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# It's not all about the money—landowner motivation and high voltage grid development

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## ABSTRACT

The transition to a renewable energy future requires the extensive expansion of current high voltage grids. Due to the amount of land needed for expansion, issues related to land use have led to increased grid development opposition among landowners which in turn leads to significant project planning and budget overruns. Yet knowledge about why landowners support or object to high voltage grid development is limited. In this study, we use a theory on pluralism to uncover and categorize the multiplicity of motivations of 200 individual landowners in the Netherlands. Our results indicate that only a small number of landowners who oppose grid development focus on individual monetary gain through compensation for limits on their land use. Furthermore, most landowners find the fair and equal distribution of both the advantages and disadvantages of such limits more important than individual financial compensation. As such, overcoming contentious land use issues related to high voltage grid development by way of high individual financial compensation isn't the only solution.

## ARTICLE HISTORY

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## KEYWORDS



Land use conflicts; high voltage grid development; landowner motivation; rationalities; egalitarianism

## Highlights

- Land use conflicts affect expansions of high voltage grids crucial for meeting CO<sub>2</sub> objectives
- Motivations of landowners are unevenly divided among different rationalities
- Most individual landowners do support high voltage grid developments
- Individual financial compensation isn't the only solution

## 1. Introduction

As many industrialized governments have committed to the renewable energy transition, high voltage grids are expected to expand significantly. This grid expansion will in turn drastically increase the need for land as high voltage grid developments often span vast areas (van Zalk & Behrens, 2018). For example, large wind farms and solar parks, as the primary renewable electricity sources, often require large tracts of land and so are mainly located in rural areas and far from where the demand is situated. To connect these developments to existing high voltage grids, new development is needed; this search for suitable land frequently interferes with the private property rights of individual landowners. As a result, the claim on privately owned land for the development of high voltage grids proves to be controversial as addressed in studies on issues with local acceptance in the UK (Bailey et al., 2016; Devine-Wright & Sherry-Brennan, 2019), France, and Spain (Ciupuliga & Cuppen, 2013) as well as in Sweden (Soini et al., 2011), Germany (Zoellner et al., 2008)

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and Switzerland (Lienert et al., 2015). Such controversy results in opposition to electricity transmission and distribution grid development (both overhead and underground lines) and some of these cases even doubled both planning and construction times (Cohen et al., 2016). Projects that experience such opposition can take over a decade to be completed resulting in significant financial costs of construction for high voltage grid developers (Nelson et al., 2018, p. 568; Winn, 2014). In other cases, this has led to congestion of high voltage grids, leading to unstable and non-accessible systems (Koecklin et al., 2021). With the massive extent of future expansions, the opposition taking landowners' motivations behind support or opposition seriously in high voltage grid development is urgent.

After three decades (or waves) of social research on public acceptance (Batel, 2020), recent studies have focused on individual motivation to gain a better understanding of why development plans are opposed. Devine-Wright (2011) went beyond NIMBYism – or Not in My Backyard – by focusing on public engagement. Bridge et al. (2013) studied different energy technologies and their impacts on policy acceptance. With a focus on energy dispossession, Baka (2017) studied the effect of uneven power relations on individual landowners' position in energy development. Instead of approaching opposition as something that needs to be mitigated, Wolsink (2018) encourages a better understanding of public attitudes in the social context of energy technologies more broadly. New studies, supporting data collection methods such as social media analysis, have thus led to interesting findings on the role of social media within the public discourse on grid development (Borch et al., 2020). However, few studies have considered individuals affected by high voltage grid development (Batel & Devine-Wright, 2020). Even fewer studies have addressed the rationalities and motivations of individual landowners. As such, this study revolves around the following question: Why do landowners support or oppose high voltage grid development?

To increase our understanding, we conducted a qualitative study focused on key actors within the field of high voltage grid development. Specifically, the results presented in this paper draw upon 15 in-depth interviews with Transmission System Operator (TSO) and civil servants who were engaged in conversations with over 200 landowners concerning the case studied in this research, namely 'High voltage grid development kop van Noord-Holland' in the Netherlands. While we are aware of the limits of indirect interviewing, this approach offers a way to gain insight into the plurality of motivations from over 200 landowners. This approach allowed very realistic conditions, as the interviewees directly engage in conversations with landowners to eventually reach an agreement. Their perspectives thus prove insightful for both understanding the motivations of landowners as well for the context in which these conversations took place (Aitken et al., 2016).

