environmental friendliness; Health & safety; International stability; Procedural justice; Resource durability; Welfare	Residents and interest groups submitted their view.
Wind farm visualization Buren van Lage Weide	4	Aesthetics	Buren van Lage Weide created a visualization of the wind farm, in response to the 'inaccurate' one of Energie-U.
Sounding board discussions and advice	4	Aesthetics; Environmental friendliness; Health and safety; Procedural justice; Welfare; International stability	Discussions were focused on the EIA and SCBA studies, preferred alternative, and draft structural vision (Appendix XIV).

Information evenings	4	Aesthetics; Environmental friendliness; Health & safety; Welfare	Buren van Lage Weide organized information evenings in different neighborhoods, during which the consequences of the plan were discussed.
Flyer campaign	4	Aesthetics; Environmental friendliness; Health & Safety; Welfare	The flyers of Buren van Lage Weide contained a visualization of the wind farm, and mentioned the following effects: noise pollution, sleep disturbances, shadow flicker, death of birds and bats, reduction of house prices, visualizations.
City conversation	4	Distributive justice; Health & safety; Procedural justice; Welfare	Buren van Lage Weide mostly focused on the financial unfeasibility, health effects, existing nuisance, reduction of house prices and unfair decision-making process.
Council information evening	5	Aesthetics; Accountability; Distributive justice; Environmental friendliness; Health & safety; International stability; Procedural justice; Resource durability; Welfare	Buren van Lage Weide explained the city council why the plan should be cancelled, by referring to the arguments used in previous decision-making rounds.
Public consultation process on the second partial revision of the provincial structural vision	5	Health & safety; Procedural justice; Resource durability; Welfare	Viewpoints received mostly focused on noise pollution, shadow flicker, risk of accidents, reduction of house prices, alternative renewable energy technologies, and the decision-making process.

Based on a comparison of **table 5.1 and 5.2**, and the public debate on the ‘community’ wind farm Lage Weide (**section 4.2**), it can be stated that the formal assessment trajectory flowed over because of both inter- and intra-value conflict. This will be further discussed in **section 6.2**.

5.3 Strategic behaviour

Section 5.3.1 presents the interest groups that were identified in the decision-making process on the Lage Weide wind farm. **Sections 5.3.2 and 5.3.3** elaborates on the direct and indirect strategies that these groups used. **Appendix XXI** focuses on the information provision role of the municipality.

5.3.1 Interest group identification

Table 5.3 presents the interest groups that were identified in the decision-making process, their interests, and their preference for the outcome of the process.

Table 5.3: Identified interest groups, interests, and preference for decision-making outcome.

Interest groups	Existing prior to or emerging in response to project	Interest	Preference for decision-making outcome
Energie-U	Existing	Initiate, organize, and secure 'community' renewable energy projects in Utrecht.	Planning approval
Buren van Lage Weide	Emerging	Maintain the sustainability, liveability, and financial stability of residential areas in proximity of Lage Weide.	Project cancellation
Milieugroep Zuilen	Existing	Improvement of the quality of life and housing in the neighbourhood Zuilen.	Project cancellation
Milieucentrum Utrecht	Existing	Stimulate the sustainable development of the city Utrecht and its surroundings.	Planning approval
Vogelwacht	Existing	Protection and study of birds.	Project cancellation
Industrial association Lage Weide	Existing	Promote the collective interests of the firms at Lage Weide, stimulate collective initiatives, improve the business environment, share knowledge.	Project cancellation
Association of owners Lage Weide	Existing	Promote the collective interests of the owners of ground and/or buildings at Lage Weide.	Project cancellation
Business association Stichtse Vecht	Existing	To improve the mutual cooperation of entrepreneurs and firms in Stichtse vecht, and to contribute to the achievement of the business objectives.	Project cancellation
Neighbourhood council Leidsche Rijn	Existing	Incorporation of concerns, feelings, and needs of residents of the neighbourhood in municipal plans and projects.	No, unless (same advice and preference as sounding board)
Neighbourhood council North-West	Existing	Incorporation of concerns, feelings, and needs of residents of the neighbourhood in municipal plans and projects.	No, unless (same advice and preference as sounding board)

5.3.2 Direct strategies

Table 5.4 presents the direct strategies of Buren van Lage Weide and Energie-U in the different decision-making rounds, i.e. ways in which the decision-makers were directly targeted.

Table 5.4: Direct strategies Buren van Lage Weide and Energie-U

Decision-making round	Buren van Lage Weide	Energie-U
1	X	<ul style="list-style-type: none"> • Presence of chairman at the TOP lunch
2	X	<ul style="list-style-type: none"> • Introductory meeting with the responsible Alderman • Presence of the board of Energie-U at the city council meeting • Submission of project plan

3	<ul style="list-style-type: none"> • The chairman of Buren van Lage Weide elaborated on the platform's objectives at the first city council information • Community meeting with city councillors • Feasibility study • Presentation of the feasibility study at the meeting of committee 'City and Space', and second council information evening • Organization of political debate 	<ul style="list-style-type: none"> • The chairman of Energie-U presented the initiative of the association at the first city council information evening • Presentation to the city council about the financial feasibility of the wind farm at Lage Weide • Presence at the political debate of Buren van Lage Weide
4	<ul style="list-style-type: none"> • Rejection to participate in the sounding board • Submission of view in the public consultation process on the preliminary memoranda of the EIA and SCBA • Chairman read aloud a column, during a seminar organized by local PvdA parties • Discussion during the city conversation • Submission of view in the public consultation process on the draft structural vision and associated studies 	<ul style="list-style-type: none"> • Submission of view in the public consultation process on the preliminary memoranda of the EIA and SCBA • Discussion during the city conversation • Submission of view in the public consultation process on the draft structural vision and associated studies
5	<ul style="list-style-type: none"> • Different representatives of Buren van Lage Weide presented their arguments, during the council information evening, against the development of the wind farm • Submission of view in the public consultation process on the second partial revision of the provincial structural vision • Organization of information evening with residents, members of the Provincial Council, and deputies • Handing over a petition to the King's commissioner 	<ul style="list-style-type: none"> • Organization of the political conversation 'Utrecht Energy, how to continue?' • Different representatives of Energie-U presented their arguments, during the council information evening, in favour of the development of the wind farm • Letter to the Provincial Council with the request to adopt an adaptation plan • Submission of view in the public consultation process on the second partial revision of the provincial structural vision
From 3 to 5	<ul style="list-style-type: none"> • Coalition with VVD & PVV. VVD helped Buren van Lage Weide to reach their constituencies, and to participate in the right moments to be able to influence political decision-making. VVD provided a lot of information about how the decision-making process on the municipal levels works. PVV had a similar role on a provincial level. 	<ul style="list-style-type: none"> • Empirical data does not indicate if Energie-U had a similar coalition as Buren van Lage Weide, although it was suggested by project opponents that the responsible Alderman and the chairman of Energie-U had a close relationship.

	Both political parties had the same position as Buren van Lage Weide towards the desirability of the wind farm (i.e. development should be cancelled).	
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Besides these direct strategies of Buren van Lage Weide and Energie-U, five activities of other stakeholders were also observed and interpreted as a direct strategy:

- Participation of existing interest groups in the sounding board (Milieugroep Zuilen, Milieucentrum Utrecht, Vogelwacht, industrial association Lage Weide, and the association of owners Lage Weide) in the fourth decision-making round;
- Stepping out the sounding board by the industrial association and association of owners Lage Weide in the fourth decision-making round;
- D66's and PvdA's change of position regarding the development of the wind farm (upcoming local elections) in the fifth decision-making round;
- The preparatory decision of the Provincial Council in the fifth decision-making round.
- Submission of viewpoints in the public consultation processes, in the fourth and fifth decision-making round.

5.3.3 Indirect strategies

Table 5.5 presents the indirect strategies of Buren van Lage Weide and Energie-U in the different decision-making rounds: i.e. ways in which people were mobilized, public opinion was influenced, and decision-makers were pressured.

Table 5.5: Indirect strategies Buren van Lage Weide and Energie-U

Round	Buren van Lage Weide	Energie-U
1	X	<ul style="list-style-type: none"> • The chairman of Energie-U had an interview with the AD about the project plan • Newsletter to interested parties about the association • Working group 'WijdeWind' • Organization of an excursion for members to the wind farm in Oosterhout • Distribution of flyers • Participation and nomination in the elections of the 'top project' Utrecht 2040
2	X	<ul style="list-style-type: none"> • Chairman wrote a reaction on the article of Professor Eveline Tonkens in Trouw • Presentation at centrum Emma • Information stand at Korte Lauwersstraat and Breedstraat • Presence at the energy market in Lombok with an information stand • Presence at the information meeting of the environmental federation of Utrecht • Placement of 2 self-made wind turbines on the Domplein

		<ul style="list-style-type: none"> • Organization of drop-in sessions for residents in proximity of Lage Weide • Organization of an energy café for residents in proximity of Lage Weide • Organization of information evenings for residents in proximity of Lage Weide
3	<ul style="list-style-type: none"> • Distribution of information folder among residents in proximity of Lage Weide • Development of a song and videoclip, called 'When I stand on top of the Dom' • Presence at the activity afternoon of a pet shop with an information stand • Distribution of promotion material, and performance of the protest song 'When I stand on top of the Dom' at the folk festival of Zuilen 	<ul style="list-style-type: none"> • Response on an article in the Stadsblad, regarding a visualization of the wind farm • Organization of an excursion for members to the wind farm Weststad III in Oosterhout • Creation and distribution of a supporting poster • Information stand at the market on Queensday
4	<ul style="list-style-type: none"> • Creation of wind farm visualization • Organization of information evening in Terwijde and Leidsche Rijn • Flyer campaign in Oud-Zuilen, Boomstede, and op Buuren • Distribution of information folder among residents 	<ul style="list-style-type: none"> • Promotion of the VPRO Tegenlicht documentary 'Power to the People' • Organization of drop-in sessions in Zuilen, Leidsche Rijn, and Maarssenbroek • Reaction on the wind farm visualizations of Buren van Lage Weide • Publication of an article regarding the organization of financial participation • Start of the campaign 'wijwillenwind.nu' • Organization of weekly 'WeideWind cafes' • Organization of an excursion for members to the wind farm at Houten
5	X	<ul style="list-style-type: none"> • Publication of the results of the Kieskompas
From 3 to 5	<ul style="list-style-type: none"> • Distribution of posters among residents, with the message 'pro sustainability, against wind turbines in residential areas' • Use of website, Twitter, and Facebook to provide information about the wind farm plan, arguments against the development, upcoming events, and to invite residents to become a member of the platform • Residents were encouraged to contact city councillors and provide their view to them, and to submit their viewpoint in the public consultation processes 	<ul style="list-style-type: none"> • Use of website, Twitter, and Facebook to provide information about the wind farm plan, upcoming events, and to invite residents to become a member of the association • Residents were encouraged to contact city councillors and provide their view to them, and to submit their viewpoint in the public consultation processes

Besides these indirect strategies of Buren van Lage Weide and Energie-U, two activities of other stakeholders were also observed and interpreted as an indirect strategy:

- The survey of neighborhood council Leidsche Rijn in the fourth decision-making round: the results were used to show decision-makers that public support is absent;

- The wind game of VVD Utrecht aimed to influence public opinion by spreading a negative view about wind turbines.

5.4 Backflowing

Table 5.6 presents the types of backflowing that were identified in the decision-making process on the ‘community’ wind farm Lage Weide. The types of backflowing refer to the ones identified in the literature review, defined in **section 2.3**.

Table 5.6: Types of backflowing, per decision-making round.

Types of backflowing	Decision-making round	Description
Procedural – additional research	3	Based on the preliminary feasibility study of Buren van Lage Weide, the chairs of the local political parties decided that a second opinion should be obtained for the feasibility study of Energie-U from an external research firm (Bosch & van Rijn). Moreover, they decided that a SCBA should be part of the decision-making process (Buren van Lage Weide, 2012c; (Energie-U, 2012d).
Procedural – additional research	4	<ul style="list-style-type: none"> • Based on the views that the municipality received in the public consultation process on the preliminary memoranda of the EIA and SCBA, and the advice of the GGD and EIA committee, it decided to conduct additional research on (Buren van Lage Weide, 2013i; Gemeente Utrecht, 2013c; Royal HaskoningDHV, 2013): <ul style="list-style-type: none"> - The effects of the alternatives on the Green Heart, and the townscapes of among others Oud-Zuilen and Elinkwijk; - The possibilities and costs of developing a similar amount of renewable energy by solar panels instead of wind turbines; - the effects of low-frequency noise in addition to existing noise measurements (Buren van Lage Weide, 2013h); - Wind turbines with a capacity larger than 3 MW; - Compliance of the alternatives with the Danish norm for low-frequency noise. • Based on input from the sounding board, an additional alternative was considered in the EIA: North-South cluster, 4 turbines of 3 MW (Royal HaskoningDHV, 2013). It should be noted that the identification of alternatives to be investigated in the EIA and SCBA was done in cooperation with the sounding board. • Based on input from the sounding board, an additional study was conducted (after the EIA) regarding the effects of the alternatives on the development opportunities of the firms at Lage Weide. This was done in the form of a planning damage risk analysis (Gemeente Utrecht, 2013c). • Based on input from the sounding board, the study regarding house prices was changed in terms of the WOZ-values of the houses in Stichtse Vecht (Gemeente Utrecht, 2013c).

Procedural – form of participation	4	Based on the request of the sounding board, the municipality organized a city conversation during the public consultation process on the draft structural vision, where supporters and opponents of the plan exchanged opinions (Gemeente Utrecht, 2013c).
Project plan changes – amount, location, and type of turbines	4	Based on a tradeoff between the EIA, SCBA, advice of the sounding board, and concerns of the stakeholders who were against the development of the wind farm, the board of Mayor and Aldermen decided that a derivative of alternative 4A+ (i.e. compact cluster, 6 turbines of 2.5 MW) should be incorporated in the draft structural vision (Gemeente Utrecht, 2013a). This preferred alternative was different than the initial proposal of Energie-U, in terms of the amount and location of turbines. Moreover, it should be noted that the turbines with a capacity of 4 MW were rejected by the sounding board, because the shaft height of 120 meters was considered unacceptable from an aesthetic point of view. This advice was adopted by the municipality.
Stricter operational requirements than legally required (not identified as a type in the literature, but observed empirically).	4	Based on input from the sounding board, and concerned stakeholders, the municipality decided that (Gemeente Utrecht, 2013a): <ul style="list-style-type: none"> • The noise pollution of the wind farm may not exceed the background noise level at houses in surrounding neighborhoods; • The wind turbines may not exceed the Danish norm for low-frequency noise; • The wind turbines should be shut-off if houses outside the industrial park will experience shadow flicker.
Policy changes – local level (structural vision)	5	Taking into account the 1112 views received from the public consultation process, the board of Mayor and Aldermen revised the draft structural vision. More specifically, the following was added to paragraph 4.3 on ‘safety’: <ul style="list-style-type: none"> • “The wind turbines are in terms of location and height in accordance with the General Provisions Act of the Environmental Law, regarding radar disturbance; • For the construction of the wind turbines within the drilling free zone of the drinking water area, the initiator has to comply with the relevant provincial conditions; • Primary waterways have a protection zone of 5 meters. • For tertiary waterways, a protection zone of 2 meters applies; • For construction in and in proximity of waterways, the regulations from the water boards apply; • The construction of wind turbines and other facilities in waterways and protection areas is prohibited, unless the water board agrees that the water system will not deteriorate.” (Gemeente Utrecht, 2013c).
Policy changes – provincial level (preparatory decision, structural vision, and spatial regulation)	5	Due to the ‘absence of public support’ (i.e. absence of support from the city council) for the development of the wind farm, the Provincial Council took a preparatory decision, so it could reject potential requests from Energie-U to adopt an adaptation plan. Moreover, it removed Lage Weide as a preferred location from the provincial structural vision and spatial regulation, in the second partial revision (Provincie Utrecht, 2014a).

5.5 Contextual factors

In the case study on the Lage Weide wind farm, several contextual factors were identified that influenced the formal assessment trajectory, overflowing, strategic behavior, and backflowing. These include: the economic and business context (5.5.1), and place and community (5.5.2). The national, regional, and local policy contexts have already been addressed in **Appendix VIII**.

5.5.1 Economic and business context

With regard to the economic and business context, a factor that played a role was the relation between the municipality and the industrial association Lage Weide. The zoning plan of Lage Weide was being revised during the whole decision-making process, as part of a mandatory update.²⁰ A combined implementation of the zoning plan revision, and the zoning plan procedure which would be initiated after the adoption of the structural vision, was not considered desirable by the municipality because of the differences in time planning and the complexity of the processes. There was a criticism that a decoupling of the two processes would impair a comprehensive assessment of all relevant spatial aspects. Moreover, the industrial association believed that it was badly treated by the municipality, in the context of developing a vision for Lage Weide. One of the interviewees mentioned:

“The municipality had to update the zoning plan of Lage Weide, so it would become clear what the land may be used for. Lage Weide has an enormous quay, with borders of open water via inland shipping. The industrial association made a plan based on that quay and open water: it was about the use of the water, it should become a real harbor, with recycle-like concepts. Some residents around Lage Weide were against this plan, because it would lead to an increase of material throughput. But it was a green principle. The industrial association believed that it could not talk with the municipality about the development of a good and responsible vision for Lage Weide, and that it was not given hearing ... In other words, the industrial entrepreneur felt that he/she was not taken care of properly. That had an influence on the interaction between the industrial association and the municipality in the decision-making process on the wind farm, absolutely.”

5.5.2 Place and community

For place and community, two aspects were important in the decision-making process. The first aspect is the local historical context; the fact that opponents showed little confidence that the municipality would exercise its duty of care regarding health concerns linked to noise pollution from the proposed wind farm (which would add to the existing nuisance in the area). As has been shortly addressed in **section 4.2.2c**, opponents of the wind farm generally did not trust that the stricter operational requirements than legally required would be adequately enforced during the operation of the wind farm. More specifically, they referred in their submitted viewpoints to negative experiences with the wind farm in Houten. In 2001, the city council of Houten decided to develop a wind farm within the municipality. Similar as the situation in Utrecht, wind energy was perceived as an important solution to achieve the renewable energy ambition and emission target of Houten. After years of preparation and discussions, the construction of the wind farm started in February 2013. In July of the same year, the construction was finished, and the wind farm became operational (3 x 2 MW turbines). The city council decision of 2001 included an obligation to evaluate the wind farm, before the planning and development of a potential second one. This evaluation was commissioned to the Copernicus

²⁰ A zoning plan has to be updated within 10 years after its adoption.

Institute for Sustainable Development and Innovation of the University of Utrecht, which published its report in 2015 (Harmsen, van Rijnsoever, & Broecks, 2015).

The results of the evaluation point out that a substantial part of the residents experiences nuisance from visual effects (52%), noise pollution (33%), and shadow flicker (34%). The nuisance has only decreased slightly over time, despite the measures that have been taken. Approximately one-third of the residents who are familiar with the additional operational requirements believe that they have not reduced nuisance, while another one-third argues that they led to a reduction. The majority of respondents (70%) has not reported complaints. Residents that reported nuisance did it through an interest group, the municipality or Eneco. Most of the residents don't report complaints, because they have the feeling that nothing will be done to address the expressed concerns. In general, there is discontent about the manner in which complaints are handled. The main complaints are that the communication from the involved bodies is unclear and slow, and that complaints are not taken seriously (Harmsen, van Rijnsoever, & Broecks, 2015).

With regard to the roles and responsibilities of involved stakeholders, the evaluation report concluded that several things went wrong. The municipality of Houten and Eneco did not make clear agreements about how the municipality would monitor and enforce compliance with the operational requirements. Moreover, the municipality did not have sufficient knowledge and human resources for monitoring compliance with noise pollution requirements. In this context, the municipality never had asked Eneco for production data, but only conducted checks based on wind speeds and reporting codes. Also, the municipality did not control whether the turbines rotate in mode 2 (a quieter one) at night. Given these findings, the report stated that the residents did not receive the maximum protection promised by the municipality, although the wind farm stayed within the legal norm for noise pollution. The communication on the reporting of complaints was not clear, and the municipality and Eneco should have coordinated better between each other. The complaints that were received were not always carefully dealt with. Lastly, the turbines still were not adequately controlled (after 2 years of operations) to ensure compliance with the operational requirements (Harmsen, van Rijnsoever, & Broecks, 2015). Project proponents also referred to existing nuisance, but did not believe that the wind farm would lead to health issues and a significant increase of noise pollution.

The second aspect is place attachment, which refers to the emotional bonds residents have with the place of Utrecht and its surroundings. The city of Utrecht and the open landscape of Groene Hart were represented by opponents of the wind farm as places of historical value, with a scenic and natural beauty. The change of these places, through the development of a wind farm, was interpreted by these opponents as a threat due to its industrial nature. As was stated in **section 4.3.1**, this interpretation was amongst others expressed in terms of 'large and ugly' wind turbines, and 'horizon pollution'. Proponents of the wind farm put more emphasis on the monofunctional and industrial character of Lage Weide. In this context, the development of a wind farm was considered to be suitable and in line with the general use of the area. Moreover, the wind turbines were perceived as a symbol of sustainability, and as such, a good replacement of the smoking chimneys which symbolized electricity generation (in the past).

6. Discussion

This section discusses the results presented in the previous two chapters, and by doing so, reflects on the broader academic debate. **Section 6.1** elaborates on the formal assessment trajectory. **Section 6.2** addresses informal assessment and overflowing. **Section 6.3** focuses on the strategic behaviour of the interest groups. **Section 6.4** discusses backflowing. **Section 6.5** refers to the contextual factors. **Section 6.6** discusses the interaction between the different elements of the conceptual framework. **Section 6.7** reflects on conceptual framework with which the case was structured and analysed. **Section 6.8** explains the implications for the responsible governance of community renewable energy projects.

6.1 Formal assessment trajectory: goal-rational frame

In line with Cuppen et al. (2015a), the goal-rational frame has been identified in this case as an important mechanism through which the formal assessment trajectory operates. As can be inferred from **table 5.1** in **section 5.1**, the formal assessment trajectory predominantly focused on substantive values, until the end of the fourth decision-making round, when the draft structural vision and associated studies were filed for public inspection. This finding reflects the proposition of Pesch et al. (2017a/b) and Taebi et al. (2016) that the formal assessment trajectory focuses on formally established values, such as safety, sustainability, and economy. In the first two decision-making rounds (as defined in **section 4.1**), the municipality of Utrecht adopted a goal-rational frame of the project. More specifically, the municipality formulated the ambition to become CO₂ neutral by 2030 (end), and decided that the development of wind energy within its jurisdiction would be one of the solutions (means) for attaining this goal. The results of the quick-scan and feasibility study led to the decision to hold a tender procedure for the development of wind energy at Lage Weide. This procedure shaped the interaction between the municipality and the initiators. Based on several criteria, Energie-U was selected as the initiator, and its objectives and interests were aligned with the municipality. The municipality emphasized that the cancellation of the project would negatively affect the attainment of national and local CO₂ targets.

