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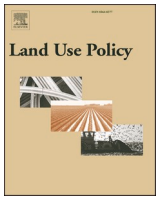

Drawing the line: Opening up and closing down the siting of a high voltage transmission route in the Netherlands

Kyra Ruiten [a], Udo Pesch [b,*,1], Toyah Rodhouse [b], Aad Correljé [b], Shannon Spruit [c], Antje Tenhaaf [d], Jochem Dijkshoorn [e], Susan van den Berg [f]

[a] The Thuisgekookt Foundation, the Netherlands
[b] Delft University of Technology, the Netherlands
[c] Populytics, the Netherlands
[d] HyTransport, the Netherlands
[e] WB De Ruimte, the Netherlands
[f] TenneT, the Netherlands

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ABSTRACT

This paper describes the decision-making process regarding the siting of a high voltage transmission line in the southern part of the Netherlands by TenneT, the Transmission System Operator responsible for the electricity infrastructure. TenneT started this siting process by deploying conventional decision-making procedures, which have the tendency centrally to pre-scope, and select the technical, spatial and societal characteristics of such projects. Following the resistance of activist groups and local authorities, a new siting process was set up based on community engagement (CE) and the upfront involvement of local stakeholders, so to include new frames and perspectives and by reconsidering the workings of standard procedures. With that, TenneT opened up decision-making processes. In our paper, we will identify the practical and institutional tensions and challenges that emerged from these attempts to 'open up'. The work is based on an 'inside out' description of the case: one of the researchers undertook an ethnographic study of the siting process, while the employees of TenneT directly involved in the siting process have been invited as co-authors, so to add details and the reflections of practitioners.

1. Introduction

Organisations involved in restructuring energy infrastructures to facilitate decarbonisation not only have to cope with technical challenges, but also with new societal demands. They are expected to meaningfully engage with public groups and actors, such as neighbouring local communities and the society-at-large (Cain and Nelson, 2013; Devine-Wright and Batel, 2013; Ryder et al., 2023; Schweizer et al., 2016). Though at times such arrangements can be seen as challenging and complex (Lai, 2015; Schweizer et al., 2016; Cowell and Devine-Wright, 2018), the inclusion of other parties presents an opportunity to bring in and learn from new frames and perspectives and to end up with a decision based on a much wider variety of insights (Cuppen et al., 2016; Boyle et al., 2022).

In (energy) infrastructure planning, there is the tendency centrally to pre-scope, select and determine decisions (Groves et al., 2013). Traditionally, grid operators appear very much used to certain types of knowledge and ways of working and thinking; they are committed to deeply institutionalised technocratic and regulatory processes and are not always convinced that inclusion of external parties and their ideas will improve planning and development practices (Komendantova and Battaglini, 2016; Cotton and Devine-Wright, 2012; Komendantova and Battaglini, 2016; Suškevičs et al., 2019). This position is undesirable and untenable in light of the ongoing energy transition. Indeed, energy infrastructure will become more visible, intrusive and contested (also see Soini et al., 2011; Stadelmann-Steffen, 2019), while at the same time a more dynamic and reciprocal distribution of roles and responsibilities between society and operators is required. Social involvement in

* Correspondence to: Department of Values, Technology, and Innovation Faculty of Technology, Policy and Management Delft University of Technology Delft, The Netherlands.
E-mail address: u.pesch@tudelft.nl (U. Pesch).
[1] https://Orcid.org/0000-0002-8980-5205

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infrastructure development, through participation and protest, seems inevitable (McGookin et al., 2021), also to establish trust (Ceglarz et al., 2017; Mueller, 2020) and justice (Knudsen et al., 2015; Ottinger et al., 2014).

In order to accommodate society in infrastructure development, grid operators are cautiously experimenting with more participatory and inclusive forms of infrastructure development. Done right, inclusion presents an opportunity to 'open up' decision-making processes, in the anticipation that 'technocratic' infrastructural commitments can be overcome and quality and democratic legitimacy of decision-making can be improved (Stirling, 2008a). Opening up infrastructure development at an early stage could expand the vantage points to be taken into account, especially given the social and institutional complexities that characterise such infrastructure (Bridge et al., 2018).

The crux of the issue, however, lies in what it means to open up – and close down again – in the 'right way'. This paper describes an attempt to intentionally open up the process of infrastructure development in the case of the construction of a new high voltage transmission line in the south-western part of the Netherlands. This project is part of a national effort to expand existing electricity infrastructure to connect off-shore wind farms to the central grid. It is being developed by the Dutch Transmission System Operator (TSO) TenneT, which is responsible for the maintenance, operation and development of high-voltage electricity transmission infrastructure in the Netherlands.

We will elaborate on the notions of opening up and closing down in Section 2. Section 3 introduces our case study and presents our methodology approach, which can be seen as an 'inside out' approach in which members of TenneT's planning and engagement team are asked to reflect on their experiences and learning from the siting process now concluded; how the insights gained in this particular project were taken forward within the organisation; and what additional insight can be drawn. Sections 4 and 5 describe two particular episodes in the siting process which involved explicit attempts to include perspectives, knowledge and preferences from local stakeholders. In Section 6 we critically reflect on the case, analyzing it in terms of tensions and challenges regarding opening up, both from a theoretical and a practical angle. We will conclude with an annex in which the pracitioners within our writing team reflect on their engagement with theory.

2. Opening up and closing down

2.1. Institutional reflexivity

Discussions about 'institutional reflexivity' can be seen as a reaction to the problematic legitimacy of science and government (cf. Giddens, 1991). In modern society, the legitimacy of knowledge and power have been designated to these respective institutions. However, as science-based expertise has increasingly become the foundation of authoritative decisions, questions about knowledge and power have come to overlap to a major extent (Ezrahi, 1990; Pesch et al., 2012). What is considered legitimate and valuable knowledge – as well as what are seen as appropriate ways of gaining it – is often dependent on the extent to which knowledge confirms dominant viewpoints, positions, and ontological understandings of our (social) world. In other words, knowledge works to legitimise existing power, and so does political power come to legitimise knowledge (creation).

The concept of institutional reflexivity aims to make explicit how, by whom, and for what purposes, knowledge is produced. It also concerns making visible whose knowledge is not taken forward, for what reasons, and with what sort of consequences (Wynne, 1993; Chilvers, 2013; Pallett and Chilvers, 2013). In this regard, 'opening up' and 'closing down', introduced by Stirling (2008a) over a decade ago, are notions that allow for a more fine-grained conceptualisation of institutional reflexivity. Opening up revolves around the improvement of the quality of decisions by accounting for a wider variety of norms, values, beliefs and knowledge claims, while closing down refers to the need to narrow down this variety in order to come to a limited number of commitments or conclusions, which is a crucial step towards making a decision.