Considering the potential number of motivations among the 200 landowners, we needed an approach that could manage multiple outcomes without compromising pluralism. In other words, we aim to include all different motivations, while being able to analyze plural ways of thinking. Cultural Theory provides such a framework: it reduces the number of possible motivations to four underlying rationalities, namely Hierarchy, Individualism, Egalitarianism, and Fatalism (Douglas, 1999), and at the same time offers a useful way to categorize and operationalize plural rationalities behind landowner motivations without neglecting mutual contradictions and plurality (Douglas, 1999). The focus is thereby on the behavior of landowners in specific situations – i.e. the negotiations about land for the energy transition. The aim is not to reveal a person's overall rationality. Therefore, the situational approach of Cultural Theory helps to focus on understanding how rationalities act out in specific social situations to gain new insights into individual motivations in these situations. This situational approach, namely, assumes that persons can act out different rationalities in different social situations (Davy, 2004).

The remainder of this paper consists of seven sections. In the next part, we elaborate on three waves of social research on issues of high voltage grid development (Batel, 2020). Section three of this paper then introduces the grid and scheme model of Cultural Theory as the analytical framework. Section four presents our methodology while sections five and six present our case study and elaborate on the results. Within the perspective of our analytical framework, section seven contains a discussion of the results. The paper concludes with section eight where a claim is made for a critical approach to gain a better understanding of landowner motivations as well as the need for a new approach to overcoming opposition to high voltage grid development.

## 2. Addressing opposition to high voltage grid development

Understanding the individual motivations underlying local acceptance and opposition has been part of studies on energy infrastructure development for at least three decades divided over three waves (Batel, 2020). In fact, the focus on opposition to high voltage grid development can be found in the extensive research on the social acceptance of renewable energy technologies and associated infrastructure. Most people support grid development in general, however, there are important exceptions; transmission and distribution line projects for example experience significant public opposition (Carley et al., 2020). The first wave of research on public acceptance focused mainly on the Not in My Backyard (NIMBY) motivations of individuals and organized opposition groups (Batel, 2020). In the second wave, criticism of the NIMBY concept for explaining social acceptance led to new critical approaches. The third wave started with scholars arguing for a better understanding of the motivations of individuals who object to renewable energy technologies (Batel, 2020). Here we briefly address these three waves.

The first wave of research on public acceptance of energy technologies and associated infrastructure, which took place in the 1990s, was focused mainly on the NIMBY motivations of individuals and organized opposition groups (Batel, 2020). As a concept, NIMBY was often used to explain public opposition towards energy technology developments and line siting projects. Project proponents slapped the NIMBY label on opponents to degrade all forms of opposition (Davy, 1996; Fischer, 1995; Wolsink, 1996). Hence, opponents were labeled ignorant of scientific and technical facts, and above all were accused of only being concerned with their property values (Burningham, 2000; Burningham et al., 2006). However, concerns expressed by individuals affected by high-voltage power line development led to multiple studies about the effects on people's health during this first wave (Tenforde, 1992; Verkasalo et al., 1993). Priestley and Evan's (1996) research for example has shown that the proximity of high voltage power lines does not correlate with the level of concern around property values nor the health risks of landowners. As a result, these concerns and the studies that followed further rebut the ignorant NIMBY label given to concerned individuals.

In the second wave, criticism of the NIMBY concept for explaining social acceptance led to new critical approaches (Batel, 2020). Following Priestley and Evan's earlier research, Devine-Wright (2005), Braunholtz (2003), and Warren et al. (2005) all argued that line siting issues cannot be adequately explained by simply correlating proximity to line siting projects and the opposition that arises. On top of that, the opposition can be seen as rational behavior, especially when individuals must incur personal disadvantage for the sake of another's advantage (Peterson & Hansson, 2004). Other scholars, who claim that the opposition is ignorant or misinformed, are criticized as well, as there are no clear relationships between knowledge and acceptance of energy technologies (Ellis et al., 2007, p. 520). These discussions correspond with the acknowledgment that, despite the amount of literature available on public acceptance of energy technologies, the 'genuine understanding of the dynamics of public acceptance remains elusive' (Devine-Wright, 2007). This elusiveness started the third wave.

