Beyond public acceptance of energy infrastructure

How citizens make sense and form reactions by enacting networks of entities in infrastructure development

Aaen, Sara Bjørn; Kerndrup, Søren; Lyhne, Ivar

Published in:
Energy Policy

DOI (link to publication from Publisher):
10.1016/j.enpol.2016.06.031

Publication date:
2016

Document Version
Publisher's PDF, also known as Version of record

Energy Policy 96 (2016) 576–586

Contents lists available at ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

Beyond public acceptance of energy infrastructure: How citizens make sense and form reactions by enacting networks of entities in infrastructure development

Sara Bjørn Aaen [a,*], Søren Kerndrup [b], Ivar Lyhne [a]

[a] Aalborg University, Skibbrogade 5, 9000 Aalborg, Denmark
[b] Aalborg University, Vestre Havnepromenade 9, 9000 Aalborg, Denmark

HIGHLIGHTS

- Attention to citizens' sensemaking enables greater insight into the decision-making process.
- A combination of sensemaking and actor-network theory (ANT) is relevant for studies of public acceptance.
- Sensemaking explains why citizens facing similar situations act differently.
- Complexity of citizens' sensemaking challenges the predictability of processes.

ARTICLE INFO

Article history:
Received 10 July 2015
Received in revised form
23 May 2016
Accepted 21 June 2016
Available online 5 July 2016

Keywords:
Public acceptance
Public participation
Energy infrastructure
Citizens
Sensemaking
ANT

ABSTRACT

This article adds to the growing insight into public acceptance by presenting a novel approach to how citizens make sense of new energy infrastructure. We claim that to understand public acceptance, we need to go beyond the current thinking of citizens framed as passive respondents to proposed projects, and instead view infrastructure projects as enacted by citizens in their local settings. We propose a combination of sensemaking theory and actor–network theory that allows insight into how citizens enact entities from experiences and surroundings in order to create meaning and form a reaction to new infrastructure projects. Empirically, we analyze how four citizens make sense of an electricity cable project through a conversation process with a representative from the infrastructure developer. Interestingly, the formal participation process and the materiality of the cable play minor roles in citizens' sensemaking process. We conclude that insight into the way citizens are making sense of energy infrastructure processes can improve and help to overcome shortcomings in the current thinking about public acceptance and public participation.

1. Introduction

Internationally, problems regarding public acceptance are identified as some of the main issues impeding the development of energy infrastructure projects (European Commission, 2011; Devine-Wright, 2011). Even wind power developments, which generally are highly supported by the public, are increasingly delayed or blocked due to opposition at local level (Bell et al., 2005; Wolsink, 2007).

Over the last decades, researchers and practitioners have gained considerable knowledge about public acceptance of energy infrastructure development, researchers have: identified factors that influence public acceptance (see Devine-Wright, 2008; Van der Horst, 2007; Jobert et al., 2007; Bidwell, 2013), outlined development of public acceptance over time (Wolsink, 2007), and developed a conceptual understanding of social responses to energy project development (e.g., Wüstenhagen et al., 2007; Devine-Wright, 2009). Moreover, academic literature on energy infrastructure seems to have moved beyond the previous focus on NIMBYism (not-in-my-backyard) to a more elaborate understanding of the complexity of citizens' reactions (Wolsink, 2007; Devine-Wright, 2009; Batel and Devine-Wright, 2015; Pellizzone et al., 2015).

Despite this development, Aitken (2010) argues that there are fundamental misunderstandings in how we approach social aspects of energy infrastructure projects. She calls for critical reflection on how we understand acceptance, and points out the

* Corresponding author.
E-mail addresses: sara@plan.aau.dk (S.B. Aaen), soeren@plan.aau.dk (S. Kerndrup), lyhne@plan.aau.dk (I. Lyhne).

http://dx.doi.org/10.1016/j.enpol.2016.06.031

inappropriateness in understanding local opposition as something which has to be 'fixed'. Moreover, it seems to be a widespread presumption that good participation processes can eliminate conflict in the planning process (e.g., Zhang, 2015; Innes and Booher, 2004). Furthermore, an instrumental approach dominates much literature on public participation (e.g., Cohen et al., 2014; Michels and de Graaf, 2010; Rowe and Frewer, 2000), aiming at "devising procedures to facilitate quick and efficient negotiations" (Cohen et al., 2014 p. 4).

To understand public acceptance of infrastructure developments, we need to look beyond the current perception of 'acceptance'. Referring to critiques of the NIMBY concept, Batel and Devine-Wright (2015) argue that "[i]t is not important to actually understand why the attitude-behavior discrepancy in those responses exists, but instead what type of socio-psychological processes give it shape and what functions those serve" (p. 313). In this article we follow this line of thinking and look beyond the NIMBY concept and the public acceptance model to investigate the socio-psychological processes among the citizens in the process of participating.

Our point is that citizens' reactions toward new energy infrastructure are created by citizens actively connecting a broad range of socio-material and socio-mental entities from their own arenas as well as from the formal arenas provided by authorities in participatory processes. In line with Wolsink's early call for understanding "the multitude of underlying motivations" among local citizens (Wolsink, 2000, p. 57), we investigate citizens' reactions not as opposition to a specific development, but as a reflection of the many agendas and meanings that we as citizens possess at any given time. Therefore, to understand how citizens make sense of new energy infrastructure, it is essential to broaden the scope of interest and to view the infrastructure development as a part of citizens' worldview — as opposed to the citizens being part of the planning process. We must turn to the spaces where, as Jones and Gaventa (2002) put it, "… citizens spend their everyday life" (Jones and Gaventa, 2002, p. 22).

We investigate citizens' sensemaking processes by applying a novel theoretical framework inspired by sensemaking theory and actor–network theory (ANT) to a Danish case of infrastructure development. This allows for a study of how citizens continuously enact networks of entities to make sense of and act upon the development of infrastructure projects. Applying sensemaking theory and actor–network theory (ANT) to understand citizens' sensemaking is a process-oriented academic contribution to the existing literature aimed at understanding public acceptance of energy infrastructure. From a practice perspective, a better understanding of how citizens make sense might add to the understanding of public acceptance of energy infrastructure. Furthermore, it expands the existing knowledge of what sparks controversy and conflict and why only some of the participating citizens enter into conflict while others do not, especially when these citizens seem to be impacted in similar ways. Today, the tool for identifying the key stakeholders that can be expected to enter into a conflict is a stakeholder analysis. This, we argue, is problematic because it merely gives a static picture of the citizens' attitudes, whilst the attitudes of the citizens seem to be dynamic. A better understanding of citizens' sensemaking process can help bridge this gap.

2. Theoretical positioning

In this paper, the combination of sensemaking theory and actor–network theory (ANT) will be used to guide the analysis. ANT has previously been applied to explore the complexity of controversies in wind energy processes (Jolivet and Heiskanen, 2010; Garud et al., Forthcoming), and sensemaking theory has previously been applied to explore the processes of how citizens make sense of energy initiatives (Virkki-Hatakkaa et al., 2013) and new infrastructure (Lyhne and Kørnøv, 2013). In this article we develop a framework for understanding citizens' sensemaking and reactions to new infrastructure by combining the theory of sensemaking and actor–network theory (ANT).