One of the most interesting elements of Stirling's account of opening up and closing down is its reliance on insights derived from the governance of promising yet controversial *technologies* (Stirling, 2005, 2008a, 2010) and *sociotechnical systems* (Smith and Stirling, 2007). Opening up is not about how to deal with objectified versus contextualised truth-claims, but about broadening out our knowledge base when taking decisions that affect society in yet unknown, uncertain, or ambiguous ways (Stirling, 2008b).

With the focus on the range of possible outcomes, the account of opening up and closing down fits the scope of political decision-making to quite an extent, which might explain the take-up of this terminology in the study of a wide array of policymaking (e.g., Hendriks and Grin, 2007; Ockwell, 2008; Saarikoski et al., 2013; Blue, 2015; Hölscher et al., 2019) and project and programme planning settings (e.g., Cotton and Devine-Wright, 2011; Schweizer et al., 2016; Krzywoszynska et al., 2018; Andersson and Westholm, 2019). Despite this take-up, closing down still seems to be pervasive in decision-making procedures, related to the fact that institutions can be seen as 'closing down machines'. They restrict the range of choices that are taken into consideration by human agents in two ways, namely by constraining and enabling certain actions and decisions (Giddens, 1984). First, shared normative criteria, procedures and rules effectively reduce the number of alternatives that are to be considered to a manageable number; an illustration of Herbert Simon's concept of 'bounded rationality'. Second, these procedures and rules also allocate decision-making authority to certain agents, who can select what they see as a preferable decision. In other words, as well as setting the scope of discretion, institutions give discretionary power. As infrastructure planning, by necessity, takes place within existing institutional contexts, the tendencies to close down will always be present.

2.2. Appraisal and commitment

Opening up and closing down can influence the two recursive phases of decision-making, which are 'appraisal' and 'commitment'. In this respect, appraisal involves the way in which a problem is to be defined, while commitment relates to the way in which it is solved. Appraisal is the phase in which knowledge and information is collected; it is about making sense of the problem at hand (Stirling, 2008a). When appraisal is driven by a tendency to close down, there is a predisposition towards particular types of knowledge or information, with the most likely result being some sort of unitary, authoritative and prescriptive policy advice (Stirling, 2008a). The outcome is likely to be a narrowed problem definition that relates to one or a few preferred interventions or solutions. Alternatively, when appraisal is driven by a tendency to open up, the aim is to produce multiple problem definitions and related solutions (Ely et al., 2014, p. 508), which can be achieved by involving new actors and interested parties in matters of knowledge creation. Opening up appraisal helps to create awareness about the normative and cognitive diversity in society, stimulating self-reflexivity on one's own assumptions and perspectives (Smith and Stirling, 2007).

From an analytical starting point, appraisal can be said both to inform and follow commitment, which is the phase in which decisions are formalised and enacted. In a way, commitment is about performing socially agreed upon truths. It is the phase in which resources like regulation, money and institutions are invested to allow for concrete governance interventions (Smith and Stirling, 2007, p. 354). If commitment is driven by the urge to close down, then often there is a pre-existing pledge to certain discursive and institutional rules that become continuously reproduced (or to which actors recommit again and again). Commitments can also be geared towards opening up, which would involve challenging institutionalised rules and practices, so that new ways of commitment need to be negotiated. Opening up commitment would involve a renegotiation that surpasses the strategic and instrumental bargaining, and that leaves room for critical reflection on

underlying power relationships, authority appointments and coordination arrangements (Smith and Stirling, 2007).

2.3. Participation and opening up

According to Stirling, the linkage between participatory forms of appraisal and opening up is often made, but in no way this linkage is a necessary one (Stirling, 2008a). Opening up can also involve the inclusion of more conventional forms of knowledge and analysis. Nevertheless, the interplay of opening up and closing down has often been advocated as a support for participatory forms of appraisal. Active involvement of stakeholders is desirable because it can: (1) improve the quality of decision-making as it will be based on a wider range of considerations, perspectives and ideas; (2) make it easier for decisions to be accepted by external parties; (3) align with democratic principles (also see Fiorino, 1989; Fiorino, 1990).

Of relevance is that some forms of participatory appraisal can actually conflict with the aspiration to open up (Renn and Schweizer, 2009). To a large extent, this conflict ensues from the point raised earlier: policymaking conventionally aims for a singular decision, and institutional contexts are basically organised to facilitate this aim. Participatory arrangements applied within such a policy context are likely to be designed for achieving a singular outcome, for example, when participation is set up to steer towards consensus among actors on meanings and consequences (Renn and Schweizer, 2009, p. 178), or when the sole aim of participation is to identify a policy option that optimises payoffs to, or trade-offs for, each participating actor (Renn and Schweizer, 2009, p. 177). It is in these instances that participatory arrangements can be at odds with the conditions for opening up, giving rise to suboptimal solutions and/or a breach in public trust. Therefore, the way in which participatory settings relate to the goal of opening up needs further scrutiny.

3. Introduction to the case

3.1. Southwest kV east

The Netherlands aims to move towards more (renewable) electricity generation and usage in the coming years, with a considerable part of the electricity to be produced by offshore wind farms. To ensure stable and reliable electricity provision, the connectivity and capacity of the Dutch electricity infrastructures need to be improved, especially in areas close to the coast where connections with off-shore windfarms are built. As part of these efforts, the national government mandated the construction of a new high voltage transmission line, expanding the current 380 kV network in the southwest of the Netherlands. (see Fig. 1) This process was started in 2008, and initially entailed a rather conventional top-down planning approach that fitted existing standardised decision-making arrangements.[2]

The national TSO, TenneT is responsible for carrying out the expansion under the auspices of the Ministries of Economic Affairs and Climate Policy and Internal Affairs. The original aim was to realise one transmission route between the province of Zeeland and the city of Tilburg. Later the task was broken up into two separate projects: *Zuid-West 380 kV West* (Borssele-Rilland) and *Zuid-West 380 kV Oost* (Rilland-Tilburg).[3]

In this paper, we focus on *Zuid-West 380 kV Oost* ('South-West 380 kV East'). This is the part of the transmission route to be realised between Rilland and Tilburg, as illustrated in Fig. 2. The total length involved is about 70 kilometres.

After the area was designated for the development of the line early in 2008, TenneT led a siting process and engaged with local stakeholders to determine the exact route. Conflicts arose in 2014, when TenneT's management changed the safety rules, reducing the number of 380 kV lines allowed per tower. The consequences of this decision were that the two proposed 4 × 380 kV sub-routes no longer satisfied the security of supply norms and that the routing plans had to be adjusted. TenneT's project developers had already been contacting local residents, and promises had been made. However, the new rules forced them to reconsider the transmission routes without time allocated for further consultation. Being suddenly confronted with a new and unfamiliar trajectory, the residents were shocked and angry. They started to organise themselves in action committees.