At one of the information meetings of Energie-U in the third decision-making round, it became clear that a group of residents was against the plan. This group mobilized itself as the platform 'Buren van Lage Weide', and positioned itself as an opponent throughout the decision-making process. As was addressed in **section 5.2**, this group's interaction with the municipality was part of the informal assessment trajectory. In the third round, the goal-rational frame was reinforced through the meeting of the committee 'City and Space', the second opinion of Bosch & van Rijn, and the municipality's progress report, due to the dominant legal and technical discourse. The committee meeting formulated the requirement for a second opinion on Energie-U's business case, and laid the foundation for the start of the spatial planning process. The second opinion of Bosch & van Rijn concluded that the project is financially realistic and feasible, and the progress report mentioned that a sounding board should be established to ensure the justness of the decision-making process. However, these activities failed to repair the mismatch between the goal-rational frame and the opinion of Buren van Lage Weide, as they did not address the moral concerns of the platform of concerned residents (will be explained in more detail in **section 6.2**).

In the fourth round, the goal-rational frame was reinforced again, through the UPP spatial planning process. This is mainly because the different stakeholders had to articulate their position and provide input according to the dominant problem formulation (i.e. wind farm development at Lage Weide). The publication of the start document confirmed that Energie-U's proposal will be further investigated. Different studies were conducted to assess and compare project alternatives (i.e. health

study GGD, baseline measurement noise, SCBA, EIA). The studies brought together several public and private parties, and finally resulted in the selection of a preferred alternative and its formal assessment: namely that the project would be profitable, the societal benefits would be higher than the costs, and that no legal norms would be exceeded for noise pollution, low-frequency noise (Danish norm), shadow flicker, and safety. Negative effects on health, landscape (visual impact), prices of houses and commercial premises, and flora and fauna were claimed to be absent or minimal. These findings suggest that according to the logic of the formal assessment trajectory, public values are safeguarded through legal compliance. To give stakeholders the opportunity to participate in the decision-making process, the municipality implemented different formal arrangements: (i) the public consultation process on the preliminary memoranda of the EIA and SCBA, (ii) the sounding board, and (iii) the public consultation process on the draft structural vision and associated studies. The public consultation process on the preliminary memoranda of the EIA and SCBA, and the sounding board, are considered to be part of the informal assessment trajectory, while the public consultation process on the draft structural vision and associated studies is formal assessment (**section 5.1 & 5.2**). These arrangements also failed to repair the mismatch between the goal-rational frame and the opinions of project opponents, as will be explained in **section 6.2**. The provincial structural vision framed Lage Weide as a wind energy location of provincial interest. The EIA committee assessment advice confirmed the quality and validity of the EIA report. Lastly, the publication of the draft structural vision ended the research phase, and framed the overall desirability to implement the preferred alternative.

As has been mentioned before, it was only at the end of the fourth decision-making round that procedural values were addressed in the formal assessment trajectory. This was mostly in response to the viewpoints received from project opponents. As can be seen in **section 4.2.2**, the formal assessment of the values of procedural justice, distributive justice, and accountability was generally positive. The process for selecting wind energy (as a technology) and the location Lage Weide was considered to be just, and having a democratic base, by Energie-U, the administrative branch of the municipality and other project proponents. These proponents also claimed that all relevant stakeholders were included in the decision-making process, and had sufficient (equal) influence on the process and outcome (amongst others through the sounding board and public consultation processes). The information provision of the municipality regarding the plan was seen as adequate, timely, and frequent enough. The board of Mayor of Alderman was argued to be impartial, and not serving the interests of Energie-U. In this context, it was also stated that the municipality maintained a level playing field between Energie-U and Buren van Lage Weide. The distribution of costs and benefits was said to be fair, because local negative effects would be minimal, residents would be sufficiently compensated if they were entitled to it according to relevant regulations, and Energie-U would introduce an adequate benefits plan. With regard to accountability, it was emphasized that the national norms for nuisance, safety, and ecological impact are satisfactory, the municipality would establish stricter operational requirements than legally required, and that there is trust that these would be adequately enforced during the operation of the wind farm.

Throughout the decision-making process, different attempts were made to address the concerns of different stakeholders. These types of backflowing were identified in **section 5.4**, and will be further discussed in **section 6.4**. It should be noted that the adjustments to the formal assessment trajectory failed to fully account for the concerns of stakeholders associated with the informal assessment trajectory, as they did not focus on procedural values. The adoption of the goal-rational frame by the board of Mayor and Aldermen and Energie-U, and the failure to include procedural values, led to an intensification of antagonism and controversy. This reached its peak in the fifth round, after the board of Mayor and Aldermen decided to propose the city council to adopt the structural vision. The local parties of PvdA and D66 turned against the plan, and it became clear that the adoption of the structural vision would not receive a majority vote in the city council. During the meeting of the committee 'City and Space' proponent and opponent political parties presented their arguments, and also referred to the procedure, distribution of costs and benefits, and accountability. At the city council

meeting, the adoption of the structural vision was rejected by a majority vote, leading to a cancellation of the project on the local level. At this meeting, the city councilors could legitimately use the argument of 'there is a lack of public support' to oppose the project, given that the ambiguous criterion of 'public support' was included in the coalition agreement of 2011-2015 and the provincial structural vision. Subsequently, the same argument was used by the Provincial Council to take a preparatory decision, and eventually remove Lage Weide as a preferred location from the provincial structural vision and spatial regulation (in the second partial revision).

6.2 Informal assessment and overflowing

As has been mentioned in **section 5.2**, the formal assessment trajectory 'flowed over' because of both inter- and intra-value conflict. This finding is complementary to Dignum et al. (2015), who identified intra-value conflict in the Dutch public debate on shale gas exploration and exploitation, but did not distinguish between formal and informal assessment. The first conflict (inter-value) refers to the fact that specific stakeholders endorse different values than safeguarded in the formal assessment trajectory. The second conflict (intra-value) means that stakeholders operationalise the same values differently.

The informal assessment trajectory emerged in the third decision-making round, when a group of concerned residents mobilized itself as the platform 'Buren van Lage Weide'. To ensure that the platform would be recognized as a legitimate stakeholder that should be included in the decision-making process, it focused on an assessment of Energie-U's business case / feasibility study and Bosch & van Rijn's second opinion. Besides this dominant focus on 'welfare' in the third decision-making round, the group also made objections to Energie-U's plan by referring to negative project effects that are reflected by the substantive values: noise pollution, shadow flicker, safety issues, health effects, reduction of house prices, ecological impact, horizon pollution, etc. Also, issues related to procedural and distributional justice were immediately addressed. Buren van Lage Weide stated that the process for selecting wind energy and the location Lage Weide was unfair, because the local community did not have an influence on it. In this context, the platform argued that all future public participation arrangements designed by the municipality would be a formality, with the objective to create the image that the process would be fair and stakeholders' concerns would be taken seriously. Put differently, there was a strong feeling that the decision to provide permission for the development of the wind farm was already predetermined. The spatial distribution of costs and benefits was seen as unfair, because the negative effects of the development would arise on the local level, while the benefits would have a national / global relevance and would go to foreign manufacturers and suppliers. Related to this, Buren van Lage Weide stated that the neighborhoods in proximity of Lage Weide already experience a lot of nuisance from industrial activities and traffic, and that the wind farm would only worsen the situation. As can be inferred from **section 5.1 and 6.1**, these procedural values were not addressed by the formal assessment trajectory in the third-decision making round, and the spatial planning process was started.

In the fourth decision-making round, informal assessment was predominantly conducted during the public consultation processes and the sounding board meetings. The discussions during the sounding board meetings were considered to be technical by the different stakeholders, and mainly focused on the identification of alternatives, zero noise measurement, and assessment of regulated project effects (i.e. noise, shadow flicker, safety, health, landscape, and house price reductions). The methods of EIA and SCBA became heavily debated, and there was critique on the associated assumptions, calculations, measurements, visualizations etc. This is in line with what Cuppen et al. (2015a), Pesch et al. (2017a/b), and Taebi et al. (2016) have found in their cases and/or suggested. The participants of the sounding board had to formulate their concerns through an adoption of the technical and legal vocabulary of the goal-rational frame, to ensure that their arguments would be

considered legitimate. The acceptability of existing legal norms for nuisance and safety, or ethical deficiencies of the EIA and SCBA, were not addressed. Instead, the sounding board participants claimed that if the studies would take into account those aspects that were considered to be excluded, the results would indicate that the societal costs of the wind farm would be higher than the benefits and the legal norms (e.g., for nuisance, safety, ecological effects) would be exceeded. That is the reason why the sounding board amongst others advised the board of Mayor and Alderman to apply a stricter operational requirement for the noise pollution of the wind farm, i.e. 8-13 dB below the level of background noise (which was rejected because it would make the project financially unfeasible).

Buren van Lage Weide did not participate in the sounding board, because of the aforementioned arguments related to procedural and distributive justice, and strategic concerns. The industrial association and association of owners Lage Weide left the sounding board after several meetings, because of the absence of noise pollution norms for firms, and the fact that they would not be entitled to planning damage compensation (also because of a contextual factor described in **section 6.5**). This shows that the formal assessment trajectory's failure to secure the normative diversity led to a troubled interaction with these particular stakeholders, which could not be overcome and eventually led to non-participation. While the sounding board did not offer room for the discussion of moral concerns, this was not the case for the two public consultation processes, and the various information stands, information evenings, flyer campaigns, and city conversation. During those moments, Buren van Lage Weide and other (anonymous / non-organized) project opponents referred to the unfairness of the decision-making process (procedural justice), distribution of cost and benefits (distributive justice), and accountability

With regard to procedural justice, the composition of the sounding board was argued to be not representative for all stakeholders' interests, since Buren van Lage Weide did not participate, and the industrial association Lage Weide and the association of owners left the board after several meetings. In other words, these stakeholders were claimed to be not recognized as legitimate participants, and were excluded from the decision-making process. The municipality's information provision about the wind farm plan was said to be unclear, insufficient, and untimely. Buren van Lage Weide mentioned that Energie-U's chairman Saskia Kluit and Alderman Miriam de Rijk had a personal relationship, which negatively affected the impartiality of the municipality, and gave more weight to Energie-U's interests in the decision-making process. Similar to this, it was argued that Energie-U obtained a large amount of financial resources from the municipality for the planning process, while Buren van Lage Weide almost was not supported for the organization of opposition, leading to an unequal playing field.

With regard to distributive justice, the stakeholders stated that the municipality should have offered compensation, given the planning damage that would occur. The general feeling was that it was not clearly indicated under what conditions nuisance would be compensated. Some 'appropriate' forms of compensation that were suggested included free electricity, and the ability to move somewhere else at the expense of the community. Residents were said to be unaware of (or indifferent to) the provision benefits, because Energie-U had not communicated its financial participation plan in the right way. It was expressed that 'real' opponents of the wind farm would not be persuaded by benefits, and could even consider it as a form of bribery. With regard to accountability, the absence of noise pollution and shadow flicker norms for firms and commercial premises was regarded as unacceptable. Moreover, there were concerns about the absence of a norm for low-frequency noise. Lastly, there was distrust regarding the enforcement of the stricter operational requirements for the wind farm, due to negative experiences with similar wind farms in the past (**section 5.5.2**).

Since these issues related to procedural values did not lead to changes of the formal assessment trajectory, the antagonism and controversy intensified, and reached its peak in the fifth decision-making round. During the council information evening and the public consultation process on

the second partial revision of the provincial structural vision, earlier arguments were repeated by Buren van Lage Weide and other interest groups. Eventually, the adoption of the structural vision was rejected, and Lage Weide was removed as a preferred location. Overall, the findings presented in this section and the previous one suggest that stakeholders' perceptions and interpretations of procedural and distributive justice are indeed linked to the dimensions described in **section 2.2.2 (tables 2.3 & 2.4)**.

6.3 Strategic behaviour

The results of the analysis on strategic behaviour (**sections 5.3.2 and 5.3.3**) show that Energie-U and Buren van Lage Weide used both categories of strategies to achieve their interest and preference for the decision-making outcome. In other words, they mobilized, actively used media platforms, influenced public opinion, and targeted decision-makers directly. For the other interest groups and stakeholders, not a lot of empirical data was found as input to the analysis. The main purpose of the municipality was to inform stakeholders about the plan for the development of the wind farm, the formal decision that were taken, and opportunities for public participation (i.e. not to organize public support).

When comparing Energie-U with Buren van Lage Weide, the results show that the association started almost one year later than Buren van Lage Weide with an active influencing campaign. This was achieved through the website 'wijwillenwind.nu' (in the fourth decision-making round), in which all proponents of wind energy were asked to support the development of the wind farm at Lage Weide, by bringing out their vote on the site. Through this campaign, Energie-U wanted to show the political decision-makers that there is public support for the development. Before this round, Energie-U mainly took an information provision role, because it was selected as the initiator of the development of the project, and did not think that it would need to organize public support. Although it did participate in most of the formal assessment trajectory arrangements like Buren van Lage Weide, Energie-U could not influence the final city council decision (to not provide planning permission), and that of the Provincial Council (to remove Lage Weide from the provincial structural vision and spatial regulation) towards its position. While the precise explanation for this is considered to be beyond the scope of this thesis, it is suggested that the relative late 'pro' campaign could have played an important role.

While the direct strategies definitely contributed to the 'success' of Buren van Lage Weide, it should be noted that for such an emerging interest group the indirect strategies are more crucial for establishing itself as a political organization and survive. This has several reasons. Firstly, Buren van Lage Weide had to develop a broad membership base to be perceived as a legitimate stakeholder. The platform could achieve this through a public campaign that provided publicity among a broad audience, and which formed the basis for membership recruitment. Secondly, because Buren van Lage Weide claimed to work for public interest, it was natural for them to appeal to the local community through publically visible strategies. Thirdly, Buren van Lage Weide can be described as an 'ideological outsider', meaning that the platform preferred to distance itself from the authorities to maintain an uncompromised ideological stance. Cooperation with decision-makers was generally perceived as illegitimate, and the platform preferred to stick to appealing to public opinion, rather than to 'flirt' with the corridors of power. This provides a strategic perspective on Buren van Lage Weide's rejection to participate in the sounding board, besides the fact that through non-participation the platform could claim that the municipality failed to ensure the representativeness of the sounding board (in terms of all stakeholders' interests). Fourthly, as Buren van Lage Weide did not possess corporative resources, with which it could affect the production of public services or the economy, it did not have a privileged position in the political structure and therefore also had to rely heavily on indirect strategies. The same arguments are to some extent also valid for Energie-U, although it should be noted that the interests of the association were aligned with the board of Mayor and Alderman, and therefore cooperation

with decision-makers was perceived as legitimate. This discussion on the importance of indirect strategies for Buren van Lage Weide and Energie-U generally reflects the literature on interest group influence (e.g., Binderkrantz, 2008; Dür & Mateo, 2013; Weiler & Brändli, 2015).

The results confirm the earlier observation of Pesch et al. (2017a/b) that actors try to strategically use formal and informal assessment to pursue their own goals. The local party of the VVD and the provincial party of the PVV made an ideological alliance with Buren van Lage Weide, and aligned to the platform's discourse. Both political parties were against the development of the wind farm from the beginning of the decision-making process, but needed an interest group with a 'broad' membership base to be able to legitimately use the argument of 'public support is absent' to reject the adoption of the local structural vision and enforce the second revision of the provincial structural vision and spatial regulation. On the other hand, they could provide Buren van Lage Weide with the necessary information about how the political processes work, and when the platform should participate and / or conduct other activities. The same alignment to Buren van Lage Weide's discourse was done by the local D66 and PvdA parties, when they announced that they would reject the adoption of the local structural vision, due to the absence of public support. However, the upcoming local elections also will have played a role in their change of position.

At the same time, the identified interest groups tried to influence formal assessment, by conducting an own feasibility study of the project plan, developing visualizations of the wind farm, publication of surveys, participation in the sounding board, submission of viewpoints during public consultation processes, etc. The board of Mayor and Alderman tried to influence informal forms of assessment by strategically deploying formal forms of assessment, and implementing certain changes the formal assessment trajectory. More specifically, the board tried to reduce the intensity of the controversy by announcing additional (science-based) research, and by doing so, to create legitimacy by emphasizing its objectivity. Also, the project plan was adjusted, and stricter operational requirements would be applied, to achieve that goal.

In line with Mouter (2017), it can be stated that the stakeholders used the different studies in an opportunistic and symbolic way. They emphasized a specific study when it supported their interest and preference for the decision-making outcome, while they criticized it on its impartiality, validity, and quality when the results were not in line with their position. An example is Buren van Lage Weide's critique on the business case of Energie-U, and the corresponding second opinion of Rijn & van Bosch. Moreover, the municipality used the studies to make the decision-makers look more objective and rational, and to suggest that stakeholders' concerns and problems are taken seriously. The strategic perspective also calls into question the legitimacy of the arguments that are put forward in the public debate presented in **section 4.2**, and which are addressed in **sections 5.1 and 5.2**. In other words, arguments could be used by stakeholders to advance one's position in the decision-making process, instead of addressing 'real' underrepresented concerns.

6.4 Backflowing

As can be inferred from **table 5.6**, all the types of backflowing defined in **section 2.3** were present, except 'compensation and benefit changes'. Stricter operational requirements was not identified as a type of backflowing from the literature review, but was observed empirically. The policy change on the provincial level ensured that the Provincial Council would not be required to adopt an adaptation plan, and facilitate the development of the wind farm, after the city council rejected the plan. The most important attempts to address the concerns of the different stakeholders were: (i) additional research, (ii) project plan changes, and (iii) stricter operational requirements than legally required. These can also be referred to as 'first order backflows', or changes within the problem

definition (i.e. development of wind farm at Lage Weide). Second order backflows, or changes of the problem definition, have not been observed in the Lage Weide case.

It is suggested that the formal assessment trajectory and the associated goal-rational frame largely determine the scope of backflowing. In other words, the strong focus on facts and figures, substantive values, and compliance with legal norms defines what changes in the formal assessment trajectory are considered to be legitimate. Since procedural, compensation and benefit changes reflect moral considerations (i.e. procedural and distributive justice), it is argued that these are unlikely to occur in decision-making processes on renewable energy projects. This is also because the goal-rational frame reflects a dominant problem formulation, and that through the adoption and reinforcement of the frame it becomes difficult to challenge the problem formulation by addressing amongst others issues related to procedural and distributive justice. That is also the reason why these generally have not been observed in the case under consideration. In contrast, the observed attempts to address the concerns of different stakeholders (as mentioned above) fit within the legitimate scope of backflowing. Additional research is usually conducted to gain clarity on uncertainties regarding the exceedance of legal norms and/or safety. Project plan changes are implemented to reduce those local negative effects, which are mostly legally regulated. The establishment of stricter operational requirements is a gesture to stakeholders that there is even a willingness to apply stricter norms for legally regulated effects to account for stakeholder concerns.

The notion of ‘legitimate scope of backflowing’ and the distinction between first order and second order backflows explains why stakeholders that are associated with the formal assessment trajectory (e.g., Board of Mayor and Aldermen, Energie-U) believed that they did justice to the concerns of the local community, while at the same time, stakeholders associated with the informal assessment trajectory (e.g., Buren van Lage Weide) regarded the decision-making process and its potential outcome as unfair. This finding is in line with Cuppen et al. (2015a), Taebi et al. (2016) and Pesch et al. (2017a/b); namely that ‘popular’ attempts to make concessions with concerned stakeholders (such as additional research) generally fail, and can even increase the divide between proponents and opponents, as they don’t address moral considerations (e.g. procedural and distributive justice). The absence of compensation and benefit changes reflects the broader literature on community benefits (e.g., Aitken, 2010; Cowell et al., 2011; Rudolph et al. 2014; Walker & Baxter, 2017b). Benefit schemes are most often developed by the initiator or developer, are based on an informal – voluntary approach, and are usually non-institutionalized. As such, the local community has a relative small influence on these schemes, and it’s unlikely that these will be adjusted to address the perceived unequal distribution of costs and benefits.

6.5 Contextual factors

The results show that the contextual factors of Walker et al. (2010) were relevant for the case under consideration. The local ambition of Utrecht to facilitate wind energy developments emerged from the broader institutional context, and more specifically, fitted into the scope of EU’s Renewable Energy Directive, the Dutch Energy Agreement for Sustainable Growth, National Structural Vision ‘onshore wind energy’, and the Provincial Structural Vision of Utrecht (before removal of Lage Weide as a preferred location). The decision-making process and corresponding procedures were amongst others shaped by the Dutch Spatial Planning Act, Activities Decree, Decision EIA, Wabo, the participation standard Utrecht, and the UPP spatial planning process (see **Appendix VII**).

The results suggest that that the issues about the zoning plan revision and the development of a vision for Lage Weide were one of the reasons that the industrial association left the sounding board (i.e. economic and business context). Both the findings on ‘economic and business context’ and ‘place

and community' echoes research that emphasizes the role of the local historical context in shaping the perceptions and trust regarding wind energy developments and decision-makers (Bickerstaff, 2012; Simcock, 2016; Walker et al., 2010). With regard to 'place and community', the findings and conclusions of the evaluation report of the University of Utrecht regarding the wind farm at Houten, and similar coverages in the media, ensured that opponents of the Lage Weide wind farm did not trust that the stricter operational requirements would be adequately enforced. This concern was articulated amongst others during the formal public consultation processes. Moreover, the specific manifestation of 'place and community' in the Lage Weide case confirms Devine-Wright's (2009), and Devine-Wright and Howes (2009) suggestion that it's the interpretation of changes to places, rather than the form of change per se, that mainly determines if the relation between place attachment and project acceptance is positive or negative. In other words, through the creation and adoption of symbolic meanings (i.e. interpretation) stakeholders make sense of the place changes, judge changes to be positive or negative (i.e. evaluation), and behave in opposition or in support of the changes (i.e. acting).

6.6 Interaction between elements

In the previous sections, the specific manifestation of the elements of the conceptual framework in the Lage Weide case have been discussed separately. Here, the interaction between the different parts will be explained. The overflowing of the formal assessment trajectory, due to the dominant focus on substantive values, their different operationalization, and the adoption and reproduction of the goal-rational frame, led to the emergence of the informal assessment trajectory. The stakeholders that can be associated with this trajectory in general conducted direct strategies to participate in the formal procedures, and to push for change within the dominant problem formulation (i.e. the development of wind energy at Lage Weide). The observed first order backflows were mainly achieved through participation in the sounding board and public consultation processes, and by addressing substantive values. This does not mean that procedural values were not articulated through direct strategies and participation in formal procedures, but that it generally did not lead to desired backflows. Different stakeholder (e.g., Buren van Lage Weide, and other project opponents) tried to open up the dominant problem formulation by adopting and articulating the substantive values 'environmental friendliness and 'resource durability', and by doing so referring to other renewable energy technologies to mitigate the negative effects of the use of fossil fuels.

Buren van Lage Weide's awareness that participation would not most likely result in a change of the dominant problem definition (e.g., other renewable energy technology or location) led to a rejection to participate in the sounding board. Through indirect strategies, including mobilization and a media campaign, the platform of concerned residents addressed procedural values and aimed to force second order backflows. Also, substantive values were addressed through indirect strategies, with a different operationalization compared to the ones adopted in the formal assessment trajectory. This discussion does not imply that there is a clear-cut distinction between direct and indirect strategies in terms of the value categories that are addressed through them and the types of backflowing that follow as a result. However, it means that it is more likely that stakeholders will pursue indirect strategies if they feel that their values and desired changes cannot be safeguarded and achieved through participation in formal procedures.