The third and most recent wave argues for the inclusion of more multilevel and polycentric perspectives that look at how the roles of stakeholders at different levels impact individuals' responses to renewable energy technologies at the local scale (Swyngedouw, 2010). Such a critical approach is supported as well by Batel and Devine-Wright (2017) and Batel (2018) to better understand the individual responses towards renewable energy technologies and so overcome opposition. In consideration of this recent wave, individual rationalities are increasingly introduced into the scientific debate on the acceptance of renewable energy technology development. For example, studies have shown that place attachments (Bailey et al., 2016), procedural injustices (Winn, 2014), and landowner compensation (Cotton & Devine-Wright, 2012) heavily influence people's motivations toward renewable energy technologies. More recently, examining power relations is deemed important for understanding the dynamics between actors in renewable energy technology developments (Gailing et al., 2020). For example, Cotton and Devine-Wright (2010) argue that there is a lack of trust in these operators due to the lack of local embeddedness and unfamiliarity with these companies. Additionally, residents have low expectations of network operators effectively engaging the public in high voltage grid development processes (Aitken et al., 2016). Marshall et al. (2017) argue that to balance out the power differences

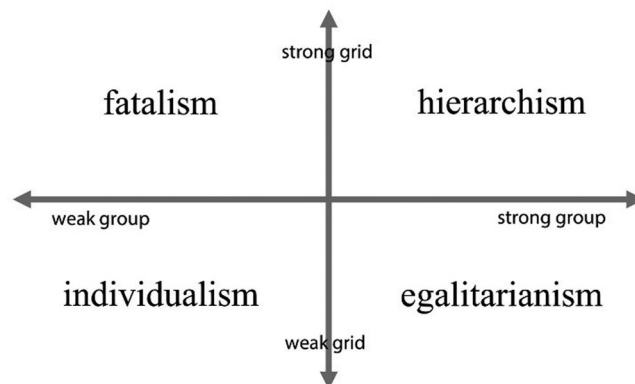
between grid operators and the public, individual motivations need to be incorporated into high voltage grid development processes, especially to further empower landowners in these developments. In contrast, Wol-sink (2018) argues that, as participation becomes more established in decision-making processes, social conflict or disagreements become recognized as part of the transformation from top-down policies and regulations to more bottom-up practices that include all stakeholder interests (Marres, 2016).

While the third wave does have a stronger focus on power relations, the elusiveness that Devine-Wright (2007) spoke about at the end of the second wave remained. This can be translated into the lack of a genuine understanding of the individual motivations behind objections to energy technologies (Batel, 2020). Taking into consideration the lack of understanding of individual motivations about energy technologies and looking at how this knowledge can influence power relations between grid operators and landowners, we argue that this study adds to the body of knowledge acquired at the end of the second wave.

### 3. Analytical framework

Based on the importance of understanding individual motivation, we question the underlying rationalities of cooperation and opposition toward high voltage grid development. Grid developments are regularly an analytical framework that can reduce the number of possible rational explanations – without compromising the diversity of motivations – is necessitated. Cultural Theory seems promising as it provides a model to distill many possible expectations into four categories, namely: Hierarchism, Individualism, Egalitarianism, and Fatalism (see Figure 1). To distinguish between the four rationalities, Cultural Theory is built on a grid-and-group scheme where every social action takes place within the grid and its group dimensions. The extent to which individuals are bound to one or a combination of external structures, rules, and prescriptions is indicated in the grid dimension. For example, individualism and egalitarianism are rationalities in which individuals deem themselves less bound to rules and other external obligations (weak grid) in comparison to individuals in the fatalism and hierarchism rationalities (strong grid). Individual preferences to join a group (strong group) or act as an individual (weak group) are indicated along the group axis (for more details see Thompson et al., 1990).

Douglas (1978) introduced Cultural Theory as a concept to understand pluralistic behavior and was developed further by Douglas and Wildavsky (1982), Dake (1991), and Wildavsky and Dake (1990). It assumes that actors behave based on a certain worldview (e.g. the four rationalities). Within Cultural Theory there are two views on assigning rationalities to individuals. An actor-oriented approach is more concerned with whom rationalities are involved and rather strict in assigning single rationality to a particular individual. It is this rationality that determines how an individual acts in every situation (Davy, 2004). The second view, situation-oriented polyrationality, regards social systems in such a way that situations determine the actions of



**Figure 1.** The rationalities of cultural theory ('grid-and-group' scheme).

individuals (Davy, 2004). Individuals can act from different rationalities depending on the situation at hand. The situation-oriented approach overcomes the fundamental attribution error that exaggerates the single rationality approach while underestimating the situation-dependent behavior of individuals (Hartmann, 2016).