We make the general claim that sensemaking and actor–network theories (ANT) are very useful in combination in order to understand how citizens make sense of new infrastructure projects. The sensemaking theory contributes an understanding of how actors make sense about infrastructure by enacting cues and create plausible stories. The ANT perspective contributes to the understanding of how actors make sense with a strong focus on the heterogeneity of entities,[1] the process of assemblage of entities through problematization, interessement and enrollment, and the interactive processes of how the entities are ascribed and ascribe positions and roles to other entities in a network.

Our use of sensemaking theory is primarily inspired by Weick (1995, 1979) and Weick and Sutcliffe (2015). The sensemaking perspective guides our investigation of the process of sensemaking that is undertaken by the individual citizen in a dialectical process among the perception of the impacts of the project, the social interaction in the participation process, the citizen's world, and the citizen's actions.

In a sensemaking context, an infrastructure project being presented to the participating citizens can be considered a disturbance to their everyday practices. It inspires sensemaking, because it is a situation where "… the current state of the world is perceived to be different from the expected state of the world" (Weick et al., 2005, p. 414). Citizens are then forced to ask themselves the question that Weick et al. (2005) pose as the starting point of sensemaking: "What's going on here?" This is followed by such questions as: "How does it concern me? How do others react? And now what should I do?" These are starting points of actions related to the planning process.

However, action cannot be viewed only as a successor to sensemaking. Action is more importantly a part of the sensemaking process. In order to make sense of events happening in our environment, as Weick (1995) argues, we need to enact the environment. This means that we act before we fully understand the context in which we act, and only interpret in retrospect in order to understand what we just did and the environment in which we did it (Westwood and Clegg, 2003).

According to Weick (1995), we make sense by noticing and bracketing cues in our surroundings in order to create a plausible story about what is going on (Weick, 1995). The process of noticing and bracketing is formed by previous experiences and identities (Weick et al., 2005). Therefore, the cues and stories become rather different from individual to individual, but the way of doing it is similar (Weick and Sutcliffe, 2015). Using another set of terms, Hill and Leventhagen (1995) describe this set of experiences as a way to: "… establish images, names and an understanding of how things fit together" (p. 1059). This set of experiences is continuously evolving and is inherently social (Weick, 1995).

In order to understand the outcome of the sensemaking process it is essential to also consider the input to the sensemaking process — the cues. Weick (1995) states that the content of sensemaking is to be found in the "frames and categories that summarize past experience", but also in "the cues and labels that snare specifics in the present experience" (Weick, 1995, p. 111).

[1] The ANT literature uses the term "actants" to emphasize that both humans and non-human elements are influencing identities and actions of persons. In this paper, we use the term "entities" to cover human and non-human elements.

Consequently, we must, in addition to the experiences and identity, consider what cues the citizens' notice and bracket in the sensemaking process. This we will do in a rather novel way, at least from a public participation perspective, by applying an actor–network perspective inspired by Latour (2005) and Callon (1986, 1991).

The main contribution from actor–network theory (ANT) is to let us view the enactment process as an interactive process where heterogeneous entities play an (inter)active role (Latour, 2005). Sensemaking is from this perspective understood as chains of acts connecting different entities, where the different entities are active and ascribed a role through the networking process. Hence, meaning arises not only from the way in which the citizen relates to different entities in his surroundings and relates them to each other, but also from an interactive process between all of the entities in the network. Besides from human entities, networks can consist of non-human entities. These are materialities such as; cables, landscape, and soil and immaterialities such as; stories and experiences and they do not have a predetermined and individual role in the sensemaking process; they are actively constructed through networks of entities.

The dynamic process of translating the disturbance of citizens' everyday practices can, from this perspective, be described as a process of assemblage (Callon, 1986) consisting of four elements: A) *Problematization/interessement*: the identification or creation of the need to attend to a problem, and the appreciation of solutions; B) *Enrollment*: the association of entities in the network, with regard to particular, mutually assigned roles or competencies; C) Establishment and acknowledgement of an *obligatory passage point,* with the characteristic that the passage point forces actors to relate (however temporarily) to an element in the network (spokesperson); and D) *Mobilization* of the network: making the spokespersons speak and work for the network. The sensemaking process can be seen as a translation process, where the translation is decentered from the human actor to the network of actors.

This means that entities such as concepts, artifacts and feelings about the past, present and future not only are ascribed a meaning through the human actor, but also have the capability to ascribe a meaning through their active presence in the network. Networks are not fixed constellations of entities but are constantly evolving through the activities of all actors. Therefore, they are continuously constructed and reconstructed through activities and interactions.

Weick's theory of sensemaking only implicitly acknowledges the active interrelation of the entities presented in ANT theories. The combination of sensemaking and ANT thus opens up a more dynamic understanding of the sensemaking process than what is proposed in the sensemaking theory. Our theoretical framework emphasizes that the networks in which the citizens take part to create meaning are continuously enacted through a complex interaction between the different entities, and that citizens' interests, meaning and actions develop through an active process of problematization, 'interessement', enrollment and mobilization. Therefore, the act of sensemaking happens in interplay between multiple entities and networks.

3. Methods and case

In line with the aim of this article, the methodology is grounded in an explorative approach using a case study methodology. This chapter presents and justifies the case, describes the applied data collection methods, and presents our analytical strategy.

3.1. Choice of case

Due to the exploratory aim and the nature of the theoretical framework, a single case study is argued to represent a suitable approach to creating new knowledge about how citizens make sense of energy infrastructure; we do not intend to identify generalizable entities that are present in every energy infrastructure planning process, but to explore the nature of citizens' sensemaking.

The case chosen for our study is the planning of an underground electricity cable in the northern part of Denmark. The cable is part of the "Cable Action Plan of 2009," which the Danish Government adopted in order to develop the energy sector to accommodate future energy demands. The plan prescribes how the entire 132–150 kV electrical grid is to be converted into underground cables over a period of 30 years (Energinet.dk, 2009). The cable project that is investigated in this paper constitutes the planned cable connection from Skarshale to Gistrup. This area is rural and consists mostly of farmland.

In contrast to other types of energy infrastructure projects, underground cables are presumably low-impact cases and in Denmark there is rarely any public opposition to electricity cable projects. We have chosen a low-impact case, since this can provide insights into subtle details of the sensemaking processes, which in high conflict cases might be overshadowed by more pronounced tactical behavior. The case is relevant for studying smaller details of citizens' sensemaking, because the impacts of the cable as a point of departure are limited: an underground electricity cable is in spatial terms a stretch of land measuring the width of 16 m, where restrictive covenants prescribe that no trees with deep roots are to be planted, no buildings are to be erected, and no soil treatment below 60 cm is allowed. Furthermore, a reduction in the yield is to be expected in the area in the years following the construction work due to structural damage to the soil. Lastly, there is a certain inconvenience during the construction phase and public concerns about the radiation from the electromagnetic fields.

The case is also interesting because we follow the sensemaking process of four individual citizens that are all rural landowners, which normally is seen as the same type of stakeholders. This allow us to study the different outcomes of the individual sensemaking process, but also the similarities in the way the citizen make sense by enacting entities across actions, places and time.

The planning requires considerations of spatial aspects, costs, and technical requirements. After these elements are considered, the detailed routing of the cable is negotiated with the landowners who may be affected by the cable. This constitutes direct public involvement in the planning process. The process consists of the transmission system operator (TSO) sending a negotiator to the individual landowner's estate with the aim of making a voluntary agreement on routing and related economic compensation. These meetings between the negotiator and the landowner were the basis of our data collection.