6.7 Reflection on conceptual framework

The conceptual framework presented in **section 2.6** was used to structure the empirical data, and analyse the Lage Weide case. This section provides a reflection from two perspectives: (i) to what extent the conceptual framework contributed to a better understanding of the case, and (ii) to what extent the case led to a refinement of the conceptual framework.

From the first perspective, it can be stated that the empirical identification of the formal and informal assessment trajectories is challenging, since the boundaries are not clear-cut. In the Lage Weide case, public consultation processes with a dominant input from interest groups and non-institutionalized stakeholders were considered to be informal assessment, while public consultation processes including an extensive response from the board of Mayor and Aldermen and the public servants of the municipality were interpreted as formal assessment. This fuzziness does not lessen the value of the concepts in revealing the temporal dynamics of controversial community renewable energy projects. The application of the concept of the formal assessment trajectory to the Lage Weide case created the understanding that for the sake of reducing complexity during decision-making on the desirability of the wind farm, demarcations had to be made in terms of the problem definition, scope, rationality, etc. The application of the concepts of overflowing and the informal assessment trajectory to the Lage Weide case led to the insight that these demarcations excluded certain concerns and sentiments of specific stakeholders and/or operationalised them differently. This pointed out the limitation of the formal assessment trajectory in including relevant public concerns and values, and that in response emerging and/or existing interest groups will challenge it. Furthermore, it showed that overflowing cannot be avoided, but is inherent to decision-making on community renewable energy projects. The application of the concept of backflowing to the Lage Weide case indicated that the changes that were made to the formal assessment trajectory failed to sufficiently address and give space to these concerns and values. The application of the concept of strategic behaviour to the Lage Weide case showed that not all concerns articulated outside the institutionalised system are necessarily justified, since stakeholders mobilize, use media platforms, influence public opinion, and target decision-makers directly to achieve their preference for the decision-making outcome.

While the conceptual framework contributed to a better understanding of the case, the empirical data also led to a refinement of the conceptual framework. This was the case for backflowing: 'stricter operational requirements than legally required' was not identified as a type of backflowing from the literature review, but was observed in the case (and could therefore be added to the framework). While no other significant changes were made based on the empirical data, this does not mean that the conceptual framework will be valid for other cases. The framework has been developed by studying a small amount of energy cases in the Netherlands: other institutional contexts and/or technologies may lead to an adjustment of it. With regard to other technologies, it can be stated that the operationalisation of the types of backflowing, and the public values that were identified, can be used as basis but are likely to change. The conceptual framework implies that overflowing and backflowing evolve from public controversies, and that overflowing is initiated by perceptions of injustice. These assumptions may be violated in other cases.

6.8 Implications for the responsible governance of community renewable energy projects

The results presented in this thesis, and the corresponding discussion, have certain implications for the responsible governance of community renewable energy projects. Overall, they question the narrative that community renewable energy projects will always be considered democratic and financially beneficial, and therefore lead to lower levels of public resistance and controversy compared to private developments. In other words, what makes a community renewable energy project distinctively 'community' is not its small scale or the adoption of a 'community' label, but how it is developed and how its costs and benefits are distributed. This means that issues related to procedural justice are as pertinent as issues related to distributive justice, and it's not sufficiently to solely focus on guaranteeing stakeholder participation and influence on the development, or financial benefits and compensation (i.e. both should be addressed). With regard to the Lage Weide case, it is

argued that the board of Mayor and Aldermen and Energie-U adopted a community label of the project, while they did not take care of the procedural values properly. In addition, the concept of 'community' itself is ambiguous, as it in reality almost never is a cohesive coalition of individuals, but a flexible space within which different interest and groups can be accommodated in reaction to a project. However, external definitions that are bestowed upon the 'community' determine who is included in the decision-making process, whose effects count, who is entitled to receive compensation and benefits, etc. Participatory methods should secure these individuals' right on autonomous self-definition, and at the same time be flexible enough to deal with unclearly defined interest groups and representatives.

There are also certain implications with regard to the concept of Responsible Innovation (e.g., Stigloer, Owen, & MacNaghten, 2013) and more specifically the dimensions of 'inclusion' and 'responsiveness'. The Lage Weide case points out that relevant stakeholders should be included in the process of problem formulation and agenda-setting decision-making, such as the choice for the renewable energy technology, and the location of development. The failure to do this can create an antagonistic situation from the start (i.e. the first moment that the local community and other stakeholders are invited to participate), since those that were excluded from the decisions could perceive the follow-up process as illegitimate and the decision of planning permission as predetermined. The inclusion of stakeholders from the beginning of the decision-making process enhances the democratic quality of the process, by securing the normative diversity. Moreover, the Lage Weide case shows that existing environmental and business interest groups are generally recognized as legitimate stakeholders for participation, while others may be less seen as such (especially if they are politically active and 'project opponent'). This indicates that there is a need to improve the diversity in, and representativeness of, public participation platforms. For the dimension of responsiveness, it can be stated that specific forms of governance have to be developed so that the formal assessment trajectory can respond to, and include, emerging perspectives, views, concerns, etc. The Lage Weide case makes clear that this is especially necessary for emerging concerns related to procedural values.

The aforementioned considerations are ways in which overflowing could be managed, given that it is inherent to decision-making and cannot be avoided. Overall, the results of the Lage Weide case show that symmetric processes of deliberation should be developed, participatory methods have to operationalize backflowing, and it should be specified how to connect with the formal assessment trajectory. Lastly, there is also a need for policy arrangements that are adaptive to the strategic behavior of stakeholders in the decision-making process. The Lage Weide case points out that through non-participation and an active influencing campaign, an emergent interest group can create a situation in which a majority of the public decision-makers turn against a plan. This shows the inadequacy of current arrangements, as it is not necessarily desirable to give so much weight to the preferences of a single interest group.

7. Conclusions and recommendations

This chapter addresses the conclusions and recommendations of this thesis. More specifically, **section 7.1** answers the main research question, **section 7.2** describes the research limitations, **section 7.3** provides a normative reflection, **section 7.4** formulates the recommendations for further research, and **section 7.5** presents the recommendations for practitioners.

7.1 Conclusion: answer on the main research question

Taking into account the research problem and knowledge gaps presented in the introduction (**sections 1.1 – 1.3**), this thesis aimed at answering the following main research question:

Main research question

What are the types of overflowing and backflowing between the formal and informal assessment trajectories of the strategically complex decision-making processes on community renewable energy projects?

To be able to answer this research question, several steps had to be taken. First, a literature review was conducted (**chapter 2**) to develop a conceptual framework to guide the analysis on the case study. The literature review led to the identification of the types of overflowing and backflowing, and the perspective for analysing strategic behaviour. More specifically, overflowing was suggested to occur when (i) stakeholders endorse different values than safeguarded in the formal assessment trajectory (i.e. inter-value conflict), and/or (ii) stakeholders operationalise the same values differently (i.e. intra-value conflict). It was concluded that in order to be able to analyse overflowing, the public debate has to be identified in terms of the arguments put forward by opponents and proponents, and the values to which these arguments refer. The types of backflowing that were found in the literature include: project plan, policy, procedural, and compensation and benefit changes. Direct and indirect strategies were identified as the ways in which stakeholders (and interest groups) try to target decision-makers, mobilize themselves, and influence the broader public opinion, in order to achieve their interests and preferences. Given the importance of stakeholder interaction, the rounds model was selected for the reconstruction of the decision-making process of the case under consideration. Lastly, it was argued that the formal and informal assessment trajectory and their interaction occurs in a specific context, and the relevant factors that were identified include: economic and business context, place and community, and policy context.

The research strategy that was followed is a single case study. Semi-structured interviews, and policy, research and media documents were the main data sources for the case study under consideration. A combination of longitudinal and static analysis was conducted (**chapter 3**) to obtain an overview of the decision-making process and the public debate (**chapter 4**). Subsequently, the formal assessment trajectory, informal assessment trajectory, overflowing, strategic behaviour, backflowing, and contextual factors could be identified, analysed and discussed (**chapter 5 & 6**).

The case: 'community' wind farm Lage Weide

Based on a request for tenders (RFT) initiated by the municipality of Utrecht in December 2010, the energy association 'Energie-U' developed and submitted a plan to construct a wind farm at the industrial park Lage Weide. The project plan included two alternatives: (i) two rows of four turbines (with a separation of 400-500 meters between the turbines and the rows), and (ii) fourteen turbines in a free configuration (i.e. dispersed over the industrial park). The wind farm was supposed to have a

minimum total capacity of 10 MW, and a maximum of 25 MW. From the beginning, the project was labelled as a bottom-up community initiative, as members of Energie-U were residents of Utrecht, and could participate financially. At one of the information meetings of Energie-U in November 2011, after the project plan was selected in the tender process, it became clear that a group of residents was against the plan. This group mobilized itself as the platform 'Buren van Lage Weide', and was a project opponent throughout the decision-making process. After an extensive and controversial spatial planning process, during which Energie-U's plan was assessed by an Environmental Impact Assessment, Social Cost Benefit Analysis, and input from public participation, it was finally rejected by the city council in 2014.

Decision-making process on the 'community' wind farm Lage Weide

The table below presents the five rounds were identified in the decision-making process.

Decision-making round	Period
1	July 2007 (CO ₂ neutrality ambition) – December 2010 (decision of the board to facilitate wind energy initiatives in Lage Weide and Rijnenburg)
2	January 2011 (municipal policy 'Programme Utrecht Energy!') – October 2011 (decision of the board to select Energie-U as initiator Lage Weide)
3	November 2011 (establishment of Buren van Lage Weide) – September 2012 (political debate organised by Buren van Lage Weide)
4	October 2012 (start spatial planning process) - September 2013 (decision of the board to incorporate the preferred alternative in the draft structural vision)
5	October 2013 (development contract municipality and WeideWind B.V.) – November 2014 (adoption of the second partial revision of the provincial structural vision)

Public debate and identified values

Arguments of opponents and proponents were collected, and linked to the public value they refer. In total, 9 values were identified in the public debate on the Lage Weide 'community' wind farm: (i) health and safety, (ii) welfare, (iii) environmental friendliness, (iv) aesthetics, (v) resource durability, (vi) international stability, (vii) procedural justice, (viii) distributive justice, and (ix) accountability. The first six are substantive values, while the latter three are procedural values.

Formal assessment trajectory

The formal assessment trajectory predominantly focused on substantive values, until the end of the fourth decision-making round when the draft structural vision and associated studies were filed for public inspection. The goal-rational frame was an important mechanism through which the formal assessment trajectory operated. In the first two decision-making rounds, the municipality of Utrecht adopted a goal-rational frame of the project: it formulated the ambition to become CO₂ neutral by 2030 (end), and decided that the development of wind energy within its jurisdiction would be one of the solutions (means) for attaining this goal. The municipality emphasized that the cancellation of the project would negatively affect the attainment of national and local CO₂ targets. Based on several criteria, Energie-U was selected as the initiator during the tender procedure, and the objectives and interests of the association were aligned with the municipality.

In the third decision-making round, the goal-rational frame was reinforced through the meeting of the committee 'City and Space', the second opinion of Bosch & van Rijn, and the municipality's progress report. These activities failed to repair the mismatch between the goal-rational

frame and the opinion of Buren van Lage Weide, as they did not address the moral concerns of the platform of concerned residents. In the fourth decision-making round, different studies were conducted to assess and compare project alternatives (i.e. health study GGD, baseline measurement noise, SCBA, EIA). The studies brought together several public and private parties, and finally resulted in the selection of a preferred alternative and its formal assessment: namely that the project would be profitable, the societal benefits would be higher than the costs, and that no legal norms would be exceeded for noise pollution, low-frequency noise (Danish norm), shadow flicker, and safety. Negative effects on health, landscape (visual impact), prices of houses and commercial premises, and flora and fauna were claimed to be absent or minimal. These findings suggest that according to the logic of the formal assessment trajectory, public values are safeguarded through legal compliance. Various forms of public participation were implemented in the fourth round, which are mostly considered informal assessment.

It was only at the end of the fourth decision-making round that procedural values were discussed on a wide-scale in the formal assessment trajectory. This was mostly in response to the viewpoints received from project opponents, and did not result to any significant changes. The adoption of the goal-rational frame by the board of Mayor and Aldermen and Energie-U, and the failure to account for procedural values, led to an intensification of antagonism and controversy. This reached its peak in the fifth round. The local parties of PvdA and D66 turned against the plan, and the adoption of the structural vision was rejected during the city council meeting. On a provincial level, the Provincial Council removed Lage Weide from the provincial structural vision.

Informal assessment trajectory and overflowing

The formal assessment trajectory 'flowed over' because of both inter- and intra-value conflict. The informal assessment emerged in the third decision-making round, when Buren van Lage Weide was founded. The platform assessed Energie-U's business case / feasibility study, Bosch & van Rijn's second opinion, and made objections to the plan by referring to negative project effects which are reflected by substantive values: noise pollution, shadow flicker, safety issues, health effects, reduction of house prices, ecological impact, horizon pollution, etc. Also, moral considerations related to procedural and distributional justice were immediately addressed. Buren van Lage Weide stated that it was unfair that the local community did not have influence on the choice for wind energy and the location. There was a strong feeling that the decision to provide permission for the development of the wind farm was already predetermined. The spatial distribution of costs and benefits was also seen as unfair, because the negative effects of the development would arise on the local level, while the benefits would have a national / global relevance and would go to foreign manufacturers and suppliers. Related to this, Buren van Lage Weide argued that the neighborhoods in proximity of Lage Weide already experience a lot of nuisance from industrial activities and traffic, and that the wind farm would only worsen the situation.

In the fourth decision-making round, informal assessment was predominantly conducted during the public consultation processes and the sounding board meetings. The discussions during the sounding board meetings were considered to be technical by the different stakeholders, and mainly focused on the identification of alternatives, zero noise measurement, and assessment of regulated project effects (i.e. noise, shadow flicker, safety, health, landscape, and house price reductions). The methods of EIA and SCBA became heavily debated, and there was critique on the associated assumptions, calculations, measurements, visualizations etc. The participants of the sounding board had to formulate their concerns through an adoption of the technical and legal vocabulary of the goal-rational frame, to ensure that their arguments would be considered legitimate. They argued that if the studies would take into account those aspects that were perceived to be excluded, the results would indicate that the societal costs of the wind farm would be higher than the benefits and the legal norms (e.g., for nuisance, safety, ecological effects) would be exceeded.

While the sounding board did not offer room for the discussion of moral concerns, this was not the case for the two public consultation processes, and the various information stands, information evenings, flyer campaigns, and city conversation. During those moments, Buren van Lage Weide and other (anonymous / non-organized) project opponents referred to procedural justice, distributive justice, and accountability. Concerning procedural justice, there was critique on the representativeness of the sounding board (in terms of composition), the municipality's information provision, the perceived relationship between Energie-U's chairman and the responsible Alderman, and the financial support of Energie-U by the municipality. With regard to distributive justice, stakeholders addressed the inadequacy of compensation and benefits. Accountability concerns referred to the absence of noise pollution and shadow flicker norms for firms and commercial premises, the absence of a norm for low-frequency noise, distrust regarding the enforcement of stricter operational requirements, and uncertainty regarding who would be responsible for the operational decision.

Since all these issues related to procedural values did not lead to changes of the formal assessment trajectory, the antagonism and controversy intensified, and reached its peak in the fifth decision-making round. During the council information evening and the public consultation process on the second partial revision of the provincial structural vision, earlier arguments were repeated by Buren van Lage Weide and other interest groups. Eventually, the adoption of the structural vision was rejected, and Lage Weide was removed as a preferred location.

Strategic behaviour

To analyse strategic behaviour, interest groups and stakeholders were identified, and their activities were categorized according to the labels of 'direct and indirect strategies'. The results of the analysis on strategic behaviour show that Energie-U and Buren van Lage Weide used both categories of strategies to achieve their interest and preference for the decision-making outcome. In other words, they mobilized, actively used media platforms, influenced public opinion, and targeted decision-makers directly. For the other interest groups and stakeholders, not a lot of empirical data was found as input to the analysis. The main purpose of the municipality was to inform stakeholders about the plan for the development of the wind farm, the formal decision that were taken, and opportunities for public participation (i.e. not to organize public support).

It can be concluded that actors tried to strategically use formal and informal assessment to pursue their own goals. The local party of the VVD and the provincial party of the PVV made an ideological alliance with Buren van Lage Weide, and aligned to the platform's discourse. The same alignment to Buren van Lage Weide's discourse was done by the local D66 and PvdA parties, when they announced that they would reject the adoption of the local structural vision, due to the absence of public support. The identified interest groups tried to influence formal assessment, by conducting an own feasibility study of the project plan, developing visualizations of the wind farm, publication of surveys, participation in the sounding board, submission of viewpoints during public consultation processes, etc. The board of Mayor and Alderman tried to influence informal forms of assessment by strategically deploying formal forms of assessment, and implementing certain changes the formal assessment trajectory. More specifically, the board tried to reduce the intensity of the controversy by announcing additional (science-based) research, and by doing so, to create legitimacy by emphasizing its objectivity. Also, the project plan was adjusted, and stricter operational requirements would be applied, to achieve that goal.

Stakeholders used the different studies in an opportunistic and symbolic way. They emphasized a specific study when it supported their interest and preference for the decision-making

outcome, while they criticized it on its impartiality, validity, and quality when the results were not in line with their position. An example is Buren van Lage Weide's critique on the business case of Energie-U, and the corresponding second opinion of Rijn & van Bosch. Moreover, the municipality used the studies to make the decision-makers look more objective and rational, and to suggest that stakeholders' concerns and problems are taken seriously. The strategic perspective also calls into question the legitimacy of the arguments that are put forward in the public debate. In other words, arguments could be used by stakeholders to advance one's position in the decision-making process, instead of addressing 'real' underrepresented concerns.

Backflowing

All types of backflowing identified from the literature review were observed in the case, except 'compensation and benefit changes'. The most important types of backflowing, or attempts to address the concerns of the different stakeholders, were: (i) additional research, (ii) project plan changes, and (iii) stricter operational requirements than legally required. These occurred in the fourth decision-making round, and can be referred to as 'first order backflows', or changes within the problem definition (i.e. development of wind farm at Lage Weide). Second order backflows, or changes of the problem definition, have not been observed in the Lage Weide case. Stricter operational requirements was not identified as a type of backflowing from the literature review, but was observed empirically. The policy change on the provincial level (in the fifth decision-making round) ensured that the Provincial Council would not be required to adopt an adaptation plan, and facilitate the development of the wind farm, after the city council rejected the plan.

It can be concluded that the formal assessment trajectory and the associated goal-rational frame largely determine the scope of backflowing. In other words, the strong focus on facts and figures, substantive values, and compliance with legal norms defines what changes in the formal assessment trajectory are considered to be legitimate. The observed types of backflowing fit within this scope, since they mostly address substantive values. In contrast, procedural, compensation and benefit changes reflect moral considerations (i.e. procedural and distributive justice), and therefore are unlikely to occur in decision-making processes on renewable energy projects. That is also the reason why these generally have not been observed in the case under consideration.

Contextual factors

The results show that the contextual factors identified in the literature review were relevant for the Lage Weide case. The local ambition of Utrecht to facilitate wind energy developments emerged from the broader institutional context on an international and national level. The decision-making process and corresponding procedures were amongst others shaped by the Dutch Spatial Planning Act, Activities Decree, Decision EIA, Wabo, the participation standard Utrecht, and the UPP spatial planning process.

The economic and business context was relevant, as issues regarding the zoning plan revision and the development of a vision for Lage Weide were one of the reasons that the industrial association left the sounding board. Both the findings on 'economic and business context' and 'place and community' echoes research that emphasizes the role of the local historical context in shaping the perceptions and trust regarding wind energy developments and decision-makers. With regard to 'place and community', the findings and conclusions of the evaluation report of the University of Utrecht regarding the wind farm at Houten, and similar coverages in the media, ensured that opponents of the Lage Weide wind farm did not trust that the stricter operational requirements would be adequately enforced. Also, it can be concluded that through the creation and adoption of symbolic meanings (i.e.

interpretation) stakeholders make sense of the place changes, judge changes to be positive or negative (i.e. evaluation), and behave in opposition or in support of the changes (i.e. acting).

Interaction between elements

It can be concluded that the overflowing of the formal assessment trajectory, due to the dominant focus on substantive values, their different operationalization, and the adoption and reproduction of the goal-rational frame, led to the emergence of the informal assessment trajectory. The stakeholders that can be associated with this trajectory in general conducted direct strategies to participate in the formal procedures, and to push for change within the dominant problem formulation (i.e. the development of wind energy at Lage Weide). The observed first order backflows were mainly achieved through participation in the sounding board and public consultation processes, and by addressing substantive values. This does not mean that procedural values were not articulated through direct strategies and participation in formal procedures, but that it generally did not lead to desired backflows. Different stakeholder (e.g., Buren van Lage Weide, and other project opponents) tried to open up the dominant problem formulation by adopting and articulating the substantive values 'environmental friendliness and 'resource durability', and by doing so referring to other renewable energy technologies to mitigate the negative effects of the use of fossil fuels.

Buren van Lage Weide's awareness that participation would not most likely result in a change of the dominant problem definition (e.g., other renewable energy technology or location) led to a rejection to participate in the sounding board. Through indirect strategies, including mobilization and a media campaign, the platform of concerned residents addressed procedural values and aimed to force second order backflows. Also, substantive values were addressed through indirect strategies, with a different operationalization compared to the ones adopted in the formal assessment trajectory. This discussion does not imply that there is a clear-cut distinction between direct and indirect strategies in terms of the value categories that are addressed through them and the types of backflowing that follow as a result. However, it means that it is more likely that stakeholders will pursue indirect strategies if they feel that their values and desired changes cannot be safeguarded and achieved through participation in formal procedures.

7.2 Research limitations

One of the major limitations of this study is that an important stakeholder, Buren van Lage Weide (main opponent of the wind farm at Lage Weide), was not willing to participate in an interview. More specifically, the chairman of Buren van Lage Weide did not respond to the LinkedIn and email invitations. When contact was sought with the organization through Facebook, to ask if other members would be willing to participate, the response was given that the project is too remote in time, and that it had been a major task to compete against the 'machinery of the green Alderman and her friends'. Moreover, it was emphasized that the other members have very little interest in an interview, as it could make it easier for policymakers to cope with 'recalcitrant citizens'. To keep the door open, a reply was provided that underlined the respect for the organization's position, the research aim to understand the decision-making process on Lage Weide from a scientific perspective, and the independent position of the researcher. When the contact person of Buren van Lage Weide wanted to know who the financiers of the university faculty are, and the researcher made a reference to the website of the RESPONSE project, the contact stopped. The industrial association Lage Weide was also approached through email, and an interview appointment was set accordingly. During the beginning of the interview it became clear that the respondent was not involved in the decision-making process on the Lage Weide wind farm, but was occupied with the management of the Energy Collective Lage Weide (an organization established by the industrial association to facilitate the transition to a

sustainable industrial park). He emphasized that the project was a closed case for the industrial association, and that he was put forward to communicate that message. Overall, it can be concluded that the wind farm project at Lage Weide was (and still is) a politically sensitive topic, and that some stakeholders clearly do not want to talk about it anymore. The main reason that this is considered to be a limitation is that the perspectives of these stakeholders had to be derived from documents.