These developments prompted the Minister of Economic Affairs to put the project on hold in 2015, allowing local stakeholders – residents, action committees and local governments – to submit alternative transmission routes. These stakeholders submitted their proposals (which were published early 2016) but, despite all their efforts, they did not see their ideas and suggestions reflected in the subsequent project plans. Obviously, this omission again raised discontent and distrust among local stakeholders.

It was realised that trust had to be restored before moving forward with siting and development (Ceglarz et al., 2017). This revanche was very much instigated by staff changes both within TenneT and the Ministry of Economic Affairs in the summer of 2016. The new team members successfully argued for a change in approach. So, in the following development phase, a participatory process was set up in which the opportunities of local stakeholders to safely express their perspectives and concerns were more formalised. It was recognised that the stronger involvement of these actors and their viewpoints required a new institutional balance, in the sense that the constraints of the decision-making process and the appointment of authority herein had to be renegotiated.

3.2. Method: An inside out approach

The empirical data upon which this paper is built has been gathered via participatory observation of one of the authors, while key actors involved in the case have been asked to co-author and reflect upon both the participation process and the academic analysis. Our 'inside out' approach not only allows for the description of the intentions of actors, but it also gives them the opportunity to reflect on their activities and learning experiences, against the background of existing assumptions and institutional and organisational constraints.

Fieldwork was conducted over 6 months from December 2018 until May 2019. During this period, author 1 worked together with the project team of TenneT and was able to develop a clear understanding of ongoing developments and pressing issues within the project. The researcher could test and verify these observations in more in-depth conversations and interviews with both the TenneT planning and engagement team and also with external stakeholders such as local authorities, action groups, and members of local communities. Once the fieldwork was completed, the relevant observations were analyzed by authors 2–5, followed by the members of the TenneT team (authors 6–8), verifying and reflecting on the analysis of the empirical findings.

4. Episode 1: Setting the stage for a new playing field

4.1. A fresh start

In 2016, TenneT and the Ministry of Economic Affairs employed new staff to work on the project. Both organisations appointed new project managers, and TenneT also hired two new community engagement/stakeholder managers. The arrival of these employees, who were not burdened by the experience of previous relations and irritations, proved

[2] https://www.zuid-west380kv.nl/west/documents/Startnotitie-webversie-5b8fcd35–84fc-4e77–915a-3871c35ff8bd.pdf; https://www.zuid-west380kv.nl/oost/meer-weten/publicaties, accessed 19–01–2023

[3] https://www.tennet.eu/nl/ons-hoogspanningsnet/onshore-projecten-nederland/zuid-west-380-kv-oost/ accessed on 19–01–2023.

Fig. 1. Location of the transmission route connecting the offshore wind farms, through the province of Zeeland towards the city of Tilburg. *Source*: https://www.tennet.eu/nl/projecten/offshore-projecten-nederland, accessed 19–01–2023.

to be a main impulse for a series of events that resulted in a different approach to stakeholder engagement and, eventually, the re-establishment of trust among all parties.

One of their first tasks was to find out how the alternative transmission routes submitted in the previous phase in 2015 were to be taken forward. A process was set up in which both the original transmission routes and the proposed alternatives were reassessed, this time in a participative setting. All the parties which had submitted transmission routes in the preceding process were invited to join (i.e. action committees and local and regional governments). At first, TenneT organised separate meetings with each of the stakeholders. This move was considered essential to re-establish trust and do justice to each perspective. Once the step was accomplished, the parties were brought together in an attempt to integrate their perspectives.

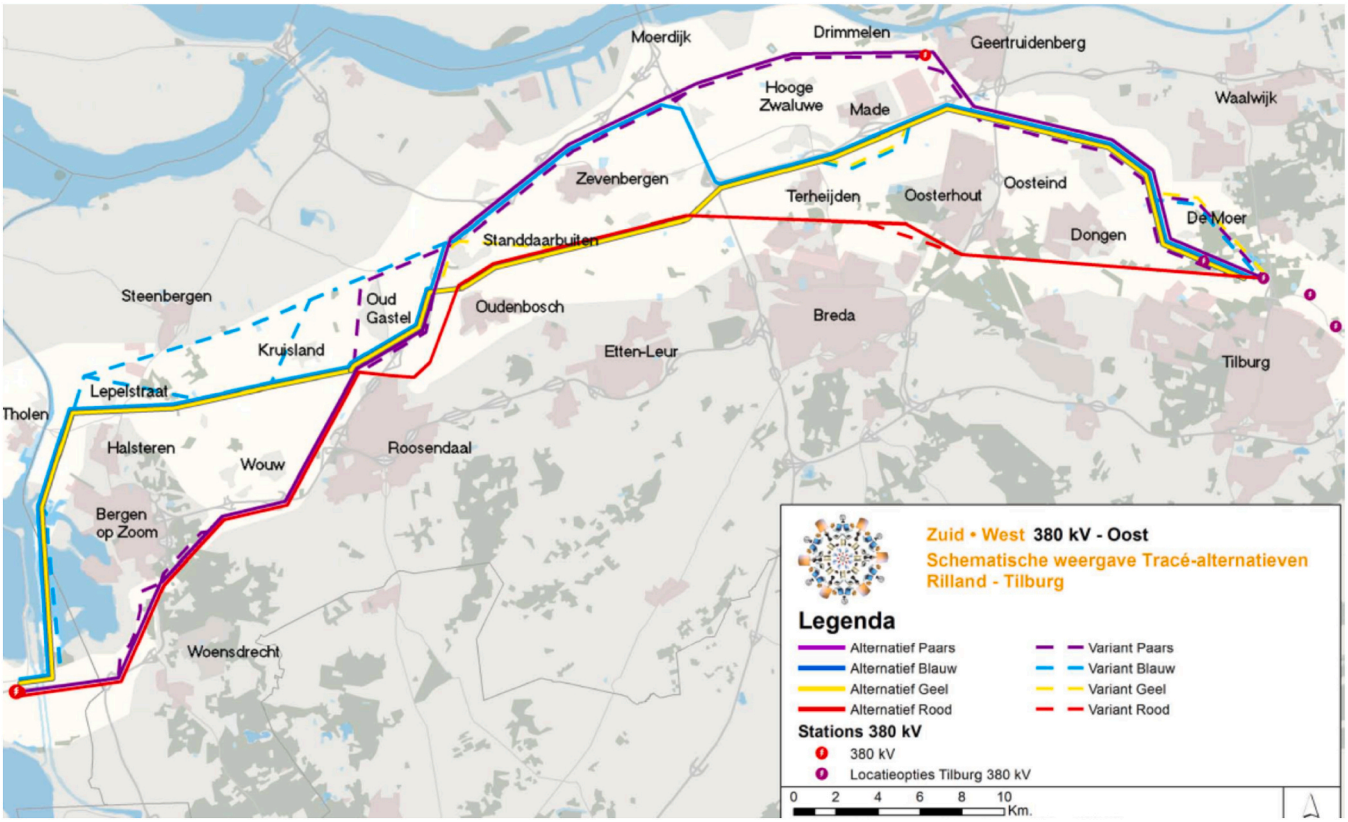

Fig. 2. Alternative trajectories of the Zuid-West 380 kV Oost Transmission line. *Source*: https://projecten.tennet.eu/projectboek-2/het-trac-onder-de-loep-overzichtskaart/ accessed 19–01–2023.