3.2. Data collection methods

Observations and interviews were the primary data collection methods used to uncover how the landowners enacted networks of entities in order to make sense of the cable and to understand how the enactment of the network played an active role in influencing the landowners' sensemaking and actions. Hence we carried out:

1) Observation of the interaction between the negotiator and the individual landowner, which took place at a meeting in the home of the landowner. These observations were made by the

author and recorded by means of field notes.
2) Subsequent in-depth interviews with the individual landowner. These were conducted after the meeting by phone. Here the meeting and the entities that surfaced at the meeting were discussed further. These interviews were recorded.

The observations were conducted during the course of one day, where one of the authors followed a negotiator during his meetings with four different landowners. Hence, the selection of respondents was not based on any criteria besides them being involved in the cable planning process. However, the respondents could be considered representative of the kind of landowners who are involved in these kinds of cable processes.

In addition to the interviews described in this article, the authors discussed the process and the observations with other actors in the process. This helped to understand the concepts and stories related to the infrastructure.

3.3. Analytical strategy

The explorative approach involved no pre-given assumptions, consciously that is, about the field into which we ventured. Therefore, the ANT approach was useful as an epistemological point of departure because of the fundamental focus on empirical processes. Hence, using ANT as a methodological device, combined with the sensemaking perspective, can be perceived as a method to get a more empirically-based understanding of how citizens make sense of infrastructure and improve the theoretical concepts. The ANT theory also inspired a rough analytical framework structured by the four described elements in Callon's process of assemblage.

Thus, we de-emphasize the context of the case by focusing on describing what is going on, and what the citizens said, and we are careful not to explain the statements and avoid switching conceptual repertoires when in the description (Faíras, 2011). We let them describe how they enact networks of entities by connecting different entities across time and space. In the specific case, we unfold how the citizens make sense of the project by problematizing and enrolling specific social and material entities in their past, present and future. It is a process which includes both individual and social aspects. Therefore, even though the case study is not longitudinal, the sensemaking process that is revealed reaches beyond the specific time and space of the observed meetings.

Lastly, the analysis is inspired by Upham and Pérez's (2015) cognitive mapping tool which they apply in order to understand public objection to energy infrastructure. They use cognitive maps to structure the causal logic of individuals' thinking. To adapt the mapping method to our theoretical positioning, we apply a more dynamic view on the maps to unfold the nature of citizens' sensemaking.

4. Empirical findings

Following, we analyze how four citizens make sense of the cable project through a conversation process with the negotiator representing the infrastructure developer, which is the Danish TSO. We follow the way in which citizens situate the cable project by a process of problematization, enrollment and mobilization of different entities in the dialogue with the negotiator. We explore how each citizen makes sense of the cable project through an enactment of different entities and how they are connected in a network. This includes exploring how the dialogue with the negotiator influences the sensemaking and the possibilities of influencing the project. The description of each citizen is structured by three elements: A) Mapping of the dynamic networking process of enacted entities that informs the citizen's sensemaking, B) An illustration of the dynamic interaction between the enacted entities, and C) The citizen's reactions to the infrastructure development. Although the relation between sensemaking and action is interactive and dynamic, the illustrations are pragmatic linear simplifications.

4.1. Citizen number one

The first citizen, who is a farmer, makes sense of the cable project by problematizing and enacting entities from his past experiences with planning projects. Both the outcome of this planning process and the process itself are important for the way in which he makes sense of the cable project and his reaction.

The central entity in his sensemaking is a previous project regarding groundwater protection of which he has been part, where severe restriction on his land use has forced him to change his livestock from dairy cattle to beef cattle. He repeatedly refers to this project in the conversation and he finds it unfair that the transmission system operator (TSO) should be allowed to dig up bare soil in the process of digging the cable trench, when the same restriction on bare soil is what has forced him to change his production. He states: “It is incredible to me that while I have been fighting to live with the restrictions, the TSO can just waltz in and start digging”.

It transpires that the restrictions on his land have been imposed against his will, and that he has entered into a voluntary agreement with the municipality, agreeing to the restrictions only because he found the process of expropriation too time-consuming.

It seems that he is unsatisfied not only with fairness of the outcome of the preceding process but also with the process itself. As a consequence, distrust caused by an earlier groundwater planning process is translated into the cable process. Therefore, for the citizen, the experience of this specific preceding planning process becomes an important and obligatory passage point for how he enacts his network of entities.

Another important entity in the citizen's sensemaking of the project is how he had been forced to change his practice with regard to his work. He has already experienced a significant change in his everyday life, as he has been compelled to change his stock from dairy cattle to beef cattle because of restrictions imposed on him by the authorities in connection to the groundwater project. This has resulted in a different work routine for him, e.g., he is now sending cattle for slaughter regularly instead of daily milking. This change is not inflicted by the cable project but still plays a significant role in his sensemaking, because he links the two projects.

In his argumentation the citizen does not prioritize the other human and social entities. His neighbors' preferences and the neighbors and local interests are not enrolled in the network of enacted entities in this particular sensemaking process or at least are given a peripheral role.

The negotiation therefore leads to an expropriation process being initiated. The citizen substantiates his action of non-cooperation with a rather strategic assessment:

> It is rather different how long these kinds of expropriations go. With the groundwater protection I refrained from expropriation because it's the municipality. It was easier with a voluntary agreement, as it took less time, but now I'm inclined to expropriate, because it will not be as lengthy this time. Somebody wants to put these cables in the ground.

He is therefore willing to engage in the expropriation process

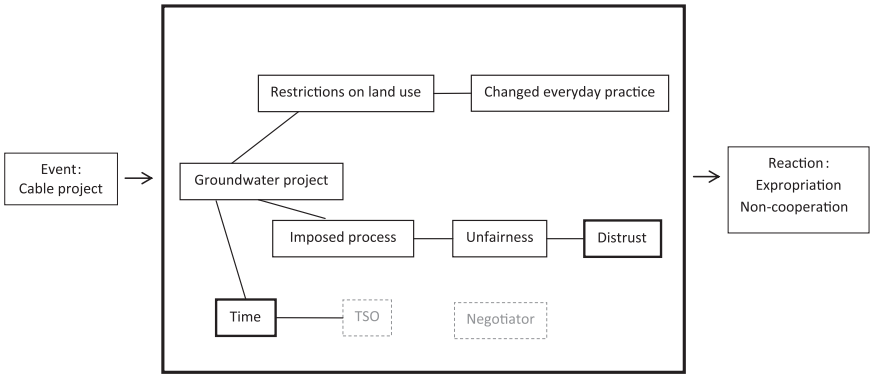

Fig. 1. The entities in the first citizen's sensemaking. Lines indicate links made by the citizen between entities. Gray text indicates reduced importance and bold text the most dominant entities in the sensemaking process.

this time around. In addition to previous processes, changed practices, and his legal ownership over the land, time therefore becomes an important entity for his sensemaking and, thus, his attitude toward the current cable project and process.

The figure below (Fig. 1) shows entities which the citizen has enacted as the most dominating entities in the sensemaking process and how these entities are configured. The unfair experience with the previous groundwater project becomes the obligatory passage point in the sensemaking process, and distrust and time therefore become the most influential entities. The TSO and the negotiator are not aligned to the obligatory passage point, despite the fact that they may act differently from the authorities handling the groundwater project.