In the same scope of the previous one, another limitation is that only an impression of the informal assessment trajectory was obtained, because no in-depth interviews were conducted with a representative sample of stakeholders that could be considered to be part of informal assessment (as mentioned in section 6.2). Moreover, this study only included the perspectives of those that were active (in one way or another) in the decision-making process, and not of the 'silent majority' that have specific opinions but don't participate formally and/or engage politically. With regard to the analysis of the public debate, a limitation was that the identification of values was not followed by expert validation, which could make the findings less reliable.

Since the interview guide did not include questions about lobbying strategies, and most of the data was obtained from public sources, it should be noted that specific insights regarding direct strategies could have been missed. In other words, the method of data collection did not fully allow for the systematic identification of these strategies. Moreover, while **section 6.3** did provide some suggestions about why specific strategies were chosen over others by the interest groups, it was considered to be beyond the scope of this thesis to analyse the reasons that opponents of the wind farm 'won' and proponents 'lost' (in terms of the outcome of the decision-making process).

Besides the aforementioned limitations, there are two that are inherent to the case study research strategy followed in this thesis. In general, it is difficult to make scientific generalizations on the basis of a single, or limited amount of, case(s). Since this thesis was based on a single case study, the external validity of the results is under pressure, and the results cannot be applied to a broader population of interest. Second, the strategy maintains a bias towards verification, meaning that it allows room for the researcher's subjective and arbitrary interpretation of the data (and confirming his or her preconceived ideas). While subjectivity and bias towards verification in general applies to all research strategies and methods, some claim that the case study is more prone to it.

7.3 Normative reflection

The results, discussion, and conclusions presented in this thesis show that stakeholder behaviour in decision-making processes on renewable energy projects can be interpreted in different ways. On the one hand, claims that are made during the various interactions between stakeholders can legitimately point out unacknowledged and/or excluded issues and values. On the other hand, claims can be articulated strategically, meaning that they are used by stakeholders to achieve their interests, values, and preferences, etc. in anticipation of the behaviour of others. In this context, 'strategic' is often used as a pejorative, and as a synonym for manipulative and calculative. Insights from amongst others cognitive psychology and behavioral economics point out that strategic behaviour is inherent to human nature. As such, it should be anticipated on and taken into account during decision-making processes, instead of perceived as something negative which should be avoided at all times. In practice, it is very difficult to distinguish between the two realities of legitimate/illegitimate claims or non-strategic/strategic behaviour, and it is suggested that both hold true to a large extent.

What the Lage Weide case does show is that current procedures are not effective in anticipating and dealing with strategic behaviour, as Buren van Lage Weide could contribute significantly to the cancellation of the project through non-participation, mobilization and an active

media campaign. It is considered to be undesirable that a single stakeholder can have such an impact on a decision-making process through non-participation. Also, the dichotomy between non-strategic and strategic claims should be nuanced by a reference to cognitive biases. The human brain perceives information through a filtering process with personal experiences and preferences, which is referred to as heuristics, to be able to make judgments and decisions efficiently. This can lead to systematic deviations from rationality and logic, or errors which are referred to as cognitive biases. One of these is confirmation bias, which refers to the tendency of humans to provide more attention and value to information that confirms one's preconceptions and ideas. This is relevant in the discussion of legitimate/illegitimate claims and non-strategic/strategic behaviour in two ways. First, if a researcher or analyst judges the claim of a stakeholder to be illegitimate and/or strategically, it could still be the case that the specific stakeholder really feels that certain issues and values are unacknowledged and/or excluded. Second, a researcher or analyst can interpret behaviour of a specific stakeholder as strategic, when it has the preconception that a specific stakeholder acts strategically in general (or the other way around).

7.4 Recommendations for further research

Based on the aforementioned research limitations and the general findings of this study, several recommendations can be suggested for further research:

- More focus should be given to investigating what types of governance forms are suitable for the accommodation of divergent (emergent) perspectives in decision-making processes on community renewable energy projects. Since overflowing cannot be avoided, the question becomes how participatory methods should be designed to: (i) connect to the formal assessment trajectory, and (ii) account for the fact that groups of individuals are not necessarily clearly defined interest groups that express specific values from the beginning of the decision-making process.
- Additional case studies should be conducted on the implementation of different renewable energy technologies and institutional contexts than the one under consideration in this thesis, to see if the findings presented here still are valid under these changing conditions. This is necessary, as the results and conclusions of the single case study in this thesis cannot be generalized.
- Further studies should point out whether overflowing is always triggered by perceptions of injustice of specific (emergent) interest groups, and/or new concerns can be expressed by existing stakeholder groups or not.
- Additional research should focus on the conceptualization of the informal assessment trajectory, and use methodological tools that allow for a better empirical identification of this trajectory. It is suggested to conduct in-depth interviews with a representative sample of stakeholders that could be associated with informal assessment. In addition to this, research could examine the perceptions of those who remain silent, and do not actively participate in decision-making processes.
- There is a need for policy arrangements that are adaptive to the strategic behavior of stakeholders in the decision-making processes, and further research should point out how to develop these.

- Further work is needed in understanding the contribution of institutions, issue-specific factors and interest group characteristics to influence on decision-making processes and outcomes of renewable energy projects.
- There is a need to further investigate how the legitimacy of arguments expressed in public debates on controversial renewable energy projects can be determined, given that stakeholders behave strategically in associated decision-making processes.

7.5 Recommendations for practitioners

The following practical recommendations can be formulated:

- Agenda-setting decisions, such as the choice for specific renewable energy technologies and locations of development, and the specification of compensation and benefit arrangements should be opened up for democratic participation. This can be done in a similar way as in Utrecht (Rijnenburg), where city conversations and workshops are held with citizens about scenarios for a transition to a CO₂ neutral energy system, and the conditions under which developments would be acceptable. The discussions could lead to the selection of a preferred energy scenario, and a framework of conditions, which are endorsed by the participants. The local government can subsequently make formal decisions about the facilitation of specific projects in an early stage, and prevent that resources are wasted through project cancellation after long planning processes.
- There is a need for ‘negotiated knowledge’, as stakeholders have different interests in decision-making processes on renewable energy projects, and therefore are strongly inclined to question the validity, impartiality, and quality of information of other parties. In other words, stakeholders have to determine the ‘right’ information in interaction with each other. It is suggested that this can be achieved through a knowledge broker.
- Both proponents and opponents of renewable energy developments should receive similar amounts of financial resources from governmental bodies to organize their campaign, to create a level playing field, and ensure impartiality.
- A national registry should be established for renewable energy projects, which records and presents the specific types of compensation and community benefits that have been used per project. It is suggested that both the initiators and residents can benefit from such a registry. It forces the first group to think more critically about the benefit scheme they introduce, and can serve as an important source of information for the latter group.
- Regulations should be developed which define the minimum required benefits that have to be provided to the community by the initiator. This is because of three reasons. First, it would provide clarity to the different stakeholders about what can be minimally expected. Second, it would give initiators the incentive to discuss community benefits in the early phase of the decision-making process, as it will be seen as a formal planning consideration. Third, residents and citizens would be less likely to see the benefits as bribes, because the benefits will be legally required and independent of the initiators’ perceived intentions (e.g., obtain public support).
- The scope of recipients of the minimum required benefits should be broadened from ‘community of locality’, to ‘community of interest’, to do justice to the fact that not only the

proximate local community is affected by renewable energy projects, but larger groups of stakeholders.

- It is suggested to organize awareness raising programs for policy-makers, decision-makers, and regulators in the field of renewable energy, to emphasize the importance of justice concepts (procedural and distributive) in the context of decision-making processes and outcomes, and make clear that justice should not be reduced to a means for obtaining public support.

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Appendix I: Current state of community renewable energy in the Netherlands

Since 2015, the 'Local Energy Monitor' provides an annual update of energy collectives and cooperatives in the Netherlands. Its working definition of a collective is: "all groups of citizens that organize themselves collectively, with the aim to generate, save, purchase, or supply energy, and achieve other shared energy goals." (HIER Opgewekt, 2017a, p.8). The monitor is limited to collectives with a legal form, such as a foundation, association, or cooperative. For energy cooperatives, a distinction is made between:

- **Wind cooperatives.** Cooperatives that are primarily focused on wind energy developments. Achieve multiple projects;
- **Local energy cooperatives.** Cooperatives with an area-based approach, which are established to achieve a broad objective, and activities in the area of energy generation, savings, storage, and supply. Achieve multiple projects;
- **Project cooperatives:** Cooperatives that are established for the development and exploitation of one specific project. In principle, participants do not have the intention to develop other projects.
- **Cooperatives of cooperatives.** Partnerships of cooperatives.

In 2017, the total amount of energy cooperatives in the Netherlands was 392, which is an increase of 60 compared to 2016 (**figure 1**). These include 20 wind cooperatives, 286 local energy cooperatives, and 59 project cooperatives. It should be noted that the project cooperatives that have been established as an initiative of local energy cooperatives are not counted in the figure of 'project cooperatives' (HIER Opgewekt, 2017a; HIER Opgewekt, 2017b).

Figure 1: Total energy cooperatives in the Netherlands (HIER Opgewekt, 2017b).



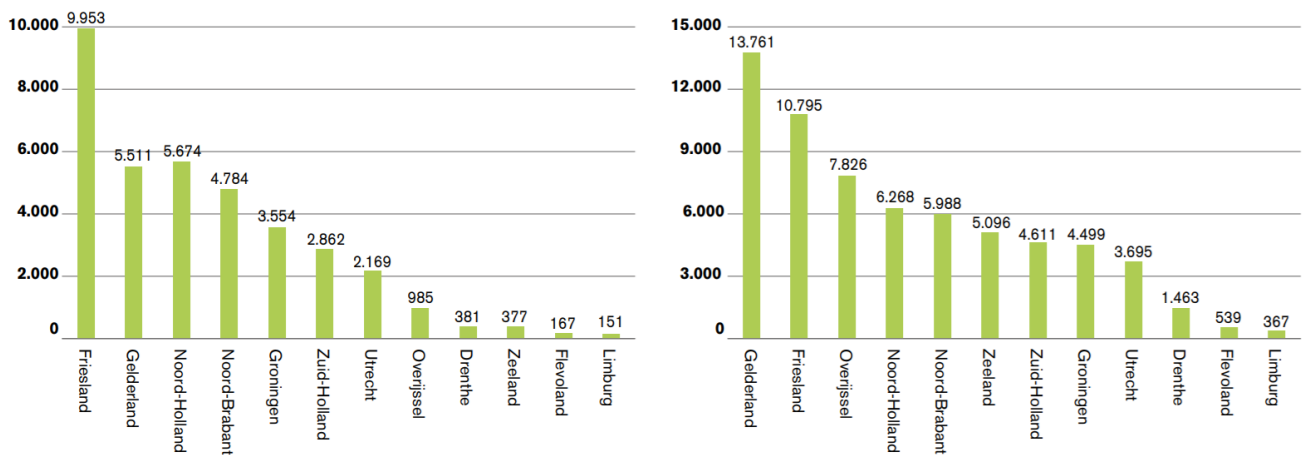
With regard to the activities of the cooperatives, the following can be stated: (i) 70% is busy with energy savings, (ii) 60% is involved in collective solar energy, (iii) 60% organizes the collective purchase of energy, (iv) all wind cooperatives develop wind energy, and are increasingly turning their attention to solar energy production, and (v) all project cooperatives focus on energy generation (i.e.

solar, wind, water). Focusing on the geographical distribution of the cooperatives, it can be observed that North-Holland has the highest number of project and wind cooperatives, while local cooperatives appear most frequently in Friesland (HIER Opgewekt, 2017a; HIER Opgewekt, 2017b).

Given the broad spectrum of energy cooperatives’ objectives and activities, the rest of this section will address solar and wind energy developments. Together, the collective solar and wind energy projects currently generate electricity for 85000 households. ‘Collective solar’ refers to “solar roofs, solar parks, solar fields, etc. that are developed, operated, and/or owned by citizens in a collective context, and where the solar panels are placed on the roof or ground of a third party.” (HIER Opgewekt, 2017a, p.20). In 2017, 100 new collective solar projects have been realized, leading to a total 269 projects. As such, 12.7 MWp has been added to total capacity, which is an increase of 53% compared to 2016. The total collective solar capacity in the Netherlands is 36.6 MWp. This is 1.8% of the total solar energy capacity of 2000 MWp. Of the total collective solar capacity, 76% has been achieved by local cooperatives, 10% by project cooperatives, and 14% through crowdfunding (i.e. without cooperative ownership) (HIER Opgewekt, 2017a; HIER Opgewekt, 2017b).

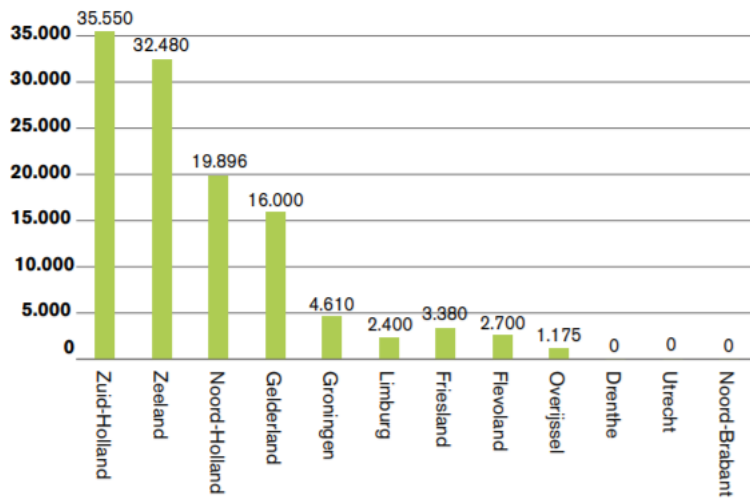
The local energy monitor of 2016 stated that the total collective solar capacity in the pipeline equalled 36 MWp, while only 12.7 MWp has been eventually developed. Many of these projects have been delayed due to issues related to (i) integration in the landscape, (ii) granting of the SDE+ subsidy, (iii) agreements with roof owners, (iv) financing arrangements, and (v) membership recruitment. For 2018 and 2019, it is almost a certainty that 229 new collective solar projects will be developed, which amounts to approximately 66 MWp. After 2019, there are 100 new projects in the pipeline (i.e. total of 80 MWp), of which the realization status is less certain (HIER Opgewekt, 2017a; HIER Opgewekt, 2017b). **Figure 2** presents the geographical distribution of collective solar projects realized, and those that are planned for 2018/2019.

Figure 2: Geographical distribution of collective solar projects realized (left), and those that are planned for 2018/2019 (right). Y-axis = total capacity in KWp (HIER Opgewekt, 2017a).



‘Collective wind’ refers to “all wind projects that are developed, operated, and/or owned by citizens in a collective context.” (HIER Opgewekt, 2017a, p.43). This excludes wind farms developed by commercial parties, that enable financial participation for individuals, without the involvement of cooperatives. Moreover, projects that are financed from sustainable investment funds are not taken into consideration. In 2017, the total collective wind capacity has barely increased compared to 2016, i.e. 2.7 MW. As such, the current total collective wind capacity in the Netherlands is 118 MW, which is 3.6% of total on-shore wind capacity (3253 MW). **Figure 3** presents the geographical distribution of collective wind projects realized. It should be noted that the wind farms in the province Utrecht (i.e. Houten), and Noord-Brabant (i.e. Hazeldonk) were developed by commercial parties without the involvement of cooperatives, and therefore do not count in the total collective wind capacity.

Figure 3: Geographical distribution of collective wind projects realized. Y-axis = total capacity in KWp (HIER Opgewekt, 2017a).



The planned projects for 2018/2019 are those that have almost obtained an environmental permit, and have requested the SDE+ subsidy. In total, a realization of an additional 104 MW collective wind capacity is expected (most of it will be owned by a cooperative). For the period after 2020, a high amount of projects are being prepared. This means that the preferred locations are known, and detailed plans have been developed, but the spatial planning process has not been started yet. Moreover, for some projects it is still not clear how the cooperatives want to organize participation, and how many wind turbines will be exactly developed. Of the total amount of planned and / or initiated projects since 1990 (i.e. 147), 14 have been cancelled or temporarily stopped. For these projects, generally a reference is made to a lack of an administrative base of support, or public support (HIER Opgewekt, 2017a; HIER Opgewekt, 2017b).

Appendix II: Substantive and distributive values identified in the public debate on shale gas exploration and exploitation in the Netherlands

Substantive values	Definition
International stability (security of supply)	Political stability in relation to energy supply. This includes concerns about import dependency, demand insecurity, and geopolitical tensions due to changes in energy reserves.
Resource durability (security of supply)	Availability of energy resources for future generations. This includes the conservation of existing fossil fuels, and the development of renewable resources.
Environmental friendliness (sustainability)	According to Taebi and Kabak (2010), environmental friendliness can be defined as: "preserving the status of nature and leaving it no worse than we found it." (p.1345). This is interpreted here according to the non-anthropocentric school of ethics, meaning that the environment has an intrinsic value.
Aesthetics (sustainability)	Experienced beauty of the landscape. May be affected by changes in the landscape, resulting from a specific project.
Health and safety (sustainability)	According to WHO (2017), health is a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." The effects of a specific project could compromise the health of people.
Welfare (affordability)	Affordability and economic viability of the decision to (not) implement a specific project.

Procedural values	Definition
Procedural justice	"Fairness in the process of decision-making and policy-making." (Bell & Rowe, 2012, p.2).
Distributive justice	"Fair distribution of the benefits and burdens resulting from decisions and policies." (Bell & Rowe, 2012, p.2).
Accountability	"A sound political and legal basis with a corresponding institutional framework." (Flüeler & Blowers, 2007, p.17)

Appendix III: Models to reconstruct decision-making processes.

The phase model

The phase model conceptualizes decision-making in terms of “the succession of different situations in the formulation, adoption, implementation and evaluation of a policy.” (Bryson & Crosby, 1992, p.57). Policy formulation refers to the recognition that a specific problem exists, the collection and analysis of information, and the design of different alternatives to solve the problem. During policy adoption, decisions are taken about the contents of a policy. Thereafter, the chosen alternative is applied in the implementation phase. Finally, policymakers have to evaluate whether the policy has achieved its goals. The logic of the phase model implies that when the different steps are followed, the best solution is achieved. Analysts that use the phase model assume that decision-making is problem-oriented, and that there is a central actor who determines the problem and the policy. However, reality does not reflect this assumption, since planning endeavours occur in power-sharing contexts, and usually do not follow a rigidly structured sequence. Nevertheless, the model allows to develop different theories about the different stages (Enserink et al., 2010; Teisman, 2000).

The streams model

The streams model is influenced by the work of Cohen, March, and Olsen (1972) on decision-making processes in complex administrative environments, i.e. organized anarchies. It is based on the idea that decision- and policy-making consists of three streams: (i) a stream in which problems are discussed, (ii) a stream in which solutions are discussed, and (iii) a political stream consisting of public attitudes, pressure group campaigns, and ideological contributions. The three streams exist simultaneously, are independent, and develop according to their own dynamics and rules. In contrast to the four phases of the phase model, the streams are not linked in any temporal sequence. Decision-making can take place when the three streams are coupled, implying that a problem is identified, a solution is available, and the political climate is suitable for change. Without this coupling there is no receptivity to the solutions that are promoted by stakeholders, and problems remain unresolved. Actors exist within, and between, the streams. More specifically, they are able to articulate problems and solutions, and to establish couplings between the streams (Enserink et al., 2010; Kingdon, 1995; Ridde, 2009; Teisman, 2000).

The streams model is based on two concepts: policy windows and policy entrepreneurs. Policy windows appear in the streams, and can be perceived as opportunities for advocates to push forward their solutions, or to draw attention to their problems. These windows mainly open for two reasons: a change in the political administration, or a specific problem becomes recognized as pressing. Moreover, they occur infrequently, and do not stay open for long. If the policy entrepreneurs fail to exploit these windows and to couple the streams, before the relevant conditions change, probably no decision-making will take place (Enserink et al., 2010; Kingdon, 1995; Ridde, 2009; Teisman, 2000).

The garbage can model

The garbage can model of organizational choice looks at the complexity of decision-making processes in so-called organized anarchies. These are organizations, which can be characterized by three general properties: inconsistent and ill-defined preferences, unclear procedures, and fluid participation by actors due to limited resources. Choice opportunities, or decision-moments, are conceptualized as a garbage can into which different types of problems and solutions are dumped by

participants as they are created. The content of a single garbage can depends on the different cans that are available, the labels attached to these cans, the garbage that is currently being produced, and the speed with which garbage is collected. In the garbage can model, a decision is an outcome of four independent streams within an organization: problems, solutions, participants and choice opportunities. Garbage cans are emptied when decisions are made. In contrast to the phase model, the garbage can model partially uncouples problems and choices, meaning that decision-making does not necessarily to be thought as a process for solving problems. The power of the model lies in its explanatory power for unexpected outcomes in decision-making processes. (Cohen et al., 1972; Enserink et al., 2010).

Appendix IV: Determinants of interest group influence.

The literature presents three categories of hypotheses on factors that may be determinants of interest group influence on policy outcomes (Dür, 2008b; Dür & de Bièvre, 2007; Klüver, 2011; Mahoney, 2007; Michalowitz, 2007): (i) institutions, (ii) issue-specific factors, and (iii) interest group characteristics, and (iv) strategies and tactics.

With regard to institutions, it can be stated that the degree of democratic accountability of a political system may have an impact on the level of interest group influence. Political systems that are electorally accountable should be more responsive to interest groups, since the members of these systems depend on the public for re-election, and these groups represent the citizens' interests. Political systems that are less (or not) electorally accountable may be less responsive to interest groups, since the members of these systems usually maintain their position regardless of the level of public support (Dür, 2008b; Dür & de Bièvre, 2007; Klüver, 2011; Mahoney, 2007; Michalowitz, 2007).

Three issue-specific factors are considered to be important in determining the level of interest group influence (Dür, 2008b; Dür & de Bièvre, 2007; Klüver, 2011; Mahoney, 2007; Michalowitz, 2007): (i) scope, (ii) conflict, and (iii) salience. Interest groups are thought to be less successful in cases in which the scope of the issue is large, i.e. having a far reaching policy implication. The reason is that a large scope issue involves a large number of interests, and therefore, policymakers dealing with such an issue will not be able to follow the lead of a single special interest. This is related to the second factor. Interest groups may be less successful in their efforts if they are engaged on a highly conflictual issue with countervailing forces, in comparison to issues where opposition does not exist. In line with this argument, influence identified in policy outcomes is likely to vary according to the degree of conflict between interest groups, and between interest groups and decision-makers. The first type of conflict relates to two aspects of Jenkins-Smith and Sabatier's (1999) advocacy coalition framework. One aspect is the degree to which interest groups are able to form advocacy coalitions with other's that share their interest, or have to fight their cause against opposed interest groups. In this context, being part of a strong coalition is likely to increase the influence on policy outcomes. The other aspect is the impact of membership of both interest groups and decision-makers in the same coalition. More specifically, interest groups tend to address decision-makers which are already members of their own coalition. With regard to the second type of conflict, it can be stated that while interest groups tend to support decision-makers who are supportive of their views, they could also benefit from influencing opposing decision-makers as well. The pattern that exists for conflictual issues is also expected to hold for highly salient issues, or in other words, issues to which citizens attach a high importance. If an issue receives a high amount of public attention, policymakers may be less likely to conform to the preferences of a single interest group, regardless of the scope of the issue, as they fear electoral punishment. Salience could also be endogenous to the influence process. This means that interest groups could pursue an outside lobbying strategy to increase the public attention to the issue in their favour, and against other positions on the issue. Such a strategy is considered to be particularly effective for interest groups that want to maintain the status quo, thus blocking policy changes advocated by other groups.