While Cultural Theory has been employed within spatial planning on locally unwanted land uses (Davy, 1997), restricted and shared uses of land (Davy, 2012), and participation (Hartmann, 2012), it has not been used for social acceptance of high voltage grid developments. Cultural Theory can help us to find out if there is any dominant rationality shared among landowners affected by high voltage grid development. It also allows us to simultaneously address notions of power relations between landowners, TSO, and governments (Gailing et al., 2020). Furthermore, the four rationalities of Cultural Theory help us to identify the motives behind situational individual opposition. They also enable the telling of different rational stories about a situation that is rational on its own but appears to be irrational from the perspective of other rationalities (Paterson, 2007, p. 516). This diversity is crucial because it helps us understand why, in certain situations, additional information, communication, and roundtable discussions often fail (see also Billé, 2008). As a result, reducing the number of possible individual motivations to four rationalities makes addressing and categorizing a less complex endeavor. Here we briefly define the four rationalities concerning landowner motivation and energy grid development.

### **3.1. Egalitarianism**

Landowners with motivations based on egalitarian arguments embrace community- and trust-based schemes. Egalitarians are eager to unite and organize themselves against top-down development plans and will not support or object to such plans at first. Their position will depend on how the distribution of gains and losses is executed. As such, the fair and equal distribution of compensation will be favored by egalitarians and will most likely result in cooperation. However, when a fair and equal distribution is not met, egalitarians are then sensitive to deadlocks because interference of any authority to solve issues is not accepted. Considering the importance of equality for egalitarians, participative and collaborative approaches could notably reflect egalitarian rationality (Healey, 2003, p. 104).

### **3.2. Individualism**

In terms of grid development, viewing individualism rationality from a landowner's perspective means that plans must both increase economic welfare and respect individual property rights (Hartmann, 2011). Individuals are free to negotiate with the grid operator. However, due to the position of individual landowners within this non-competitive context, the opposition can arise when the property rights aren't, in the eyes of landowners, justly monetized (Bidwell, 2013). Consequently, while individualism rejects regulation, it is not completely against governmental intervention. Instruments such as (co-)ownership, tradable development rights, and active land policy are acceptable if public interventions facilitate economic development (Sorensen & Day, 1981).

### **3.3. Hierarchism**

As with egalitarian rationality, hierarchism values the collective over individuals. The difference between egalitarianism and hierarchism is that hierarchism rather promotes top-down approaches instead of being against them. Institutions or experts are exclusively deemed capable of balancing all interests and finding the optimal solution with a fair and binding outcome. Hierarchists are most likely to agree with grid development because of the high level of expertise and presence of grid developers and public professionals; these institutions can be seen as trustworthy because of the level of experience and knowledge they possess. However, when institutions or experts are not seen as capable or are suspected of abusing their position, Hierarchists will be skeptical of top-down advice and plans.

### 3.4. Fatalism

In contrast to the other more 'active' rationalities, fatalism is the most passive. Motivations based on fatalism derive from the belief that there is no justice at all, just luck. This rationality neglects any top-down steering or bottom-up action due to the wicked complexity of the world around them. Considering high voltage grid development, landowners adhering to fatalistic rationality will supposedly at first oppose development plans but eventually cooperate as there is no way to stop the development anyway.

Given our increasing understanding of individual motivations, the grid-and-group scheme (see [Figure 1](#)) derived from Cultural Theory helps us to address and categorize the multiplicity of individual motivations. As a result, we can identify the motives behind the landowner arguments while avoiding dualisms such as state versus the market or top-down versus bottom-up since there is no preferred option between the rationalities (Thompson et al., 1990, p. 21). The four rationalities are mutually exclusive and therefore, as Hartmann (2012) argues, 'enable the telling of different rational stories about a situation that are rational on their own but appear to be irrational from the perspective of the other rationalities.' Addressing individual motivations without losing plurality in the process is crucial because it brings an understanding of why certain approaches to managing or coping with individuals' motivations might succeed or fail (Billé, 2008).

## 4. Methodology

To address and categorize landowner motivations, we employ a mixed-method analysis on a major high voltage grid development in the Netherlands that has both local and regional character and where the capacity of energy distribution networks is under significant pressure. While the number of detailed studies on the expansion of high voltage grids is limited, the importance of such development is recognized abroad. Our case study on the regional high voltage grid development project 'Net uitbreiding Kop van Noord-Holland' has a strong focus on the development of substations and underground transmission lines. It is important to note that in the literature on issues with transmission lines, studies are mainly focused on the visibility of these developments. In this specific case, we argue that arguments related to visibility and landscape degradation feature less in landowner motivations.