The citizen's sensemaking process leads to him refusing to cooperate any further with the TSO negotiator, as he states: "… this cable must be placed outside my land or we are dealing through a lawyer". The negotiation therefore leads to an expropriation process being initiated and a new network of entities will be enacted in this process, where entities such as laws, regulations and layers will be enrolled and mobilized.

4.2. Citizen number two

The second citizen makes sense of the cable project in a rather different way by problematizing and enrolling entities from the past, present and future. He is also dissatisfied that the cable is to be established on his land, but his way of bracketing and noticing is different. Initially, he has no hope that he will be able to influence the planning. His first reaction to the cable project is: "… I just gave up instantly and said, 'It will come no matter what'. I might as well try to think positive about it. Otherwise I'll just go around being angry, and it's only me who suffers from that".

His lack of trust in his potential influence originates partly from earlier experience with planning processes. Like the former citizen, he too has been involved in the groundwater project and has been subjected to similar restrictions on the use of his land. His experiences are similar to the first citizen and he describes a process characterized by a lack of respect, where the planners used the fact that they had an unlimited time span as leverage against the citizens.

However, for him, inadequate compensation becomes a key entity in the sensemaking process and not so much the changes to his working conditions on his farm and to his everyday practices. He finds that the assessment of his compensation was unfair and that his requests in the process of assessing the compensation were disregarded. Therefore, the connection between a fair process and the compensation becomes an obligatory passage point in the networking process. As a result, the groundwater process has left him with low expectations for future planning processes and translated it to a question of compensation.

He states that he expects that he is to lose most of his land due to further groundwater protection planning; however, he still plans ahead for the farm. Consequently, the effect of the restrictions imposed by the cable project on his future plans for the land becomes an important entity in his sensemaking process, e.g., the effects on his newly planted forest, which would be partly cut down if the cable was to go through it. However, his biggest concern is that the cable will prevent him from selling parts of his land to developers, who wish to build houses on it, because restrictions prohibit construction on top of the cable trench. He therefore argues that the cable should be moved from this particular part of his land.

The earlier experiences and future plans become the main entities in the way in which he enacts the cable project, and are important for how he problematizes the project as well as enrolls and mobilizes other entities. The daily practice seems to be a minor influence on the way in which he translates the project in his sensemaking, and it is mainly related to how he enacts the construction phase and its timing. At the time of the meeting the concerned land is sown with grass and the economic impact from the construction therefore limited, but the citizen has plans to seed it with wheat soon. This causes him to request that the construction starts as soon as possible.

Human and social entities represented by the community and his neighbors also play a role in his sensemaking process as he translates these through the obligatory passage point of compensation. These are also rooted in his experience from the groundwater project:

> I know of this one guy — a farmer up here. He just turned 70, but he just bought land for 250,000 [Danish] kroner up there and he has loads of debt in it, and now they say the land is only worth 150,000 kroner, so that's all the money he's going to get.

As illustrated in Fig. 2, the different entities in the citizen's network of enacted entities play varying roles in his sensemaking process. The past groundwater process is constructed as the dominating entity and the compensation becomes the obligatory passage point through which the experience of past and future is translated. The compensation is seen as important in relation to the lack of fairness in the past and in relation to the future transformation of the use of land and living. Restrictions and everyday practice are included as entities in the sensemaking process, although without direct links to the other entities.

The negotiation process gives some insights into the dynamics of the sensemaking process taking place in the negotiation between the planner and the citizen and how the different entities influence the citizen's sensemaking and action regarding the project. As stated earlier, the citizen initially has little trust in his

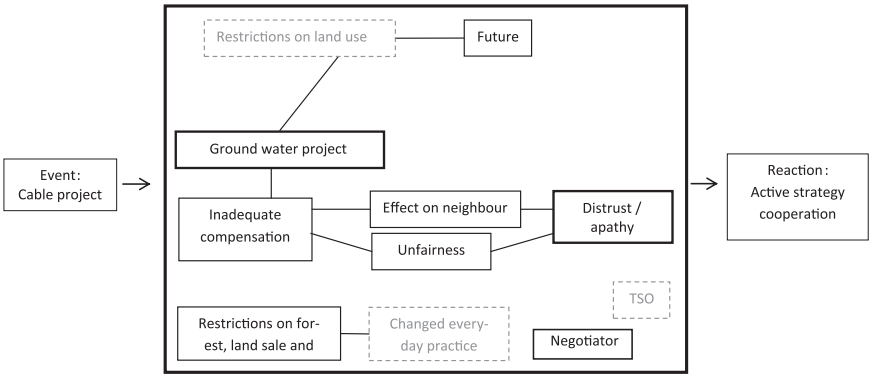

Fig. 2. The entities in the second citizen's sensemaking. Lines indicate links made by the citizen between entities. Gray text indicates reduced importance and bold text the most dominant entities in the sensemaking process.

chance of having an impact on the planning. His experiences with earlier planning processes, which are the most dominating entities in his network of enacted entities, have led him to adopt a rather hesitant approach to the negotiation. The citizen is surprised when it turns out that some of his requests regarding the placement of the cable can be accommodated. This prompts him to change his actions in the process to a more active strategy. He states after the meeting:

> Well, I was rather surprised that I could move the cable at all, and I think I might want to move it once more. He [the negotiator] huffs and puffs a bit about that, but I think I might try it.

This change in his strategy of action is brought about by the negotiator's actions in the negotiations and the dynamics of the situation of which they both are part (see Fig. 2). Consequently, the negotiation process becomes an important entity in the sensemaking process mediated through the negotiator. This indicates that entities that arise in the interaction between the parties in a process can have a rather important role in citizens' sensemaking process and subsequent actions. This is at least the case here. This, however, does not mean that the preceding actors have no part in the citizen's sensemaking and actions.

4.3. Citizen number three

Like the second citizen, the sensemaking of the third citizen is also connected to earlier experience with infrastructure planning. However, even though he, like the previous citizens, has been part of the groundwater project and it does appear as an entity in his network of enacted entities, his sensemaking is, to a greater extent, enacted through his experience with the planning of a road going through his property. For him, it is not so much the material effects of the road, which he has known about for years, but the way in which the planning process was conducted. He describes it as a process where he was consistently excluded from the decision making by patronizing planners whose lack of empathy made them ill-equipped to deal with private citizens. Therefore, he also has little belief in his opportunity to influence the project.

The materiality[2] of the road and the cables are not crucial entities for the citizen; despite the fact that the road and the restrictions from the cable mean that his daily work in the fields will be more complicated, his sensemaking is more affected by the process. Apparently, time plays a role in that prioritization. The cable process is deemed fair, because the participation process started early and this seems to be a mitigating circumstance for the effects of the materiality of the road project as well:

> It doesn't matter about the road, because we've known that it was coming for many years …. No, it's the way they treat us, combined with the price for cutting us down.

Moreover, the future valuation of his property becomes an important entity for the sensemaking process and the size of the compensation and he has appealed the decision to an independent valuation committee. Part of his concern is that the compensation does not cover the future estimated decrease in the value of his property.