Six interest group characteristics are considered to be determinants of interest group influence (Dür, 2008b; Dür & de Bièvre, 2007; Klüver, 2011; Mahoney, 2007; Michalowitz, 2007): (i) resources, (ii) membership size, (iii) interest group type, (iv) position, (v) influence type and (vi) strategies and tactics. Interest groups that have substantial financial and human resources are able to dedicate more of these resources into each issue, engage in more tactics, and therefore should be more likely to succeed in their influencing activities. In this context, staff size is a good indicator of the level of

financial resources an interest group possesses. With regard to membership size, it is suggested that larger interest groups can claim to represent a large group of citizens (i.e. convey legitimacy to policymakers), and therefore should be more likely to attain influencing success. The interest group type, namely whether a specific group represents the interests of an industry, individual companies, unions, or citizens, is also expected to play a role. More specifically, it is hypothesized that in political systems which are electorally accountable, policymakers are more responsive to citizen groups than business interests. Furthermore, influencing success may depend on whether an interest group's position is to promote a policy which would change the current regulatory environment, or to push for the status quo. In the latter case, interest groups are more likely to achieve their objectives, as institutional stickiness makes it difficult to move to a new policy equilibrium. Depending on the type of influence that is exerted by interest groups, influencing activities may be more or less successful. In the case that interest groups push to change the core of a legislative act (i.e. directional influence), thus touching the political core interest of the decision-making institution, they may be confronted with a strong degree of conflict with decision-makers, and influence is more difficult to be obtained. However, when interest groups focus on changing the details of a legislative act which do not counter the political interests of the decision-makers (i.e. technical influence), the degree of conflict is low or absent, and influence is more likely to be gained. The next section elaborates on the interest group characteristic of tactics and strategies.

Appendix V: Strengths, difficulties, and drawbacks of the three methodological approaches for measuring interest group influence (Dür, 2008a; Klüver, 2009)

Method	Strengths	Difficulties / Drawbacks
Process-tracing	<ul style="list-style-type: none"> • Researchers are able to consider several alternative explanations of a policy outcome in the context of determining whether an interest group had an independent effect on the outcome • Reliance on semi-structured interviews gives researchers insights that could not be obtained from document analysis 	<ul style="list-style-type: none"> • Gathering sufficient empirical information to fill the gaps in the causal chain from interest group activities to the policy outcome • Cross-checking information obtained from interviews against other sources • Assessing the degree of influence (given that a yardstick is lacking) • Giving appropriate weight to the level of interest group activity in making inferences about influence • Generalizing the results beyond the cases studied (given that the method can only be used in small-N studies)
Attributed influence	<ul style="list-style-type: none"> • Simplicity • The ability to capture all channels of influence 	<ul style="list-style-type: none"> • Assesses perceptions of influence instead of actual influence • Influence can be exaggerated or downplayed • Answers that are received may be strategic • Peer-assessment may be inaccurate due to the lack of information or analysing capacity • Neglecting potential differences in influence on different issues
Preference attainment	<ul style="list-style-type: none"> • Can detect influence, even if nothing visible is happening • Can be assessed for a large number of cases • Findings can be generalized • Errors in the assessment of an interest group's influence in a specific case is cancelled out across different cases • Allows for a measurement of influence at the interval level 	<ul style="list-style-type: none"> • Interest groups are likely to strategically or unconsciously misrepresent their preferences • Controlling for alternative factors explaining the alignment between preferences and policy outcomes • Making clear through which channels influence is exerted • Obtaining data on the preferences of interest groups in the case that decisions are disaggregated to specific issues

Appendix VI: Search terms used in the literature collection process

Concept	Search terms
Community renewable energy projects	<ol style="list-style-type: none"> (1) 'Community renewable energy development' (2) 'Ownership models renewable energy' (3) 'Community benefits' (4) 'Netherlands'
Formal & informal assessment trajectory	<ol style="list-style-type: none"> (1) 'Formal and informal assessment in energy projects' (2) 'Frames' (3) 'Emergent stakeholder groups' (4) 'Interest groups'
Types of overflowing	<ol style="list-style-type: none"> (1) 'Controversial renewable energy projects' (2) 'Local resistance renewable energy projects' (3) 'Public opposition renewable energy projects' (4) 'Procedural justice' (5) 'Distributive justice' (6) 'Value-sensitive design'
Types of backflowing	<ol style="list-style-type: none"> (1) 'Formal and informal assessment in energy projects' (2) 'Procedural justice' (3) 'Distributive justice'
Strategic behaviour: interest group influence	<ol style="list-style-type: none"> (1) 'Interest groups' (2) 'Lobbying strategies and tactics' (3) 'Influence' (4) 'Methods for measuring influence' (5) 'Determinants' (6) 'Strategies in networks'
Reconstruction of decision-making processes	<ol style="list-style-type: none"> (1) 'Models for decision-making processes' (2) 'Decision-making in networks' (3) 'Complex decision-making'
Context	<ol style="list-style-type: none"> (1) 'Contextual factors' (2) 'Societal acceptance' (3) 'Controversial' (4) 'Renewable energy projects'

Appendix VII: Interview guide

Briefing

Beste heer/mevrouw, nogmaals bedankt dat u wil meewerken aan mijn onderzoek over het besluitvormingsproces en de controversiële karakteristieken van het voorgestelde windmolenpark bij Lage Weide, Utrecht. Het doel van de interview is om meer inzicht te krijgen in het verloop van het besluitvormingsproces, en de factoren die een rol hebben gespeeld bij het ontstaan van publieke weerstand.

Mijn afstudeeronderzoek is, zoals u in de mail hebt kunnen lezen, onderdeel van een breder en langlopend onderzoeksproject genaamd RESPONSE¹, dat gefinancierd wordt door de Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO). Binnen dit project wordt er onderzoek gedaan naar publieke weerstand en controversie omtrent lokale energie projecten.

Het interview is volledig anoniem; alle gegevens die worden verzameld in dit interview zullen gecodeerd worden, waardoor het nooit terug te leiden is wie wat specifiek heeft gezegd. Vind u het een probleem dat het interview wordt opgenomen, zodat het verwerken daarvan in de volgende fase

Questions (in green, high priority):

Formal/informal assessment trajectory

1. Wat is uw rol / betrokkenheid geweest in het besluitvormingsproces van het voorgestelde windmolenpark?
2. Wie denkt u dat het plan geïnitieerd? Hoe en wanneer heeft u voor het eerst van het plan gehoord?
3. Wat vond u belangrijke momenten in het besluitvormingsproces, die u tot actie hebben aanzet? Welke acties heeft u uitgevoerd?
4. Hoe is het proces verlopen (Utrechts Plan Proces), en wat vond u ervan?:
 - a. Vooronderzoek gemeente
 - i. Haalbaarheidsstudie van Bosch en Rijn
 - ii. Collegebesluit februari 2011, op verzoek van commissie Stad & Ruimte
 - iii. Uitvraag maart 2011, selectie Energie-U
 - b. Plan MER / MKBA
 - c. Zienswijzen / consultatiebijeenkomsten / klankbordgroep
 - d. Ontwerp structuurvisie
 - e. Raadsbesluit 30 januari 2014
 - f. Provinciale structuurvisie
5. Klankbordgroep (relevant voor participanten die betrokken zijn geweest in het klankbordgroep)
 - a. Wie heeft het opgezet?
 - b. Waarom is het opgezet?
 - c. Hoe is het opgezet? – Hoe zijn participanten geselecteerd?

- d. Wat was het zeggenschap?
6. Hoe is BVLW ontstaan, Welk doel?
7. Zijn er specifieke mensen die een sleutelrol hebben gespeeld bij bepaalde acties / inspraakmomenten? Wat is hun achtergrond en motivatie?

Overflowing

8. Hoe was uw relatie met de andere stakeholders? Hoe keek u aan tegen deze stakeholders?
9. Welke initiatieven heeft u genomen om te communiceren met andere stakeholders en de lokale gemeenschap?
10. Wat waren uw verwachtingen en ervaringen omtrent het besluitvormingsproces?
- a. De inachtneming van alle relevante stakeholders;
 - b. Invloed van stakeholders (i.e. 'listen as a spectator', 'consultative influence', and 'direct authority')
 - c. Informatievoorziening (i.e. volledigheid, nauwkeurigheid, bijtijds)
11. Welke compensatiemaatregelen waren voorgesteld? Was de vorm correct? Degene aan wie het is toebedeelt correct? Hoeveelheid fair?
12. Wat waren uw hoofdargumenten om voor / tegen het plan te zijn?

Backflowing

13. Hebben er veranderingen plaatsgevonden naar aanleiding van de maatschappelijke discussies? Zoja, welke? Wanneer? Hoe heb je die veranderingen ervaren?

Afsluiting

14. Welke vragen heeft u nog zelf naar aanleiding van het project?
15. Zijn er nog bepaalde thema's of punten die we nog niet hebben besproken, maar wel belangrijk zijn? Personen die nog interessant zijn?
16. Zijn er documenten over acties, voorbereidingen, notities van vergaderingen, en andere data waarvan u denkt dat die relevant kunnen zijn voor het onderzoek?
17. Mag ik aanvullende vragen stellen via de email mocht dat nodig zijn?

Appendix VIII: Institutional context of wind energy developments in the Netherlands

This appendix provides an overview of the main regulations and policies that are relevant for the development of wind energy in the Netherlands (**VIII.a**), and the first three phases of the life cycle of associated projects (**VIII.b**). Moreover, it addresses the standard that the municipality of Utrecht developed for its civil servants to facilitate the design of stakeholder participation in decision-making processes on policies and projects (**VIII.c**).

VIII.a Regulations and policies

The EU's Renewable Energy Directive (2009/28/EC), which was established to stimulate the production of renewable energy in the EU, sets a target of 20% final energy consumption from renewable sources by 2020. Wind energy is one of the important types of renewable energy with which the member states, and more specifically, the Netherlands can contribute to this target. The growing desire of the public, businesses, NGOs and politicians in the Netherlands to make the energy system more sustainable, taking the international context into account, led to the development of the 2013 'Energy Agreement for Sustainable Growth' (SER, 2013). This agreement, signed by more than 40 parties, states that the total installed capacity of onshore wind energy in 2020 shall be 6000 MW, covering 60% of the electricity demand from households. Taking into account that the total installed capacity of onshore wind energy in 2016 was 3283 MW, this means that an additional of 2717 MW has to be developed in the coming years, equaling 1000-1500 turbines (CBS, 2017; Rijksoverheid, 2017a). The development of wind farms has a spatial impact, and therefore has to conform to spatial planning regulations. **VIII.aa** will present an overview of the Dutch spatial planning system. **VIII.ab & VIII.ac** will elaborate on the relevant policies regarding wind energy developments, according to the administrative structure of Netherlands: central government, provinces and municipalities.

VIII.aa Spatial planning system

The Dutch Spatial Planning Act (Wet Ruimtelijke Ordening) governs spatial and urban planning, and its renewed version came into force in July 2008. Before 2008, the central government initiated the key planning decision, the provinces developed a regional plan (Streekplan), and the municipalities defined a municipal structural plan (Gemeentelijke Structuurplan). Moreover, the municipalities were required to establish zoning plans (Bestemmingsplan) for non-developed areas, and to obtain approval for them from the provincial government. Zoning plans regulate and specify what the designated land may be used for, and to which requirements potential and/or existing constructions on that land have to comply with. The key planning decisions and the regional plans were binding on lower level governments (Rijksoverheid, 2017b; MLIT, 2017).

In the new version of the Spatial Planning Act, the national, provincial, and municipal plans were replaced by 'structural visions' (Structuurvisies). These visions formulate the basic principles of spatial policies, and how they should be implemented. In general, the national and provincial structural visions are not binding on lower level governments. The municipalities have to devise and update zoning plans for all areas, and can do this without provincial approval. The reason for this is that there is a common belief that municipalities are able to develop efficient and effective regulations, based on their knowledge of the local context. The national government and provinces have the authority to establish an 'adaptation plan' (Inpassingsplan) with respect to the zoning plans, if they feel that these affect their national or provincial interests. By doing so, the municipal zoning plan (or provincial

adaptation plan) can be overruled. The national and provincial interests are set down in the national spatial structural vision 'Infrastructure & Spatial planning', and the provincial structural visions respectively (Rijksoverheid, 2017b; MLIT, 2017).

VIII.ab National policies

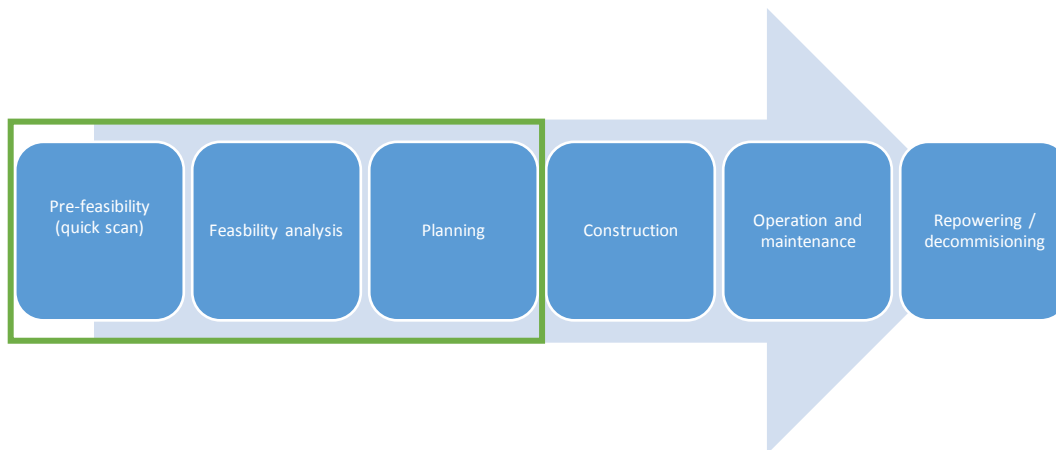
In 2014, the central government and the provinces (represented by the Interprovincial Council) made agreements about how to achieve the national objective of 6000 MW installed capacity of onshore wind energy in 2020. These agreements, which are consolidated in the national structural vision 'onshore wind energy', divided the 6000 MW across the different provinces. This allocation is based on what the provinces expected they could deliver, according to their own structural visions (Rijksoverheid, 2014). In general, the provinces (and the municipalities within) have the authority to decide how to reach their individual targets. However, this is not the case for wind energy developments that are labelled as 'projects of national interest'. The national spatial structure vision 'onshore wind energy' has designated 11 regions for the construction of large-scale wind farms (i.e. minimum of 100 MW) until 2020: Eemshaven, Delfzijl, N33, Drentse Veenkoloniën, Wieringermeer, IJsselmeer Noord, Flevoland, Noordoostpolderdijk, Rotterdamse Haven, Goeree-Overflakkee, and Krammersluizen (Rijksoverheid, 2014). The developments of these wind farms are considered to be in national interest, and therefore, are coordinated by the central government, according to the 'state coordination scheme'. Moreover, the central government has the authority to push forward the development of a wind farm which is rejected by a specific province or municipality, by using the adaptation plan instrument, as was the case with wind farm de Drentse Monden en Oostermoer (RVO, 2017a).

VIII.ac Provincial and municipal policies

The provinces and municipalities are responsible for initiating and/or facilitating the development of wind farms with a capacity below 100 MW. In 2014, all provinces have published a provincial structural vision, in which they designated preferred areas for small-scale wind energy developments until 2020. At the same time, municipalities can develop their own climate and energy policies, and include wind energy developments in these. Moreover, municipalities can take into account potential wind farm projects in their zoning plans. The municipalities could decide to oppose and cancel projects in their jurisdiction, based on a perceived lack of public support, and/or an inability of compliance with existing regulations. In the case that municipalities reject the requests of project initiators to change a zoning plan (and make room for a specific development), provinces can oblige the municipalities to change the plan, through the provincial adaptation plan instrument. This is especially the case for wind energy developments in areas that are designated as 'preferred' in the corresponding provincial structural Visions (Rijksoverheid, 2017c).

VIII.b Phases of wind farm development

The figure below presents the different phases that can be distinguished in the development of a wind farm (Nielsen, Hørmann, Rud, & Lauge, 2016; RVO, 2017c). Given that the development of the wind farm at Lage Weide was cancelled at the end of the planning phase, **VIII.ba – VIII.bc** only elaborate on the activities and particularities of the first three phases.



VIII.ba Pre-feasibility (quick-scan)

The climate and renewable energy policies of the national government, provinces, and municipalities can be development specific, by assigning possible locations for wind farm developments, or exclusionary, by determining areas where such developments are not allowed to take place. The different governmental bodies include these locations in their structural visions and zoning plans. To determine whether a specific location is suitable or not, a ‘quick-scan’ is usually implemented by a project developer, specialized consultancy firm, or research institute. Some criteria which are taken into consideration during such a quick-scan can include wind resource potentials, existing governmental policies, possible participants, the receptiveness of land owners, and physical barriers. (RVO, 2017C).

VIII.bb Feasibility analysis

In the feasibility analysis phase, the initiator has to develop a project plan. This plan should amongst others create insight in the type of turbines to be used, the total capacity of the wind farm, the most optimal configuration, the financial feasibility, stakeholders’ participation, regulatory incentives, environmental and spatial factors to be taken into account, and expected project effects. The moment that the initiator announces his initial interest for the development of a wind farm at a specific location, the municipality can choose to take a proactive role, or to have a more limited role as a permitting authority. This decision is made by the board of Mayor and Aldermen and city council. In the case that the municipality takes a proactive role, it will among others facilitate the communication to residents, and actively assist the initiator with the development of the project plan (RVO, 2017c).

When the project plan is submitted to the municipality, it is assessed on various policy, environmental, and spatial related criteria. More specifically, an evaluation is conducted to see if the plan is in line with existing municipal policies, fits the zoning plan (or should lead to a change of it), and matches with the preferred locations included in the different structural visions. With regard to environmental criteria, the municipality determines if it is necessary to conduct an Environmental Impact Assessment (EIA) (see **VIII.bc**). In this context, it also looks whether there are national landscapes, ecological networks, and areas of cultural heritage sensitivity in proximity of the proposed location. For regulated project effects, such as noise pollution, shadow flicker, and safety risks, the municipality and initiator discuss their expectation of the plan’s compliance with the Activities Decree (**table below**). Furthermore, it is checked whether the initiator has approached the relevant stakeholders, and how they perceive the proposed wind energy development. Overall, these aspects

form a guideline for the evaluation of the project plan, based on which the Board of Mayor and Alderman determines its support (RVO, 2017c).

Regulated effect	Specification Activities Decree
Noise pollution	Since January 2011, wind turbines in the Netherlands are bound to the noise regulation of the Activities Decree. The norm states that the average annual noise level (Lden) at houses and other noise-sensitive objects as a result of wind turbines may not exceed 47 dB. Moreover, the average annual noise level during the night (Lnight) (i.e. 23:00 – 07:00) may not exceed 41 dB.).
Shadow flicker	Article 3.12 of the Activities Decree states that wind turbines should consist of an automatic control system that shuts off the turbines if shadow flicker occurs at the place of sensitive objects (given that the distance between the turbines and the sensitive objects is less than 12 times the rotor diameter, and shadow flicker occurs more than 17 days per year on average, with more than 20 minutes per day).
Safety risks	Article 3.15a of the Activities Decree states that the site-bound risk for a sensitive object may not be higher than 10^{-6} per year, and for a limited sensitive object may not exceed 10^{-5} per year. Site-bound risk is defined as the probability that a person, sensitive object, or limited sensitive object, dies or is hit as a direct consequence of the failure of a wind turbine.

VIII.bc Planning

As has been mentioned before, a study that often has to be conducted in the planning phase is the EIA, to ensure that thorough consideration is given to environmental values in decision-making. An EIA is mandatory for plans and decisions prepared by the government, or other actors, that could lead to adverse effects on the environment. The initiator is obliged to notify the authorities that he has the intention to conduct an activity that could potentially have negative effects. In the case of the development, change, or extension of a wind farm, concerning 20 wind turbines or more, an EIA has to be directly carried out. If the activity concerns a wind farm with a total capacity from 15 MW, or 10 wind turbines or more, the competent authority has to assess if it is necessary to conduct an EIA. If these thresholds are not exceeded, the competent authority has the duty to determine whether the activity has such negative consequences, that on the basis of European guidelines it will still be necessary to assess if an EIA should be carried out. In all cases, the initiator can take the initiative to commission an EIA (RVO, 2017c; RVO, 2017d; Overheid, 2017).

There are two types of EIAs: (i) the Plan-EIA, and (ii) the Project-EIA. A Plan-EIA has to be developed when specific wind energy developments have to be incorporated in the structural vision and/or zoning plan, and for which the competent authority has decided that an EIA should be carried out (or those from 20 wind turbines onwards). In this context, 'plan' refers to a plan of which its establishment is laid down in formal laws, orders in council, and ministerial regulations. A Project-EIA has to be developed for the decision regarding the implementation of wind energy projects, for which the competent authority has decided that an EIA should be carried out (or those from 20 wind turbines onwards). The application for an environmental permit cannot be processed before such an EIA is submitted (Infomil, 2017).

There are two types of EIA procedures: (i) the limited EIA procedure, and (ii) the extensive EIA procedure. In both procedures, there are three important actors: (i) the competent authority, (ii) the initiator, and (iii) the EIA committee. The competent authority provides the permission to construct the wind farm, and is usually a municipality, Provincial Council, or minister. The initiator is the one who wants to develop the wind farm. The EIA committee advises the governments about the quality of environmental information. The committee can or has to, depending on the type of EIA procedure, provide advice regarding four aspects. First, at the start of the EIA procedure, it may provide advice on the scope and level of detail of the EIA report. Second, when the EIA report has been written, it may

provide advice on whether additional aspects have to be taken into consideration in the EIA, or the information in the report is complete. Third, before the official start of the EIA procedure, it may provide advice on the structure of the procedure. Last, it may provide interim advice to the competent authority (Infomil, 2017).

Another study that can facilitate decision-making on the development of a wind farm is the Social Cost-Benefit Analysis (SCBA). According to Boardman, Greenberg, Vining, and Weimer (2011), SCBA is “a policy assessment method that quantifies in monetary terms the value of all consequences of a policy²¹ to all members of society.” (p.2). As such, it determines whether the benefits of a proposed policy outweigh its costs, and how much society would exactly benefit or lose. The aggregate value of a policy is reflected by the net social benefit (NSB), which is equal to the social benefits (SB) minus the social costs (SC). The ultimate purpose of SCBA is to facilitate effective social decision-making, through the efficient allocation of society’s resources, in the case that markets fail. Its practical usefulness lies in the fact that it enables the comparison of alternatives with heterogeneous effects, through valuation and monetization (Boardman et al., 2011; CPB, 2013).