For the 15-in depth interviews with TSO-employed land agents and civil servants, we constructed a standardized interview protocol with questions on the four rationalities of Cultural Theory. This approach helped reveal how over 200 landowners' motivations are divided among the grid-and-group scheme. The interviewed civil servants work for the local and regional governments that are public landowners within the project of our case study. The TSO interviewees were asked to recall the rationalities of private landowners, with the help of transcripts of the conversations. As for the civil servants, they were able to represent their rationalities at the time of the conversations with the TSO representatives. Specifically, we asked questions about the following topics: the roles of stakeholders, local communities, and landowners; the legislative and policy context of public engagement in electricity infrastructure siting; and finally, the communication and engagement methods employed by the TSO. Due to both the delicate situation between landowners and TSO and the practical limitations of interviewing a large amount of sometimes hostile landowners within a small period we specifically applied the situation-oriented approach of Cultural Theory as addressed in section 3.

The results presented in section 6 of this paper draw upon information obtained from local and regional government representatives and land agents who work directly for – or were hired by – the TSO, the main actor of our case study. The employees chosen for the interviews had multiple conversations with over 200 landowners during the project. This paper also draws upon a larger sample of high voltage grid development issues and approaches that are discussed in the literature and elaborated on in section 2.

With the help of the grid-and-group scheme, this study analyzes motivations to reveal the underlying rationalities behind project support or objection. During the interviews, we asked research participants to categorize motivations among the four rationalities of the grid-and-group scheme. As a result, we were able to discuss with the interviewees which rationalities were more likely behind support or opposition to high voltage

grid development and why. Due to the mutual exclusiveness of the four rationalities, this study clearly illustrates the differences between individual landowners.

## 5. Our case study: 'high voltage grid development Kop van Noord-Holland'

Given the effects of climate change, the governments of many industrialized countries have committed themselves to drastically reducing their CO<sub>2</sub> levels. A widely debated measure for CO<sub>2</sub> reduction is the transition from a fossil-fueled energy system to a more renewables-based energy system. In the Dutch province of Noord-Holland, the generation of renewable electricity is becoming more decentralized through wind turbines built on land, causing a volatile influx of power on the existing electricity grid. Simultaneously, new economic development is increasing electricity demand which affects the capacity and reliability of high voltage grid systems (Haakana et al., 2018; Mikellidou et al., 2018). As a result of the combined pressure, the national TSO, TenneT, decided to expand the regional energy distribution network in the north of Noord-Holland by way of a project called 'High voltage grid development kop van Noord-Holland' – the focus of our study – which requires underground high voltage cables to be installed on over 200 parcels of public and private land.

For the development and maintenance of high-voltage power lines, the national TSO needs to access a 30-meter-wide strip of land around power lines. To use this land, the TSO attempts to reach an amicable agreement with all landowners, other entitled parties, and users of the land at the location of the high-voltage power lines and the adjoining land strip, by establishing a 'right in rem' (TenneT, 2019). These contracts consist of arrangements concerning the use of land, the amount of compensation, and which rights the entitled party has for future compensation. A 'Right in rem' is a development right and an independent right that is an infringement on the exclusive user rights of the owner and other rights in rem parties. When establishing a right in rem, the TSO follows the principle of indemnification originated from the 'Belemmeringenwet Privaatrecht' (or law on limits to private law). This means that every financial damage incurred by proprietors, that is direct and essentially an effect of the right in rem establishment, must be fully compensated.

Whenever a fair and reasonable agreement for both parties is not reached, network operators such as TSO's can use the law on limits to private law for the construction and maintenance of high-voltage power lines. Through this law, the Ministry of Infrastructure and Environment can issue the landowner a 'Gedoooplicht' which is the Dutch equivalent of a 'rights of way'. This procedure obliges landowners to tolerate use limits on their private property. Within this whole project, multiple obligations have been issued because private owners were not willing to reach an agreement with the TSO for the development of 150 kV power lines on their land. For each of these cases, at least six months to a year is needed to reach a court ruling when such rights of way procedures are issued.