What makes his sensemaking process different from the preceding citizens is that he, in addition to bad experience with an earlier planning process, also connects the cable project to his experience with the TSO in charge of the current cable project. The TSO becomes the central entity in how he enacts a network of entities in his sensemaking process, which have a great impact on how he translates the cable project and the construction of an obligatory point of passage. Contrary to the first citizen, who equates the two planning authorities, this citizen separates them quite clearly. The TSO has on an earlier occasion placed cables on the citizen's property and this was a good experience for him.

> Public participation? That they [the TSO] have initiated a long time ago in a very good manner, I think. They started eight months prior to the project, giving you the opportunity to adjust to the fact that something was going to happen. Contrary to that, you can say that it is a different project the municipality is running. That is a power mastodon [the road project].

The fact that the cable project is to be implemented by the same TSO therefore has an important influence on how the citizen enacts the cable project and makes sense of it. The dominant role of the experience with the TSO not only serves to overcome bad experiences from the past, but also translates the project from a limiting factor to an opportunity.

Rather, it is the cable project's positive influence on the materiality of the citizen's land that dominates his network of enacted entities, as it gives him an opportunity to establish drains in the fields where the TSO is already going to dig and it furthermore entails that existing power poles are to be dismantled, which the citizen perceives as a benefit.

Fig. 3 illustrates an inclusive process where experiences from the road project and experiences with the TSO become the dominant entities guiding the citizen's sensemaking, whereas other entities become excluded to more peripheral roles. The sensemaking process of this citizen is primarily affected by bracketing and selection of enacted entities from the time before the planning process commences. Therefore, the cable planning process and the negotiation become peripheral entities in the network and come to affect his actions very slightly. Instead, his

[2] Materiality refers to the physical structure of the road as oppose to the social meaning that is ascribed to it in the process of translation.

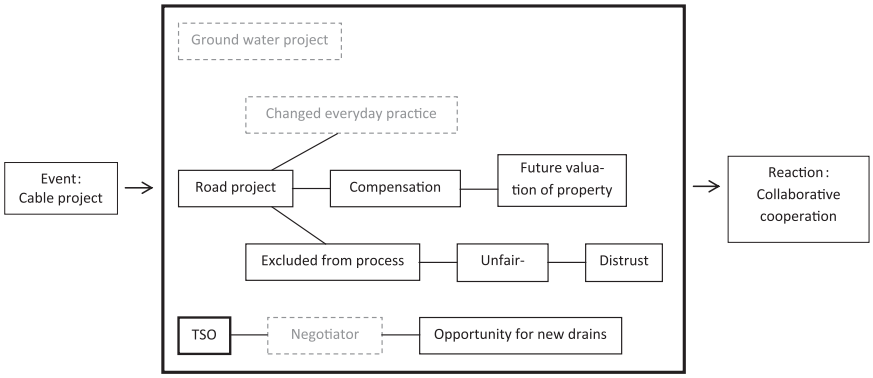

Fig. 3. The entities in the third citizen's sensemaking. Lines indicate links made by the citizen between entities. Gray text indicates reduced importance and bold text the most dominant entities in the sensemaking process.

prior experience with the TSO becomes a dominant entity in his sensemaking.

The dominant role of the positive prior experience with the TSO means that the citizen is favorably disposed toward the projects from the beginning. This causes his actions to be supporting and cooperative to the point where he points out suitable places to lay the cable in the interest of the TSO. In the dialogue with the negotiator he actively uses his enacted entities in a process of mobilization, interessement and enrollment in order to avoid the cable project running into problems caused by certain stretches of wetland and to pinpoint other conflicting cables.

4.4. Citizens number four

The fourth citizens are a younger couple. Unlike the prior citizens, their sensemaking is not noticeably affected by earlier planning processes and experiences with local planners. Their sensemaking is strongly connected to a belief in their ability and right as citizens to influence the planning of the cable project. They are frustrated at the time of the negotiation with the TSO, because they thus far have been unable to influence the planning. This means that their sensemaking is linked to the entities connected to their democratic rights as citizens and their will to influence, and not to experience and knowledge from earlier projects and actors in the local area.

As with the other citizens, the couple has become aware of the project rather late in the process, when they received a notice from the Danish Ministry of the Environment regarding the EIA permission process. Only then did they realize that they were to be affected by the cable project and the only element left to decide was the placement of the cable within a 200 m broad planning zone. As a consequence, they missed out on the opportunity to influence the placement of the cable. This frustrates them greatly for the following reason:

> It has something to do with our trust in the rule of law. You come here with a cable on our land, where we have other plans and we have no say in the matter.

Consequently, it makes sense for them to connect to the belief in their right as citizens to decide what happens on their land and their usual practice as active citizens. Their self-perceived role as modern citizens becomes a powerful entity in their sensemaking process.

They make sense of the project not only by linking to abstract concepts of rights and property, but also by the connection to their forthcoming plans to plant fruit trees on their land that would shield them from a nearby road. The fruit trees appear to play a prominent role in their sensemaking and connect to other future plans as well, e.g., their plans for ecological breeding of cattle and the option of selling parts of their land to developers. These are translated into a demand for property rights and ownership.

In relation to future plans, the couple's sensemaking also connects the cable to uncertainty about the effect on the structures that surround them, e.g., an existing geothermal energy generator and an old soakaway facility (both buried underground on their property).

Unlike the enactment by the other citizens, the landscape is enrolled as a very influential entity in their sensemaking process because of the effects of the cable on the landscape that is surrounding them. As previously stated, no trees or buildings can be placed on top of the cable. This means that the course of the cable will be visible in a landscape dominated by vegetation. This is an important issue for the couple because it affects their view of nature and their use of the area for recreation.

The landscape entity is also used to enroll the perceived nature interest of their neighbors. This urges them to suggest that the cable could be placed on nearby fields where no trees will have to be cut down and the recreational value of the valley in which they live will not be damaged. They state:

> We are not opposed to laying the cable as such, but the societal perspective makes it difficult to understand the point of leading the cable through the valley, because you do have a responsibility to bother as few as possible, right?

In their perspective, moving the routing of the cable away from their valley makes for a much more considerate solution that will bother less people, making it a more desirable solution. As such, they do recognize the need for the cable, but not the reason for placing it on their land.

The neighbors are also included as entities in the network in worries about a certain stream on the neighbors' land that risks being blocked or ruined in the process of establishing the cable, as the stream serves the purpose of draining the neighbors' land. Hence, they perceive it as their responsibility to bring the interest of their neighbors into the negotiation.

As illustrated in Fig. 4, this couple makes sense of the cable project by connecting many different (socio)material and immaterial entities, which influence their sensemaking process to varying extents. Their experience of not having been able to influence the location of the cable becomes rather dominant, as do their concerns about their fruit trees and the landscape.

Unlike the preceding citizens, the couple is rather active in their endeavor to influence the process. Moreover, prior to the negotiation they have contacted both the municipality and the TSO in order to gather information on how to influence the process. The frustration of not succeeding with this causes them to be fairly critical toward the cable project. They do, however, still cooperate with the TSO.