With increasing frequency, initiators in the Netherlands are obliged to implement a SCBA in the planning phase of a policy or project. This is for example already the case for projects incorporated in the Multi-Year Plan for Infrastructure, Spatial Planning, and Transport (MIRT). Currently, most SCBA’s in the Netherlands are conducted for transport and infrastructure projects (Mouter, Annema, & van Wee, 2013). However, more municipalities are using it voluntarily in decision-making processes on wind energy projects. The two most used guidelines for the SCBA are the ‘Overzicht Effecten Infrastructuur’ (OEI), and the one of CPB and PBL (MKBA informatie, 2017; CPB, 2013).

Both aforementioned guidelines distinguish different steps or activities for the implementation of a SCBA. These can be summarized as following (CPB, 2013): (i) problem analysis, (ii) determining the reference alternative, (iii) identification of alternatives, (iv) assessing effects, (v) assessing costs and benefits, (vi) overview of costs and benefits, (vii) conducting sensitivity analysis, and (viii) presentation of results. The first step identifies the gap between the current and desired situation, which policy objectives result from this, and in which directions solutions should be sought. The second step determines the reference alternative, or the most likely development without the policy. In the SCBA, the societal effects of the alternatives are assessed in comparison to the reference alternative (i.e. effect = alternative – reference alternative). The third step identifies different policy alternatives for the problem under consideration. The fourth step identifies and quantifies the effects of these alternatives. The fifth step monetizes the effects of the alternatives, and derives the costs and benefits. The sixth step discounts all future costs and benefits to the same base year, and calculates the Net Present Value (or NSB). Moreover, qualitative, or non-monetized, effects are reported. The seventh step analyses in what way the results and conclusions of the SCBA would change under different assumptions. The eighth step presents the results, provides a justification in terms of transparency and reproducibility, and addresses what the decision-maker can learn from the SCBA.

In addition to the EIA and (in some cases) SCBA, different permits have to be obtained by the initiator to be able to construct the wind farm: (i) permit under the Nature Conservancy Act, (ii) exemption under the Flora and Fauna Act, (iii) water permit, (iv) earth removal permit, (v) permit under the Soil Protection Act, and (vi) environmental permit (RVO, 2017c).

²¹ Policy, project, and programme are used interchangeably in this context.

VIII.c Participation standard Utrecht

With the assumption that participation leads to an improvement of policies, projects, trade-offs, decision-making, and public support, the city council of Utrecht adopted the participation standard in April 2010. This standard addresses under which conditions, and to what extent, citizens have to be involved in the decision-making process on a specific policy or project. In this context, the municipality of Utrecht defines participation as “the involvement of citizens and other stakeholders in policy preparation, development, implementation, or evaluation, at the earliest possible stage.” (Gemeente Utrecht, 2010a, p.1). The municipality makes a distinction between participation and public consultation. More specifically, public consultation is perceived as the formal, concluding, stage in which each individual resident and stakeholder gets the opportunity to provide their view on the specific policy or project proposal. In most cases, the implementation of public consultation is a legal obligation. The participation standard of Utrecht is not a strict protocol, but a guide for civil servants responsible for the design of participation. As such, the standard delivers customized work per project, but also allows for an improvement of the quality of participation and standardisation. If all civil servants use the standard, differences per project are minimized, and arbitrariness is prevented (Gemeente Utrecht, 2010a).

The participation standard consists of 5 steps. The table below presents these steps, and provides a description of each.

Step	Description
(1) Conduct a force field analysis	For each project or policy development, a force field analysis has to be conducted. In this analysis, all stakeholders have to be identified, including their interests, influence, position on the issue, and importance for the success of the project.
(2) Determine the level of participation	The global level of participation of the project or policy development has to be determined.
(3) Select stakeholders	Based on the results of the force field analysis, stakeholders that will be included in the participation process have to be selected. In general, the previously determined participation level applies to these stakeholders, but it can be decided to provide specific stakeholders more or less influence.
(4) Develop a planning	Based on the phases of the project, a planning has to be made. Stakeholders are asked to provide their input at those moments, in which their contribution can be taken into account in the best way (some phases are more appropriate for participation than others).
(5) Determine which participation methods and tools will be deployed	When the stakeholders are selected, and the planning is developed, the participation tools have to be chosen. Some of these tools include: focus group, workshops, neighborhood message, sounding board, internet panel, and digital discussions.

Stakeholders have to be informed appropriately about each plan, but some projects lend themselves more for a higher level of participation than others. The participation standard distinguishes 4 levels of participation. **The table below** presents these levels, and provides a description of each.

Step	Description
(1) Informing	The municipality determines the agenda of decision-making, and informs stakeholders. Stakeholders have the role of listener, and don't have influence over the decision.
(2) Consulting	The municipality determines the agenda of decision-making, and perceives stakeholders as interlocutors during the development of a policy or project. An inventory is conducted of the opinions, experiences, and ideas of the stakeholders, but these are not binding for the municipality. Stakeholders have the role of the consulted. The municipality develops plans, and submits these to the stakeholders. The reactions of the stakeholders are taken into account in the follow-up process. In other words, stakeholders are able to give their opinion on an issue, but the final decision is made by the municipality.
(3) Advising	The municipality determines the agenda of decision-making, and stakeholders can provide problems and solutions. These ideas play a full part during the development of a policy or project. In general, the municipality can only deviate from this input in the final decision-making, if sufficient substantiation is provided. Stakeholders have the role of advisor. Moreover, stakeholders can come up with their own proposals, which do not need to be in line with the plan of the municipality. The final decision is still made by the municipality.
(4) Co-producing	The municipality and the stakeholders determine the agenda of decision-making, and search for solutions, together. The municipality commits itself to these solutions in the decision-making. The stakeholders sit around the table to discuss on the principles, plan, and / or design, and to share their thoughts. Most often, this is in an early stage to be able to shape the process. The stakeholders and the municipality share power.

Appendix IX: Stakeholder analysis

Stakeholder	Type	Interest	Role in decision-making process and objective	Resources
Energie-U	Interest group.	Initiate, organize, and secure 'community' renewable energy projects in Utrecht.	Develop the wind farm at Lage Weide as the initiator (and as part of WeideWind BV). Management of communication with stakeholders.	Community status; position in the network; power to mobilize; public opinion.
Renewable factory	Project development and consultancy.	Development, realization, and exploitation of renewable energy sources in the Netherlands and Belgium.	Develop the wind farm at Lage Weide (as part of WeideWind BV.). Assessment of the contracts, permits, insurances, and financial model of the wind farm at Lage Weide (as part of WeideWind BV.).	Expertise; information; position in the network; financial resources.
Blix BV.	Project development and consultancy.	Implement wind and solar energy projects throughout the whole project life cycle.	Develop the wind farm at Lage Weide (as part of WeideWind BV.). Guidance of construction preparations, meetings, interface management of contractors, and site supervision for the wind farm at Lage Weide.	Expertise; information; position in the network; financial resources.
Ecofys	Project development and consultancy.	Make sustainable energy available for everyone.	Develop the wind farm at Lage Weide (as part of WeideWind BV.). Leading the project development activities, including land lease agreements, yield calculations, shadow and noise modelling and optimisation, financial feasibility, and grid access.	Expertise; information; position in the network; financial resources.
Buren van Lage Weide	Interest group (local community).	Maintain the sustainability, liveability, and financial stability of residential areas in proximity of Lage Weide.	Stop the development of the wind farm at Lage Weide, to avoid its negative effects.	Power to mobilize; Public opinion.

Board of Mayor and Aldermen (and civil servants) of Utrecht	Government.	(1) Find appropriate solutions to Utrecht's climate neutrality ambition (2) Utrecht's development, and the wellbeing of its inhabitants.	Facilitate the development of the wind farm at Lage Weide as a competent authority in the spatial planning process.	Formal decision-making authority; Legitimacy.
City council Utrecht	Government.	(1) Find appropriate solutions to Utrecht's climate neutrality ambition (2) Utrecht's development, and the wellbeing of its inhabitants.	Protect the public's interests and concerns in the decision-making process on the Lage Weide wind farm.	Formal decision-making authority; Legitimacy.
Provincial Council & provincial executive Utrecht.	Government.	(1) Find appropriate solutions to achieve the sustainability ambition of the Province of Utrecht (2) Development of the province of Utrecht, and the wellbeing of its inhabitants.	Achieve wind energy capacity target in the Province of Utrecht, through the facilitation of specific projects. Inclusion and removal of Lage Weide as a preferred location in the provincial structural vision and spatial regulation.	Formal decision-making authority; Legitimacy.
Bosch & van Rijn	Project development and consultancy.	Develop, and increase the acceptance of, renewable energy in the Netherlands.	Conduct a feasibility study on wind energy in Utrecht, and a second opinion on Energie-U's business case.	Expertise; information; position in the network; financial resources.
Royal HaskoningDHV	Project development and consultancy.	Contribute to a sustainable interaction between human beings and their environment.	Conduct an EIA for the wind farm at Lage Weide.	Expertise; information; position in the network; financial resources.
CE Delft	Consultancy.	Contribute to a sustainable society, in the areas of energy, transport, and raw materials.	Conduct a SCBA for the wind farm at Lage Weide.	Expertise; information; position in the network; financial resources.
Ecorys	Consultancy .	Enhance the economic substantiation of strategic choices of public and private leaders.	Conduct research on the house price effects of the wind farm at Lage Weide, as input to the SCBA.	Expertise; information; position in the network; financial resources.
Municipal health service (GGD Utrecht)	Municipal service provider.	Monitor and improve the health of 1.2 million	Provide health advice regarding the wind farm at Lage Weide.	Authority; expertise; information.

		residents of the 26 municipalities of Utrecht.		
EIA committee	Independent agency; established by law.	Assure the quality and content of EIA reports.	Assessment of the EIA report regarding the wind farm at Lage Weide.	Authority; expertise; information.
Miliegroep Zuilen	Interest group (environment).	Improvement of the quality of life and housing in the neighbourhood Zuilen.	Participant in the sounding board. Provide input regarding studies, the preferred alternative, and the draft structural vision, in the spatial planning process.	Information; legitimacy.
Milieucentrum Utrecht	Interest group (environment).	Stimulate the sustainable development of the city Utrecht and its surroundings.	Participant in the sounding board. Provide input regarding studies, the preferred alternative, and the draft structural vision, in the spatial planning process.	Information; legitimacy.
Vogelwacht	Interest group (environment).	Protection and study of birds.	Participant in the sounding board. Provide input regarding studies, the preferred alternative, and the draft structural vision, in the spatial planning process.	Information; legitimacy.
Industrial association Lage Weide	Interest group (business).	Promote the collective interests of the firms at Lage Weide, stimulate collective initiatives, improve the business environment, share knowledge.	Participant in the sounding board. Provide input regarding studies, the preferred alternative, and the draft structural vision, in the spatial planning process.	Information; legitimacy.
Association of owners Lage Weide	Interest group (business).	Promote the collective interests of the owners of ground and/or buildings at Lage Weide.	Participant in the sounding board. Provide input regarding studies, the preferred alternative, and the draft structural vision, in the spatial planning process.	Information; legitimacy.
Business association Stichtse Vecht	Interest group (business).	To improve the mutual cooperation of entrepreneurs and firms in Stichtse vecht, and to contribute to the	Participant in the sounding board. Provide input regarding studies, the preferred alternative, and the	Information; legitimacy.

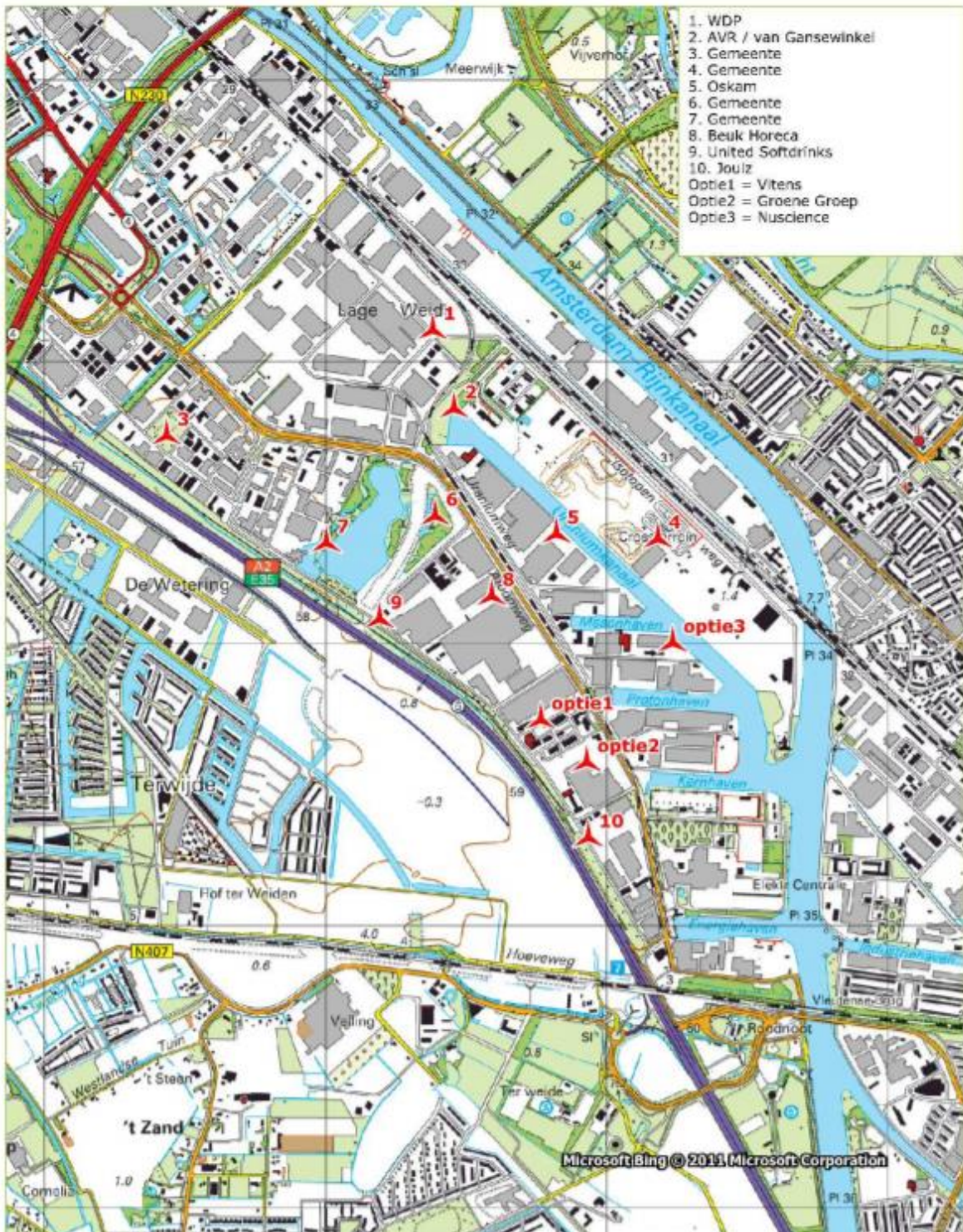
		achievement of the business objectives.	draft structural vision, in the spatial planning process.	
Neighbourhood council Leidsche Rijn	Interest group (local community).	Incorporation of concerns, feelings, and needs of residents of the neighbourhood in municipal plans and projects.	Participant in the sounding board. Provide input regarding studies, the preferred alternative, and the draft structural vision, in the spatial planning process.	Information; legitimacy.
Neighbourhood council North-West	Interest group (local community).	Incorporation of concerns, feelings, and needs of residents of the neighbourhood in municipal plans and projects.	Participant in the sounding board. Provide input regarding studies, the preferred alternative, and the draft structural vision, in the spatial planning process.	Information; legitimacy.
National Critical Platform of Wind Energy (NKPW)	Interest group.	To distribute 'truthful' information about wind energy.	To provide Buren van Lage Weide arguments against the wind farm, so the platform could use them during discussions with public officials.	Expertise; information; position in the network.
Nederlandse Vereniging Omwonenden Windenergie (NLVOW)	Interest group (local community).	To give more voice to people who are confronted with plans for wind turbines and wind farms in their environment.	Support Buren van Lage Weide in their effort to resist against the development of the wind farm at Lage Weide.	Expertise; information; position in the network.
Municipality Stichtse vecht (city council)	Government.	The development of Stichtse Vecht, and the wellbeing of its inhabitants.	Stop the development of the wind farm at Lage Weide. (The wind turbines would be visible at the neighbourhoods of Maarssebroek, Maarsse-dorp, and Oud Zuilen, which belong to Stichtse Vecht).	Authority; Legitimacy.
Residents in proximity of Lage Weide and inhabitants of Utrecht in general	Local community.	Well-being of inhabitants.	Stop / support the development of the wind farm at Lage Weide.	Power to mobilize; public opinion.

Residents of the neighboring municipalities of Woerden, Houten, Oud-Zuilen, Breukelen, Nieuwe Ter Aa, Vianen, Utrecht, Wijk bij Duurstede, Vleuten en de Meern).	Local community.	Well-being of inhabitants.	Stop / support the development of the wind farm at Lage Weide.	Power to mobilize; public opinion.
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Appendix X: Buren van Lage Weide's initial arguments against the development of wind turbines at Lage Weide (Buren van Lage Weide, 2012b).

Aspect	Description
Accumulation of nuisance	Residents in proximity of Lage Weide already experience significant nuisance, due to train, maritime and heavy goods traffic, a motor cross terrain, clubs, etc. Wind turbines will increase nuisance in the neighborhoods to an unacceptable level.
Noise pollution	Large groups of residents will experience noise pollution, above the already existing nuisance. Taking the noise norms and estimations of TNO into account, the wind farm could lead to 9% severely annoyed people indoor, and 19% severely annoyed people outdoor.
Shadow flicker	Shadow flicker will mainly hinder people indoor, and the effect reduces from a distance of 1200 meters.
Horizon pollution / visual impact	The turbines can become 1.5 times as large as the Dom tower, leading to horizon pollution for most neighborhoods in Utrecht.
Reduction of house prices and parcels	For 800 houses, there is a risk of a one-time price reduction of €20 million, according to the preliminary feasibility study of Buren van Lage Weide.
Absence of public support	Energie-U is an interest group of 230 citizens and firms spread around Utrecht. Buren van Lage Weide is a platform of more than 500 residents in proximity of Lage Weide. The public support for Energie-U's initiative is lacking.

Appendix XI: Search locations.



Appendix XII: Effects that were proposed to be investigated in the EIA.

Effect	Assessment criteria
Noise	Quantitative assessment: <ul style="list-style-type: none"> • Amount of noise-sensitive objects within the legally permitted Lden contour; • Increase of noise level compared to the background level • Proposed mitigating measures
Shadow flicker	Quantitative assessment: <ul style="list-style-type: none"> • Amount of sensitive objects within the maximum permitted shadow flicker contour
Health	Quantitative and qualitative assessment: <ul style="list-style-type: none"> • Increase in the amount of annoyed, and highly annoyed, people • Qualitative description of health effects (noise and shadow flicker) • Effects mitigating measures
Flora and fauna	Qualitative assessment: <ul style="list-style-type: none"> • Proximity of Natura 2000 areas • External effects Natura 2000 areas • Expected (significant) influence on protected areas • Expected (significant) influence on birds • Expected (significant) influence on bats
Archeological and cultural-historical values	Qualitative assessment: <ul style="list-style-type: none"> • Impairment to archeological / cultural-historical values
Landscape	Qualitative assessment: <ul style="list-style-type: none"> • Influence on landscape structures • Recognisability and rest of development • Assessment of landscape effects on different scale levels
Water balance	Quantitative assessment <ul style="list-style-type: none"> • Water assessment
(External) safety	Quantitative assessment <ul style="list-style-type: none"> • Amount of objects within the permitted safety contours for the following aspects: <ul style="list-style-type: none"> ○ Buildings, roads, waterways, railways ○ Underground cables and pipelines ○ Overhead cables and pipelines ○ High-voltage power lines ○ Dikes and flood defenses ○ Air traffic • Special attention for risk sources, because of the risk-increasing effects of on these sources: <ul style="list-style-type: none"> ○ Risk companies ○ Transport routes for dangerous goods

	○ Transport pipelines for dangerous goods
Energy output and CO ₂ reduction	Quantitative assessment: <ul style="list-style-type: none"> • Energy output • CO₂ reduction
Radar	Quantitative assessment: <ul style="list-style-type: none"> • % disturbance

Appendix XIII: Effects that were proposed to be investigated in the SCBA.

Type of effect	Valuation and methodology
Direct (financial) effects	
Investment costs	In €. Cost estimation.
Operational costs	In €. Cost estimation.
Electricity income	In €. Revenue estimation.
SDE+ subsidy	In €. Revenue estimation.
Land lease income	In €. Revenue estimation.
Guarantee of origin	In €. Revenue estimation.
Property taxes	In €. Revenue estimation.
Indirect effects	
Effects on the local economy	In €. Estimation of the added value of extra expenditures.
Improvement of the image of companies, and the impact on the CO ₂ performance ladder	In €. Estimation of prevented costs of alternative measures to obtain an advantage on the CO ₂ performance ladder.
Employment	In €. Estimation of welfare effects for each FTE.
Externalities	
CO ₂ emission reduction	In €. Prevention cost approach.
NO _x emission reduction	In €. Costs of air pollution from conventional energy production.
Security of supply	EIA / expert judgment.
Reduction of house prices	In €. A comparison study of legal rulings regarding WOZ value and compensation arrangements.
Landscape	Qualitative. From EIA.
Ecological effects	Qualitative. From EIA.