4.2. The environmental impact assessment

After TenneT reopened the set of possible transmission routes, the team and the local stakeholders jointly made an assessment of the routes based on their potential environmental impact. In the Netherlands, an Environmental Impact Assessment (EIA) is mandatory. By law, all projects and policy decisions that could have a potentially detrimental effect on the environment must undergo an EIA.[4]

At the start of the environmental assessment, the action committees and municipalities involved expressed their concerns and demands. First, they wanted their own criteria and assessment ideas incorporated in the EIA and, second, they sought more transparency and openness with regard to the formal assessment made. Without these demands being met, they would not support the EIA results. Whereas the project team of TenneT endorsed these requests, they were met with hesitance by other departments in the organisation. A period of internal discussion ensued. The latter were concerned that a tailored EIA might set an undesirable precedent, fearing that stakeholders in other projects would start making similar demands and requests. They were also concerned that the required alterations to the EIA process would have far-reaching consequences for the established TenneT working routines. It required sustained effort from the project developers, constantly arguing for the need to make one-off exceptions along with the importance of transparency and publishing the EIA. Eventually permission for a published project-specific EIA framework was granted.

Here was an important milestone in the siting process, because with this decision also came the commitment to continue the participation process and to develop the project-specific EIA framework together with the local stakeholders. An essential first step was explaining to the action committees and local authorities what an EIA is, how it works, and what it aims to do. On this basis, stakeholders were able to ask questions. Following those interactions, they were asked to bring forward any specific effects they wanted to see assessed.[5] The resulting framework was labelled the 'integral impact analysis', which included standard EIA impact categories such as quality of life, nature, and archaeology, as well as criteria added by TenneT, addressing technology, costs and connection options, plus the concerns of the stakeholders. Amongst others, these latter issues included the impact on the landscape as a consequence of new routes, the size of the zones with electro-magnetic fields around transmission lines to identify potentially sensitive areas, the compensation of negative effects of new transmission lines on nature and landscape by the positive effects of the removal of pre-existing lines in the region, the particular impact on the Dutch National Ecological Network, and the impact of possible routes on biodiversity and on birds and bat habitats.

Once consensus was reached on the relevant criteria against which the effects and impacts of different routes were to be judged, and stakeholder approval of the framework was explicitly granted, TenneT hired a specialist agency to carry out the assessment.

It is interesting to see how the decision-making dynamics interlock here. An assessment procedure like the EIA is typically used to close down appraisal. Therefore, it strongly specifies what sort of knowledge is deemed relevant for decision making. It defines types of expertise and the application thereof, and it pre-scopes what alternatives to take into account. In this case, however, the EIA helped to include a diversity of actors, knowledge and knowledge concerns. The use of the EIA as a tool for opening up was essential for repairing the relations between society

[4] http://www.commissiemer.nl/, accessed 19–01–2023

[5] Available at https://www.zuid-west380kv.nl/oost/meer-weten/publicaties, accessed 19–01–2023

and the developers. The TenneT project leader later recalled the importance of having all parties aware of and agreeing on the criteria against which the transmission routes were going to be assessed. This accord allowed the project developers to "regain trust and to be very open and transparent in the story". The project leader at the Ministry of Economic Affairs also noted that the transparency helped to establish a necessary "joint account of the facts". In the end, the planning and engagement team even received positive feedback from the Dutch EIA committee, confirming its appreciation and the value of public participation in the creation of knowledge about a project.

4.3. Coming to a decision

The integral impact analysis suggested four main transmission routes, each with multiple connection options leading to "more than forty ways to get from one side to the other". While it is common that the respective Ministers of Economic Affairs and Infrastructure and Water Management decide on the intentionally preferred alternative in projects (VVKA),[6] in this case the local authorities were asked collectively to advise the Ministers based on their shared preferences for a specific transmission route. With this advisory role, they were given a more prominent and formal position in what had become more bottom-up decision making.

The local authorities, who had united themselves under the label 'cooperating authorities' (hereafter: SO),[7] decided that environmental friendliness (MMA)[8] had to be the leading criterion in their advice to the Minister on the VVKA. At that time, it was standard procedure to determine the MMA based on a weighting of impacts identified in the EIA. However, in this project, a weighing among the values of living environment and sensitive areas, cultural-historical landscape, and nature was considered undesirable. Although one route proved less desirable in terms of environmental friendliness, the three other routes – which were called the southern, middle and northern variants – all scored high on different values. It was impossible to select the *most* environmentally friendly (MMA) route.

The three transmission routes had different advantages and disadvantages. What followed was a deliberation process within the SO, to come to a position which could be supported by all municipalities. The collective nature of the SO demanded that representatives of different organisations took a step back from their individual interests and focussed on regional needs. This adjustment was successfully accomplished.

This intention to act as 'one municipality' did not erase the various competing interests within the SO, however. It gave rise to a more political negotiation. Over the years, the well-organised action committees in the south had made it clear that they would not accept a southern transmission route.[9] This stance also emerged in the deliberation process; as a member of the committee recalls, the southern municipalities tried to make 'deals' to prevent the transmission lines from crossing their territories. For example, the municipality of Oosterhout was said to have offered to site a wind turbine park that was originally sited in another municipality, in exchange for not having to accept a southern transmission route. Adding to the political dynamics of the process was that the southern municipalities were considered to have more influence due to their professional expertise.

In light of these conditions, it became apparent that the most supported route was the northern one. Ultimately, the local governments agreed to advise the Minister of Economic Affairs to move forward with it. To reach unanimity, three additional measures were proposed. They concerned three different municipalities alongside the northern part of the transmission route which were arguably over-exposed to above-ground (energy) infrastructure. They were offered alternative measures to improve the quality of life and maintain important landscape characteristics.[10] For example, the municipality of Geertruidenberg demanded that an existing transmission line that runs through the town centre would be replaced by an underground connection.

Representatives of TenneT, the Ministry and the local authorities seem to look back on this process with a shared sense of satisfaction. According to the stakeholders manager of TenneT, the advice that was eventually given by the SO was "well substantiated with strong arguments". Furthermore, TenneT considered the final position to be realistic, feasible and within budget. The fact that the northern transmission route was now supported by all local governments involved in the siting process was seen as a sign of broad public support. The Minister of Economic Affairs swiftly followed up on the advice and adopted that route.