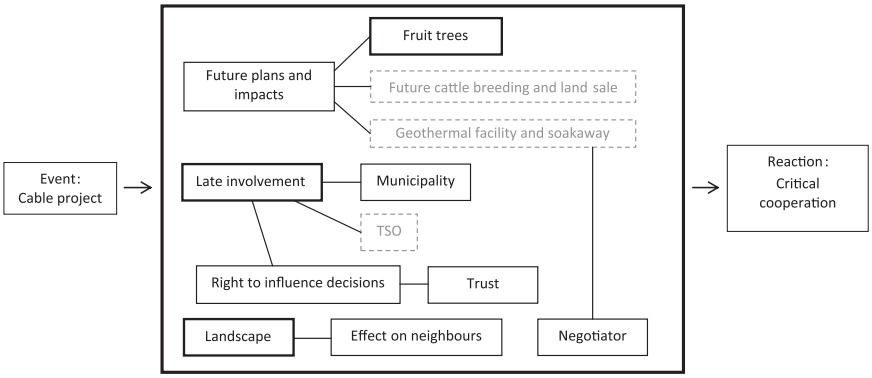

Fig. 4. The entities in the fourth citizen's sensemaking. Lines indicate links made by the citizen between entities. Gray text indicates reduced importance and bold text the most dominant entities in the sensemaking process.

The negotiation process is important in relation to their concern about how the structures will be damaged by the construction work and they need assurance that they are not responsible for repairing any damages. The assurance is given to them by the negotiator, who clarifies that the TSO will be responsible for repairing any damages caused by the construction, which, to some extent, reduces the role of these enacted entities in the sensemaking process.

5. Discussion

The conceptual and empirical findings are discussed and related to other literature on public participation in energy infrastructure development in order to outline the contributions of this paper. This paper is of an explorative nature and the findings are therefore widely tentative and suggestive; the empirical data is limited to four citizens and a short time span in the public participation process. Even so, the nature of the results does merit further research of the proposed framework. We therefore also discuss how further research can increase the knowledge about how a sensemaking perspective combined with an ANT approach may increase the understanding of what is taking place in the interaction between citizens and other actors in energy infrastructure development. The discussion is structured in two parts covering conceptual and methodological issues and practical issues.

5.1. Conceptual and methodological contributions and implications

The paper demonstrates how deeper insight into citizens' sensemaking can be gained through a methodological approach consisting of a dynamic mapping of the network of enacted entities, an outline of the dynamics in the negotiation process, and a description of citizens' reactions to the infrastructure development process. As we will discuss in this section, the deeper insight confirmed the nature of citizens' sensemaking as a dialectical process between the impacts of the project, the participation process, the citizen's world, and the citizen's actions.

The study of citizens' sensemaking confirms findings in other literature on the importance of citizens' situated everyday life and social practices (e.g., Shove et al., 2012; Schatzki, 2001) for the way in which they make sense and act upon infrastructure developments. An example of this is the citizen being forced to change his production from dairy to beef cattle due to restrictions on his land. This is a severe change to his everyday life and it has a significant influence on how he notices and brackets the different sociomaterial dimensions of the project. From an energy engagement perspective, the findings are interesting in the way the energy infrastructure plays a significant role in guiding the citizens in what past experiences are relevant to bring into the sensemaking process. Therefore, although the infrastructure development in question fades into the background in citizens' sensemaking as other experiences are given priority, the characteristics of the infrastructure are indirectly important for how the citizens act in the engagement process.

This indirect role of the infrastructure development supports our initial claim that we need to look beyond current paradigms of public participation centered on the infrastructure development. Rather, we argue that in order to create a meaningful dialogue with the public, public participation processes should have a starting point in which the infrastructure development is part of citizens' everyday life. Citizens' situated everyday life, represented as the network of entities surrounding the citizens, is the key to understanding citizens' action, hereunder why citizens do not act in the same way when subjected to an identical process. The minor role of the infrastructure development in question and the formal participation process furthermore calls for a reconsideration of the amount of resources and attention directed toward the formal participation processes and a larger focus on approaches with a broader view on citizens and their sensemaking processes.

The insight into citizens' sensemaking process contributes to the vast existing literature on citizens' opinions toward energy infrastructure (e.g., Walker et al., 2014; Walter, 2014; Webler et al., 2001; Soini et al., 2011), in the sense that it may provide inspiration for and explanation of what is behind citizens' opinions. As an example, Webler et al. (2001) identified five perspectives from the public on good participation processes based on a case study in the US. From a sensemaking perspective, these citizens' views are a temporal phenomenon reflecting a composition of enacted entities at a certain point in time; the findings of Webler et al. may be significantly different, if other major events or entities were appearing in the planning process. Learning from the findings of this paper, citizens' stated views may also be superficial statements concealing other views and meanings. This may provide an explanation for why citizens' opinions change in participatory processes, which is often labelled as a challenge without further description or explanation (e.g., Raven et al., 2009a).

Even though this is a case study looking at only four stakeholders, the combination of sensemaking and ANT reveals interesting elements in citizens' sensemaking process that will be of use in other cases. The framework emphasizes that citizens' sensemaking — and potential subsequent opposition — is not only determined by mental frameworks or the individual's context; the examples of the four citizens show that the entities actively interact with each other. In other words, a citizen is enacting different entities when making sense (Weick, 1995), but the entities also have an active role (Latour, 2005; Geels, 2004) as they are

enacting both the citizen and each other in a dynamic process of sensemaking. The introduction of new entities into the sensemaking process changes the composition of entity networks, e.g., by making some entities more influential or by undermining existing entities. This implies that entities are, in fact, assembled and re-assembled through the sensemaking process and, therefore, are temporary and volatile constructions which are susceptible to new combinations of entities. Theoretically, these dynamic and temporal characteristics of entities are in line with Latour (2005) and Callon (1987) ANT approach and they add to Weick's writings on sensemaking (Weick, 1995; see also Pollack et al. (2013) for a discussion of the potentials of combining ANT and sensemaking literature). The combination of ANT and sensemaking literature therefore allows for an understanding of the subtle details of how entities such as technology are part of citizens' sensemaking in energy infrastructure development processes.

This insight into how entities are enacted in the mental processes among citizens indicates two processes of translation that alter the composition of the citizen's network of entities in the sensemaking process:

1. Inclusive processes – enactment processes which make sense by creating, combining and including entities in new compositions of entities in the sensemaking process, thereby creating a new meaning.
2. Exclusive processes – processes of enactment that make sense by excluding or de-combining entities from existing compositions of entities in the sensemaking process, thereby creating a new meaning.

These mental processes resemble the processes in which citizens relate to other citizens' views that are either in line with or contrasting their own preferences. In this study, these processes are not the result of a dialogue between people, but a "dialogue" between entities in a translation process. The inclusive processes occur with all four citizens, e.g., when the new infrastructure project is linked with something of which the citizens already know the meaning in order to make sense of the disturbance of the new entity. The exclusive processes of sensemaking also occur with all four citizens, e.g., when the first citizen, due to negative experiences with planning processes in his past, refuses to cooperate with the TSO on placing the cable. He thereby excludes the negotiator from his entity network, as he refuses to let his arguments affect his plausible story and actions. Another example is the negotiator's assurance that the TSO will be responsible for all damages done to a citizen's soakaway facility, which causes the citizen to eliminate these entities from their sensemaking process because the issues are resolved. These two dynamic processes provide a strong argument for a movement beyond the understanding of citizens' sensemaking as based on rather static mental models to a sensemaking process influenced by inclusive and exclusive processes that reflect the dynamic networks of entities in which entities can influence each other. This is again emphasizing the potential of combining ANT with sensemaking theory.