Appendix XIV: Sounding board meetings and topics discussed

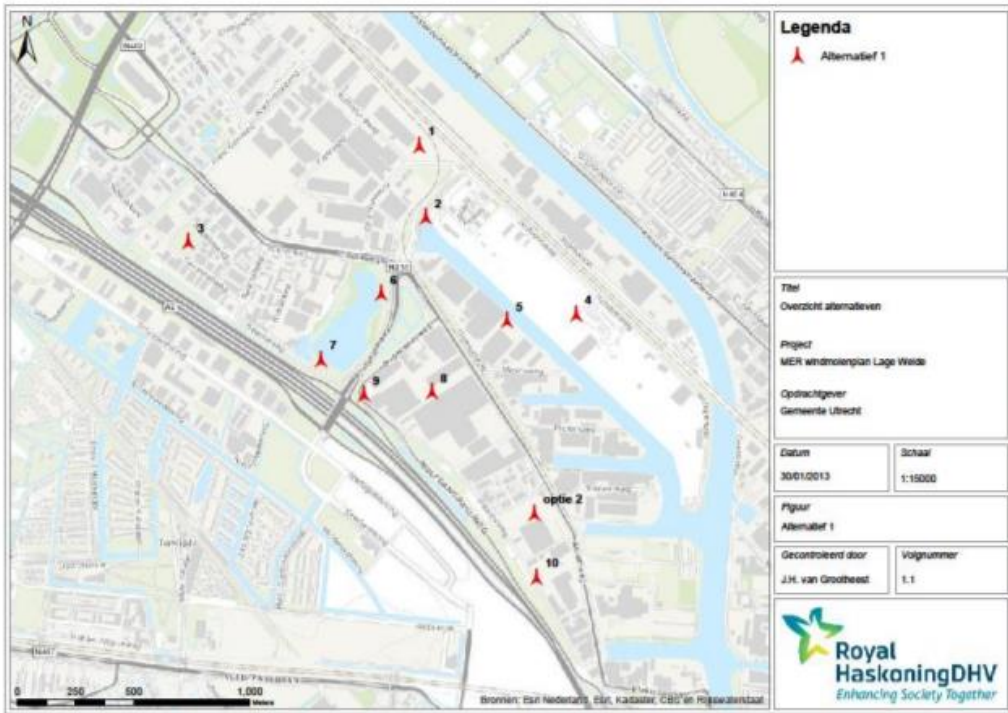
Meeting	Topic
1. 'Founding assembly'	<ul style="list-style-type: none"> - Introduction - Explanation spatial planning process - Role, tasks, and authority of sounding board - Discussion independent chairman - Presentation zero measurement noise, EIA and SCBA
2. 'Advice research questions'	<ul style="list-style-type: none"> - Advice on zero measurement noise - Advice on research questions EIA and SCBA - Selection independent chairman
3. 'Identification of alternatives'	<ul style="list-style-type: none"> - Advice on the alternatives to be considered in the EIA and SCBA
4.&5. 'Results EIA and SCBA'	<ul style="list-style-type: none"> - Discussion of first results of EIA and SCBA. Methods of research. - What questions do arise? Additional research questions? - Answering the question: what effects arise from each alternative, if compliance with laws and regulations is achieved? - Are additional measures necessary to mitigate nuisance?
6. 'Advice preferred alternative'	<ul style="list-style-type: none"> - What do the results of the EIA and SCBA imply for the feasibility of the different alternatives? - What opinion do the stakeholders have regarding the different alternatives, and what are the (dis)agreements? - Is there an indication for a preferred alternative?
7. 'Draft structural vision'	<ul style="list-style-type: none"> - Discussion of Energie-U's and the municipality's proposal for the alternative to be incorporated in the structural vision - Discussion with the sounding board on potential adjustments - Collecting advice that the sounding board would like to pass on to the city council

Appendix XV: Advice of the EIA committee

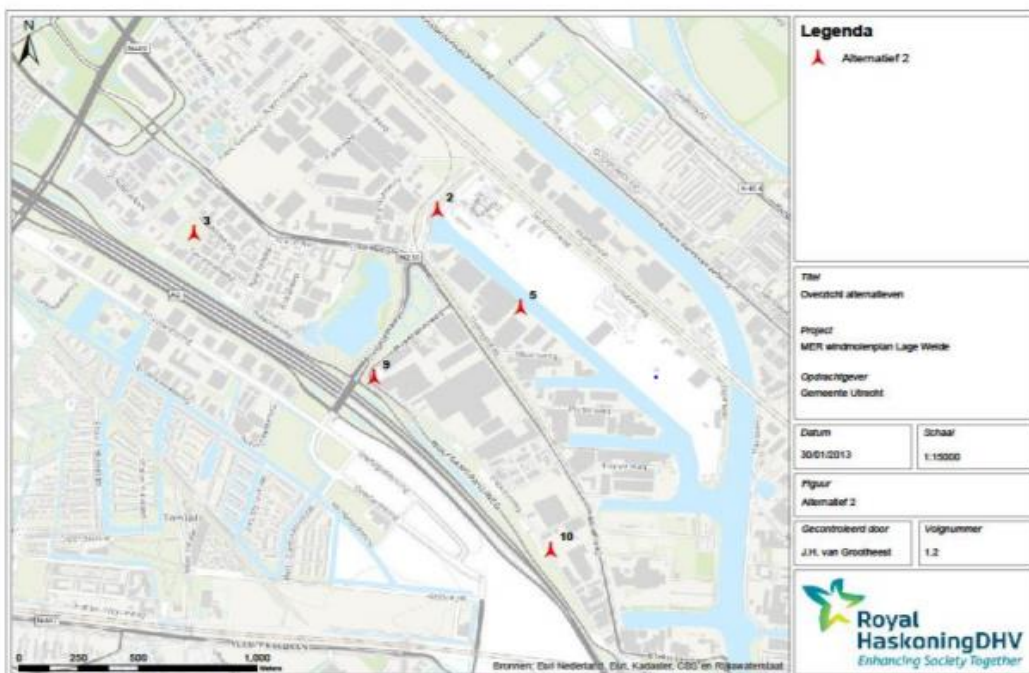
In this advice, the committee indicated that the following information is essential for decision-making (Royal HaskoningDHV, 2013):

- Further complementation of the underpinnings for the choice of Lage Weide as the location for wind energy within the municipality of Utrecht (for the aspect of landscape);
- Development and selection of alternatives for the wind farm, with varying capacity, amount, and configuration of wind turbines. Do this from different perspectives. For example by investigating an alternative with maximum energy output within the legal framework, and an alternative with a minimum capacity of 10 MW focused on the minimization of nuisance for residents and effects on nature and landscape;
- Comparison of alternatives in terms of absolute effects (total energy output), and relative environmental effects (per unit of generated energy);
- The description and comparison of effects on living environment, nature, and landscape. Take mitigation measures into consideration. Make use of visualizations from different relevant viewing angles.

Appendix XVI: Geographical location and specification of alternatives considered in the EIA and SCBA (Royal Haskoning DHV, 2013; CE Delft, 2013)

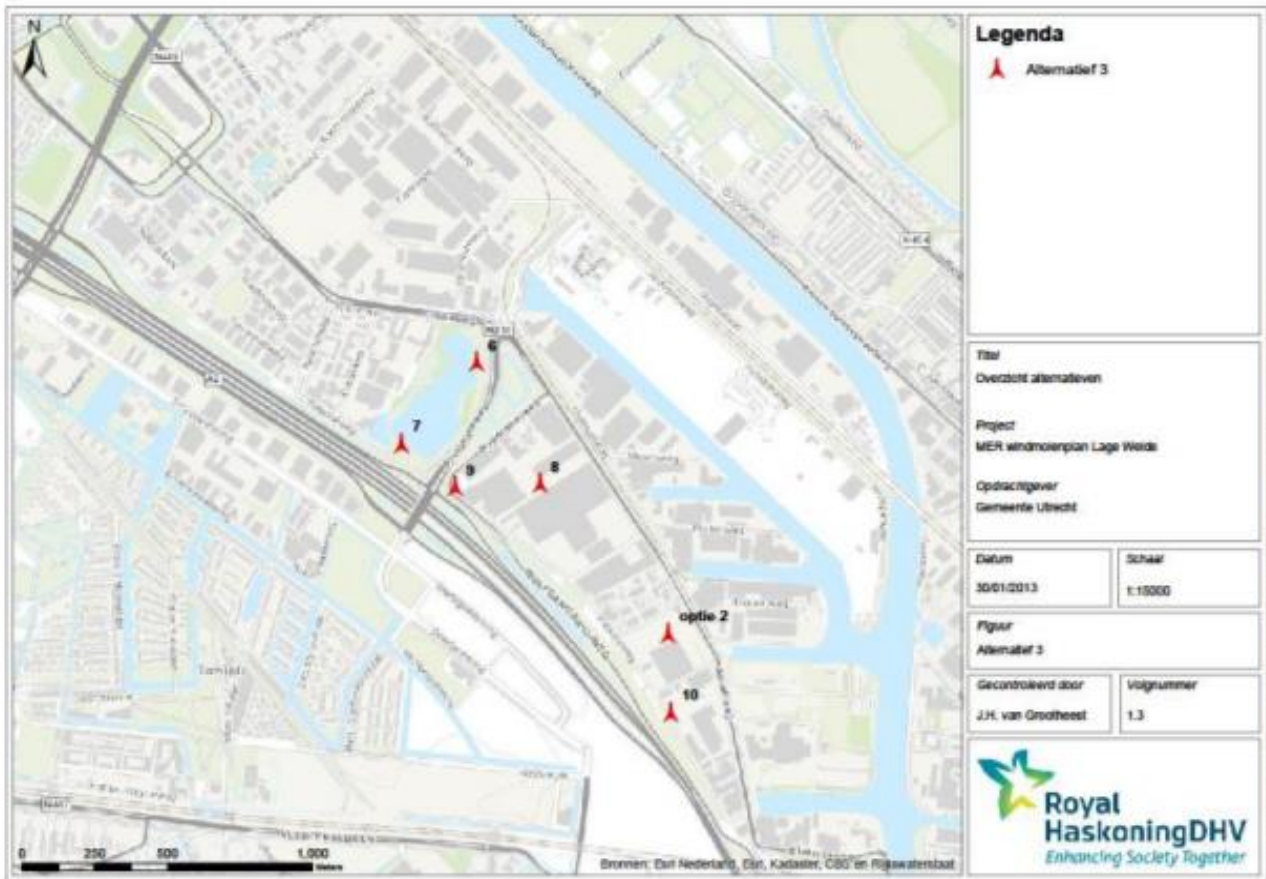


Alternative 1.

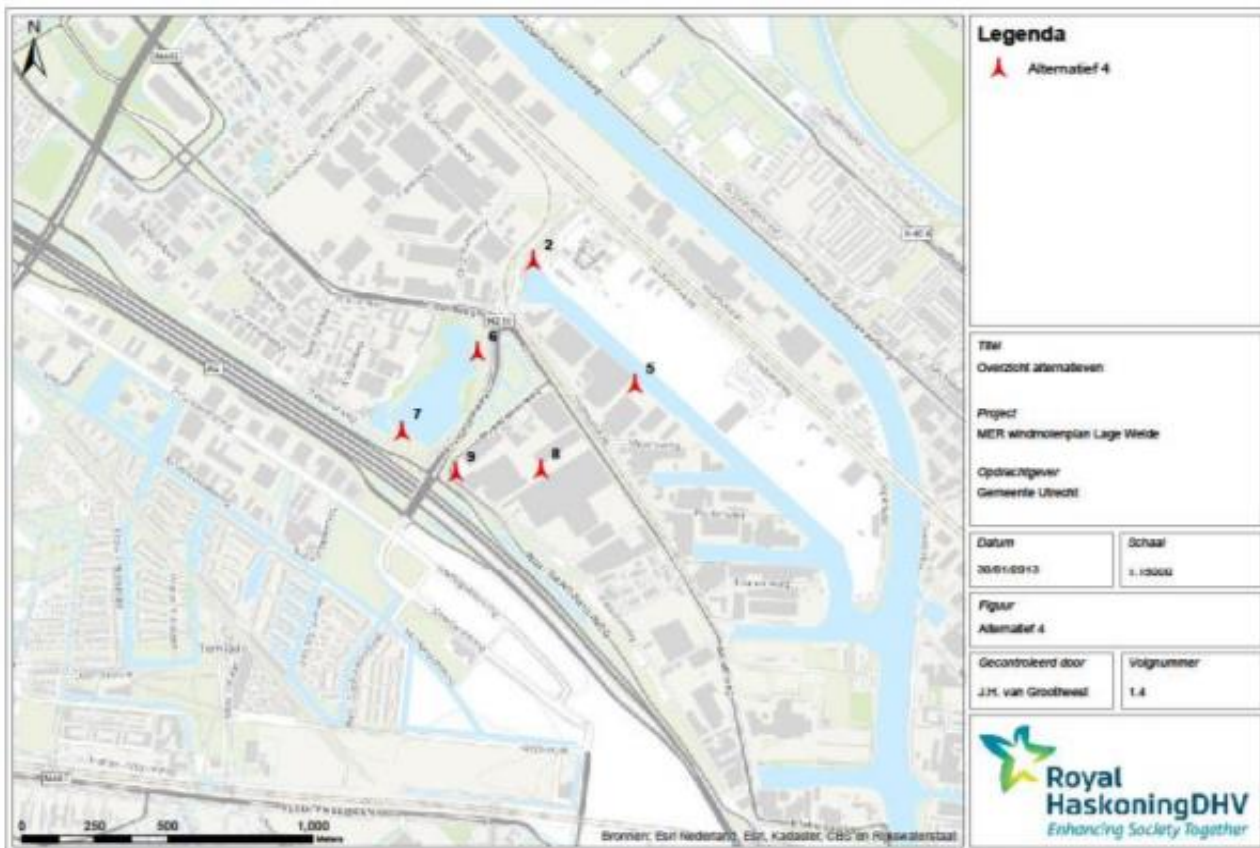


Alternative 2.

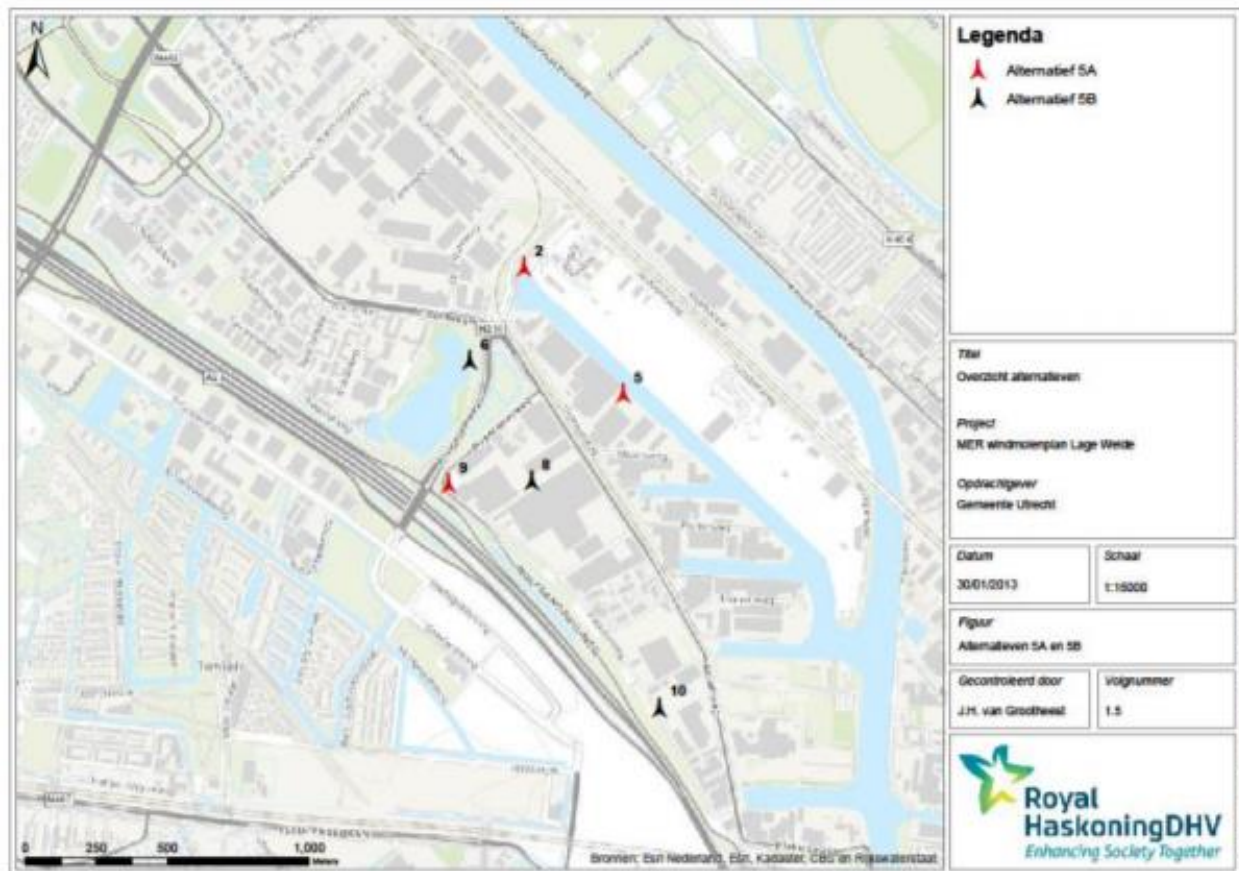
Alternative 3.



Alternative 4.



Alternative 5a & 5b.



The table below presents the alternatives considered in the EIA.

Alternative	Configuration	Amount and capacity of wind turbines
1	Large cluster	11 turbines of 3MW
2	Dispersed cluster	5 turbines of 4 MW
3	North-South cluster	6 turbines of 3 MW
4	Compact cluster	6 turbines of 3 MW
5a	Minimal cluster – triangle	3 turbines of 4 MW
5b	Minimal cluster – linear	3 turbines of 4 MW

The table below presents the optimized alternatives considered in the EIA.

Alternative	Configuration	Amount and capacity of wind turbines
3+	North-South cluster (adjusted alternative 3)	5 turbines of 3 MW
4A+	Compact cluster (original alternative 4)	6 turbines of 3 MW
4B+	Compact cluster (adjusted alternative 4)	4 turbines of 3 MW
6+	North-South cluster (new alternative)	4 turbines of 3 MW

The table below presents the alternatives considered in the SCBA. It should be noted that the wind energy alternatives 1 – 5b refer to the non-optimized alternatives of the EIA. In addition to these, four scenarios were developed for solar energy developments (which is reflected by alternatives 6 – 9).

Alternative	Description
1	Large cluster. 11 turbines of 3 MW.
2	Dispersed cluster. 5 turbines of 4 mw.
3	North-South cluster. 6 turbines of 3 MW.
4	Compact cluster. 6 turbines of 3 MW.
5a	Minimal cluster – triangle. 3 turbines of 4 MW.
5b	Minimal cluster – linear. 3 turbines of 4 MW.
6	Solar panels on private roofs. 12 MW.
7	Solar panels on private roofs. 33 MW.
8	Solar field by energy cooperative. 12 MW.
9	Solar field by energy cooperative. 33 MW.

Appendix XVII : Results of EIA and SCBA

The results of the EIA showed that wind turbine locations 1, 3, and 10 had a large effect on the environmental assessment. Wind turbine location 1 scored negatively on the aspect of low-frequency noise. This effect could only be mitigated through the selection of a quieter wind turbine. It was uncertain if this would be possible in terms of availability and business case. Wind turbine location 3 was unfeasible from the perspective of external safety, because the effects could not be mitigated. Wind turbine location 10 exceeded the noise level at sensitive objects. This could be mitigated by the reduction of the rotational speed of the specific turbine, but would have a significant effect on the energy output. Since the external safety risks for wind turbine location 3 could not be mitigated, alternatives 1 and 2 were considered unfeasible, and were excluded. Moreover, alternative 1 was also uncertain from the perspective of low-frequency noise (since it included wind turbine location 1) (Royal HaskoningDHV, 2013).

Alternatives 3, 4, 5a, and 5b did not have environmental effects that could not be mitigated, and the effects were for the most part not distinctive. However, the alternatives did have a large effect on the landscape. From the perspective of landscape, a comparison of the alternatives pointed out that Lage Weide would have a limited capacity for the amount of wind turbines. As such, there was a preference for a configuration that would be centrally located at Lage Weide, with a similar distance between the turbines. In this way, the configuration could become an independent element on the industrial park, that maximizes its distance from surrounding neighborhoods. Taking this landscape condition into account, alternative 4, 5a, and 5b were preferred (Royal HaskoningDHV, 2013).

The disadvantage of alternative 5b was that it included wind turbine location 10. The rotational speed of the turbine at this location would have to be reduced, because of the noise level at surrounding sensitive objects. This would have a negative effect on the energy output of this turbine. Alternatives 4 and 5a scored the best in terms of the environmental effects. The most important differences between the two alternatives were the energy output, and the turbines' contribution to the reduction of the CO₂ emissions of the municipality. The table below presents the important characteristics of alternative 4 and 5a (Royal HaskoningDHV, 2013).

Alternative 4	Alternative 5a
Independent cluster, centrally located at Lage Weide	Independent cluster, similar distance between turbines, centrally located at Lage Weide
Excluded difficult / unfeasible locations 1, 3, and 10	Excluded difficult / unfeasible locations 1, 3, and 10
6 turbines of 3 MW. Turbines had a lower height, but a larger rotational speed.	3 turbines of 4 MW. Turbines had a large height, but a lower rotational speed.
Energy output: 43.260 MWh/year (excluding 0.4% losses arising from mitigating measures)	Energy output: 30.836 MWh/year (excluding 0.4% losses arising from mitigating measures)
3% increase of potential amount of annoyed people	3% increase of potential amount of annoyed people

The municipality weighed alternative 4 and 5a for the decision on the preferred alternative. The EIA showed that both alternatives scored neutral or slightly negative on the aspects of noise, shadow flicker, health, and external safety. For the aspect of landscape, both alternatives scored positively. Alternative 4 was financially more feasible and had a higher return, while alternative 5a was better in terms of the recognisability of the configuration. Because of the height of the wind turbines in alternative 5a, the sounding board perceived the impact on the surrounding neighbourhoods too

large and unacceptable. The municipality followed the sounding board in this advice, by excluding alternative 5a from further consideration. As such, the optimized versions of alternative 4 (i.e. 4A+ and 4B+) were the best from the perspective of the EIA. When comparing the optimized versions, it can be concluded that alternative 4A+ scored better in terms of energy output (21000 MWh/year) and financial return. The implementation of alternative 4A+ would lead to an increase of the potential highly annoyed people of 2-3% compared to the reference situation (due to noise pollution). Alternative 4B+ had a lower energy output (15000 MWh/year), and therefore was financially less attractive. However, its implementation would not lead to an increase of highly annoyed people. Moreover, it scored better on the aspect of landscape, due to the lower amount of wind turbines (Royal HaskoningDHV, 2013).

In addition to an assessment of the environmental effects of the wind energy alternatives, solar energy developments were also analysed. The results of the EIA showed that the most important negative effect of solar energy was the required space. Solar energy almost would not lead to nuisance for residents, in terms of noise and health. For the development of solar panels on private roofs, it was assumed that the energy output would be equal to that of alternative 5a (i.e. 30713 MWh), and alternative 1 (i.e. 77307 MWh). For these outputs, the necessary roof surface was between 254.451 m² and 640.486 m². For the development of a solar field, it was also assumed that the energy output would be equal to that of alternative 5a and 1. Based on an installed capacity of 0.7 MW per hectare, and 850 full-load hours per year, one would need a surface of 52 to 130 hectares to be able to achieve the energy outputs. For both the minimum and maximum alternative, this would mean that Utrecht would have to construct the largest solar field in the Netherlands (Royal HaskoningDHV, 2013).

The results of the SCBA indicated that the NPV of alternative 1 (development of wind energy) was the most positive from both the local (i.e. €25,2 million), and national (i.e. €12,5 million) perspective compared to the other alternatives²². The NPV of all wind energy development alternatives was positive for both perspectives. Alternative 5a had the lowest positive NPV of the wind energy alternatives, from both the local (i.e. €11,2 million), and national (€11,2 million) perspective. For solar panels on private roofs (alternative 6 & 7), the NPV was positive from the local perspective (i.e. €0,3 & €1,2 million), while it was negative from the national perspective (i.e. -€59 & -€148 million). On balance, the results of solar panels on private roofs were less favorable than wind energy, because the financial profitability of solar panels is lower at an equal size of capacity. This is because the investment costs are significantly higher, and it takes longer to achieve break-even. On the other hand, solar panels do score higher on their contribution to regional employment opportunities, reduction of the nuisance for residents, and effects that cannot be monetized (such as landscape and ecology) (CE Delft, 2013).

The development of a solar field by an energy cooperative (alternative 8 & 9) was not financially profitable for the exploiter (i.e. negative financial benefits of €29,3 & €73,9 million). Moreover, it had a negative NPV from both the local (i.e. -€18,6 & -€46,4 million), and national perspective (i.e. -€35,9 & -€89,8 million). The lack of financial profitability can be attributed to the inadequacy of the SDE+ subsidies and energy output. For all alternatives, the NPV from the local perspective was higher than the national perspective, because in the national perspective the SDE+ incomes did not count as a benefit anymore. The positive welfare effects for the recipient of the subsidy (Energie-U) were neutralized by the negative welfare effects for the government (costs of SDE+ subsidy). On the other hand, the reduction of other emissions (e.g., NO_x, SO₂) was considered to be a positive welfare effect in the national perspective (CE Delft, 2013).