The whole project spans more than 200 public- and privately-owned plots that are mainly used for agricultural purposes. The ownership of these plots is divided between local and regional governments, private owners, and businesses. Many of the private owners are well known for conducting business and in some cases, the land has been owned by their families for decades. As such, the TSO held at least 600 consultations with landowners before concluding whether individual landowners will cooperate or object to their development plans. Eventually, both the construction of multiple power lines and substations encountered resistance from different landowners; they also received several objections to permits granted by local, regional, and water authorities. After various conversations with landowners and their legal counsel, an irreconcilable gap remained between what the TSO could offer and what the landowners regarded as a minimum to reach an agreement. Due to this gap, the TSO started procedures including limits on private law and rights of way, to legally enforce both the construction of high-voltage power lines and the limits on the land owned by the opposers. While the outcomes have been mainly in favor of the TSO, dealing with this kind of procedure is a time-consuming process.

Within spatial planning, both regional and local governments perform a cross-sectoral and unifying role. However, a province has different interests, roles, objectives, and instruments for resolving spatial challenges which are supplementary to those of local governments. In comparison to the local land use plans developed



by local governments, spatial developments at the provincial level that diverge from local plans are established through provincial land use plans. These provincial or regional plans are used for developments that have regional importance or transcend municipal borders, such as infrastructure projects. As regionally embedded plans overrule local land use plans, such plans are often not used lightly by regional governments.

In this case, the Province of Noord-Holland decided to establish a provincial land use plan.<sup>1</sup> Two reasons were at hand: First, the Dutch National government has imposed an objective upon all provinces to develop an agreed number of land-based wind turbines, and second, such a plan follows the provincial policy strategy. Network expansion is of regional importance since the expansion will connect current and future wind turbines and other major electricity-consuming developments (e.g. data centers) to the electricity network in the upper part of the province of Noord-Holland. Without going into too much detail, a provincial land use plan has the same legal standing as a local land use plan and any legal content will be part of existing local land use plans (art. 3.28, lid 3 Wro).

During the project, the initial provincial land use plan was changed six times between 2016 and the end of 2019 for the following reasons: (1) Legally honored objections from landowners brought up during the rights of way procedure; (2) change of location of high-voltage power lines due to agreements with landowners; and (3) change of location of high-voltage power lines due to technical reasons. Both the initial provincial land use plans and permit as well as deviation from permitted land uses received objections from land use owners at the planned location of the high-voltage power lines. These objections have delayed the project independently of each other for at least six months. Also, location changes of the high-voltage power lines (resulting from amicable negotiation with landowners) in turn received new objections from other people living near the planned location of the high-voltage power lines, further delaying the process.

## 6. Results

The following results derive from an analysis of 15 in-depth interviews and accompanied documents concerning conversations the interviewees had with over 200 landowners during the project 'Kop van Noord-Holland'. Based on the interviewee's estimation, consisting of recollection and transcripts of the conversations held, the overall distribution of motivations behind support or objection among the grid-and-group scheme (Figure 1) came out as follows: Around 75 percent of landowners based their arguments on the egalitarian rationality while arguments based on the hierarchism and fatalism rationalities both accounted for around 10 percent. Finally, five percent of landowners had arguments based on the individualism rationality.

In terms of motivations based on egalitarianism, the most surprising and common argument concerned the fair and even compensation for them and their neighbors. An interesting quote stated '... we don't care about any personal compensation, we prefer an honest distribution of compensations among all my neighbors'. In many cases, after the first two exploring conversations, individuals that showed an egalitarian rationality, accepted the terms received from the land agents. The most common question asked was if the offer they received was comparable with the ones their neighbors did. During the interviews, several TSO interviewees '... had the idea that they (i.e. the landowners) knew this already, but wanted to hear it from us.' Other more collectively organized landowners hired advisors to inform them about their rights to compensation. Among these landowners, the interviewees heard the following argument many times: '... we know you are experts, and possibly have good intentions, but we want to make really sure everything is all right.' In addition, some landowners felt a moral responsibility to cooperate with the development plans. As a result, besides fair and even compensation, these landowners felt in some way obliged to cooperate to reduce the increasing pressure on the existing high voltage grid.

Landowners with motivations based on hierarchism were identified as the more public landowners such as the municipalities of Hollands Kroon and Medemblik as well as the province of Noord-Holland. These tiers of government recognized and shared an interest in energy transition objectives. This willingness is illustrated by a government employee who stated, '... we need to play our part in reducing CO2 and therefore we need a strong electricity system. By offering space underground, this is a relatively easy way to do so.' Public

landowners, therefore, seem to understand the importance of the developments and their roles in the process. With motivations based on hierarchism, these actors trust in the expertise of TSO's.