5.2. Practical contribution and implications

The findings in this paper indicate that the dynamics and complexity of sensemaking processes make it hard to identify key stakeholders among the citizens in advance; citizens' reactions toward an infrastructure development will depend on the composition of their dynamic and temporal entity network. This is due to the fact that a wide range of enacted entities emerges when citizens make sense of an impending infrastructure project in their immediate vicinity. Thus, the dynamic temporal composition of entities in the sensemaking made by the four citizens interestingly turns out rather different, even though the citizens are in similar situations and citizens' reactions vary from collaborative cooperation to non-cooperation depending on how their sensemaking unfolds.

The diversity and complexity of citizens' dynamic sensemaking process thus seem to challenge the premises for stakeholder analysis with regard to citizens; stakeholder analyses are argued to provide "a solid starting point for identifying, classifying and categorizing stakeholders and understanding their behavior in order to better manage them" (Whitton et al., 2015, p. 129). Whereas stakeholder analysis surely has worth in the analysis of institutionalized interests in organizations, the findings call for cautious application with regard to citizens; at a distance the four citizens were categorized as landowners, but their sensemaking and actions differed widely. Other literature acknowledges the dynamics of citizens' views on a project, e.g., Raven et al. (2009a), who emphasize the difficulties in predicting these dynamics as "the challenge of interacting with the 'right people' in 'the right way'" (p. 570). The findings of this study underline how great a demand this challenge is on a micro-level.

The dynamics and the inclusive and exclusive processes in the sensemaking mean that issues such as trust, justice and fairness cannot be predicted as important for the individual citizens' opinion and actions. Trust, justice and fairness are widely recognized in energy engagement literature as generally important for public acceptance (Walter, 2014; Raven et al., 2009b; Jobert et al., 2007; Devine-Wright, 2011; Wolsink, 2007; Wüstenhagen et al., 2007), which is also evident in our study. However, this study indicates that the individual citizens' enactment of entities may either include or exclude these elements in the process of making sense. This dynamic emphasizes the challenges of ensuring a good participation process in energy infrastructure development and adds an extra layer to the efforts of enhancing public acceptance of energy infrastructure amongst local populations (e.g., Walker et al., 2014).

The findings call for a dialogue with a point of departure in the individual citizens. Participation methods such as plenum public meetings with one-way communication and questions from a broad audience have a significant risk of concerning superficial views rather than unfolding issues that really matter for the individual citizen. From a sensemaking perspective, such types of meetings may provide entities that the citizens either exclude, if they do not relate to the citizens' real concerns, or include as new elements in stories that are not desirable for any of the involved actors in the energy infrastructure development process. Further studies are needed to shed light on how the public participation practices can take the insight into sensemaking processes into account.

The role of negotiators and facilitators is also brought new perspectives by the study. For some of the citizens the negotiator — in spite of his presence at the negotiation — seems to play a very limited role in the sensemaking process: past experience seems to be so influential on how the citizens make sense of the infrastructure, wherein the dialogue with the negotiator is either not making a difference to the existing understanding of the infrastructure or only used to support the existing understanding. In other situations he plays a role in addressing the concerns activated by the energy infrastructure: in the example of the younger couple, who are concerned about damages to their soakaway facility, the negotiator addresses the uncertainties created by other entities in their network and transforms the vague concerns into tangible knowledge. In this situation, the negotiator becomes an intervening entity in the citizen's sensemaking process, as he is able to translate the other entities in the network in a different way. Insight into the socio-psychological process of sensemaking may be a beneficial competence for employees in the energy

infrastructure development in order to understand how the citizens' arguments and attitudes develop.

6. Conclusion and policy implications

Our findings provide a sound basis for our initial argument that in order to understand public acceptance, we need to go beyond the understanding of citizens framed as passive respondents to infrastructure projects and passive participants in formal participation processes. With the point of departure in the increased focus on the social side of infrastructure projects (e.g., Batel and Devine-Wright, 2015; Aitken, 2010; Walker et al., 2014), the paper provides theoretical and empirical insight into the dynamic processes of how citizens actively enact their surroundings in order to make sense of new infrastructure projects and form actions.

The conceptual contribution of this paper is a framework that allows for a deeper insight into the process of citizens' sensemaking. This deeper insight is based on the understanding that citizens' sensemaking is a complex process of activities where the citizens actively relate to both social and material entities and create an assemblage of entities in a translation process. This deeper insight may provide a relevant explanation for studies of stated opinions related to energy infrastructure, e.g., in contradictions in the much debated NIMBY syndrome (Devine-Wright, 2009; Wolsink, 2000), since insight into what entities are forming and continuously developing these opinions may be a far better predictor of citizens' behavior.

The combination of literature on ANT and sensemaking allows for a study of the very subtle details of citizens' sensemaking. This makes it possible to explain aspects that have not yet been well explained, e.g., why citizens facing very similar cables and situations act very differently. This paper serves to explore this novel approach with regard to public participation, and further studies are needed to establish the full potential.

The key practical contribution and implication is that the findings about citizens' sensemaking process challenge the ability to predict the engagement process. The findings suggest the way in which issues such as trust and fairness, which are generally regarded as important in public participation processes (e.g., Wolsink, 2007; Bronfman et al., 2012; Cain and Nelson, 2013), turn out very differently in citizens' sensemaking processes and, therefore, are of varying importance for their attitudes and actions. The insight into the dynamic sensemaking processes also seems to complicate the use of stakeholder analysis on citizens and to add an extra layer to the competences of the employees who interact with citizens.

Acknowledgement

The authors are grateful to the Danish ForskEL program for funding this research (program grant no. 12130).