5. Episode 2: Working with changing 'publics' and the ambiguity of engagement

5.1. From marker to fine liner: co-creation

While the transmission route had now been projected to the north, there were still specific choices required about locations and connections. In the words of one of TenneT's community engagement managers, route development had to move from "marker to fine liner" on the map. Along the transmission line, twelve areas were identified in which further optimisation was required (see Fig. 3). Most were relatively small, covering a stretch of around 5 kilometres in length.

The planning and engagement team wanted to continue its participative approach and search for diversity of inputs in route optimisation. Hence they opted for a co-creative design process in each of the twelve sub-areas. It was split up in four stages, of which the first two were finalised at the time of writing this article.[11] In the first, TenneT and the SO made an inventory of stakeholders concerns, preferences, and bottlenecks along the route via open information sessions, which attracted around 700 interested citizens. In the second stage, residents and other stakeholders were invited to put forward ideas on siting issues and discuss preferred solutions for specific locations in interactive design sessions or so-called work studios. These studios were co-creative and based on voluntary admission of a moderate number of participants and designed to facilitate a diversity of viewpoints. The various proposals from the studios were assessed by TenneT against the IEA criteria agreed upon earlier – i.e., environmental and nature aspects, landscape considerations, living environment and community impact, technological feasibility and costs – and presented in a follow-up session. Towards the end of that session, a choice for a specific (set of) routes was made by the participants. These suggestions were taken forward by the SO, which was to create and propose a route variant to the Minister of Economic Affairs.[12]

In the subsequent two stages, which are still ongoing at the time of writing, TenneT is preparing for construction together with contractors and landowners (Stage 3), while the Ministry of Economic Affairs prepares and communicates a draft zoning plan based on the outcomes of the work studios (Stage 4). Residents and other affected stakeholders are allowed to submit opinions, concerns and appeals, based on Dutch

[6] In Dutch: VVKA is Voorgenomen Voorkeursalternatief
[7] In Dutch: SO is 'Samenwerkende Overheden'
[8] In Dutch: MMA is 'Meest Milieuvriendelijk Alternatief'
[9] See, for example https://380kvoosterhoutnee.nl/, accessed 19–01–2023.
[10] Bijlage 1 bij advies Samenwerkende Overheden: specifieke onderdelen van het advies (mei 2017), available via https://www.zuid-west380kv.nl/oost/meer-weten/publicaties, accessed 19–01–2023.
[11] Projectboek 1: 'Samen aan de slag naar een definitieve verbinding': https://www.zuid-west380kv.nl/oost/meer-weten/publicaties, accessed on 19–01–2023.
[12] Advies Samenwerkende overheden (juni 2019): https://www.zuid-west380kv.nl/oost/meer-weten/publicaties. Accessed 05–02–2023

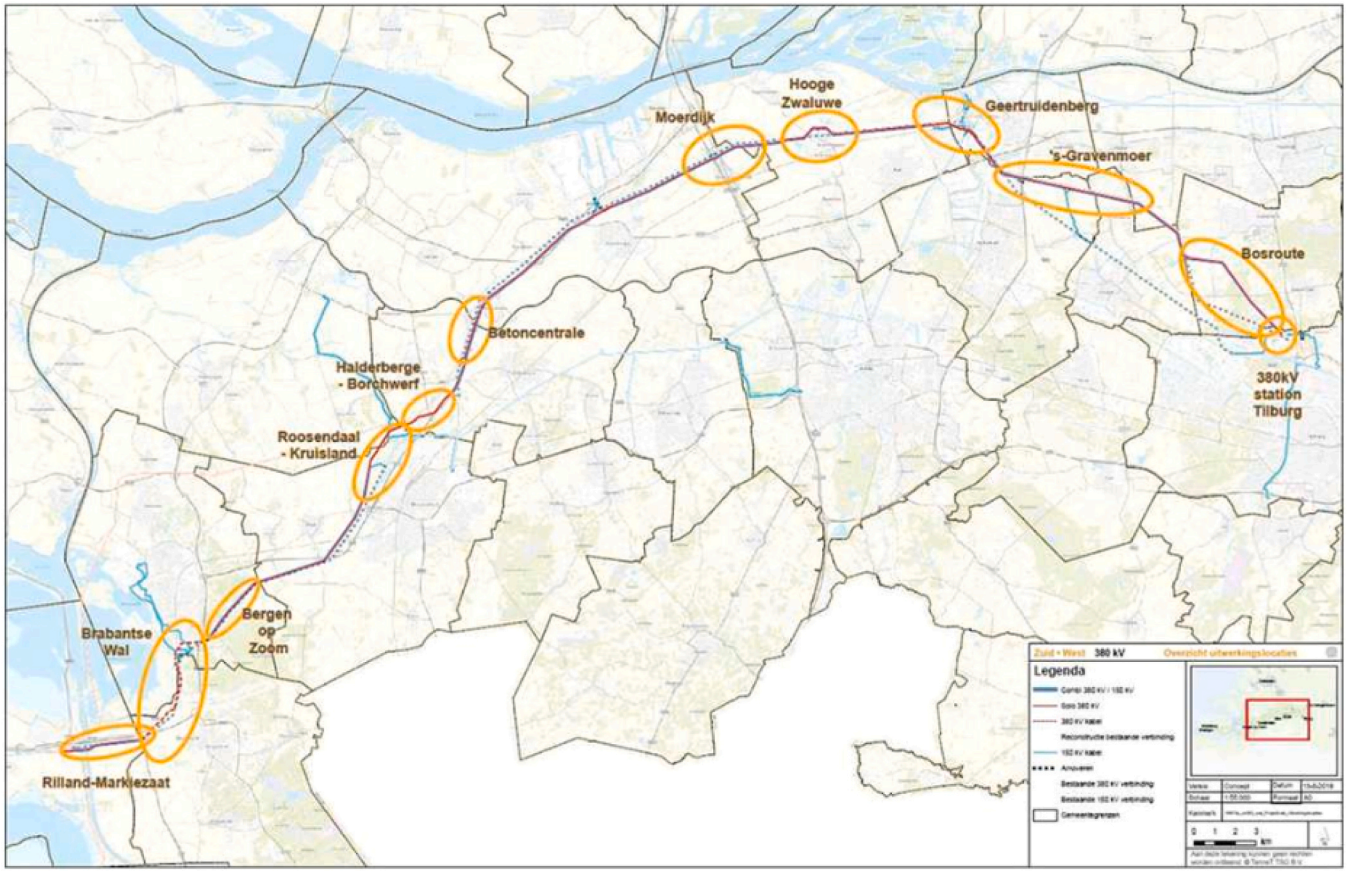

Fig. 3. Twelve areas along the route which required further optimisation. *Source*: https://projecten.tennet.eu/projectboek-2/het-trac-onder-de-loep-over-zichtskaart/….

spatial planning procedures.