In contrast to the pro-development landowners who based their motivations on egalitarianism and hierarchism, landowners that used arguments based on fatalism were less cooperative. For example, some landowners felt that they did not have a say in the whole project; the TSOs and other government organizations always implemented their plans top-down and without any way to participate. For example, most heard comments where '... you are already the fifth company that wants something from our land' and '... we know a better location than you do.' While some landowners hired an agent to negotiate more fair compensation in their eyes, the TSO is bound to legislative preconditions for compensation. Some of these landowners hired advisors to help them through the objection process, but as no compensation is received when a right of way is imposed, the landowners residing in the fatalism quarter of the grid-and-group scheme eventually cooperated.

An in-depth analysis of landowners who did not voluntarily cooperate with development plans showed that motivations were mostly based on individualism. Motivations were divided between self-interest, such as not enough compensation for their loss of income and uncertainty about the continuity of their business, and more principled ones such as illustrated by this statement by a TSO employee: '... the land has been in their families for a long time and has never been interfered with.' Compensation strongly influenced the motivations of these landowners. Advisors or agents were hired – by individuals and not collectively as with the egalitarians – to receive the highest possible compensation. These advisors were also instructed to find permit violations and investigate other agreements of grid operator employees.

The time factor in this case study is another interesting finding to emerge from our analysis. Three interviewees working for the TSO stated that some landowners object from the start, some change from objection to acceptance while others start positively but then suddenly oppose. As one of the land agents stated

at first there are a lot of landowners that cooperate. After a while they get suspicious because the process takes too long ... and if then from standard procedure research on possible World War two explosives or archeology does suggest there is a possibility of finding something, that leads to restlessness and worrying among landowners.

This change over time especially concerned landowners who were initially willing to cooperate based on motivations driven by egalitarianism. Another example was when it became known that the project was most needed because of new wind turbine developments and datacenters (instead of the initial reason to cope with the increased use of electricity by new and expanding companies and businesses within the region), some landowners started to object to the plans as described in the following statement of one landowner: '... first you inform us about the pressure we all put on the high voltage grid and now it is for the wind turbines.' In contrast to the egalitarian argument changing over time, the landowner motivations that corresponded with fatalist rationalities did not change except in terms of their stance on cooperation.

## 7. Discussion

The land use conflicts emerging from opposition to high voltage grid development have led to significant and negative effects including project delays and overspending of the TSO's budget. With increasing pressure on existing high voltage grids, these conflicts have also hampered economic development as well as placed pressure on meeting national renewable energy objectives. To overcome the consequences of land use conflicts, taking landowners and their motivations seriously in high voltage grid development is urgent. Our case study illustrates crucial points on the multiplicity of motivation among landowners affected by high voltage grid development. To better understand individual motivations, conducting in-depth interviews and analyzing comprehensive documentation about and with interviewees that employed conversations with over 200 individual landowners is a promising approach to do so. By examining the social struggles individual landowners face over access to and control over land, this paper adds to the social science research literature on planning and energy.

Considering the situational approach of Cultural Theory and how the rationalities of the individual landowners are obtained by mediating parties, it can be discussed if this thoroughly reflects on the rationalities of the same or other individuals in similar or different situations. While we address the rationalities of individuals in specific situations, we do aim to assign these rationalities to the person's character in general, but merely to the specific situation. The goal of this paper is rather to focus on the rationalities shown by individual landowners in the process of acquiring land to resolve the societal problem of grid development issues. Considering the literature on Cultural Theory, we do expect that landowners, within a certain bandwidth, will act differently in other or similar cases (Douglas, 1999). This doesn't change the fact that the results of this study add to the knowledge and overall information provision for grid operators grid developments in future grid developments. For example, future research could show if other forms of communication such as neighborhood sessions instead of coffee table conversations are a more effective way to make agreements with landowners.

While the main takeaway in the literature is that most landowners oppose renewable energy technology development, the results from this study suggest something a bit more nuanced. Only a minority of landowners opposed or were less amenable to cooperation with the TSO. Those landowners had individual or fatalistic motivations based within the left half (or weak group) of the grid-and-group scheme. Most landowners in our sample (85 percent) were willing to cooperate after the first few conversations with the TSO. This number corresponds with the percentages of landowners' motivations based on hierarchism and egalitarianism. Both rationalities are located within the strong group side of the grid-and-group scheme (Figure 1).