A sensitivity analysis was conducted to understand how the SCBA results change based on different assumptions. More specifically, the following variables were changed: (i) 50% reduction of

²² The NPV of wind energy alternatives has generally a positive relationship with total installed capacity.

the marginal costs of prevented climate measures, (ii) 50% reduction of the effects on security of supply, (iii) application of Ecorys's (2013) upper value for the nuisance of residents, and (iv) the three in combination. The results of the analysis pointed out that from the local perspective, the order of preference for the alternatives (based on the NPV) would not change. From the national perspective, the order of preference for the wind energy alternatives (based on the NPV) would change. If the marginal costs of prevented climate measures is reduced with 50%, the NPV of alternative 2 would be more positive than alternative 1. On the other hand, if the three assumptions change in combination, alternative 5b would have the most positive NPV, and alternative 1 would have the least positive NPV (CE Delft, 2013).

In order to show the welfare effects for the different stakeholders, a distinction was made between: (i) the financial result for Energie-U, (ii) the costs for the residents who would experience a reduction in the enjoyment of residence, (iii) the revenues for the neighbourhoods from the sustainability fund, and (iv) a number of cost and revenue factors for the municipality of Utrecht. While alternative 1 had the most positive NPV compared to the other alternatives, it scored the least positive on the aspect of nuisance for the residents (i.e. -€2,5 million). Also for the effects that could not be monetized, such as nuisance for the employees of the firms at Lage Weide, landscape, ecology, and external safety, alternative 1 was the least favourable. Hence, the qualitative effects had to be weighed against the quantitative effects to derive a preferred alternative (CE Delft, 2013).

Based on the results of the EIA and SCBA, the municipality proposed a preferred alternative in the reports, which is a derivative of alternative 4 (= optimized alternative 4A+²³ in the EIA). The location of the wind turbines is equal to that of alternative 4, and the only difference is the capacity of the wind turbines (2,5 MW instead of 3 MW, with a total of 15 MW). Since this meant that the preferred alternative scored equal, or better, on environmental effects compared to alternative 4, it was not separately analysed in the EIA. However, a lower capacity did have a negative effect on some aspects assessed in the SCBA, and therefore an additional analysis was conducted on this alternative in the SCBA. The NPV of the preferred alternative was positive from both the local (i.e. €12,6 million), and national (i.e. €6,4 million) perspective, just like the other wind energy alternatives. From the local perspective, the NPV of the preferred alternative was lower than alternative 4 (due to the lower capacity), but higher than alternative 5a and 5b. From the national perspective, the NPV of the preferred alternative was the lowest of all wind energy alternatives. While the total capacity of the preferred alternative was higher than that of alternative 5a and 5b, the energy output per unit of capacity was lower due to the specific configuration (hence the lower NPV) (CE Delft, 2013).

²³ The reason that alternative 4A+ was preferred over alternative 4B+ is that the EIA showed that the nuisance only increases slightly, while the energy output (and therefore financial attractiveness) is much higher. Moreover, Energie-U perceived alternative 4B+ as unfeasible (Gemeente Utrecht, 2013a; Royal HaskoningDHV, 2013).

Appendix XVIII: Sounding board advice report

With regard to outstanding questions, the sounding board formulated the following action points (Königs, 2013):

- Make the report on the baseline measurement of noise available;
- Determine the percentage of annoyed people. Not only those who experience severe annoyance;
- Conduct additional research on external safety;
- Add nuisance of reference alternative in EIA;
- Determine and assess the noise contour of the preferred alternative, also in the SCBA;
- Carry out a more thorough analysis on house price effects, taking into account actual WOZ values, houses with a distance of >350m from the turbines, and amount of annoyed people;
- Improve the underpinning for the prevented costs of alternative measures, and security of supply, in the SCBA;
- Conduct additional research on the effects for firms and employees at Lage Weide;
- Investigate the radar reliability of Amsterdam-Rijnkanaal.

Moreover, the sounding board came up with the following additional conditions (Königs, 2013):

- In sensitive periods (i.e. evening, night, Sunday morning, temperature inversion), a reduction in rotational speed should be ensured to prevent nuisance, i.e. 8-13 dB below the level of background noise;
- Reduction of rotational speed, registration and handling of complaints should be organized in consultation with an advisory group of stakeholders;
- Coordinate and agree on the development of the wind farm with the industrial association Lage Weide and the association of owners;
- Financially secure the possibility of reducing the rotational speed, via the business case and/or OZB revenues;
- Apply the Danish norm for low-frequency noise.

Based on these action points and additional conditions, the sounding board formulated the following recommendations (Königs, 2013):

- Organize an open 'city conversation' with the board of Mayor and Aldermen, residents, and firms;
- Communicate with residents about the health aspects and nuisance of wind turbines;
- Provide an active group of residents an advisory role in the development and operation of the wind farm;
- Provide benefits to residents: discounts on electricity, sustainability fund, etc;
- Make an agreement with the industrial association Lage Weide regarding the reduction of effects for firms and employees at Lage Weide;
- Develop a robust vision on Lage Weide with residents and firms.

Appendix XIX: Distribution of viewpoints on the draft structural vision within the municipality of Utrecht (Gemeente Utrecht, 2013c).

The larger the pie chart, the larger the amount of viewpoints submitted. The portion of viewpoints against the development of the wind farm is red, and the portion of viewpoints in favor of the development of the wind farm is green. The numbers refer to area codes: Lage Weide is 12. In this picture, one can see a slight relation between the proximity to Lage Weide, and the ratio between 'positive' and 'negative' viewpoints. The closer to Lage Weide, the larger the portion of 'negative' viewpoints. Moreover, one can see a relation between the proximity to Lage Weide, and the total amount of viewpoints submitted. The closer to Lage Weide, the larger the total amount of viewpoints.



Appendix XX: Aspects that were claimed (by the opponents of the wind farm) to be not taken into consideration in the SCBA and business case

Aspect #	Description
1 (SCBA)	Investments regarding energy infrastructure, and the consequences of the use of shale gas.
2 (SCBA)	Capacity limitations against nuisance; compensation for lake Lage Weide; loss of turnover for firms at Lage Weide; costs of additional studies; costs of city conversation and open houses; costs of research and advisors for EIA and SCBA; costs of the use of civil servants; planning damage due to a reduction of the value of commercial property; monetization of degradation of landscape, ecology, and health.
3 (SCBA)	Costs of sunscreens that firms have to purchase to mitigate shadow flicker.
4 (SCBA)	The expansion of building heights (as mentioned by the draft zoning plan), which reduces the energy output of the wind farm.
5 (SCBA)	Increase of hardened surface, which leads to an obligation to pay compensation in the form of an infiltration facility.
6 (SCBA)	Potential mitigation measures for the safety of water defenses, water balance, water quality, and flooding.
7 (SCBA)	Costs of environmental damage that occurs as a result of the extraction of rare earth metals necessary for the construction of the wind turbines.
8 (SCBA)	Decommissioning and pyrolysis costs.
9 (SCBA)	Medical expenses due to health problems, resulting from the nuisance of the wind farm.
10 (SCBA)	Scenarios for energy output.
11 (Business case)	Planning damage, costs of the use of civil servants, mitigation measures, costs of (additional) studies.

Appendix XXI: Information provision municipality

Information provision	Round	Description
Press release	1	Announcement in AD (local newspaper) that wind energy developments at Lage Weide and Rijnenburg are a clear possibility.
Press release	1	Announcement of the Board of Mayor and Aldermen that it wants to facilitate third party initiatives for the development of wind energy at Lage Weide.
Meeting	2	Discussion with (i) neighbourhood councils North-West and Leidsche Rijn, (ii) the Lage Weide associations of undertaking, (iii) the environmental group Zuilen, and (iv) the civil service representatives of the municipality Stichtse Vecht, about the wind farm plan.
Panel	2	The municipality asked a panel of residents about their opinion of wind energy. The majority (80%) understood the importance of wind energy, a substantial part (64%) was also positive about the development of wind energy in Utrecht, and for developments in proximity to their neighbourhood 46% did not have any objections.
Website	2	Municipal website for actual information on wind energy in Utrecht goes live, including a heading with frequently asked questions and answers.
Energy cafe Energie-U	2	Community message (i.e. an A4 distributed among residents) to inform all residents in proximity of Lage Weide about the decision of the Board of Mayor and Aldermen to facilitate the wind farm initiative of Energie-U.
Council information evening	2	Discussion with residents and firms regarding the development of the wind farm at Lage Weide.
Letter	Between 2 and 3	Stakeholders were invited to participate in the sounding board.
Press release	3	Announcement of the Board of Mayor and Aldermen that it continues to investigate the possibilities for wind energy.
Community message	3	Community message (i.e. an A4 distributed among residents) to inform residents in proximity of Lage Weide about the start of the spatial planning process, and the associated public consultation process.
Website	3	Publication of the independent wind farm visualizations, as part of the EIA.
Drop-in sessions	3	Drop-in sessions in Schepenbuurt and West, Zuilen, Leidsche Rijn, and Maarssebroek to inform residents about the start of the spatial planning process, and the associated public consultation process.
E-mail	3	Those who expressed their view in the public consultation process were informed about the processing of their response.
Digital newsletter	4	The municipality introduced a digital newsletter about wind energy, and distributed it amongst all interested parties, and the sounding board.
Press release	4	Announcement of Board of Mayor and Aldermen that it has decided to incorporate alternative 4 as the preferred one in the draft structural vision, and that the draft is filed for public inspection.
Community message, website, digital newsletter	4	Stakeholders were informed about the possibility to provide their view on the draft structural vision .

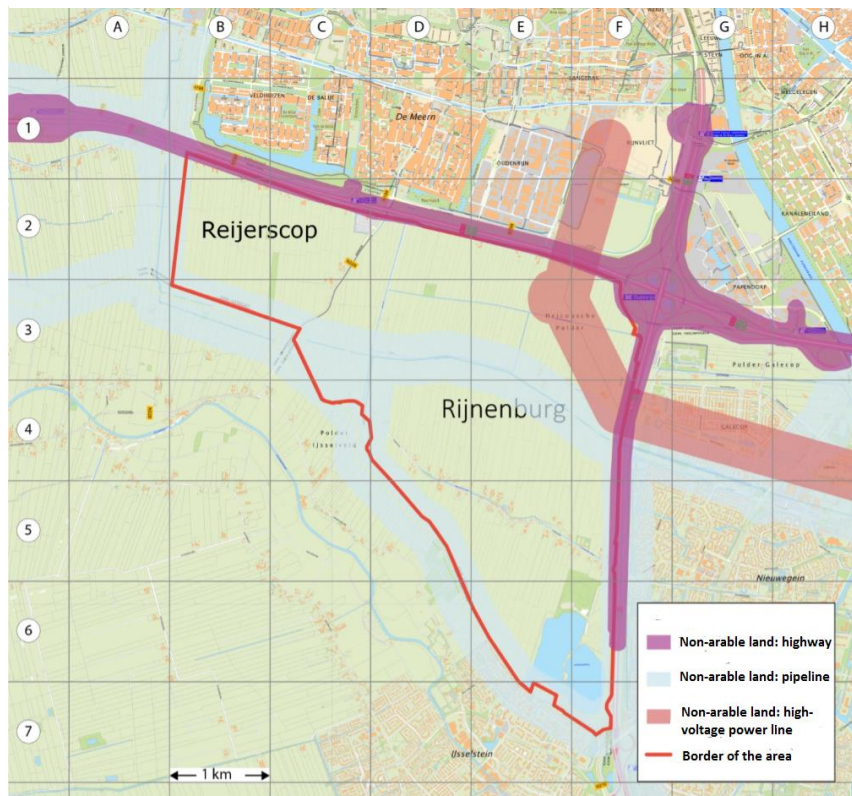
Appendix XXII: Follow-up process

The decision of the city council to cancel the development of the wind farm at Lage Weide did not cause the municipality to lower its long-term climate ambitions. The coalition agreement 'we make Utrecht together' 2014-2018 still mentions that Utrecht should be climate neutral by 2030, with an intermediate target of 20% renewable energy production in 2020. Moreover, the coalition makes explicit that one of the lessons they have drawn from Lage Weide is that public support is an important condition for wind energy developments. To determine if there is sufficient support, they think that a tradeoff has to be made between the amount of local customers of renewable energy, and the interests of the residents. Based on this tradeoff, the board of Mayor and Aldermen has assigned new possible locations for renewable energy developments in Utrecht (Gemeente Utrecht, 2014d).

In March and April 2015, the municipality of Utrecht held three 'city conversations' with 165 randomly chosen citizens, about a future 100% decarbonized energy system. These discussions resulted in the development of an Energy plan. One of the aspects of this plan is centralized energy supply, which considers local development opportunities for solar parks, wind farms, biomass power stations, and geothermal installations. With regard to solar parks, the plan mentions that the municipality provides immediate assistance to third party initiatives, by issuing the necessary permits and changing the zoning plan (if necessary). Moreover, it is emphasized that the municipality will continuously monitor which parcels of lands are appropriate for developments, and will reinvest the revenues obtained from the lease of municipal land in energy conservation and renewable energy projects. The participants' opinions regarding large-scale wind energy developments are more divergent. The plan addresses that potential wind farms need to have a sufficient distance from residential areas. Moreover, the municipality, initiators, and the residents have to work together from the beginning, to ensure that public support is created and maintained throughout the process. This can also be achieved by enabling the financial participation of residents, and by minimizing / avoiding the negative effects that arise from the development of the wind farm (e.g., noise pollution, shadow flicker) (Gemeente Utrecht, 2015).

In the review and recalibration of the provincial structural vision of 2013-2028 (December 2016), the Provincial Council declared Rijnenburg as a 'pause landscape', meaning that until 2028 no houses can be constructed in that area. Moreover, the Spatial Strategy of Utrecht, which was published in the same month, and addresses at which locations the municipality wants to develop houses until 2030, excludes Rijnenburg. Before this development pause was officially incorporated in provincial and municipal policy documents, the city council of Utrecht adopted the motion 'construction pause in Rijnenburg' in June 2016. Through this motion, the city council commissioned the board of Mayor and Aldermen to inform land owners and initiators of the fact that Rijnenburg will become a pause landscape. Moreover, reference was made to the motion 'quick start of sustainable Rijnenburg' of May 2011, in which the board was asked to facilitate the development of wind turbines in Rijnenburg, and bring landowners and initiators together. Against this background, the initiators Eneco and Rijnne Energie perceive the development pause as an opportunity to submit ideas for the development of large-scale solar energy and wind energy in Rijnenburg and Reijerscop (Gemeente Utrecht, 2017) **(figure 4)**.

Figure 4: Search area for new renewable energy initiatives (Gemeente Utrecht, 2017).



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To ensure that the decision-making process on a new initiative is thorough and inclusive, the municipality held two city conversations in March 2017, with around 200 representatives from residents, land owners, neighboring municipalities, neighborhood councils, and interest groups. The main question during these discussions was “how can large-scale renewable energy, i.e. wind and solar, be developed in Rijnenburg and Rijerscop?”. The objective was to understand under which conditions the development of renewable energy projects would be acceptable from the perspective of the stakeholders. The city conversations led to the development of a framework of conditions, with which the initiators have to comply in their project plan, and the further implementation of it. Moreover, research questions were formulated, which have to be answered by the initiators in the drafting of their plan. The conditions and research questions apply to the following aspects: (i) landscape, (ii) archeological values, (iii) cultural-historical values, (iv) ecology, (v) hydrology, (vi) recreational use, (vii) noise pollution, (viii) shadow flicker, (ix) process participation, and (x) financial participation (Gemeente Utrecht, 2017).

As a follow-up, the municipality and initiators are going to develop three or four distinctive scenarios together for an integrated vision on an ‘energy landscape’. To achieve this, they will develop a process in which the stakeholders can express their perspectives. The initiators will be primarily responsible for the development of the energy projects; the amount of energy production, the associated business case, the deal with land owners, construction, optimization of noise pollution and shadow flicker, and the model of financial participation and ownership. On the other hand, the municipality will have a governing role in the process, and will be responsible for the spatial planning procedures (e.g., development or change of the zoning plan). Moreover, the municipality will take care of the quality of the landscape, land use, and improvement of nature and recreational values (Gemeente Utrecht, 2017).

When the scenarios have been developed, the initiators will draw up the preliminary memorandum for the scope and level of detail of the EIA. This memorandum will include the worked out proposals of the scenarios, with different combinations of wind and solar energy, and different alternatives of siting / other variables. These scenarios have to take into account the integrated approach of amongst others natural values, how to cope with nuisance, and the win-win situation for residents. The scenarios will be weighed in parallel with the EIA, together with stakeholders, on the basis of this integral picture. The initiators are obliged to conduct an EIA, in which the different scenarios are compared with each other in terms of their impact on the environment. The weighing of the different scenarios on the integral vision, and the quantification of the scenarios with the EIA, will be submitted for voting to the city council to come to a preferred scenario. After the city council has made a decision regarding the preferred scenario, the legal procedures can start for the development or change of the zoning plan, and the issuance of the necessary permits. The drafts will be filed for public inspection, and the city council will take a final decision on the zoning plan (Gemeente Utrecht, 2017).

The way in which the follow-up process for renewable energy initiatives in Rijnenburg and Rijerscop is designed reflects the lessons the municipality has learned in the decision-making process on the Lage Weide wind farm. According to the interviewed municipality representative, and the preliminary memorandum 'energy landscape in Rijnenburg and Reijerscop' (Gemeente Utrecht, 2017), these lessons learned include:

- Residents have to be informed in an early stage, and have to get the opportunity to provide input and ask questions (e.g., city conversations, scenario developments);
- Before specific plans are worked out, it has to be formulated under which conditions developments should take place (i.e. framework of conditions);
- An early city council decision on a preferred scenario is beneficial for the rest of the process;
- Work with a larger project team, and appointment of environmental managers who identify the interests of the stakeholders, and try to create win-win situations and consensus;
- More development scenarios have to be identified, and stakeholders have to be able to choose between these (alternatives of Lage Weide were: or a lot of turbines and capacity, or very few).

In terms of stakeholder dynamics, the development process in Rijnenburg and Rijerscop, and that of Lage Weide have some similarities. While its organizational form has not been established yet, Rijnne Energie, one of the initiators in Rijnenburg, is a partnership of cooperatives and residents, that wants to develop local renewable energy (i.e. wind and solar) and keep the profits in the community (like Energie-U). The following organizations are affiliated with Rijnne Energie: (i) Energie-U, (ii) UWind, (iii) de Windvogel, (iv) Energieambassadeurs IJsselstein, and (v) Samen Duurzaam Nieuwegein. Currently, nobody can become a member of Rijnne Energie, and invest in it. However, everybody that endorses Rijnne Energie's ambitions can join the organisation and participate in one of its working groups. When there is a specific plan for an energy landscape, Rijnne Energie wants to enable participation through ownership of the production means. This means that members can become an owner of the wind turbines and solar parks, and have control over the revenues. Since Eneco is also an initiator in this project, Rijnne Energie has chosen to cooperate with them in the phase of communication, design of the energy landscape, and making agreements with land owners. To ensure that different interests and considerations are taken into account in the design of the energy landscape, Rijnne Energie wants to seek the dialogue with residents and stakeholders, through the following channels: (i) organised evenings of the municipality (ii) living rooms, (iii) the street, (iv) email, (v) Facebook, (vi) Twitter, and (vii) existing networks for renewable energy (Rijnne Energie, 2017a; Rijnne Energie, 2017b; Rijnne Energie, 2017c; Rijnne Energie, 2017d).

Following a similar rationale as that of Buren van Lage Weide, a group of residents mobilized itself as the platform 'Buren van Rijnenburg en Reijerscop' (BVRR)²⁴ after it became clear that specific initiators and the municipality have the idea to develop an energy landscape in the area. According to the 'about us' section of its website, BVRR has two objectives. First, to prevent nuisance, for human and animals, from the potential development of wind turbines and solar parks in the area Rijnenburg / Reijerscop of the municipality Utrecht. Second, to develop a process and computational model, to gain insight in the coherence of relevant variables for the least hindering energy landscape, based on scenarios with wind turbines and/or solar parks. To achieve these aims, BVRR represents and supports its constituencies in the preparation phase of the potential siting of wind turbines and/or solar parks, and with the follow-up activities as a result of the developments. Moreover, BVRR will use all legal means, which are deemed useful or necessary for the intended purposes. In contrast to the 'about us' section of its website, BVRR emphasizes in its manifest that it is against the development of wind turbines in the polder area Rijnenburg and Reijerscop, and favours other means of renewable energy production (e.g., solar parks). Nine specific arguments are provided for this position in the table below (Buren van Rijnenburg en Reijerscop, 2017a; Buren van Rijnenburg en Reijerscop, 2017b).

Argument	Value
(1) Wind turbines in proximity of buildings can lead to severe health damage	Health and safety
(2) Risk of wind turbine syndrome as a result of the generated low-frequency noise (e.g., dizziness, insomnia, headache, tinnitus)	Health and safety
(3) Shadow flicker can also cause aforementioned symptoms	Health and safety
(4) Shadow flicker can create dangerous situations for traffic (A2 – A12)	Health and safety
(5) European norm for distance of wind turbines to residential areas is exceeded with 300%. European norm = 1,5 km for turbines with a height until 150 metres, and 3 km for turbines with a height higher than 150 metres. Municipality of Utrecht has a norm of 650 metres.	Health and safety
(6) The noise of small wind turbines is audible at night, at a distance of 2 km. For the proposed wind turbines with a height of 200 metres, the audible distance is even larger.	Health and safety
(7) Wind turbines rotate on billions of subsidy. Only a small percentage contributes to the fulfillment of energy demand.	Welfare
(8) The 'Rundubos' is a nature area on the Galecop. Wind turbines in proximity of this area pose a threat for the population of birds resorting there.	Environmental friendliness
(9) The provincial 'Vogelwacht Utrecht and Nieuwegein' and BVRR are concerned	Environmental friendliness

²⁴ Residents within a radius of 1500 meters.

about the protected birds in Rundubos and Rijnenburg.

Besides stakeholders that have a skeptical attitude towards wind energy developments in Rijnenburg and Rijerscop, there are also some that fear that the current discussions will lead to the reconsideration of Lage Weide as a potential location for those developments. More specifically, one interviewee stated:

“I was also present at the discussions in Rijnenburg, and there they mentioned Lage Weide as one of the potential search areas. It was not expressed formally in that specific meeting, but they told that they are open for new initiatives from the neighborhood. Then, in the corridors, some asked if Lage Weide could also be taken into account. I replied that they should put an end to that thought, Lage Weide is not a search area anymore, and will not become one, no way. There are some people, I cannot recall anymore who specifically, who still have an interest in developing wind turbines at Lage Weide. I am monitoring other developments in Utrecht, and trying to prevent that those will lead to a reconsideration of Lage Weide. I do that through conversations with amongst others wind developers, the municipality, and neighborhood councils. Moreover, I have contacts at the city council, who will inform me if such ideas are put on the agenda, so we won't become surprised.”