In analysing this second episode, we will focus on the design and functioning of the work studios. As in the first episode, tensions between opening up and closing down characterise decision making – however, the dynamic here is of a very different nature. In the work studios, we see tensions being played out among, on the one hand, some actors demanding a further opening up of the route design and, on the other hand, the perceived need of other actors to close down towards a socially acceptable alternative. We will now elaborate on some specific issues that came up.

5.2. Opening up and closing down dynamics inside the work studios

5.2.1. Participant selection and representation

With the work studios, the planning and engagement team wanted to include potentially affected residents and stakeholders in the design process of the route. Overall, the number of residents living close to the proposed route was believed to be relatively small. Two groups were considered significantly affected: first, residents living in areas exposed to electro-magnetic fields and, second, those affected by visual or other less salient impacts. Residents from both groups were invited to the work studios. In addition, a wide array of other stakeholders whose knowledge and interests were deemed relevant to particular sub-routes, such as the local water authorities, the Department of Public Works and Water Management,[13] ProRail, local (agricultural) businesses and the Dutch Society for Nature Conservation, were asked to participate. Important to note is that for most of these parties, the project was new; they had not been involved in the previous episodes.

For each of the areas along the route, relevant stakeholder groups were identified. While participant selection was based on impact, interests, and voluntary enrolment (self-selection), TenneT's planning and engagement team explicitly urged a diversity of perspectives to be addressed as suitable design challenges. In terms of representativeness, the team members asked the participants themselves to choose whom they were representing – and by whom they wanted to be represented. The participants were charged to actively communicate with their 'constituency'. In that way, the work studios became a meeting and discussion ground for a select yet broadly representative group of stakeholders. The community engagement managers also tried to maintain a limited group size. Otherwise, as was the worry, the work studios might have lost their co-creation character and instead would have become more static information gathering meetings.

5.2.2. Issues on the agenda

Participants were selected to join an area-specific work studio.[14] At the start, TenneT listed the earlier identified concerns, preferences, and bottlenecks, translated into particular variants or options for the route. This first list of options was neither exclusive nor exhaustive; in the work studios participants could add new options based on their own concerns.

Quite a number of issues discussed over this time were of a regulatory, spatial or technical nature.[15] To make sure that participants could

[13] In Dutch: Ministerie van Infrastructuur en Waterstaat

[14] For an overview of all work studios and other stakeholder meetings organised, please see Projectboek 3, "Tracés in Beeld", pages 4–7, available at https://www.zuid-west380kv.nl/oost/meer-weten/publicaties.

[15] See Projectboek 2 "van Opgave naar Uitwerking", available at https://www.zuid-west380kv.nl/oost/meer-weten/publicaties

deliberate substantially, experts from TenneT with various disciplinary backgrounds (ranging from engineers to landscape architects and spatial planners) were allowing immediate interaction and feedback, thus providing multiple advantages. The participants accepted and understood the dimensions of the design challenge, as regards the technical complexity, governance dilemmas and environmental and landscape impact. Moreover, the experts helped familiarise participants with the development team, thereby enhancing transparency of the siting process. In parallel, the experts found that communities and other stakeholders could actively and meaningfully contribute to solutions as part of the decision-making process. Close contact with the participants stimulated the experts to go the extra mile in their development of solutions.

Nevertheless, once the work studios were underway, it became clear that parties involved appeared to have different expectations about the sort of topics that could be discussed. A clear example is that the action committees anticipated that co-creation would cover the type of transmission towers. Within TenneT, resistance emerged when the work studios called for a different type of pylon than the so-called 'Wintrack'. However, for many of the participants, including the SO, the underlying reasons for TenneT prescribing the Wintrack pylon remained unclear, prompting serious discussions in the studios.[16]

The engagement team was asked to clarify the limits of co-creation to the participants, to manage the expectations of those involved in the process and to create the conditions for closing down (at least) part of the decision-making. Consequently, the focus of the work studios remained exclusively on siting issues, despite attempts of some participants to widen – or broaden – the scope of participation.

Interestingly, questions around the suitability of Wintrack pylons remained, especially within the planning and engagement team. When, in a later stage of the project, a window of opportunity opened up (amongst others because of changes in TenneT's executive management), the team again raised the issue both within TenneT and with the Ministry of Economic Affairs and Climate. The Ministry asked for a proper analysis of the suitability of the pylons – and with this request, the team was able to include the recurring demands of the SO and work studio participants. Eventually, the results of the analysis pointed towards the development of different lattice mast for this particular project, called Moldau (See Fig. 4). The more so, the use of such masts has now become common practice within TenneT.

Fig. 4. Wintrack and Latice pylons. *Source*: Hoogspanningsforum. https://www.hoogspanningsforum.com/viewtopic.php?f= 12&t = 1936. Accessed 5–02–2023.

5.2.3. Diverse inputs or acceptable outcomes?

Tensions arose between the desire to further open up route development and the perceived need to close down towards a socially acceptable alternative. For TenneT's engagement managers, the intention of the work studios was to jointly look at ways to improve the now selected route, to get to know each other's perspectives, worries and concerns, and to compare the impacts of various location alternatives together. While in some cases such opening up would result in a broadly supported outcome, in others, it would not.

For the SO, the process of the work studios proved difficult to align with, and to incorporate it in, their institutionalised working routines. First, the issue was one of representation. Local politicians as well as municipal civil servants are used to speak on behalf of their constituency. Furthermore, they are accustomed to protecting certain interests in cross-municipal collaborations. In the work studios it sometimes proved difficult for these stakeholders to let go of these professional and political identities, roles and manners and to be 'just one of the participants'.

At the same time, however, the work studios could help local politicians to substantiate and explain the positions taken in certain politically sensitive choices to their co-politicians and constituencies, and 'share responsibility' for these choices with other local stakeholders. As such, consensus in the studios on a proposed route improvement was an important show of social support then.[17] Difficulties arose for the SO when no clear common preference for a concrete sub-route emerged in some studios, even after extensive discussions within the group. Then, policy-makers were uncomfortable with the absence of consensus, since such uncertainty made it hard to determine whether there was sufficient support to make recommendations to the Minister of Economic Affairs.

In other instances, it proved difficult to include stakeholders. First, participants were affected in different ways by the transmission route and those who expected to be most significantly impacted were least incentivised to contribute to the work studios. This dilemma was particularly relevant if residents' homes were located in future electromagnetic fields, since they would be heavily affected, regardless of alterations to the route. As a policy officer from one of the involve municipalities notes, there was a "resignation" amongst those residents. Their expectations of what could be accomplished in the participation process were limited, and consequently they did not have, nor express, a preference for one or the other alternative.