References

Aitken, M., 2010. Why we still don't understand the social aspects of wind power: a critique of key assumptions within the literature. Energy Policy 38, 1834–1841.
Batel, S., Devine-Wright, P., 2015. Towards a better understanding of people's responses to renewable energy technologies: insights from Social Representations Theory. Public Underst. Sci. 24, 311–325.
Bell, D., Gray, T., Haggett, C., 2005. The 'Social Gap' in wind farm siting decisions: explanations and policy responses. Environ. Politics 14, 460–477.
Bidwell, D., 2013. The role of values in public beliefs and attitudes towards commercial wind energy. Energy Policy 58, 189–199.
Bronfman, N.C., Jiménez, R.B., Arévalo, P.C., Cifuentes, L.A., 2012. Understanding social acceptance of electricity generation sources. Energy Policy 46, 246–252.
Callon, M., 1986. Some elements of sociology of translation: domestication of the scallops and the fishermen of St. Brieuc Bay. In: Law, J. (Ed.), Power, Action and Belief: A New Sociology of Knowledge?. Routledge, London, pp. 196–233.
Callon, M., 1987. Society in the making: the study of technology as a tool for sociological analysis. In: Bijker, W.E., Hughes, T.P., Pinch, T.J. (Eds.), The Social Construction of Technical Systems: New Directions in the Sociology and History of Technology. MIT Press, Cambridge, Mass., London, pp. 83–103.
Callon, M., 1991. Techno-economic networks and irreversibility. In: Law, J. (Ed.), A Sociology of Monsters: Essays on power, Technology and domination. Blackwell, Oxford, pp. 132–164.
Cain, N.L., Nelson, H.T., 2013. What drives opposition to high-voltage transmission lines? Land Use Policy 33, 204–213.
Cohen, J.J., Reichl, J., Schmidthaler, M., 2014. Re-focussing research efforts on the public acceptance of energy infrastructure: a critical review. Energy 76, 4–9.
Devine-Wright, P., 2008. Reconsidering public acceptance of renewable energy technologies: a critical review. In: Grubb, M., Jamasb, T., Pollitt, M. (Eds.), Delivering a Low Carbon Electricity System. Cambridge University Press, London.
Devine-Wright, P., 2009. Rethinking nimbyism: the role of place attachment and place identity in explaining place protective action. J. Community Appl. Soc. Psychol. 19, 426–441.
Devine-Wright, P., 2011. Place attachment and public acceptance of renewable energy: a tidal energy case study. J. Environ. Psychol. 31, 336–343.
Energinet.dk, 2009. Kabelhandlingsplan: 132–150 kV – Marts 2009 [Cable Action Plan 132–150 kV – March 2009]. Energinet.Dk., Fredericia.
European Commission, 2011. Executive Summary of Impact Assessment Accompanying the document Regulation of the European Parliament and of the Council on Guidelines for the Implementation of European Energy Infrastructure Priorities Repealing Decision no 1364/2006/EC. SEC(2011) 1234 final. The European Commission, Brussels.
Faíras, I., 2011. The politics of urban assemblages. City: Anal. Urban Trends Cult. Theory Policy Action 15, 365–374.
Garud, R., Karnøe, P., Nag, R. Micro-processes of agency in emergent situations. Organization Science, (forthcoming).
Geels, F.W., 2004. From sectoral systems of innovation to socio-technical systems Insights about dynamics and change from sociology and institutional theory. Res. Policy 33, 897–920.
Hill, R.C., Leventhagen, M., 1995. Metaphors and mental models: sensemaking and sensegiving in innovation and entrepreneurial activities. J. Manag. 21, 1057–1074.
Innes, J.E., Booher, D.E., 2004. Reframing public participation: strategies for the 21st century. Plan. Theory Pract. 5, 419–436.
Jobert, A., Laborgne, P., Mimler, S., 2007. Local acceptance of wind energy: factors of success identified in French and German case studies. Energy Policy 35, 2751–2760.
Jolivet, E., Heiskanen, E., 2010. Blowing against the wind — an exploratory application of actor network theory to the analysis of local controversies and participation processes in wind energy. Energy Policy 38, 6746–6754.
Jones, E., Gaventa, J., 2002. Concepts of Citizenship: A Review (IDS Development Bibliography) 19. IDS, Brighton.
Latour, B., 2005. Reasembling the Social: An Introduction to Actor-Network-Theory. Oxford University Press, New York.
Lyhne, I., Kørnøv, L., 2013. How do we make sense of significance? Indications and reflections on an experiment. Impact Assess. Proj. Apprais. 31, 180–189.
Michels, A.M.B., de Graaf, L.J., 2010. Examining citizen participation: local participatory policy making and democracy. Local Gov. Stud. 36, 477–491.
Pellizzone, A., Allansdottir, A., De Franco, R., Muttoni, G., Manzella, A., 2015. Exploring public engagement with geothermal energy in southern Italy: a case study. Energy Policy 85, 1–11.
Pollack, J., Costello, K., Sankaran, S., 2013. Applying actor–network theory as a sensemaking framework for complex organisational change programs. Int. J. Proj. Manag. 31, 1118–1128.
Raven, R.P.J.M., Mourik, R.M., Feenstra, C.F.J., Heiskanen, E., 2009a. Modulating societal acceptance in new energy projects: towards a toolkit methodology for project managers. Energy 34, 564–574.
Raven, R.P.J.M., Jolivet, E., Mourik, R.M., Feenstra, Y.C.F.J., 2009b. ESTEEM: managing societal acceptance in new energy projects: a toolbox method for project managers. Technol. Forecast. Soc. Change 76, 963–977.
Rowe, G., Frewer, L.J., 2000. Public participation methods: a framework for evaluation. Sci. Technol. Hum. Values 25, 3–29.
Schatzki, T.R., 2001. Introduction: practice theory. In: Schatzki, T.R., Knorr Cetina, K., von Savigny, E. (Eds.), The Practice Turn in Contemporary Theory. Routledge, London.
Shove, E., Pantzar, M., Watson, M., 2012. The dynamics of social practice: everyday life and how it changes. Sage Publications Ltd., London.
Soini, K., Pouta, E., Salmiovirta, M., Uusitalo, M., Kivinen, T., 2011. Local residents' perceptions of energy landscape: the case of transmission lines. Land Use Policy 28, 294–305.
Upham, P., Pérez, J.G., 2015. A cognitive mapping approach to understanding public objection to energy infrastructure: the case of wind power in Galicia, Spain. Renew. Energy 83, 587–596.
Van der Horst, D., 2007. NIMBY or not? Exploring the relevance of location and the politics of voiced opinions in renewable energy siting controversies. Energy Policy 35, 2705–2714.
Virkki-Hatakkaa, T., Luoranenb, M., Ikävalkoa, M., 2013. Differences in perception: how the experts look at energy efficiency (findings from a Finnish survey). Energy Policy 60, 499–508.

Walker, B.J.A., Wiersma, B., Bailey, E., 2014. Community benefits, framing and the social acceptance of offshore wind farms: an experimental study in England. Energy Res. Soc. Sci. 3, 46–54.
Walter, G., 2014. Determining the local acceptance of wind energy projects in Switzerland: the importance of general attitudes and project characteristics. Energy Res. Soc. Sci. 4, 78–88.
Webler, T., Tuler, S., Krueger, R., 2001. What is a good public participation process? Five perspectives from the public. Environ. Manag. 27, 435–450.
Weick, K.E., 1979. The Social Psychology of Organizing, Second ed. Mcgraw Hill, New York.
Weick, K.E., 1995. Sensemaking in Organizations. Sage Publications, Thousand Oaks, CA.
Weick, K.E., Sutcliffe, K.M., Obstfeld, D., 2005. Organizing and the process of sensemaking. Organ. Sci. 16, 409–421.
Weick, K.E., Sutcliffe, K.M., 2015. Managing the unexpected: sustained performance in a complex world, 3rd ed. Jossey-Bass, San Francisco.
Westwood, R., Clegg, S. (Eds.), 2003. Debating Organization: Point-Counterpoint in Organization Studies. Blackwell, Malden, MA.
Whitton, J., Parry, I.M., Akiyoshi, M., Lawless, W., 2015. Conceptualizing a social sustainability framework for energy infrastructure decisions. Energy Res. Soc. Sci. 8, 127–138.
Wolsink, M., 2000. Wind power and the NIMBY-myth: institutional capacity and the limited significance of public support. Renew. Energy 21, 49–64.
Wolsink, M., 2007. Planning of renewables schemes. Deliberative and fair decision-making on landscape issues instead of reproachful accusations of non-co-operation. Energy Policy 35, 2692–2704.
Wüstenhagen, R., Wolsink, M., Bürer, M.J., 2007. Social acceptance of renewable energy innovation: an introduction to the concept. Energy Policy 35, 2683–2691.
Zhang, W., 2015. Perceived procedural fairness in deliberation: predictors and effects. Commun. Res. 42, 345–364.