The dispersion of rationalities contradicts findings from previous studies, and we question why individual landowners persist much more significantly in the egalitarian rationality when compared to the other three rationalities. The results illustrate that the interests of grid operators and landowners differ a great deal but based on our analysis we argue that these differences are not the main reason for landowners to support or object to electricity grid development. For landowners, it was of crucial importance that advantages, and disadvantages are fairly and equally shared among all landowners (Cowell et al., 2011; Marshall et al., 2017). Most landowners do not oppose electricity grid development when they and their neighbors are treated in the same way and are compensated equally. The TSO invests a lot of time communicating with and reaching agreements with individual landowners; multiple conversations occur. Differences in treatment are most definitely noticed among neighbors since egalitarian individuals are more likely to cooperate in groups and therefore are in close contact with each other. This corresponds with research that found that the community-based distribution of resources and shared common interests in other renewable energy technologies projects were the main reasons for support among landowners (Cowell et al., 2011; Marres, 2016).

While egalitarian rationality has a large presence among individual landowners, individuals who are mainly focused on their interests are the ones that oppose electricity grid development (Batel, 2020); this small group of individual landowners therewith delayed the development process. The amount of effort grid development companies expends in laying claim on property to develop crucial infrastructure shows how well property rights are protected. Without a landowner agreement, the entire grid development process can take up to an additional year on top of the already long planning horizon of major electricity grid developments. Wolsink (2018) argues that such opposition is an inevitable part of electricity grid development. Therefore, interesting subjects for future research include whether individual rationality should be better incorporated into the current approach with help of participation or streamlining the process and directly employing a rights-of-way procedure. While the latter approach could overcome delays and additional public costs, it also could ignite more opposition. Furthermore, this paper did not specifically address different rationalities among different landowner types. We did discuss some differences between public and private owners, but future research could analyze these differences more thoroughly. Besides these differences, it would be interesting to see what the outcomes would be in other countries where the dispersion of rationalities could be entirely different.

## 8. Conclusion

Three waves of social research suggest that landowner motivations are more diverse than traditional NIMBY claims (Batel, 2020); similar discoveries are made in this study. NIMBY arguments, based on concerns of

property devaluation resulting from electricity grid development on their land, were mostly made by landowners who resided in the weak group rationalities of Fatalism and Individualism; each was not in favor of the specific development. The individuality expressed by these landowners corresponds with motivations deriving from individual interests and so seems to be less influenced by grid aspects such as expertise or hierarchy. While these landowners used traditional NIMBY arguments to avoid cooperation, and therefore the project was delayed, these arguments can be seen as rational behavior considering the determination of the imposed use of their land (Cotton & Devine-Wright, 2010; Peterson & Hansson, 2004).

The strong community-based focus among landowners goes along with the claim of Wolsink (2018) that further establishing bottom-up practices such as participation could help include all stakeholder interests. This argues for TSOs that support landowner organizations to increase trust or at least cultivate a more positive attitude among landowners – in this case especially since landowners were mostly in favor of development plans. Interestingly, more negative landowners did not organize themselves in the same quantity as the proponents. As a side note, landowners that were against electricity grid development in principle likely do not see themselves engaging in such participation schemes (Cowell et al., 2011).

The effectiveness of bottom-up development however depends on the fair and even treatment of all landowners. Fair and even compensation, but also the complete and timely sharing of information and updates, can help balance out the power and knowledge positions of grid operators and landowners, and therewith can increase trust (Marshall et al., 2017). Conversely, any honest mistake can fuel the lack of trust that already exists towards the TSO (Cotton & Devine-Wright, 2010) as well as lower expectations among landowners which has a negative influence on electricity grid development processes (Aitken et al., 2016).

The uneven dispersion of motivations found in our case study can be used to discuss the right approach for future electricity grid development. Although all four rationalities are present in this case, 75 percent of landowners have an egalitarian motivation to support electricity grid development. It can therefore be questioned if all four rationalities need to be addressed evenly when finding a solution for land use conflicts. Considering the smaller number of landowners who oppose and obstruct, it remains to be seen if other approaches will overcome individual opposition to these developments. To prevent most future land use conflicts as discussed in this study, a strong egalitarian approach – based on fair and even distribution of advantages and disadvantages – is recommended above high individual compensation. Clearly, it's not all about the money.

## Note

1. The provincial land use plan is called 'Netuitbreiding Kop Noord-Holland.'

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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