Second, both the co-creation process itself and the changes to regulatory and technical requirements led to many small locational alterations to the route – which subsequently resulted in the need to identify a new area of impact, with new residents to be potentially affected, but to that point not involved in co-creation. These parties were invited to join the work studios but, of course, they were less favourable inclined to the transmission line being moved closer to their homes and businesses. In that sense, changing conditions and preferences had an impact on what were considered desirable locations for the transmission route.

5.3. The involvement of non-participants

Not only did "acceptance" prove to be a rather ambiguous standard within the work studio, TenneT also had to deal with the several groups which had organised themselves outside the work studios to express their particular viewpoints on the transmission route and siting process. This outcome occurred in cases when people were not formally included, or when they had only become involved after some phases of the process were finalised and closed. In other words, even though there were formalised attempts to gain acceptance through the inclusion of stakeholders, TenneT also had to find appropriate ways to accommodate the informal and uninvited forms of participation that emerged in the

[16] Advies Samenwerkende Overheden (juni 2019), available at https://www.zuid-west380kv.nl/oost/meer-weten/publicaties

[17] Advies Samenwerkende Overheden (juni 2019), available at https://www.zuid-west380kv.nl/oost/meer-weten/publicaties

context of this project.

For example, in one of the 'optimisation areas', a new set of local stakeholders entered a work studio at a stage in which several sessions had already taken place.[18] This group was not in favour of the earlier outcomes, namely, a choice between two above-ground lines that both would have significant impact on nature and forestry in the area. Either of these two variants would require considerable tree logging and the transmission line would run straight through the forest anyway. The residents and local environmental organisations united themselves in a new interest group called 'Collaborating Interest Brabantse Wal'.[19] Their aim was to create a new alternative for the transmission route by having an underground cable connection, which had been considered infeasible in earlier stages of co-creation. The group started a petition to 'save the forest', collecting about 18,000 signatures[20] and reached out to their municipality and the local media. They demanded that TenneT re-evaluated the possibility for an underground cable in the area, and also asked the SO to consider this alternative in their advice to the minister.

Simultaneously, new research and advances in technology showed the potential for an underground cable. Following Dutch regulations, underground route alternatives are preferable over above-ground variants. What is more, according to this regulation, above-ground variants are not permissible if underground alternatives exist. In the end, a fortuitous concurrence of protest and technological advances made TenneT and the SO reconsider the initial routing agreed upon in the work studios. The SO recommended the underground route to the Minister of Economic Affairs and Climate,[21] who ultimately decided to include this sub-route optimisation in the preparatory decision on the final route.[22]

6. Discussion and conclusion

6.1. Case analysis

Looking at the first episode in the project, it transpires that institutions are not only seen as contexts which limit discretionary space for both developers as well as stakeholders. They are also taken as tools for opening up appraisal, and as contexts to support the process of renegotiation among actors about how they can pursue a new commitment. An assessment procedure like the EIA is typically used to close down appraisal, because it mandates which sort of knowledge is relevant for decision making and defining types and roles for expertise, while prescoping which alternatives to take into account (O'Faircheallaigh, 2010). However, in this case, the EIA provided local actors with a framework to embed their values and concerns, and enabled them in their demands for more transparency and the co-creation of knowledge. Ryder et al. (2023) consider this access to formal assessment procedures an important element in moving towards credible community engagement. In the current case, it worked to include a diversity of actors, knowledge and knowledge concerns. Despite the characterisation of institutions above as 'closing down machines', we can speak here of 'institutional opening up', as a prerequisite for opening up social appraisal, the outcomes of which were plural (three routes) and conditional (each desirable under different normative conditions).

The subsequent institutional reappraisal of the playing field followed a different logic. With the establishment of a joint advisory body, in which local and regional governments were united, came the implicit expectation that these governments would at some point set aside their own interest and viewpoints, in order to support decisions in the collective interest of the region (cf. Verhoeven et al., 2022). We observe that the subsequent political negotiation within this body was at least partially closed down. It involved some (southern) municipalities drawing lines in the sand. Once it became clear that the northern route was the least politically contested alternative, more substantive deliberations took place in which the SO collaboratively aimed to minimise feelings of loss by proposing trade-offs, formulating exceptions, and including particular demands in its recommendations. Ultimately, the aim of these deliberations was to arrive at a singular and prescriptive recommendation, or to pre-scope the formation of a material ministerial commitment regarding the development of the infrastructure, instead of opening up appraisal.

In the second episode, TenneT's project development team again aimed to include diverse viewpoints on route siting issues. Their intention was not to come to one final route (i.e., *establishing output legitimacy*), but collaboratively to learn from possible impacts, to understand the diverse concerns and perspectives, and to come transparently to decisions and recommendations on the route (i.e. *establishing procedural or throughput legitimacy*). Therefore, the work studios were small, co-creative, and based on voluntary admission and designed to facilitate a range of viewpoints (also see Ryder, 2023). Observable at this stage, however, is that the intent to maximise diversity in the TenneT community engagement team raised tensions with the norms and routines within the wider TenneT organisation (cf. van de Grift et al., 2020). In the light of the importance attached by Ryder et al. (2023) that "developers are deeply en genuinely committed to CE", this raises the interesting question of the relationship between the staff actually involved with the process of CE, and their mandate and position vis a vis the operator. Also, as the route had become more tangible, procedures were started to pre-define the scope of participation by formalising roles and responsibilities. This is visible, for example, in the way in which existing responsibilities for TenneT with regard to technical material worked to exclude questions and concerns regarding the transmission towers from the scope of the work studios. Last but not least, there were clear geographical limits to the location preferences that participants could submit in the work studios.

In other words, despite the aim to open up decision making on the route, participation in the work studios was shaped and bounded by earlier formal and informal commitments. This situation created tension with the views and concerns of invited and uninvited publics (cf. Cuppen, 2018). The latter had not been part of, nor felt sufficiently represented in, earlier discussions on the route and the follow-up process. Subsequently, they struggled with the limited scope which they were confronted with. On various occasions, they started attempts to reopen or renegotiate this frame of reference.

Again, the co-creative and inclusive design of the work studios, combined with the closed-down scope of issues that could be discussed resulted in skewed participation, in which residents of the most sensitive areas were least incentivized to engage. In fact, the formal procedures in place for compensating these residents were only started after the studios were finalised, which left these residents in uncertainty for a prolonged time.

In the end, we can question whether the new approach to participation in project development, instigated by the community engagement team, has actually resulted in increased institutional reflexivity. The space for opening up was only given as an exception to the rule, with internal concerns by TenneT about potentially widespread implications being an important barrier to be overcome.[23] Also, in many instances societal feedback was taken forward by the wider organisation only when both technological or regulatory advances had simultaneously

[18] See: Verslag Uitwerkingsgebied Bergen op Zoom, available at https://www.zuid-west380kv.nl/oost/meer-weten/publicaties

[19] In Dutch: Samenwerkend Belang Brabantse Wal

[20] Advies Samenwerkende Overheden (juni 2019), page 11. Available at https://www.zuid-west380kv.nl/oost/meer-weten/publicaties

[21] Advies Samenwerkende Overheden (juni 2019), page 11.

[22] Voorbereidingsbesluit 11–10–2019. Available at https://www.zuid-west380kv.nl/oost/meer-weten/publicaties

[23] See the Reflections of the practitioners in the Epilogue

opened up a window. The closed attitude of the TenneT organisation was difficult for its community engagement managers, who found themselves compromising and lobbying on behalf of communities within the organisation (See the Epilogue Reflections of the Practitioners below). Ultimately, the participatory approach developed in this particular project has not been taken up by TenneT or the Ministry of Economic Affairs and Climate as a blueprint or example for other contested infrastructure projects.

This analysis shows that the pursuit of opening up in decision-making brings about operational challenges, which also have implications for further theory development. First, there are the institutional, organisational and political constraints that lean towards the closing down of decision-making. Literature tends to maintain a certain naiveté regarding the possibility to make decision-making processes more reflexive, ignoring the political realities of decision-making processes (Ryder et al., 2023; Feindt and Weiland, 2018; Meadowcroft and Steurer, 2018). As such, we endorse Ryder et al. (2023) and would support the further refinement of the dynamics of closing down-processes so to know where opportunities effectively opening up decision-making processes are to be found.

Second, there are still conflicting expectations and/or strategic behaviour among actors, which cannot be taken away by more reflexive approaches to decision-making. Instead, these approaches will invoke their own types of political behaviour and will induce specific forms of conflict which need to be accounted for (Hendriks and Grin, 2007; Smith and Stirling, 2010). It is also clear that distinguishing between public and private actors and/operators is oof ten too simple (Ryder et al., 2023). Particularly in the public sphere (departments of) the state, provinces and municipalities have different (and changing) roles and align with different (competing) interests and solutions. Third, our study has taken place within the context of an infrastructural project that has brought about changing local impacts, necessitating ongoing adjustment in selecting the communities involved. These dynamics raise challenges for participatory forms of decision-making that are largely unattended in literature. This tends to assume projects to be discretionary within a specific time and place, ignoring the 'spill-overs' from one project to the other (Ryder et al., 2023; Cuppen et al., 2020). In our particular case, these 'spill-overs' have occurred within the project itself, which may be something to be expected more often in infrastructural projects.

6.2. *Epilogue: Reflections of practitioners*

For us, this high voltage overhead power transmission lines experience has been a very important practical test; does iterative stakeholder inclusion based on epistemic diversity result in better project outcomes? We have received unanimous two part advice from societal actors in the largest onshore infrastructure project in the Netherlands, involving a trajectory of 70 kilometres and including more than 600 landowners, residents, companies, nature reserves, local municipalities and other stakeholders. This is a unique accomplishment. We were able to develop the optimal trajectory considering all circumstances, and without much resistance. Considering time and planning, we did not have to reconsider or change choices made.

It has not been a straightforward process for us. It required a very open attitude, so that knowledge and facts, when presented, could be examined comprehensively. Participation had to be iterative – each episode narrowing the scope slightly more, leading the process in the right direction. Eventually, we feel that this approach will result in a decision that is as close to consensus as possible. Of course, there will always be compromised interests and values, but we wanted to show that we as TenneT deal with the interests in a meaningful way, and not just by compensation and buy out.

There are essential requirements that have to be in place for such a participatory approach to work. It is critical that there are intrinsically motivated boundaries to participation. When participation is merely a device to contain any resistance, as was the case before we came into the project, you can see why local stakeholders do not feel substantially appreciated, valued and recognised. Transparency, actual willingness to delegate certain tasks and activities to stakeholders, with the conviction that they will be able to provide quality advice, and really engaging with local concerns are all part of the bargain. Also, letting stakeholders co-decide when it is time to close down proved essential for success. What we have learned is to not close down the decision making too early, or without stakeholder consent, but also, to not leave decision-making open without perspective and proper reasoning as to why.

Something that we struggled with was the somewhat narrow attitude of the wider TenneT organisation. We experienced quite some pushback whenever we argued for more participatory space, and new proposals were often met with a list of barriers and impossibilities. One of the reasons, we believe, is institutionalised fear of resistance and delays, a lack of faith in the valuable outcomes of participation, and the possibility of the exception becoming the rule, thereby changing routinized ways of working. We tried to overcome these potential roadblocks by fully exploiting the space we were given but also by being very transparent to everyone. Reporting and documenting helped tremendously. Once you have chosen such an open approach, it is hard to close the door again.

Another reason for the pushback, we think, were the (perceived) regulatory limits and impossibilities. Even though sometimes we knew that certain solutions were not technically optimal, the organisation was not willing to put work into addressing the situation. Thus, we really had to be alert for windows of opportunity later on in the process, which would allow us to re-address the issue. We also experienced that goal-oriented thinking dominates the organisation, which left little room for a discussion on potential problem definitions and alternative ambitions and targets. A dynamic with which we had to come to terms was the prevailing political reality of many of our stakeholders. In some instances, other issues were drawn into the project (one example being the forced resignation of an alderman), which was at risk of becoming a political gameboard for local political interests. In the end, we managed to prevent the project from being implicated in such processes. However, it did require us to invest in collaboration, to stay connected, to balance political interests and, sometimes, awarding certain stakeholders a political win (for example, in the case of the choice for a different type of pylon).

The collaboration with the social scientists from the TU Delft did not necessarily change our perspective on the project, but it did help us to think about the dynamics we had encountered in more abstract and conceptualised ways. Identifying appraisal and commitment phases, and thinking about the aims of either opening up or closing down these stages, helped us to theoretically substantiate what we were doing.

Research Ethics

We further confirm that written consent to publish potentially identifying information, such as details or the case and photographs, was obtained from the respondents.

Intellectual Property

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property.

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Dijkshoorn Jochem: Supervision, Validation, Writing – review & editing. **Tenhaaf Antje:** Supervision, Validation, Writing – review & editing. **Spruit Shannon:** Conceptualization, Supervision. **Van den Berg Susan:** Supervision, Writing – review & editing. **Correlje Aad:** Supervision, Writing – review & editing. **Rodhouse Toyah:** Conceptualization, Methodology, Writing – review & editing. **Ruiten Kyra:** Data curation, Investigation, Writing – original draft. **Pesch Udo:** Supervision, Writing – review & editing.

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We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

Data availability

No data was used for the research described in the article.

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